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Dear Mr Rapose

Consultation on implementation proposals for the Carbon Reduction Commitment

Thank you for the opportunity to respond to the consultation on the implementation of the Carbon Reduction Commitment (CRC) scheme. We have responded to questions 15 and 16 within the consultation that specifically relates to train energy (traction) and non-rail energy use (non-traction).

A part of RSSB's role is to build consensus across the railway industry and to facilitate the resolution of cross-industry issues. In preparing this response, we have drawn together the views of the industry as a whole and we believe our comments reflect a general view. Nevertheless, the opinions expressed here are those of RSSB.

We support the UK Government's 'ambitions' within the DfT's White Paper¹, for increased capacity, that will realise rail's environmental potential as a greener alternative to other modes of transport by accommodating passenger and freight growth.

We believe rail has a clear contribution to make in addressing carbon emissions from transport by:

1. Reducing its own carbon intensity
2. Increasing capacity to accommodate growing demand for travel on a transport mode which has a lower carbon intensity than the alternatives
3. Encouraging and accommodating modal shift from more carbon intense modes where this can be achieved.

In this respect we will continue to work together with the DfT and the Office of Rail Regulation (ORR) to find the most cost effective ways to improve energy efficiency and reduce carbon emissions through the Sustainable Rail Programme (SRP) discussed below.

Rail also provides both economic and societal benefits. It supports the GB economy through facilitation of the country's production, commercial, financial and administrative activities. Rail travel provides travel opportunities for a diverse mix of social groups and connects many remote and rural areas that would otherwise be marginalised².

As an efficient mode of transport, with significant economic and social benefits, we therefore believe it would be a mistake to focus solely on reducing rail's absolute carbon emissions. Rail is committed to reducing the carbon intensity of its operations through a number of initiatives, some of which are mentioned in Appendix 2. This will deliver a reduction in absolute emissions on a like-for-like basis.

¹ DfT Delivering a Sustainable Railway, July 2007

² RSSB, The case for rail 2007

The railway is, however, required to increase its capacity, announced recently in the DfT's White Paper, which includes the introduction of 1300 new carriages for passenger rail to relieve crowding, and aspirations to accommodate further freight growth³. Despite efficiency gains, the introduction of additional vehicles and services will give rise to increased energy use and consequential carbon emissions.

This growth in passenger and freight usage of the railway is expected to be made up of some new traffic and the transfer of passengers and freight from other more carbon intense modes. This is to be welcomed as part of the wider goal to control carbon emissions from transport.

The underlying purpose of the scheme is to reduce carbon dioxide emissions. However, we are concerned about the restricted focus of the scheme which we understand generally limits emission improvements to those derived from energy efficiency measures. This will give rise to a situation whereby emission improvement reporting through CRC will differ from other reporting mechanisms which allows the benefits of clean fuel sources to be more readily recognised. As rail is relatively unique in the transport sector because of its extensive use of electricity this presents a particular challenge for the rail industry.

In support of our response to question 15 and 16 of the consultation document, we have provide a general background, within Appendix 1, to underlying infrastructure and commercial issues that will impact on rail's ability to implement the CRC for both traction and non traction energy,

A more detailed response is provided below, laid out as follows:-

Section one - a response to question 16 on the exclusion of traction energy from the CRC
Section two – a response to question 15 on key issues relating to non traction energy

Section One: Exclusion of Traction Energy from the CRC Scheme

The rail industry remains supportive of the government's proposal to exclude rail traction energy (diesel and electricity) from the CRC scheme, which would otherwise present a significant risk to industry, which includes, inter alia, the following:

1. The scheme does not take account of the existing mechanisms for rail regulation and will therefore create additional regulatory burdens contrary to the Government's Better Regulation agenda and Defra's own preference for a 'light touch approach'. The rail industry is already subject to a regulatory regime through the ORR and service definition through the DfT.
2. Electricity, which accounts for 40% of rail traction energy, is already included in the EU Emission Trading Scheme, which has increased wholesale electricity prices by approximately 15-20%⁴. This creates a disproportionate carbon cost to rail when compared to other competing modes and internally skews cost advantage to the less carbon efficient diesel.
3. It has been recognised in the DfT's White Paper that the proposed scheme has no mechanism to value the major contribution that rail makes as a low carbon mode of transport.
4. The CRC would increase the relative cost base of rail, potentially creating a shift towards less carbon efficient modes that are not included within the scheme.
5. Whilst a metric taking account of 'efficient' growth is proposed, the dominant focus of the scheme is on reducing absolute emissions. This does not sit well with DfT's proposals within its White Paper for the rail industry 'to be able to accommodate a 22½ per cent increase in passenger demand by 2014', and would send mixed messages on rail's green potential and incur financial penalties within the scheme's proposed league table.

³ DfT Delivering a Sustainable Railway, July 2007

⁴ The Community of European Railways (CER) suggests that 15 to 20% of the total wholesale electricity price is now attributed to the EU ETS

6. Rail freight is forecast to grow by 30% over the next ten years⁵, equivalent to an extra 240 freight trains per day, which will have a subsequent impact on absolute carbon emissions. However, in terms of the UK as a whole, rail freight is 4-5 times more carbon efficient than an equivalent movement of freight by road, and the potential additional freight trains would otherwise cost the country 4–5 times more CO₂ emissions. The CRC scheme is inequitable, in that it does not recognise that rail freight operates in a commercial environment in direct competition with road freight which does not fall under this scheme.
7. The unique structure of the industry presents difficulties associated with the mix of long life, high value assets and the short-term nature of franchises, putting the rail industry at a disadvantage when compared to other participants in the scheme. This could lead to financial penalties where the proposed tightening of the allowance cap, under the scheme, is reduced more quickly than investment to enable rail to deliver energy savings.
8. High value assets including rail vehicles are often financed through leases rather than traditional direct investment by operators. It is not always cost effective to modify or retrofit long life assets which lead to early replacements and therefore leads to increased costs.
9. In light of the Government's commitment to consider the inclusion of surface transport in the EU Emission Trading Scheme (ETS), it would be inappropriate and premature to include rail energy in CRC.

In conclusion, as other transport modes are excluded from the scheme and because of the need to ensure a cross-industry approach involving both operators and infrastructure providers, the rail industry believes that a voluntary approach would be more appropriate and effective.

A proposed cross-industry scheme for traction energy

To this effect the rail industry proposes a voluntary approach to carbon emission reduction, which will:

- Allow industry to support the environmental aims of DfT's White Paper
- Work within the existing industry structure
- Avoid creating perverse incentives
- Provide a cost effective approach in an industry that receives substantial public funding

Already there exists a wealth of research and implementation projects, initiated through the Sustainable Rail Programme, Network Rail, RSSB's research and development programme, the Association of Train Operating Companies (ATOC), and Freight Operating Companies outlined in Appendix 2. It is unlikely the CRC scheme could facilitate such an outcome as it lacks recognition of the complex nature of the rail industry. The structure of the industry creates the need for cooperation between the different stakeholders to deliver sustainability improvements, as capital investments in one part of the industry often delivers benefits in a different part of the industry or to society as a whole.

The rail industry has formed a cross-industry Carbon Reduction Working Group to provide a response to the CRC consultation and propose an alternative, more effective approach to carbon reduction.

An important starting point, led by Network Rail and ATOC, is the development of carbon trajectories. In the short term these will provide a top level view of potential carbon reductions and in the longer term will enable more specific targets to be set. To this aim a model is being developed to identify potential passenger and freight carbon reductions through existing and planned initiatives, factoring in predicted growth through DfT's Network Modelling Framework Environmental Module.

⁵ Network Rail, Freight Route Utilisation Strategy, March 2007

Considerable progress has been made to bring together current traction energy consumption data disaggregated by diesel and electric powered freight and passenger consumption and normalised by carbon intensity per passenger/net tonne km.

The industry is working to develop more robust data on energy use. Better usage of existing metering data and installation of new metering will underpin the management of energy by providing greater data granularity, and will enable the rail industry to understand better the energy use for each train. Currently, ATOC, in collaboration with DfT, is leading a group trialling train borne metering initially with the Virgin West Coast Pendolino and extending to other fleets in the 1st quarter of 2008.

Through the SRP we are developing two relevant metrics for reporting to ORR on an annual basis from 2008, in response to their commitment to include sustainability indicators for the rail industry within their future reporting arrangements. These will cover traction energy consumption and the resulting carbon emissions, disaggregated into passenger and freight and normalised by passenger/net tonne km.

The rail industry is committed to working with DfT to deliver the plans made in the Rail White Paper and the accompanying Technical Strategy. The industry is setting up the Technical Strategy Advisory Group (TSAG) to take forward in full the development of the technical strategy through the cross-industry Systems Interface Committees (SICs). There is a Vehicle/Traction Energy SIC with specific responsibility for energy and consequential emissions, and in addition other SICs also contribute towards delivering an energy efficient railway.

We are also working closely with colleagues in both the International Union of Railways (UIC) and the Community of European Railways to develop a common approach to tackling carbon emissions. This will help to support the recent EU commitment to reduce carbon emissions by 20% by 2020 (from 1990 levels).

Going forward

We plan to set out what action it is feasible for the industry to take in these areas over future years and order of magnitude of energy and carbon reduction this would be likely to achieve. Subject to any discussions over funding with DfT and ORR we will commit to a framework for energy management to achieve these savings. We would anticipate this framework being drafted for discussion during 2008.

Table 1 shows the logical steps involved in the development of this framework, and as discussed above, we have already made some progress with the rail operating companies and Network Rail working closely together.

Table 1 Cross Industry Carbon Reduction Framework - programme of work		
Steps	Activities	Status
1.	Collate baseline data on traction energy consumption and consequential carbon emissions	4 th Quarter 2007
2.	Identify realistic and achievable energy saving initiatives that may contribute towards carbon reductions	4 th Quarter 2007
3.	Agree carbon metrics for reporting to ORR and monitoring performance	4 th Quarter 2007
4.	Develop an understanding of the impact additional services to accommodate passenger growth will have on carbon emissions	1st Quarter 2008
5.	Validation of Modelling work	2nd Quarter 2008

6.	Agree a cross industry carbon trajectory for achieving carbon reduction	3rd Quarter 2008
7.	Finalise carbon reduction framework	4 th Quarter 2008

Section two: Key issues relating to the inclusion of non traction energy within the CRC Scheme

In response to question 15 on non traction energy, this section is aligned to specific questions within the consultation that relate to the design of the CRC scheme. We have provided further details to our response in Appendix 3.

Specific comments related to consultation questions

Question 1 - As rail passenger and freight operate across national jurisdictions it is essential that the CRC scheme operates on a common platform.

Question 2/3/4 – A degree of flexibility is required to enable participants to nominate the most appropriate level. We recommend that open movement into and out of the scheme is allowed.

Question 5/6/7 – The proposed qualification year of 2008 does not provide sufficient time for the rail industry to work through the complexities in defining responsibilities for energy consumption and agreeing apportionment.

Question 8 – This approach does not take account of the interrelationship between tenant and landlord which many companies operate under at stations and depots. These leases have complex agreements on responsibilities for maintenance and investment which can impede or slow the achievement of carbon reduction improvements.

Question 9/11 – We welcome the inclusion of site and fuel based de minimis thresholds.

Question 22 – Rail has a unique challenge in reducing energy consumption with changing franchise arrangements, the requirement for long life and high value specialist, and highly integrated 'safety critical' systems such as signalling, communications, CCTV and the railway's control centre which all require constant and uninterrupted electricity supply.

Question 27 - The timing of the auction and payment for allowances relative to the receipt of recycled funds is important. There will be a significant impact on participants' cashflow if funds are recycled up to 18 months after the initial payment for allowances is made. As a result we support the option for deferred payment for allowances.

Question 33/35/36 –Whilst we support the inclusion of a metric for early action to recognise work done by those already engaged in environmental management, the proposed metric related to the roll out of automatic metering is not economical for the rail industry due to numerous small supplies. In terms of the growth metric, turnover does not directly correlate with passenger or freight growth.

Question 38 – We agree there needs to be a mechanism to ensure adequate consultation is undertaken before any significant changes are made.

Question 39 – We consider it preferable and more equitable to directly recycle payments to participants.

Question 40 – The special events section of the evidence pack does not take account of the types of events likely on the railways such as a major incident and station closure.

We hope that the contents of this document will assist you in understanding the specific issues within the rail industry with regard to improving emissions performance. We are actively working across the industry, with government through DfT and ORR and would welcome the opportunity to engage in dialogue with you in the future.

Yours sincerely

Len Porter

Appendix 1 – Background to the complexities of the Rail Industry

There are two underlying issues that affect rail's ability to meet the objectives set out within the CRC which require consideration in the design of the scheme, as follows:

1. Physical infrastructure

The railway, by the nature of its business, occupies a site that is narrow, but extremely long. Electrical supplies are taken at locations all along the railway, and in many cases duplicated to give reliability. There are occasional sites such as stations and depots where there are larger supplies, but even there, there may be multiple connections for either historical or practical reasons. In many cases electrical supplies are shared, and the costs are apportioned between the parties on the basis of calculated usage.

Whilst we recognise that reductions in energy consumption can deliver significant cost savings with extensive linear infrastructure, many small locations, and numerous modest energy supplies means that the CRC administrative burden upon the industry is likely to be greater than for other industries with discrete sites.

The financial cost of the CRC is a concern for both passenger and freight operators, however, the implications may differ. In particular, additional costs within the freight sector may have significant impact on profitability and therefore business viability.

Any disbenefit will be passed back to government through increased requirement for subsidy and/or to customers through increases to fares. Increased charges/fares may have the perverse effect of moving people and freight to less carbon efficient transport modes.

2. Commercial complexities

The railway industry is dominated by different types of operating franchises, infrastructure concessions, leases and contracts.

The majority of the UK railway infrastructure is owned by Network Rail, who also operates and maintains it. Network Rail also operates some rolling stock and a small number of the largest stations on the system that are multi-user. The majority of the other stations are leased to train operating companies, who are responsible for all the day-to-day operations and maintenance, albeit the station may be used by several businesses.

The nature of leases for stations and depots, most commonly between Network Rail and the train operators, are a key issue in the implementation of the CRC in the rail industry. Leases are complex legal agreements setting out responsibilities for testing, maintenance and renewal of infrastructure where responsibility for energy management issues within buildings will be split between different parties.

This is further complicated by an array of sub-tenants who are not always sub-metered and the sharing of depot fuelling facilities between operators. This system results in those occupying facilities not always having the power and / or business case to invest in energy savings and where these will realise cost savings the person paying may not have received the saving.

The majority of passenger train services are operated under franchises that are awarded by the DfT, who determine the services to be delivered under the contract. A few passenger services, and all freight services are operated on a more traditional basis of servicing individual customers needs on a commercial basis.

The nature of those operated under franchise is such that the operator has little scope to vary its operational arrangements to reduce energy consumption and carbon emissions. In some cases, investment by one commercial party, may give a benefit to another party. Some franchises are issued for relatively short periods, but there are concessions let for as long as 30 years. This creates a disparity in opportunities amongst franchises to implement energy

efficiency measures and impacts on the league table. Industry wide co-operation, a DfT contract variation and regulatory approval may be needed to achieve benefits.

This is in contrast to assets that have considerably longer design life – Rolling stock, 30 – 40 years, minor infrastructure 30 – 50 years, and major civil infrastructure in excess of 100 years.

One of the primary aims of the Sustainable Rail Programme is to identify areas where sustainability improvements can be made in the industry with improved cooperation and in some cases changes to contracts or regulation and energy is a key focus of this. However it remains that in many instances no one party will be incentivised or able to make improvements in energy efficiency at a site even if they are the responsible party under the CRC.

Appendix 2 - Research and development in energy efficiency and carbon reductions

There are a number of organisations and groups involved in undertaking research and development activities to reduce energy consumption and carbon emission reductions. A brief explanation of each organisation is given, with examples of R & D work that has been undertaken or is ongoing.

Organisations involved in R & D

Sustainable Rail Programme

Recognising the Government's strategy for sustainable development, the GB railway industry established the Sustainable Rail Programme (SRP) in 2006, which committed the industry to developing a 30 year sustainable development strategy for the railways. The SRP is led by the Sustainable Development Steering Group (SDSG), a cross-industry group of senior railway industry executives, DfT, TfL, Transport Scotland, and ORR representatives.

Systems Interface Committee (SICs)

The Vehicle/Traction Energy SIC and other SICs have initiated cross industry energy-related research and development work around electrification, rail operational and future technology.

Association of Train Operating Companies

The Association of Train Operating Companies (ATOC) has worked with its members and in collaboration with RSSB to develop energy saving and emission reduction solutions. This has included setting up an extranet site which shares best practice from working groups on energy, metering, berthing load and eco driving.

Examples of R & D initiatives

The case for rail 2007 provides examples of some of the work undertaken to improve energy consumption and carbon intensity. Below are some examples of initiatives that the rail industry is currently engaged in.

Regenerative braking

A cross-industry programme to implement regenerative braking has been underway for some time and a number of operators are now using 'regen' capability to deliver savings of 15-20% for electric passenger trains on the overhead a.c. electrified network. Infrastructure system upgrades, which will allow the use of regenerative braking across the entire overhead a.c. electrified network, are forecast to be completed by the end of 2008. Further work is ongoing to implement regenerative braking on the d.c. electrified network covering the south London commuter lines.

Future fuels technology

ATOC is leading the development of a future (short term) fuel strategy, supported by operators, fuel suppliers and RSSB. As part of this, test bed and in-service trials of both Sulphur Free Diesel (SFD) and biodiesel are currently being undertaken with the aim of understanding the operational impact of more widespread use. Biodiesel in particular could deliver significant CO₂ reductions from diesel rail operation (subject to it being sourced sustainably).

Looking to the longer term energy storage and fuel conversion technologies for portable fuels on board trains, such as fuel cells, are being investigated and could potentially deliver substantial reductions in CO₂ emissions. The feasibility for hydrogen powered train trials has been part of a recent research study, and is also the subject of GB, EU and International development.

Biodiesel Trail

Virgin Trains are testing the efficiency, emissions and effects on engine wear of biofuel. Initially the single Voyager train is using a blend of 20 per cent biodiesel and 80 per cent conventional diesel, although the company hopes the percentage of biodiesel can be increased substantially in the future. The trial has been supported by a £1 million cross-industry research programme led by ATOC and the RSSB working with Train Operating Companies, Freight Operating Companies, rolling stock leasing companies (ROSCOs) and the Department of Transport (DfT), known as the Biodiesel Working Group.

Engineering changes

Re-engineering the current high-speed train (HST) fleet with modern engines has reduced fuel consumption by 17%.

Operational practice

Operators of diesel freight locomotives have achieved a 3-5% reduction in fuel consumption by shutting down engines when stationary for more than 15 minutes.

Appendix 3 - Non traction energy

In response to question 15 of the consultation document, we have highlighted key issues specific to the rail industry that need consideration within the design of the CRC scheme.

Question 1 – UK wide and devolved administration

Passenger and freight services operate across national jurisdictions. Therefore, it is important that the application of CRC across the UK does not create distortions within the rail sector, or impose additional burden for rail companies operating in more than one jurisdiction.

Question 2/3/4 – Definition of Organisation for the purpose of CRC

The identification of a CRC organisation by the highest UK parent organisation is not well suited to the rail industry, which is complex in structure and dynamic in nature, due to its franchising and contractual arrangements. A degree of flexibility is required to enable participants to nominate the most appropriate level at which to discharge their CRC responsibilities. It follows that open movement into and out of the scheme at change of franchise would also be more appropriate.

Question 5/6/7 – Identification of participants/qualification year

The proposed timescale for identifying scheme participants and establishing a robust monitoring system by 2008 is too short due to industry complexities, discussed above, and difficulties in defining responsibilities for energy consumption and agree apportionment.

Question 8 – Treatment of landlord and tenants

Some flexibility is required to achieve a workable approach that takes account of the complexity in Network Rail's tenant and landlord arrangements, which arises from the significant number of companies at stations. Where the tenant qualifies under CRC, there may be difficulties in bringing about efficiency improvements where the landlord is contractually responsible for maintaining the station fabric, such as roof insulation. Alternatively, where the landlord qualifies under CRC they may have difficulties in achieving improvement measures that are the responsibility of the operator, because timescale for payback could exceed the time remaining in the franchise.

Question 9/11- Coverage of scheme

The rail industry welcomes the inclusion of site and fuel based de minimis thresholds, given its geographical layout encompassing significant continuous linear infrastructure and its propensity of relatively modest non half hourly metered electricity and small fuel sources.

Question 22 – CRC Cap setting

There are unique challenges within the rail industry with significant energy consumption by long life, high value specialist and high integrated 'safety critical' systems such as signalling, communications, CCTV and the railway's control centre which all require constant and uninterrupted electricity supply.

Stations, many of which are listed buildings, are not intrinsically simple to make energy efficient, and are costly to improve, making progress comparatively slow.

Importantly as the franchise map changes the number of trains and the type of maintenance at depots can vary considerably which has a big impact on energy use and complicates matters when trying to benchmark.

Also, it is worth adding that we have other objectives of value for money, affordability, safety and security to balance with environment performance.

Question 27 – Payment option

The timing of the auction and payment for allowances relative to the receipt of recycled funds is important. There will be a significant impact on participants' cash flows (and their ability to fund energy saving initiatives) if funds are recycled up to 18 months after the initial payment for allowances is made. As a result we support the option for deferred payment for allowances.

Question 33/35/36 - Construction of league table (metrics)

Whilst we agree with the principal of a metric for early action, the proposed metric related to the roll out of automatic metering is not economical for the rail industry due to thousands of small supplies, often no larger than a domestic meter. It is important that the administrative burden does not outweigh any gains.

Unlike many other industries within the CRC scheme the rail industry has less choice regarding business growth and the consequential increase in absolute emissions. The passenger sector is bound by existing franchise agreements, and as indicated within the recent DfT's White Paper 'Securing a Sustainable Railway', July 2007, is required to improve its stations to attract more passengers to trains. Indeed as already mentioned growth in absolute rail emissions may often result in significant savings of emissions within the transport sector as a whole.

The railway's diverse nature and complex structures do not readily lend themselves to a simple but meaningful universal carbon intensity metric, which could be fairly applied across rail and other sectors. Specifically, in the current franchise model, turnover is not directly related to passenger growth since it comprises both revenue and subsidy. As such, as patronage grows, revenue increases whilst subsidy tends to decline, leaving overall turnover flat. On this basis a league table metric based on turnover would leave rail operators disadvantaged.

Question 38 – Adjusting market parameters within phases

Whilst it is accepted that the Government may need to adjust key parameters within CRC phases, we agree there needs to be a mechanism to ensure that there is sufficient consultation of stakeholders before any significant changes are made.

Question 39 – Recycling payments to energy efficiency activities

It is preferable to directly recycle payments to participants, so ensuring that all organisations benefit evenly, rather than those that the Carbon Trust/Salix work with.

Question 40 – Evidence pack

The special events section of the evidence pack does not capture the types of event likely on the railway e.g. the impact of a major operational incident and station closure on railway non traction performance.