

# NETWORK RAIL

## Driving the Energy Revolution

**N**etwork Rail is the largest non-regulated electricity consumer in the UK. It spends £300 million on electricity with £250 million on rail traction alone, which is recharged to operators with little or no focus on carbon reduction.

### WHAT NETWORK RAIL NEEDED

The rail industry was reviewing the electricity used in moving trains on its network. New government legislation had come at a time when there was intense financial pressure coupled with climate change concerns, like never before. Network Rail had to reduce carbon, and improve accuracy and billing of electricity usage. This was a directive by the UK Government rail body, the Office of the Rail Regulator (ORR). Specifically, Network Rail had to provide train operators with the option to be billed based on metered EC4T (Electric Current for Traction) consumption.

It had to be able to receive data from up to 2,500 electric trains before the 1<sup>st</sup> of April 2011 and have a facility to recharge for the £250 million in energy consumed by these trains. Every one percent of electricity saved in the UK railway reduces carbon to the equivalent of taking 20,000 cars off the road. Network Rail has one of the three highest electricity bills in the UK. It was looking to cut down consumption; even a percentage reduction would have a substantial impact, both on financial savings and on the environment.

### THE CHALLENGE

Network Rail negotiated the use of £8.7 million of funding to help train operators install meters on electric trains that would provide accurate billing. NR funded separately the billing system to process the data from the meters. The project aimed to help the railway become more energy efficient, immediately. Plus the company could easily integrate OTM with other systems that would help it continue to increase its energy efficiency in the future.

Network Rail had specific objectives for the project. It wanted to:

- Implement a train based meter billing system by 1 April 2011
- Offer incentives to train operators in ways to reduce their energy consumption
- Introduce a bureau service to collect, validate, distribute and enhance raw metered data with geographical and operational information
- Enlist aid for resolution of disputes and shortcomings of metered data
- Ensure minimum ongoing IT integration and support would be required.

### CASE STUDY

#### TRANSPORT AND LOGISTICS

*“CGI was chosen because their integrated approach was essential to make sure we delivered value for money to our customers. The OTM solution enables us to become more energy efficient.”*

**Diane Booth**, Head of  
Environment Policy  
Network Rail



## OUR ANSWER

Deadlines were tight. Network Rail needed people with unique subject matter knowledge to help it achieve a swift project take-off at lower cost and reduced risk. Having shaped the requirement for OTM solutions, we provided timely guidance. A Network Rail consulting paper (2008) by Chris Beard, Energy expert at CGI and author of “Smart Metering for Dummies” who is one of our experts, became the operational guide for the UK rail industry.

Our solution has three components:

- Externally hosted OTM service: to collect and validate meter reading data from train operators and export it to Network Rail.
- Data store (hosted within Network Rail): to hold meter readings in a format suitable for billing.
- Updated Track Access Billing (TABS): Track Access Billing, Our solution to bill the train operators for the use of the track managing £2.5 billion per annum of track access charges. Network Rail can now compare the train access charges with the meter readings.

Specific to our approach while developing this solution was that:

- The solution we delivered is based on Network Rail’s strategic technology platform - Oracle database.
- We used a commercial off-the-shelf technology that’s proven in the industry.
- The solution was not only reliable but reduced cost and time as well.
- Network Rail required no technical support after this.
- The client saved cost and time.

We delivered the final OTM solution to Network Rail on 27 March 2011 – ahead of the regulator’s deadline. Our approach to system design and development was flexible. This allowed for changes in requirements or priorities as it became clear which operators would be the first to adopt On-Train Metering. By implementing as much functionality as possible, as early as possible, we reduced risk by driving out shortcomings in the proposed billing rules ahead of the planned implementation date. This flexibility meant Network Rail could implement the solution in time to collect meter readings and provide metered charges from 1 April 2011.

## A SUCCESS STORY

The service is helping Network Rail reduce the carbon used by the GB’s rail network. Billing for electricity usage is spot-on. Operators fitting meters to their entire fleet will be billed for their trains’ electricity consumption during the invoice period. So, it no longer receives an estimated bill that may have to be adjusted at the end of the financial year through the ‘wash-up’ process. Instead, operators know exactly how much the total cost of electricity consumption is and can manage their cash flow better.

## MORE SUCCESS STORIES

Because of the move to metered billing, operators are now able to monitor usage on a journey by journey basis and make savings simply by introducing guidelines for drivers. Under the previous estimated billing process, any gain made by one operator would have been shared across all other operators in the same area. Once meters are fitted, an operator will receive the full benefit directly. This also allows the operators to more accurately report and manage down their carbon footprints.

Now, Network Rail is more easily able to monitor usage against the energy purchased.

It now has the ability to:

- identify electricity losses on the line
- monitor inefficiencies on the track
- introduce a green timetable
- advise on Great Britain’s (GB) rail behavior.

It has the potential to save millions of pounds in electricity every year and reduce carbon more significantly than any consumer in the UK. It is in a great position to build a sustainable railway.

## WHY WORK WITH US

We've introduced smart transport schemes that support millions of users, and brought real-time travel information to public transport. We are known for our technological know-how and delivery record across the industry, distribution and transport sector. Companies upgrading legacy systems and those adding new functionality make us their first-choice systems integrator.

Our integrated approach to transport and logistics helps you achieve your business objectives. Besides, it also means you get to move through the maze of regulation, sustainability, bookings, fees and tariffs, with greater assurance. In a sector where innovation and first mover advantage is key, we stand out as the partner of choice.

We have been at the forefront of the smart metering revolution ever since it was just an idea. Now, smart meters – and, to a lesser extent, smart electricity grids – are used around the world. We've helped create this smart world by working closely with energy retailers around the world, helping them with smarter ways to drive energy efficiency, while benefiting from more lucrative business models.

**“The project referenced in this case study was delivered by Logica, which CGI acquired in August 2012”.**

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## About CGI

With over 68,000 professionals in 40 countries, CGI fosters local accountability for client success while bringing global delivery capabilities to clients' front doors. Founded in 1976, CGI applies a disciplined delivery approach that has achieved an industry-leading track record of on-time, on-budget projects. Our high-quality business consulting, systems integration and outsourcing services help clients leverage current investments while adopting new technology and business strategies that achieve top and bottom line results. As a demonstration of our commitment, our average client satisfaction score for the past 10 years has measured consistently higher than 9 out of 10.

Code 2693 0513

## KEY BENEFITS

Network rail is now able to:

- make savings simply by introducing guidelines for drivers
- monitor usage on a journey by journey basis
- reduce the carbon used by the UK's rail network
- bill for electricity usage precisely.