



# Greening the East Lancashire Line

How the railway is greening East Lancashire



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## Acknowledgements

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Lastly all good things require funding and this project gratefully acknowledges the financial support received from the **Community Rail Development Fund** provided by Network Rail, DfT and ACoRP and the **SusStations (Sustainable Stations)** project which is funded by the European Union's Interreg IVB programme.



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## Introduction



Welcome to our second rail related DVD pack called 'Greening the East Lancashire Line' which introduces the new Accrington Eco Station and features once again Brian the Bull. Using a train journey from Colne to Preston the DVD explores a number of topics that form part of the Key Stage 2 National Curriculum. It has been produced by the East Lancashire Community Rail Partnership with help from the SusStations Interreg IVB project and the Community Rail Development Fund.

It is very likely that you are not a rail enthusiast or an expert in climate change so this pack has, therefore, been designed to provide you with some of the background information you will need to understand the DVD along with suggestions for follow up class work and field trips. Included with this pack is the full text used in the DVD, a glossary of technical terms, a line map and a resource centre. It is anticipated that these can be used to stimulate creative activities with the class such as group discussion, individual or group work or researching more about green technologies and the science of climate change.

Use of the DVD is also linked to the new Accrington Eco Station and the Education Resource Centre where it is possible to find out more about the design of the building and green issues.

### The key themes covered in the DVD include:

**Science:** The DVD covers a number of themes such as materials and how they are used, recycling and the generation of energy using wind and solar power.

**Technology:** The construction of Accrington Eco Station forms an important part of the DVD showing the materials that have been used, the way the building has been designed and how the building meets social and environmental concerns.

**Geography:** The railway helped shape the way East Lancashire looks today. The DVD travels from the market town of Colne in Pendle to the bustling city of Preston via the urban centres of Burnley, Nelson, Accrington and Blackburn. It shows how the railway fits into the landscape with the scenes at Hoghton Viaduct. In addition to this the DVD looks at how the weather in East Lancashire can be harnessed to make renewable energy.

**History:** The railway helped transform the economic and social life of East Lancashire but has itself changed a lot since it opened over 160 years ago. The DVD uses similarity and difference as well as continuity and change to show how the railway has changed since it opened.

**Eco schools:** A recurring theme used in the DVD is 'reduce, reuse and recycle'. The pupils of Padiham Green School, Burnley show how schools are getting involved.

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We hope you enjoy the DVD and that you will want to find out more and also experience travelling along the East Lancashire Line.

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Brian and Simon will be pleased to visit your school, talk to your pupils and arrange a visit to the Education Resource Centre at Accrington Eco Station.

If you have any comments or suggestions on the contents of the DVD and the pack or would like to share with the Partnership how you have used it please contact:

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## Greening the East Lancashire Line - DVD Script

The following is the full script used in the DVD certain words or terms are highlighted and you will find an explanation of them in the glossary. There are also a few questions and the answers will be found in section 4 of this pack.

### 1. Introduction



**Hello, I am Brian the Bull** and I am going to show you some of the exciting green projects that are taking place along the East Lancashire line between Colne and Preston. The railway line links nearly ½ million people together and passes through a mixture of large towns such as Accrington and Blackburn as well as some small villages such as Hapton and Pleasington. I will ask you some questions on the way; see if you know the answers.

Did you know that a new **ECO STATION** has been built right in the heart of East Lancashire at Accrington? Do you know what else Accrington is famous for? We will stop off on our journey to take a close look at some of the projects that are helping to green the East Lancashire Line.

To start with, let's take a look at this – this is Coal Clough **WIND FARM**. What a sight, how cool is that? Do you know what a wind farm is? That's right the blades are moved by the wind which harnesses its power to generate electricity. Look at this diagram which shows very simply how a wind turbine

works. Coal Clough is able to supply 5,500 houses with all their electricity and there are plans to improve this in the near future. Can you think of a reason why this site has been chosen? Well listen very carefully to the noise being made by the Singing Ringing Tree.

Wind turbines are just one of the new ways being used to generate electricity and you will see examples of how wind power is being used all along the East Lancashire Line. Do you know what other fuels are used to generate electricity?

So what can we do to try and reduce some of the harmful effects of climate change? Do you recognise these symbols? Let's take a look at what one school is doing to help recycle its waste.

Recycling can be fun and it is also good for the environment. But do you know what happens to all those plastic bottles and batteries when the bin is full? Well we shall see what happens to some of plastic bottles shortly.

# Greening the East Lancashire Line

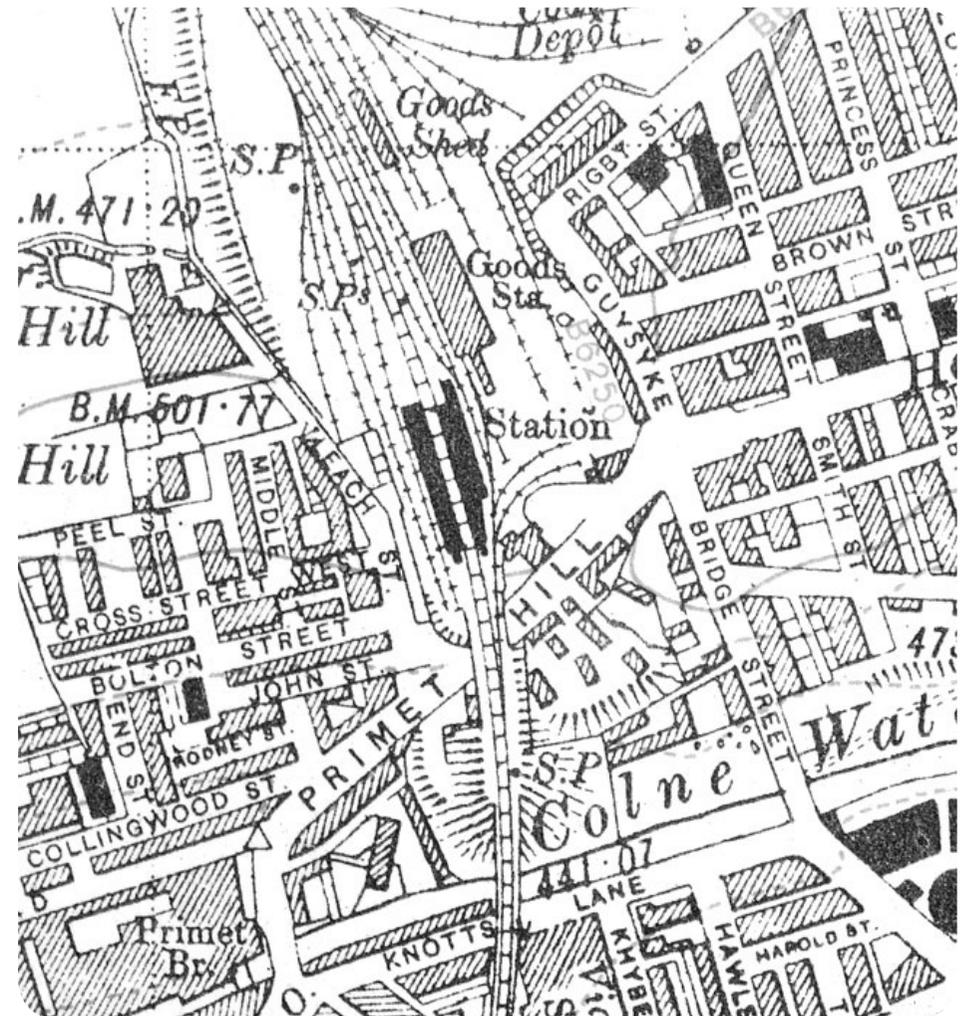
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## 2. Some history

The history of the Colne to Preston line is fascinating. It was built in stages between 1844 and 1848. As the map shows it was once part of a more complex network of lines in East Lancashire that provided links to places such as Padiham, Great Harwood, Skipton, Bury, Manchester and Liverpool.

Do you know why these lines were built? In the nineteenth century Lancashire was at the heart of the industrial revolution and the railways were built to transport a variety of goods including coal, iron, steel and cotton.

Railways have always been very good at reusing materials, such as earth and stone from the excavations and old railway lines can also be recycled as we will see later.



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## 3. Colne, Brierfield & Rishton

Here we are at Colne station

We will soon join the train to have a look at some of the green projects taking place along the line to Preston.

But before we board the train let's take a closer look at Colne station. This is now the end of the line from Preston as the buffers clearly show. The line used to continue on to Skipton and the station itself was much bigger. Did you know that a world famous festival takes place here every year at the end of August?

If we look closer at the station today we will see that it has some very attractive flower tubs, and there are other tubs all down the line at Nelson, Brierfield, Huncoat, Accrington and Rishton but can you guess what the tubs are made out of?



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## 4. Nelson Bus & Rail Interchange

Quick! Onto the train now it's about to leave, next stop Nelson! As we make our journey along the line, look out for where other people are doing green things.

Here we are at Nelson and as I get off the train I can see the magnificent canopy that covers the platform. This has recently been refurbished and repainted. Now take a look at these earlier pictures of the station. They show that the idea of interchange is not new. Local buses used to call at the station but in the 1960's all this changed when the new bus station and car park opened a short distance away.

Follow me down the ramp from the platform and as we turn the corner we can see a brand new **INTERCHANGE** has been built right by the station, bringing buses and trains together makes it easier for people to use public transport.

Do you know that buses connect from the interchange to all parts of the town, to many neighbouring villages and to places as far away as Manchester, Clitheroe and Skipton?

Apart from bringing buses and trains closer together special **THROUGH FARES** are also available making it possible to use one ticket for travelling on both bus and train.



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## 5. Brierfield and Rishton

Back on the train now and let's head for Brierfield. We have already heard that the station has made use of recycled plastic but it is also special in another way. Take a look at this.

Unlike the street lights near your home these lights are not connected to the electricity 'mains'. Instead the power to make these lights work comes from harnessing the energy of the wind and sun and then storing it in a battery. As we saw at Coal Clough wind energy is obtained by using a **WIND TURBINE**, but do you know how the energy of the sun is made into electricity? Well take a careful look at the top of the lamp column and you will see a **SOLAR PANEL**. This is used to make electricity from the sun. Similar lights have also been put up at Rishton.



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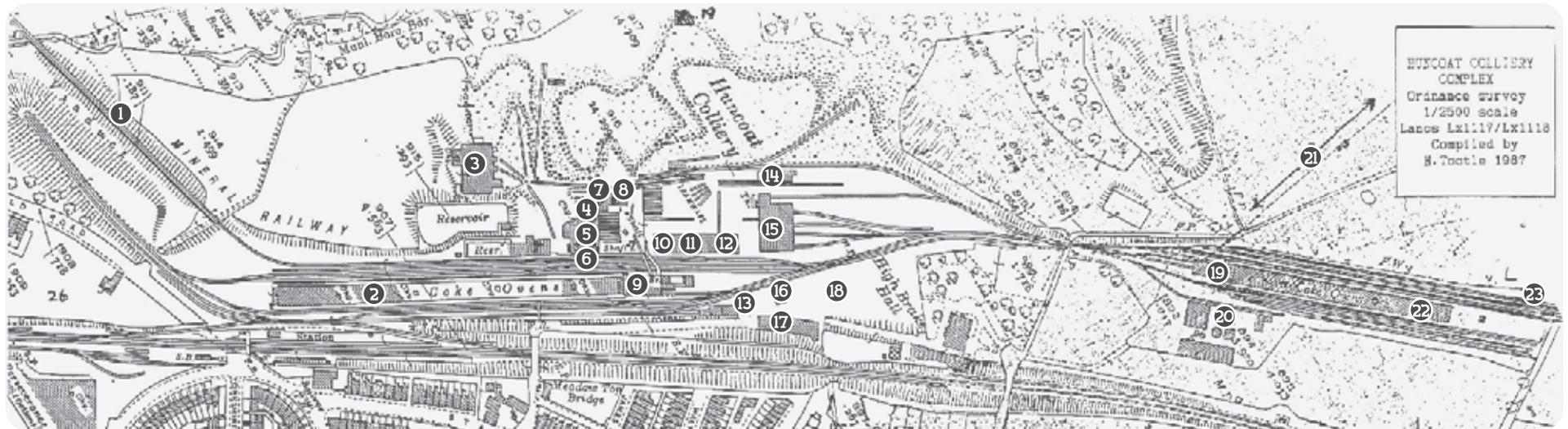
## 6. Hapton

Let's get back on the train again and head off to Hapton. Hapton station is the closest station to Padiham where the children from Padiham Green Primary School are busy recycling all sorts of things!

As well as the recycling the children do, there has been a much bigger project in Padiham. Do you remember me talking about a railway line being recycled? Look at these stones that were reclaimed from a demolished bridge. The old line passed through Padiham and has been transformed from a grotty, rubbish and weed filled eyesore into a 'greenway' that can be used by cyclists and walkers that links to the Leeds Liverpool canal towpath and the railway.

### KEY

1. MINERAL RAILWAY TO MOORFIELD COLLIERY (DICKIE BRIDGE) COKING PLANT. THE LINE ALSO WENT INTO WHINNEY HILL BRICKWORKS
2. COKE OVENS (& 22). BOTH SETS OF OVENS WERE USED TO CONVERT COAL FROM HUNCOAT, CALDER AND SCAITCLIFFE COLLIERIES FOR USE IN THE STEEL INDUSTRY. THE COKE OVENS WERE CLOSED PRIOR TO WWII. ONE SET WAS FIRED UP AGAIN FOR A SHORT PERIOD DURING THE WAR
3. ELECTRICIAN'S SHOP AND PIT BATHS
4. WINDING HOUSE CONTAINING A STEMA DRIVEN HORIZONTAL WINDING ENGINE MANUFACTURED BY R. DALGLISH OF ST HELENS
5. WINDING HOUSE CONTAINING AN ELECTRIC WINDER FOR THE UPCAST SHAFT
6. BOILER HOUSE CONTAINING THREE LANCASHIRE BOILERS
7. LAMP CABIN
8. TELEPHONE EXCHANGE AND MANAGERIAL OFFICES
9. SCREENS
10. MECHANIC'S SHOP
11. BLACKSMITH'S SHOP
12. WELDING AND TUB MAKING SHOP WHERE 3 1/2 CWT TUBS WERE ALSO MANUFACTURED FOR THE CALDER AND SCAITCLIFFE COLLIERIES
13. LOCO SHED AND WATCHMAN'S CABIN
14. DIESEL FUEL STORES
15. SAWMILL AND STORES. IN THE SAWMILL ALL THE TIMBER FOR USE AT THE COLLIERY WAS PREPARED EG UNDERGROUND ROOF SUPPORTS, AIRDOORS & RAILWAY WAGON REPAIRS
16. WEIGHBRIDGE & RESCUE STATION
17. GARAGE
18. BAGGING STAGE
19. EXTENSION SCREENING PLANT. CLOSED DOWN 1952/3
20. HUNCOAT FIREBRICK WORKS. ACCRINGTON BRICK AND TILE LTD. CLOSED DOWN 1950
21. ARIEL FLIGHT FROM CALDER COLLIERY TO THE EXTENSION SCREENING PLANT - CLOSED DOWN 1952/3
22. COKE OVENS (& 2). BOTH SETS OF OVENS WERE USED TO CONVERT COAL FROM HUNCOAT, CALDER AND SCAITCLIFFE COLLIERIES FOR USE IN THE STEEL INDUSTRY. THE COKE OVENS WERE CLOSED PRIOR TO WWII. ONE SET WAS FIRED UP AGAIN FOR A SHORT PERIOD DURING THE WAR
23. RAILWAY CROSSING OVER ALTHAM LANE INTO THE POWER STATION SIDINGS. THE LAST LOAD OF COAL FROM HUNCOAT COLLIERY WENT OVER THE CROSSING ON THE 10TH OF FEBRUARY 1968



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Not long after we leave Hapton we pass through Huncoat station and next to the railway line was once a huge industrial area. Do you know what was once on this site?

I spoke earlier about **FOSSIL FUELS** being burned and this was the site of a huge Power Station that burned coal to make electricity. The power station was opened on the 11th May, 1956 and at its peak burned 340,000 tons of coal a year. This coal was mined locally and brought to the power station on a special railway line. The power station was closed in 1984 and subsequently demolished. The burning of coal in power stations releases a lot of carbon dioxide into the atmosphere. This is thought to contribute to **GLOBAL WARMING**.



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## 7. Accrington

Back on the train and it is only a short ride from Huncoat to Accrington where the brand new Eco Station has been built.

Well here we are with a bird's eye view taken while the eco station was being built. We can see the stylish new booking office taking shape and as we turn round here is the new car park and disabled ramp.

Construction of the station began in December 2009 just when the weather turned cold and the ground froze solid. This made it difficult for the builders to get started and when the thaw came we had a lot of rain! Work progressed and here you can see the station growing from its frozen foundations in December 2009 to completion in August 2010 – a picture was taken from the same spot each day during the construction if only the builders could work this fast!



Now let's take a closer look at what was happening on the ground as the station was being built. Well here I am surrounded by lots of activity. So what is happening here? As we can see the new kerbs being installed. I bet you can't guess what the kerbs are made from? Lots of other recycled materials are being used in the building of the new Eco Station. Take a look at this. What does it look like? It's 'sand' but it is not the sort of sand you get at the seaside. Can you guess what it has been made from? We can see stone flags and stone for the walls and all this has been recycled from local buildings that have been demolished. Using locally sourced materials helps reduce the carbon footprint.

All aspects we had to consider were the design and the construction and how to operate the building to reduce its carbon footprint and to make it more sustainable. For Accrington sustainability was not an afterthought but a fundamental part of the design process and won the station an excellent BREEAM rating.



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Accrington is also special as it has received a grant from the European Union's **INTERREG IVB** programme through the **SUSSTATIONS** project. SusStations means Sustainable Stations and is part of a Europe wide initiative to look at how stations can be made greener. As well as Accrington other projects include Station Green in Germany and the refurbishment of Antrim Station in Northern Ireland.

Let's take a tour round the building to see some of the things that help make it special with the help of this animation.

Let's start at the top to see what is holding up the roof. These stylish supports are called **GLULAM BEAMS**, which means laminated wood glued together, and there are seven of them holding up the roof at Accrington. The beams are very strong and have been made from wood that has come from sustainably managed woodlands certified by the **FOREST STEWARDSHIP COUNCIL** scheme. Wood has also been used for other parts of the building as an alternative to using steel. Can you think of any reasons why using wood is better than steel?

Just think of all the water that goes down your drain pipes at home when it rains. Well at Accrington this water is being collected and will be used to flush the toilets. A special tank has been installed in the building and the water from the gutters feeds into this.

This is known as **RAINWATER HARVESTING**. *this line is not in the DVD*

A special meter will show how much water there is in the tank a bit like the petrol gauge in your parent's car.

Now look at these pictures: They show how the station is using energy from the sun to reduce its need for 'mains' electricity. On the tower above the station is a special piece of equipment that uses the sun's energy to make hot water. This is used to feed the central heating system and to provide hot water from the taps. If there is not enough sun or it goes very cold then the central heating is boosted by a gas boiler.



**GLULAM BEAMS**



**WATER HARVESTING**



**SOLAR PANEL**



**HOT WATER**



**PV CELLS**

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If you look closely at the station roof you will see there are 18 solar panels, also known as **PHOTOVOLTAIC PANELS**. It is not just the building that uses power from the sun, in the car park there are 12 solar panels above the lights. We have already seen these PV's at Brierfield and Rishton where the electricity is stored in a battery for later use.

Here at Accrington any electricity and is generated that is not needed at the station is automatically fed into the 'national grid' to provide electricity for the lights in your home!! It is estimated that the PV's will generate at least 30% of the power needed by the building.

Stations are a safe environment regularly visited by British Transport Police who have similar powers to other police but operate on railway stations and trains to ensure the safety of passengers and railway staff alike.

Oh! Morning!

Well that was a quick tour and there is certainly a lot more to the station than you might think. What has impressed you the most?



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## 8. Rishton

Let's get back on the train and carry on down the line to Rishton. Rishton station is the other station that has eco lights installed on the car park and is the last of the stations that has recycled plastic planters. It is only a short journey from the station to the factory that makes the planters.

Prosperity Recycling is **A NOT FOR PROFIT COMPANY** formed by the Prospects Foundation. It takes some of those plastic bottles we saw being collected by the school children at Padiham and makes them into flower tubs like those you saw at Colne. Watch how a new flower tub is being made.

## 9. A brief note on Blackburn

On the approach to Blackburn you will notice that the line runs by the Leeds – Liverpool Canal which once carried a range of items such as coal and cotton. It was overtaken in importance by the railway which helped expand the cotton industry on which the Blackburn economy depended over 100 years ago. Today the town is home to companies that recycle plastics, cardboard and paper and others that use recycled materials to make goods such as carpet tiles.

*Please note the above does not appear in the DVD.*



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## 10. Bamber Bridge

Let's board the train for the journey to Bamber Bridge.

As we travel along the line let's stop and have a look at Hoghton Viaduct. Remember earlier I said about how good the railway companies were at recycling earth and stone? Well look at this impressive viaduct that was constructed using reclaimed stone from nearby cuttings. How do you think the **NAVVIES** who built the line transported the stone to the viaduct?

Of course recycling forms an important part of the natural world as well. Just look at all these leaves that rot down, enriching the soil and provide the nutrients to help plants and trees to grow.

Here we are at Bamber Bridge; this station has the oldest remaining station building on the line. It was built in 1846 when the line was opened.

In 2008 over £350,000 was needed to refurbish it and it is now used by the South Ribble Pensioners Association as their base for a wide variety of activities such as **'SILVER SURFING'**. What a great way to reuse an old building.



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## 11. Lostock Hall

From Bamber Bridge it is a short trip to Lostock Hall station on our train. This is a very simple station but the waiting shelters here have been recycled from Accrington. We will step off the train and take a closer look at them. After being taken from Accrington the shelters travelled to a factory in Wales where they were refurbished, repaired and repainted to make them almost as good as new. Being green involves looking at how we use resources and instead of throwing away something old we sometimes need to look at how it can be reused.



## 12. Conclusion

Let's get back on the train again for the last stretch to Preston where we finish our journey today.

We have seen lots of exciting developments that are taking place along the East Lancashire line to make it greener. There is still a lot more to do and the East Lancashire Community Rail Partnership will be playing its part in helping to reduce, reuse and recycle in the future. What about you? Are you on board as well?

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## Glossary - those difficult bits explained

### BREEAM

This stands for Building Research Establishment - Environmental Assessment Method and is a tool that is used to assess the greenness or sustainability of a building. The tool has been developed by the Building Research Establishment (BRE) who are based at Watford near London. BREEAM covers all aspects of the design, construction and operation of the building. Accrington Eco Station was assessed using BREEAM and has received an 'Excellent' rating.

BRE also produce the '**Green Guide to Specification**' which was used by the project architects to help them design the building and to achieve the BREEAM rating. The guide looks at the materials that can be used to construct the various parts of a building and assess their environmental impact. All materials are assessed and are given a rating from A+ to E with A+ having the best environmental performance/least environmental impact to E the worst environmental performance/most environmental impact. The rating looks at a wide range of impacts such as climate change, water extraction, ozone depletion, energy used etc.

If you want to find out more about BRE go to [www.bre.co.uk](http://www.bre.co.uk) or [www.bre.co.uk/greenguide](http://www.bre.co.uk/greenguide)

### Interchange

The interchange at Nelson brings together all bus and rail services in a purpose built modern facility. The interchange also provides cycle and car parking along with an office that provides information about public transport services and a booking office selling a range of bus and rail tickets.

As part of the project the East Lancashire Community Rail Partnership in partnership with Northern Rail and Transdev (the local bus operator) introduced the East Lancashire Day Ranger. This ticket can be purchased on buses and trains as well as at staffed railway stations and allows unlimited travel on trains between Colne and Preston & Bolton and Clitheroe Interchange as well as on Transdev bus services in Lancashire and some services that cross over into Yorkshire. An attractive leaflet has been produced giving more details about it and can be viewed at [www.communityrailandlancashire.co.uk/publicity](http://www.communityrailandlancashire.co.uk/publicity)

There are other bus and rail interchanges at Blackburn, Bolton and Clitheroe. A further one is planned for Accrington where the existing bus station on Peel Street will be moved closer to the new railway station.

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## Climate change

The term 'Climate change' is interchangeable with 'global warming' and the 'greenhouse' effect. It refers to the build up of greenhouse gases, such as carbon dioxide and methane, in the atmosphere. These gases are trapping the sun's heat, causing changes to take place in the weather patterns across the globe. The effects vary but there are changes taking place to the amount of rainfall (more rain, less rain), sea levels and temperatures with some areas seeing longer dry periods resulting in droughts.

Geologists and scientists are aware that the climate has changed in the past so why are they concerned about it now? The main difference between the current period of global warming compared to previous times is the speed the change is happening. It is estimated that the planet has warmed by about 1°C over the past 100 years and most scientists agree that this is mainly the result of the increasing amount of greenhouse gases that are being released into the Earth's atmosphere from human activity. What is the cause of this? The key cause is the rapid industrialisation that has taken place as a result of the Industrial Revolution – the move from a low energy society using wind, water and muscle power to a high energy society using coal, coke, oil and nuclear power. The Industrial Revolution changed many aspects of our lives from where we live to how we make things

Scientists forecast that the global climate will continue to warm up but are uncertain by exactly how much with forecasts ranging from a further 2°C to 4°C. The exact effects of this change are also uncertain but it is clear that the changes we are already seeing to the global climate will continue with unknown consequences.

For more in depth information about this topic take a look at the Fourth Assessment Report produced by United Nations Intergovernmental Panel on Climate Change (IPCC).

## Eco Station

The new Accrington station booking office is probably the first true eco station in the UK. It has been designed with the aim of achieving a BREEAM 'Excellent' rating and using the 'Green Guide to Specification'. As a demonstration project within the railway industry it was able to secure an EU grant through the Interreg IVB programme. The station has cost about £1.3m to construct and includes a range of 'active' and 'passive' eco features. The active elements include solar energy, solar hot water and rainwater harvesting. The passive include the use of locally sourced materials with low embodied energy wherever possible. A design report has been produced setting out the approach taken and this can be viewed at [www.eastlancashirecrp.co.uk/stations/accrington](http://www.eastlancashirecrp.co.uk/stations/accrington)

## Forest Stewardship Council

The FSC is an international, nongovernmental organisation dedicated to promoting the responsible management of the world's forests. It was founded in 1993 amid mounting public concern about deforestation and the demand for a reliable wood-labelling scheme. What is the cause of this concern? The FSC estimates that every year an area half the size of the UK is simply being cleared of natural forests and that this is not sustainable. To try to develop a more responsible approach to forestry the FSC has developed a scheme that labels wood that comes from sustainably managed forests / woodlands. A bit like BREEAM it takes a holistic view of how forests and woodlands are managed – the key word here is managed. Wood has been used at Accrington in for example the glu-lam beams and windows and all the timber has come from FSC accredited sources

In the UK the FSC-UK is legally and financially independent of FSC International. It sets forest management standards for the UK, promotes the system and provides an information service. To find out more go to [www.fsc-uk.org](http://www.fsc-uk.org)

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## Fossil fuels

This is a name given to fuels such as coal, oil and natural gas. They have all been formed from natural organisms usually many millions of years ago. Fossil fuels are **non renewable**.

Fossil fuels are primarily used for transport, heating and electricity generation. Every time we turn on the computer or television, light a fire, or drive to the shops, we are contributing in some way to the increase of CO2 in the atmosphere. Many items in the supermarket may have travelled long distances to get to the shelves.

## Global warming

See Climate Change above.

## Glulam Beams

This stands for (glu)e (lam)inated timber and is composed of several layers of timber that have been glued together.

Like many other engineered wood products, glulam beams are an efficient use of the timber resources that are generally available. As we have seen in the section on the FSC demand for timber continues to increase worldwide and is resulting in a reduction in the availability of high-quality, large-diameter logs. In the past it might have been possible to produce the beams for Accrington station from one piece of timber but today supplies of this sort of timber are limited. To overcome this Glulam uses smaller pieces of timber that are joined together using finger joints and glue. As a result Glulam beams can be stronger than similar-sized beams made from one piece of solid wood. Glulam beams are also less affected by moisture because of the way the individual laminations are dried during manufacture.

Glulam is a sustainable alternative to concrete and steel and has much lower embodied energy than either of them, although of course it does have more embodied energy than solid timber. However, glulam beams can be used for much longer spans, heavier loads and complex shapes than was previously possible with solid timber – it therefore offers a more sustainable alternative to concrete and steel and can be recycled in the future.

For more information go to [en.wikipedia.org/wiki/Glued\\_laminated\\_timber](http://en.wikipedia.org/wiki/Glued_laminated_timber)

## Interreg IVB and SusStations (Sustainable Stations)

Interreg is the name given to a European Union programme that seeks to engage with member countries in solving a range of common problems. The programme has a number of priorities such as capitalising on innovation, managing resources and risks, improving connectivity and strengthening communities. A key cross cutting theme is transnational cooperation whereby participants in the programme meet and work together to seek solutions to mutually shared problems. As the Programme Handbook says “The ‘raison d’être’ of the programme is to bring Europe together to create a more cohesive EU society!”

The Accrington station has secured funding from this programme through the SusStations (Sustainable Stations) project. SusStations is a project involving a number of eligible member states including the UK, Northern Ireland, the Netherlands, France and Germany. Apart from the eco station at Accrington the project will also fund demonstration projects in the Netherlands, Germany and Northern Ireland.

For more information about Interreg IVB go to [www.nweurope.eu/](http://www.nweurope.eu/)

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## Navvies

'Navvies' is a shortening of the word Navigator and was the name given to the canal builders. As many of them later went on to build railway lines the name inevitably stayed with them! Navvies often moved from job to job and didn't live in any one place for very long. This meant they often lived in temporary houses known as shanties. Life for navvies and their families could be hard especially during winter months.

## Not for profit

This is where a company does not seek to make a profit for distribution to shareholders. In all other respects a not for profit company has to make ends meet by covering all its costs and perhaps having a bit left over to help with future projects or investments.

## Rain water harvesting

The station has a large tank that can hold 1,500 litres of rainwater. Rain is collected from the roof and taken to the tank where it is stored. If the tank is full then the rainwater will simply drain away in to the normal waste water drains. At Accrington the rainwater is used to flush the toilets. Rainwater cannot be used for drinking as it may contain small traces of pollutants which could be harmful. If there is insufficient rain then a small part of the tank is topped up from the normal mains water supply.

## Silver surfing

This is where older people learn how to use computers, the internet, send emails etc. At Bamber Bridge, the South Ribble Pensioners Association runs courses to teach older people how to use computers. As the DVD shows they are very popular and also a lot of fun.

## Solar panels, photovoltaic panels or PV's

Accrington Eco Station has 26 solar panels that will produce an estimated 5,000kWh of power per annum or 30% of the stations requirement. So what are solar panels and how do they work? Put simply the panels you will be able to see on the station roof or at Brierfield and Rishton contain cells that convert the suns rays (or solar radiation) into direct current electricity. The power can be used to operate electrical equipment, be stored in a battery or put into the National Grid. The cells require protection and are therefore placed within a glass sheet. At Accrington we have a grid connected system which means we can draw power from the grid when the solar panels are unable to produce enough electricity or we can feed in electricity when we are producing more than is required for the station. The feed in works through an inverter which converts the electricity produced by the solar panels from DC (direct current) current to AC (alternating current) current and the building management system which will either directly use the electricity or feed it into the National Grid.

How economic are solar panels? It is estimated that the cost of installing the solar panels at Accrington will be recouped through lower electric bills within 10 years.

## Solar hot water

Accrington also uses the suns energy to produce hot water for use in the kitchen and toilets as well as to feed the central heating system. The stylish tower above the building houses the panels that are connected to the water system. It is anticipated that this system will produce all the hot water required for the kitchen and toilets and thus significantly reduce the need to produce hot water by other means.

# Greening the East Lancashire Line

How the railway is greening East Lancashire

## SusStations (Sustainable Stations)

See Interreg IVB above.

## Through fares

See bus and rail interchange above.

## Wind farm

We saw a large wind farm at the start of the DVD and smaller ones at Brierfield and Rishton. For a number of reasons it has not been possible to install a wind turbine at Accrington – yet! Lancashire often has strong winds and using wind turbines to harness this energy makes a lot of sense.

The blades on the wind turbine are forced round by the wind. As this happens they drive a turbine which generates DC electricity. The turbine is linked to the buildings electrical system via the inverter which as we have seen with the solar panels converts the DC electricity into AC electricity that can be used to power appliances etc in the building or feed the National Grid.

# Greening the East Lancashire Line

How the railway is greening East Lancashire

## Those questions answered

During the DVD Brian the Bull asks a number of questions. This section goes through the questions and provides some answers.

- 1 Do you know what else Accrington is famous for?**  
Possibly the best known are as follows:  
Accrington Stanley football club. For more information click here:  
[en.wikipedia.org/wiki/Accrington\\_Stanley\\_F.C.](http://en.wikipedia.org/wiki/Accrington_Stanley_F.C.)  
The Accrington Pals who fought in the trenches during the First World War.  
For more information click here  
[en.wikipedia.org/wiki/Accrington\\_Pals](http://en.wikipedia.org/wiki/Accrington_Pals)  
and  
Accrington Brick sometimes known as 'nori' due to its strength.  
For more information click here:  
[en.wikipedia.org/wiki/Accrington\\_brick](http://en.wikipedia.org/wiki/Accrington_brick)
- 2 Can you think of a reason why this site has been chosen?**  
Coal Clough was selected as it is a naturally windy site so there are very few days when the wind turbines are unable to generate electricity.
- 3 Do you know what other fuels are used to generate electricity?**  
Water (Hydro electric), sun (solar energy), coal, oil and gas.
- 4 Do you know why these lines were built?**  
The lines were mainly built to transport freight of which coal, cotton and cotton goods were the most important.
- 5 Did you know that a world famous festival takes place here every year at the end of August?**  
The Rhythm and Blues festival takes place over 4 days at the end of August. The East Lancashire Community Rail Partnership is one of the sponsors of the Festival. For more information about the Festival go to:  
[www.bluesfestival.co.uk](http://www.bluesfestival.co.uk)
- 6 Do you know what was once on this site?**  
Huncoat Power Station was once on this site. Construction began in 1950 and the power station was formally opened by the Mayor on the 11th May, 1956. Situated on the Burnley Coalfield meant that the power station had a ready supply of local coal and until 1968 was served by a ½ mile line that linked it to Huncoat Colliery. The power station had a short life and closed in 1984. The cooling towers were brought down in 1988 and the main buildings were demolished in 1990.
- 7 I bet you can't guess what these kerbs are made from?**  
The kerbs have been made from recycled plastic.
- 8 Can you guess what it has been made from?**  
The material that looks like 'sand' is actually made from recycled glass.
- 9 How do you think the navvies who built the line transported the stone to the viaduct?**  
They probably built a temporary wagon way and either used a small steam engine or horses to pull trucks to get the stone to the viaduct.

# Greening the East Lancashire Line

How the railway is greening East Lancashire

## Resource Centre

The following may be useful resources to find out more about the issues discussed in the DVD.

### Web links

Some useful web links

#### Community Rail:

[www.communityraillancashire.co.uk](http://www.communityraillancashire.co.uk)

for information on the Lancashire community rail partnerships including the east Lancashire Community Rail Partnership.

[www.eastlancashirecrp.co.uk/stations/accrington](http://www.eastlancashirecrp.co.uk/stations/accrington)

for information on the station and for a downloadable copy of the Accrington Station Design Report

[www.eastlancashirecrp.co.uk/gallery/accrington-eco-station](http://www.eastlancashirecrp.co.uk/gallery/accrington-eco-station)

for the picture gallery showing the construction of the station as featured in the DVD.

[www.communityraillancashire.co.uk/news/accrington-eco-station-formal-opening](http://www.communityraillancashire.co.uk/news/accrington-eco-station-formal-opening)

for information and pictures of the formal opening of the Eco Station on Thursday 9th December, 2010

#### User groups:

[www.selrap.org.uk](http://www.selrap.org.uk)

for information on the campaign to restore the line between Colne and Skipton

#### European Union:

[www.nweurope.eu](http://www.nweurope.eu)

for information on the Interreg IVB programme and projects such as SusStations (Sustainable Stations)

#### Eco building topics:

[www.bre.co.uk](http://www.bre.co.uk)

for information on the work of the Building Research establishment

[www.breeam.org](http://www.breeam.org)

for information on the BREEAM (Building Research Establishment – environmental assessment method) assessment tool

[www.bre.co.uk/greenguide](http://www.bre.co.uk/greenguide)

for information about the Green Guide to Specification

#### Local authorities:

[www.blackburn.gov.uk](http://www.blackburn.gov.uk)

this is the website for Blackburn with Darwen Borough Council

[www.lancashire.gov.uk](http://www.lancashire.gov.uk)

this is the website for Lancashire County Council

