Energy Standards Committee
Strategic Plan
2010 – 2015

Draft of Issue Five
Updated 01 July 2014

Approved by the
Energy Standards Committee
03 July 2014

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## ISSUE RECORD

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<th>Date</th>
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<td>One</td>
<td>29 April 2010</td>
<td>Original document approved by ENE SC</td>
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<td>Two</td>
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1 Introduction

1.1 The purpose of the strategic plan

1.1.1 The Industry Standards Coordination Committee (ISCC) produced a strategic plan in February 2010, (updated in February 2011), setting out the direction that ISCC wishes to take for the last four years of Control Period 4 (2010 – 2014). ISCC, in turn, has asked each Standards Committee (SC) to create a strategic plan in support of ISCC’s activities for the same period. Plans should include:

a) The scope of the SC 

b) The plan for completing the work to ‘filter’ Railway Group Standards (RGSs) so that they are within scope of the RGS Code 

c) A model structure for the organisation of RGSs and related documents 

d) Areas for further technical development of RGSs 

e) The SC’s approach to managing its RGS Code responsibilities 

f) Supporting development of European activities 

g) Any other major activities that the plan will cover eg research activities 

h) The SC’s programme of work. 

1.1.2 Issue five of the plan updates issue four, and focuses on the period 2010 – 2015. It sets the SC’s overall strategy for the period, and priorities and timescales for delivering major programme activities. 

1.1.3 This plan will be submitted to ISCC for endorsement, and subsequently if it is later revised and there are any substantial changes. 

1.1.4 The plan was reviewed and approved by the Energy Standards Committee on July 2014. The plan will be reviewed and progress report against the plan to ENE SC at six monthly intervals, just prior to the SC Chairs visits to ISCC. 

1.2 The scope of the Standards Committee

1.2.1 The scope of the Energy Standards Committee is based on the statement approved by ISCC (September 2008) under section 6.6.1 of the Standards Manual. The remit and scope will be re-submitted in July 2014 to reflect the changes made in the Standards Code and Manual. 

1.2.2 Within the scope defined in its remit, the Committee’s coverage aligned with the scope of the Energy sub-system, as defined for the purposes of Interoperability and includes all railway infrastructure related to electrification equipment, and the interfaces to control systems and telecommunications, infrastructure (track) and rail vehicles. It also includes the management of risk from electricity.
1.2.3 The coverage includes consideration of the interfaces between items within its coverage and those within the coverage of other standards committees (for example, the interfaces between the energy and rolling stock subsystems).

1.2.4 The coverage includes consideration of requirements relating to activities dealt with in general, multifunctional documents in so far as they affect items within the Energy Standards Committee’s coverage. Such activities include competence, procurement, construction, acceptance and record keeping activities.

1.2.5 The Energy Standards Committee has one working group, the “Energy Standards Committee TSI working Group”, which acts as the UK mirror group for work related to the Energy TSI. A technical expert from the RSSB rolling stock team attends to provide a link with the UK mirror group for the LOC & PAS TSI.

1.2.6 The Energy Standards Committee co-ordinates its activities with the V/TE SIC.

1.3 Relevant strategies or initiatives

1.3.1 The following strategies or initiatives have an influence on the Energy SC strategic plan:
   a) A Direction for Railway Group Standards
   b) The New Approach to the Rule Book

1.4 Summary of key changes to the plan for 2011 – 2014

1.4.1 The key achievements during the past year are to have identified the interface measures that were missing from the suite of Energy Standards and to have developed draft standards for both the a.c. and d.c. systems. It is now anticipated that these two key standards will be available for publication in 2014 (a.c) and 2015 (d.c.). The remaining energy standards will then be reviewed and made consistent with the agreed technical requirements. It is expected that a significant number of these measures will be withdrawn.

1.4.2 The ERA work on the merging of the High Speed TSI and the Conventional Rail TSI and extending the scope of application may have an effect on the energy interface standards. This will be considered once the revised ENE TSI is published in 2014.

1.5 Communicating the Strategic Plan

1.5.1 The Energy SC’s intentions for communicating the content of this plan to industry are by publishing the plan on the RSSB website.
2 Applying the Scope Test in the Railway Group Standards Code

2.1 This section sets out the SC’s plan for delivering the ‘filtering’ of RGSs (and other documents where relevant) covered by the scope test in the RGS Code, issue three. The ‘Direction for Railway Group Standards’ document might be referenced against this activity.

2.2 Generally, the Standards committees have adopted a two-stage approach to the process of determining those measures that are within the scope of a railway Group standard. The first stage consists of the filtering and disposition of measures within a logical grouping of standards, and the condensation of those standards into a single RGS.

2.3 The second stage is an identification of “missing” measures and the rationalisation of the suite of standards. All measures will be organised in such a way that it is clear whether they cover temporary omissions from the TSIs (i.e. as a Notified National Technical Rule) or are purely domestic measures (i.e. Residual national Standards) that compliment the TSIs or for lines that will not be covered by the TSIs.

2.4 In the case of electrification, a substantial number of measures are missing from the current suite of Railway Group Standards, so a single process has been adopted including both the filtering of “out of scope” measures, and the identification of “missing” measures. Priority is being given to completion of these key a.c. and d.c. interface standards, with a view to publication in 2014/5+. Once these are completed, and the technical requirements agreed, the remainder of the ENE suite of standards will brought into alignment and redundant or out of scope measures withdrawn.

2.5 The energy team are working closely with rolling-stock colleagues to ensure that both sides of the ENE-RST interfaces are identified, and the correct measures are defined.

2.6 It is also concluded that it might not be optimal to put all Energy measures in one document. The reasons why it might be better to have a small number of documents by discipline or technology include:

a) Different disciplines need to use their respective documents, and ease of access and navigation would be more straight-forward if they can go direct to ‘their document’. It is logical to group the documentation that relates to the 25 kV a.c. system, and the 600/750 V d.c system into separate documents.

b) As documents are reviewed and developed it is more effective to focus on particular disciplines rather than ‘open up’ all subject areas.
3 Structure for the organisation of Railway Group Standards

3.1 This section sets out the SC’s strategy for how RGSs and associated documents will be organised and the SC’s programme (priorities and overall timescales) for migrating towards this structure.

3.2 This organisation is the SC’s alternative to the ‘one TSI per subsystem’ model for standards which was envisaged in the Strategy for Standards Management and now agreed by ISCC (as set out in the ‘Direction for Railway Group Standards’ document) as no longer the optimal solution.

3.3 The strategy for organising documents has considered:
   a) The audience for the documents
   b) The subject or technical area
   c) Standards containing operational measures
   d) Technical standards containing measures that describe how something is to be built, altered or maintained in service (which may be required as NTRs). Those relating to technical compatibility should be clearly identified.
   e) Technical standards for compatibility assessment at particular interfaces (e.g. vehicles with infrastructure) on a route-specific basis (see 08/57-DV29)
   f) Standards containing processes for cooperation
   g) Standards containing measures used as NSRs.

3.4 It is proposed that the suite of Energy Railway Group Standards is structured with respect to future document development and will separate ‘build’ and ‘compatibility’ type measures. The Rail Industry Standards, RACOPs and Guidance Notes can be categorised by their technical area but they contain a mix of ‘build’ and ‘compatibility’ type measures. The table below sets out this approach and indicates the fit with the existing suite of documents.

3.5 Currently the Energy standards portfolio consists of 11 published documents with two (for ENE SC) and two (for RST SC) under active development, together with the four related guidance notes. These standards cover a number of technical areas that can be grouped under the following headings:
   a) AC Electrification
   b) DC Electrification
   c) AC/DC Electrification (No specific measures currently identified)
   d) Electrification safety
   e) Non-Traction Electrical interfaces.
3.6 The Energy Railway Group Standards essentially contain two types of ‘interface’ measures:

a) Measures that describe how something is to be built, altered or maintained in service, for example the position of platforms.

b) Measures that describe how to assess the compatibility of vehicles with Energy sub-system. These measures often include a common set of rules or procedures.

3.7 The Rail Industry Standards, RACOPs and Guidance Notes contain voluntary requirements, recommended methods and guidance that have a wider scope but are considered useful to Infrastructure Managers and other stakeholders.

3.8 This approach is not meant to suggest that there needs to be a ‘build’ and ‘compatibility’ RGS for each subject area, or that there must be only one RGS in the ‘build’ or ‘compatibility’ area for each technical area. This approach would be used as a guide for future standards development work.

3.9 It is anticipated that as a result of the preparation of the new documents shown in italics in the table below, the following standards will be withdrawn - GLRT1252, GLRT1253, GLRT1254, GERT8024, GERT8025, GMRT1041, GMRC1500, and GERT8016. The measures contained within these documents, being either out of scope or retained within the appropriate new standard.

3.10 Measures currently included in the Network Rail Guidance Note NR/GN/ELP/27010 will also be considered for inclusion within a new RGS.

3.11 The proposed suite of Energy Standards is given at Appendix A
## Areas for development in Railway Group Standards

### 4.1 Where this is appropriate for the UK, the new RGS documents will be brought into alignment with Euro-norms and the currently available TSIs.

### 4.2 As part of the process being undertaken, the ENE SC will review the standards to find ‘missing’ measures at the interface and to bring RGSs to a common level of detail. This will include developing measures as national technical rules to close out open points in TSIs where there is currently no RGS measure identified for this purpose.

### 4.3 ISCC agreed a paper in June 2010 that included the need for developing Guidance Notes setting out the rationale for RGS measures (see section 7 of the paper). The structure and content of these Guidance Notes was agreed by ISCC in January 2011. During the process of developing new and revised measures, rationale for the measures, and guidance on the measures, will be developed at the same time.

### 4.4 ISCC agreed the way forward set out in a paper on optimal limits in standards in November 2010. The SC will consider optimal limits and economic practicalities as part of the review of measures currently being undertaken, and will raise appropriate points with the V/TE SIC. Development of measures related to the Automatic Power Control system is one example.

### 4.5 One result of the absence of prescriptive measures in the Energy sub-system is that some of the interfaces specifications are not fully developed. It is anticipated that further work will be required in the following areas to fully define all the interfaces through research including:

- Automatic Power Control (APC) and current technology.
  - T951 - Investigation of the Automatic Power Control.

- Pantograph Sway. (Jointly with Rolling Stock)
  - T942 - Pantograph sway acceptance requirements.

- Pantograph to OLE interface dynamic performance.
  - T841 - Simulation and verification of results from testing.
  - T849 - PantoTRAIN (a TrioTrain project). (European project.)

- Pantograph carbon material (COSTRIM). (European project.)
  - T876 - Testing of overhead line and collector wear.

- Electrical Safety and implications of revisions to EN 50122.
  - T873 - Impact of higher 25kV fault currents.

- Compatibility of rolling stock and infrastructure with respect to resonance and harmonic effects.
Proposed revisions to EN 50388 (section10). Research being undertaken (by others) as part of the standard revision process.

4.6 The measures needed have been identified (but not fully defined), and the emerging research findings will be incorporated in the RGS before publication, or in a subsequent revision. (A revision will be definitely be needed after publication of the revised ENE TSI in 2014.)
5 Managing Railway Group Standards Code responsibilities

5.1 The SC’s general approach to fulfilling its responsibilities is to work to the RGS Code. The committee has undertaken a survey of activities with a view to making improvements in efficiency.

5.2 The ENE SC acknowledges the 2010 ORR Report on the Review of RSSB which states the Board of RSSB should ‘make SCs to be more strategic in their work and require them to consider whole system costs’

5.3 In this respect, ENE SC notes the statement in the ISCC strategic plan that expresses what standards are for and, in particular, the costs and benefits associated with standards and the balance required in decision taking by SCs.

5.4 ENE SC has decided that it will seek to improve communication with industry through constituency members and standards users.

5.5 The survey the committee has undertaken recommends that the committee should review industry representation on SCs.
6 Supporting development of European standards

6.1 The Energy Standards Committee takes an active interest in the development of the Technical specifications for interoperability (TSI) and European Standards (Euro-norms - EN), particularly where these relate to interfaces. It is the intention to align Railway Group Standards with the TSIs and Euro-norms where this is appropriate (See section 4).

6.2 The Energy Standards Committee has delegated tasks relating to the Energy TSI to the UK Energy Standards Committee TSI Working Group.

6.3 The Conventional Rail ENE TSI is complete and published.

6.4 A “Mandate to the European Railway Agency (ERA) to develop and review the Technical Specifications for Interoperability with a view to extending their scope to the whole of the rail system in the Community” has been approved, and work is in progress. Publication of a revised TSI is expected in 2013/14.

6.5 A new ERA energy expert group was formed by the ERA in December 2010 to draft a revised ENE TSI merging the High Speed TSI and the Conventional Rail TSI and extend the scope of application. The Energy Standards Committee TSI Working Group will seek to influence the progress of this work through the “Community of European Railway and Infrastructure Companies” (CER) and the “European Rail Infrastructure Managers” (EIM) support Groups and the ERA working group.

6.6 A Strategic Direction for the Combined High Speed and Conventional Energy TSI has been prepared to guide the UK input to the working groups, and has proved useful.

6.7 The Energy Standards Committee will also support the development of the European Norms (and associated documents) through attendance at CEN, CENELEC, meetings and the UK Mirror Groups. It will assist industry representatives on committees with technical support and consensus building from within the UK Rail Industry. Committees supported include CENELEC/SC9X (Railway applications) and CENELEC/SC9XC (Railway applications - Fixed installations)

6.8 The Energy Standards Committee, acknowledging the limited resources available within the whole industry, will focus attention to the standards that are critical interfaces. Where standards relate to products and the expertise lies with major manufacturers (often pan-European), these will be noted.

6.9 Two European research projects being supported under research are relevant to this committee.

- T849 - PantoTRAIN (a TrioTrain project). (Pantograph to OLE interface dynamic performance)
- T876 - Testing of overhead line and collector wear. (Pantograph carbon material (COSTRIM)).
7 Programme of work

7.1 In the case of electrification, a substantial, so a single process has been adopted including both the filtering of “out of scope” measures, and the identification of “missing” measures.

7.2 Priority is being given to completion of the key a.c. and d.c. interface standards, and identification of the measures missing from the current suite of Railway Group Standards, with a view to publication of two new RGSs in 2013, and the consequential withdrawal of a number of existing documents that contain many “out of scope” measures. Once these are completed, and the technical requirements agreed, the remainder of the ENE suite of standards will brought into alignment and redundant or out of scope measures withdrawn.

7.3 Indicative dates and a complete listing of the ENE catalogue of standards is given in Appendix B.

7.4 The SC will monitor progress by a regular review of a detailed programme at each Standards committee meeting.
### Appendix A  Proposed suite of Energy Standards

#### A.1 Railway Group Standards matrix

<table>
<thead>
<tr>
<th>Technical Area</th>
<th>Build</th>
<th>Compatibility</th>
<th>RIS/GN</th>
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<td>GM/RT2111 Rolling-Stock Subsystem Interfaces to AC Energy Subsystem (For RST SC)</td>
<td>GM/GN2611 Guidance on Rolling-Stock Subsystem Interfaces to AC Energy Subsystem (For RST SC)</td>
<td>GELN8600 Guidance note on the application of the Energy Conventional Rail TSI</td>
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<td></td>
<td>GM/RT2113 Rolling-Stock Subsystem Interfaces to DC Energy Subsystem (For RST SC)</td>
<td>GM/GN2613 Guidance on Rolling-Stock Subsystem Interfaces to DC Energy Subsystem (For RST SC)</td>
<td>GELN8600 Guidance note on the application of the Energy Conventional Rail TSI</td>
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<td></td>
<td>GERT8023 Compatibility Between Electric Trains and Electrification Systems</td>
<td>GERT8023 Compatibility Between Electric Trains and Electrification Systems</td>
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<td>Technical Area</td>
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<td>Compatibility</td>
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</tr>
<tr>
<td>AC/DC Electrification</td>
<td>(No specific measures currently identified.)</td>
<td>(No specific measures currently identified.)</td>
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<tr>
<td>Electrification safety</td>
<td>All necessary measures incorporated within GL/RT1212, GM/RT2113, GL/RT1210, and GM/RT2111 above.</td>
<td></td>
<td>RIS-1800-ENE Rail Industry Standard - Interface Management between Network Rail and Depots – Isolation Documentation</td>
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<td>Non-Traction Electrical</td>
<td>GLRT1255 Low Voltage Power Supplies in Electrified Areas.</td>
<td></td>
<td></td>
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<tr>
<td>interfaces.</td>
<td></td>
<td></td>
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<tr>
<td>Rule Book Modules</td>
<td>Module AC Handbook 16 Module DC Handbook 17</td>
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<td>(Within the remit of the TOM Standards committee and published under the “New Approach” rule book.)</td>
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## Appendix B  Projected RGS catalogue of Energy Standards

### B.1 Railway Group Standards - RGS

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<tr>
<td>GL/RT1210</td>
<td>AC Energy Subsystem and Interfaces to Rolling-Stock Subsystem</td>
<td>Anticipated publication 2014</td>
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<td>GL/RT1212</td>
<td>DC Energy Subsystem and Interfaces to Rolling-Stock Subsystem</td>
<td>Drafting and consultation - anticipated completion mid 2015</td>
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<tr>
<td>GM/RT2111</td>
<td>AC Rolling-Stock Subsystem Interfaces to Energy Subsystem</td>
<td>Anticipated publication 2014</td>
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<td>GM/RT2113</td>
<td>DC Rolling-Stock Subsystem Interfaces to Energy Subsystem</td>
<td>Drafting and consultation - anticipated completion mid 2015</td>
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<tr>
<td>GLRT1255</td>
<td>Low Voltage Power Supplies in Electrified Areas.</td>
<td>Issue 1 February 2009</td>
</tr>
<tr>
<td>GLRT1252</td>
<td>Production and Management of Electrification Isolation Documents.</td>
<td>Withdrawn</td>
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<tr>
<td>GLRT1253</td>
<td>Mitigation of DC Stray Current Effects.</td>
<td>Withdrawn</td>
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<tr>
<td>GLRT1254</td>
<td>Electrified Lines Traction Bonding. (Expected to be withdrawn on completion of replacement RGS.)</td>
<td>Issue 1 April 2000</td>
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<td>GERT8024</td>
<td>Persons Working On or Near to AC Electrified Lines.</td>
<td>Withdrawn</td>
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<td>GERT8025</td>
<td>Electrical Protective Provisions for Electrified Lines. (Expected to be withdrawn on completion of replacement RGS.)</td>
<td>Issue 1 October 2001</td>
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<td>GERT8023</td>
<td>Compatibility between Electric Trains and Electrification Systems. (This standard to be revised to deal with conformity assessment and to include in-scope elements of GERT8016.)</td>
<td>Issue 1 October 2000 Revision or withdrawal to commence 2015</td>
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<td>GERT8016</td>
<td>Verification of Electrification Systems and Interactions with Other Systems. (Expected to be withdrawn on completion of replacement RGS.)</td>
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<tr>
<td>GMRT1041</td>
<td>Warning Signs and Notices for Electrified Lines. (Expected to be withdrawn on completion of replacement RGS.)</td>
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Documents shaded grey are proposed to be withdrawn as work progresses.
### B.2 Railway Industry Standards - RIS

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<td>Network and Depot interface Management – Isolation Documentation.</td>
<td>Issue 1 - September 2010</td>
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### B.3 Guidance Note - GN

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<td>GMRC1500</td>
<td>Code of Practice for EMC between the Railway and its Neighbourhood (In scope of CCS work on EMC).</td>
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<td>GEGN8600</td>
<td>Guidance note on the application of the Energy Conventional Rail TSI.</td>
<td>Issue 1 June 2012 To be revised on re-issue of the ENE TSI in 2015</td>
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<td>GL/GN1610</td>
<td>Guidance on AC Energy Subsystem and Interfaces to Rolling-Stock Subsystem</td>
<td>Anticipated publication 2014</td>
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<td>GL/GN1612</td>
<td>Guidance on DC Energy Subsystem and Interfaces to Rolling-Stock Subsystem</td>
<td>Drafting and consultation - anticipated completion mid 2015</td>
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<td>GM/GN2611</td>
<td>Guidance on AC Rolling-Stock Subsystem Interfaces to Energy Subsystem</td>
<td>Anticipated publication 2014</td>
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<td>(For RST SC)</td>
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<td>GM/GN2613</td>
<td>Guidance on DC Rolling-Stock Subsystem Interfaces to Energy Subsystem</td>
<td>Drafting and consultation - anticipated completion mid 2015</td>
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<tr>
<td>GERTxxxx</td>
<td>Guidance on the Energy Systems - Safe Operation of Electrified Railways.</td>
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Documents shaded grey are proposed to be withdrawn as work progresses.
### B.4 Other relevant documents

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<td>GERT8000/AM</td>
<td>Rule Book AM Amendments Module</td>
<td>Regularly Within the remit of the TOM Standards Committee</td>
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<td>GERT8000/AC</td>
<td>Rule Book AC electrified lines module</td>
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<td>Rule Book DC electrified lines module</td>
<td>“New Approach” to the Rule Book.</td>
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<td>GERT8270</td>
<td>Assessment of Compatibility of Rolling Stock and Infrastructure</td>
<td>Issue 2 Within the remit of the RST Standards Committee</td>
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Documents shaded grey are proposed to be withdrawn as work progresses.