



INTERNATIONAL UNION
OF RAILWAYS

DRAFT PROGRAMME

UIC Research & long-term prospects workshop

UIC Energy efficiency & CO₂ emission Sector

11/03/2025

UIC-Patrimoine
16 rue Jean Rey

75015 Paris

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Introduction



SUSTAINABILITY Action Week

In order to meet the Paris goals, the railway sector needs to become even more energy efficient and reduce their CO₂ emissions. The means to reach climate neutrality in 2050 are still unclear. In the workshop we would like to offer Members to speak and discuss what is now possible, which research is undertaken, what long-term developments are pushed or should be pushed in the sector and what is necessary to implement to ensure achieving climate neutrality.

The workshop will facilitate 2 sessions:

Operations & Rolling stock

In this session are explored possibilities to improve energy efficiency, for example energy efficient stabling and other opportunities to explore. You are invited to share best practices, ideas, to discuss this and explore what is needed to put this into practice.

The main (direct) emissions of rolling stock are currently due to diesel lines. There are several different alternatives available, such as battery trains, hydrogen and biofuels.

These solutions will be discussed, beside what can be done to make rolling stock even more energy efficient. Will an energy & CO₂ label help? Keeping in mind the objective for the sector to become climate neutral in 2050. Members are strongly invited to put forward best practices.

Tracks, stations and buildings

Machines used for building and maintenance tracks and stations contribute substantially to overall CO₂ emissions of railway and certainly IMs, since these are most diesel engine driven machinery. How can the sector innovate and stimulate innovation so we become climate neutral. ProRail will present their plan to procure the milling and grinding zero emission contract.

The same applies for the capital goods we build and maintain. In the workshop we elaborate on what the industry is doing, what the IMs are asking and which instruments can help us to become CO₂ neutral. Is a CO₂ label on materials helpful, or should there be a CO₂ budget put on projects or materials?

In this parallel session we invite you to discuss these topics and explore what is needed to ensure that IM's will become climate neutral in 2050. We also ask members to come forward with best practices.

After the parallel sessions the outcome of these sessions will be presented and discussed in the overall workshop.

11/03/2025 Workshop timeline

10:00 **Welcome, introduction**
UIC Sector leads

10:10 **Keynote presentation: IEA key findings, tech and innovation**
Oskaras Alsauskas, IEA

10:30 **Breakout sessions**

10:30 **Session: Operation / Rolling stock**

Moderator: open

Speakers: open slots

Speaker 1: Luis Alonso & André-Philippe Chamaret, SNCF Voyageurs (RU)

- Energy digital twin for energy saving and CO2 reduction

Speaker 2: Bart Van der Spiegel, Infrabel (Support: Philippe Stefanos, UIC)

- SFERA (DAS & Digital European Instructions)
- Traction energy measurement & settlement, Energy market

Speaker 3: Kayoung Shin, KRRRI

- 2050 Carbon Neutrality Technologies Dedicated to Railway from a Life Cycle Perspective

Proposed topics:

- Energy saving developments
- SFERA (DAS & Digital European Instructions)
- Battery trains & Last mile
- Electrification & Alternative fuels
- TEN-T & full electrification

Other topics in relation to Energy and CO2 can be addressed

10:30 **Session: Infrastructure / Stations / Buildings**

Moderator: open

Moderator 1: Denzel Collins, Network Rail

Speakers: open slots

Speaker 1: Matthijs Doesburg, ProRail

- Carbon free maintenance (grinding, milling, etc)

Speaker 2: Bart Van der Spiegel, Infrabel (Support: Philippe Stefanos, UIC)

- SFERA (DAS & Digital European Instructions)
- Traction energy measurement & settlement, Energy market

Speaker 3: Paul Tobbyack, TUC Rail

Battery trains | Results of a survey on electricity strategy

Proposed topics:

- Carbon free maintenance (grinding, milling, etc)
- Traction energy measurement & settlement, Energy market
- Integration of renewable energy
- Charging
- Storage
- TEN-T

Other topics in relation to Energy and CO2 can be addressed

12:30 **Lunch**

13:30 **Continued sessions**

15:00 **Break**

15:15 **Prepare summary of session**
Session moderator/voluntary participant

15:35 **Meet back in main room**

15:40 **Share summary for plenary**
Session moderator/voluntary participant

16:20 **Closing discussion**

16:30 **End of workshop**

18.00 **Move to UIC 1st floor "Mezzanine" for evening reception**

10/03/2025 Sector meeting timeline

15.00-17.00

- Next meetings: Confirmation of topics & locations
- Quick tour de table sharing
- Data collection
- Env. Specifications for new rolling stock IRS 30345 Any feedback needed? Energy labels? IRS initial ECO2 requirements: assessment & improvement
- Call tenders innovation fund on Batteries GHG

Announcement, Call for speakers and moderators

Dear Railway community, Members, Partners, Colleagues,

We will be glad to welcome you at the

UIC Sustainability Action Week 2025

Where you will be able to attend a series of workshops on our Sustainability topics.

Stay all week or mix and match the topics that interest you and explore a new subject.

See the list of events and more detailed timeline appearing over time at our dedicated webpage:

<https://uic.org/events/sustainability-action-week-2025>

And register for the 2025 Sustainability Action Week!

(Sign up as a participant, speaker, or to present a poster here)

Call for speakers and moderators

10 March – Opening session/exhibition

- Open to posters

11 March – Energy efficiency and decarbonisation: long-term prospects and research Workshop

- Keynote speaker
- Session moderator and/or speakers and/or short sharing: Session Rolling stock
- Session moderator and/or speakers and/or short sharing: Session Operations
- Session moderator and/or speakers and/or short sharing: Infrastructure / Stations / Buildings

12 March – Zero waste Workshop

Zero waste Morning Session: Best practices in procurement towards achieving circular inflows and outflows in railways

9:35-10:35 Expert talks / Case studies 60mins (3 speakers)

- Experts view on sustainable procurement ==> **1 speaker**
- Point of view of rolling stock supplier(s) ==> **2 speakers**

10:45-12:15 Break out Groups 90 mins

- **3 Moderators needed:** Chairs of CE sector, chairs of Sustainable Procurement Group (tbc)
- Other experts welcome to apply and submit subject for breakout tables

Zero waste Afternoon Session: Digital product passports to support circularity in railway material value chains

- Presentation of Concept of DPP including use case studies (SBB confirmed, **3 more speakers are needed**)
- Presentation on regulations and process (**1 speaker**)
- Break out groups to discuss priorities for next steps (**3 moderators needed**, candidates are invited to express interest and submit topics for break out tables)

13 March – Air Quality Workshop

- **Keynote speaker**
- **Speaker and/or short sharing: Understanding AQ (studies/analysis)**
- **Speaker and/or short sharing: Challenges in AQ**
- **Speaker and/or short sharing: Solutions for AQ**

Sponsoring

We prepared dedicated time & space to make our partners visible and to feature their products and services for sustainability.

The different sponsor features are described in 3 different packages in the brochure here:

https://uic.org/events/IMG/pdf/uic_sustainability_week_sponsoring_brochure_13jan25.pdf

Don't hesitate to reach out to us for support.

UIC Energy efficiency and CO2 emissions Sector



Gerald Olde Monnikhof, ProRail

Denzel Collins, NR



Philippe Stefanos, UIC