



Public Procurement
Promoting Innovation

Zero Emission Road-Rail Vehicle for Public Suburban Tram Company

This is a translation – for the original challenge description, contacts and submission got to: <https://www.ioeb-innovationsplattform.at/challenges/detail/emissionsfreie-zweiwegefahrzeuge-fuer-den-schienegebundenen-nahverkehr/>



An initiative of

 Federal Ministry
Republic of Austria
Digital and
Economic Affairs

 Federal Ministry
Republic of Austria
Climate Action, Environment,
Energy, Mobility,
Innovation and Technology

In cooperation with

 **BBG** BUNDES
BESCHAFFUNG

Challenge Sponsor

Wiener Lokalbahnen GmbH



Background / Point of departure

The most popular regional train in Austria is connecting the city centers of Vienna and Baden for over 130 years. The approximately 26-kilometer tracks of the Badner Bahn show up as one of the most important public transport connections to the southern area of Vienna. From the Vienna State Opera it goes via the communities of Vösendorf, Wiener Neudorf, Guntramsdorf, Traiskirchen to the spa town of Baden.

In just over an hour's journey, the Badner Bahn connects citycenter and country, wine tavern and café culture, "Sommerfrische" and city flair and much more. For around 40,000 passengers a day, the Badner Bahn is a companion on the way to work, on the way to school, on a shopping tour in Europe's largest shopping center or for culture, leisure and excursions into the countryside.

Road-rail vehicles (road / rail) are currently used to maintain the company's own route network. These are used, for example, when working on the overhead lines, mowing along the railroad tracks or areas off the rails and are also used in emergencies.

Up to now, the vehicles are operated with a conventional internal combustion engine. These combustion engine vehicles are to be replaced by emission-free vehicles in order to implement the Clean Vehicle Directive (EU-directive that is supposed to accelerate the use of alternative drives), to make a contribution to climate protection, and also to take into account the interests of people living next to the route (noise, exhaust gases).

Main Question

How should a road-rail vehicle for trams and local railways be designed most efficiently with zero emissions?

Desired situation

The aim of this challenge and the innovation dialogue is to get to know ideas and concepts for retrofitting two new commercially available road-rail vehicles. In future, the converted vehicles should be able to be operated emission-free, including various applications/features (exits for hydraulics, auxiliary drives, etc).

The Wiener Lokalbahnen (WLB) would like to use this challenge to obtain a market overview of innovative solutions and technological providers. Ideas and rough concepts for road-rail vehicles with zero emissions are sought.

Key facts:

- Transformation of standard road-rail chassis into a emission-free drive.
- Modular technology structure should enable the exchange of components in further technical development.
- One of the two vehicles is used for route maintenance, such as mowing along the railroad tracks but also beside the rails in road mode.
- The second vehicle is an auxiliary and rescue vehicle for overhead line work, which has to get to the scene quickly for emergencies on the road.

Details for your submission (Call for proposals)

The online submission consists of:

Description:

Are you developing technical solutions that could be suitable for the retrofitting described above? Do you already have ideas or the perfect solution? In both cases, submit your innovative solution. You are also welcome to do this with cooperation partners. An early exchange helps all sides to turn the idea into a procurement project.

Summary of the most important points:

Summarize the added value of your proposal.

Confidential information for the jury (Optional):

You can enter information in this text field that you only want to share with the project managers. You can also enter your rough, non-binding cost estimate there. The jury members involved undertake to maintain confidentiality. Alternatively, a pdf can be sent to the moderator of the challenge by email.

Additionally, you will need a **cover image**. This will be your visual signboard when reviewing submissions to this Challenge. Optionally, you can also attach a file. This file should complement the texts of the form fields but not replace or repeat them! Use the file attachment e.g. for graphics.

Note: We are currently exploring the market with the challenge. Therefore, at this point in time, the following is not yet necessary to arouse interest: completely new and fully developed concepts, detailed technical drafts or feasibility studies especially for this challenge. Keep it short (up to five A4 pages or ten presentation slides in total). Above all, explain how the assessment criteria listed below will be met and how you will contribute to solving the challenge.

Benefits of the Challenge and further course of the project

With this challenge, Wiener Lokalbahnen get an overview of possible solutions and potential partners. The jury of internal experts then invites those companies to an innovation dialogue whose solution concepts stand out particularly positively in the evaluation criteria.

For companies this means: By participating in the challenge, you get on the radar of Wiener Lokalbahnen. If you are among the winners and are invited to the final innovation dialogue, then you can present your solution at a market discussion. You will exchange ideas directly with those responsible for the project. Be optimistic: **Please keep November 9, 2021 free for the innovation dialogue.**

By the way: The public part of your submission will remain visible even after the Challenge is over. It is a business card for further interested parties - have this in mind when designing as well.

Depending on the results, it could continue like this after the Challenge:

Your submission is an impuls. Depending on the complexity, necessary framework conditions, the degree of maturity, expected costs and benefits, the sponsors will decide on the project design after the Challenge.

The goal may be to award an initial version in accordance with BVergG 2018. Please be aware that companies that did not participate in the Challenge for market consultation will also need to be considered for the tender procedure.

Your Questions

Contact the moderator or [post your question about the Challenge](#). Our moderators will check, research and publish your question together with the answer. This way, all potential participants are certain to receive relevant information.

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Factsheet for the IÖB-Challenge of Wiener Lokalbahnen

The Wiener Lokalbahnen (WLB) run a tracknet of 25 Kilometers with a standard trackwidth of 1.435mm from station Schedifkaplatz in Vienna to the terminal Baden (Loweraustria) and are also using 4,2 Kilometers innercity tracks of the mother company Wiener Linien to the terminal Vienna-Opera without requirement of maintenance of this part.

In Inzersdorf (border of Vienna) the WLB opened in 2018 a new traffic- and maintenance-center, which also is already equipped with photovoltaic on the roofs.

Several link-tracks to Companies, Railroadlines and a link to the viennese metro line U6 are added to the mainline Vienna-Baden.

Different parts of the mainline overheadline use different voltage:

- Vienna/Opera – Schedifkaplatz: 600 V = (responsible Wiener Linien)
- Schedifkaplatz Inzersdorf: 750 V =
- Inzersdorf-Baden: 850 V =

Expected performance details for the vehicles

Both vehicles should get the same basic chassis. The Vehicles and the attachments have to fulfill the requirements of Railroad-laws. The energy-containments should be changable for fast reload and for upgrades following the technical developments.

Performance requirements

- Electricityoutlets for tools with 230/400 V~ are needed at minimum 1x outside and 1x inside e.g. for Batterypacks, Radios, Batterytools and other e-tools.
- The vehicles should also be able to support temporary electricity (e.g. for building sites , reload of e-busses of WLB)
- In the case of shifting services in the Inzersdorf coach house or main rail line, the vehicles must be able to provide a traction capacity of 90 tons over a distance of approx. 27 kilometer. (Traction power for retrieving stranded trains as well as material wagons/ballast etc. by means of coupling front/rear as well as availability of compressed air 5bar and hydraulics for brakes)

Daily Performance

- Distance per day by rail approx. 12 hours 100 km with at least 25 km/h
- Off-rail mileage (road) with a range of 100 km at approx. 80km/h
- Operating time (travel time-working time) should be 12 hours
- Swap body system

In the case of an e-system: Waterproof sealing of the e-components

Track maintenance vehicle

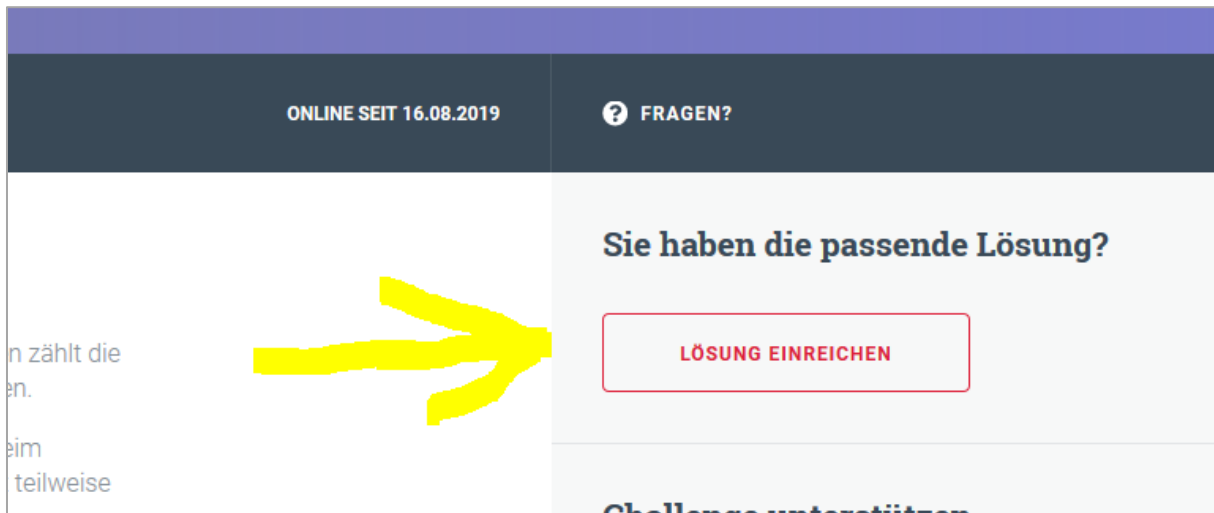
- Commercially available or railway-approved attachment units such as mowers [snow blowers] etc. should be able to be (further) operated with the vehicle (hydraulics)
- Working hours per day approx. 7.5-8 hours [including use of attachment units]

Overhead line maintenance vehicle

- It is required to achieve asymmetrical working heights of 12 meters with the work basket (hydraulic, insulated).
- Vehicle lift/work basket: 2 persons + equipment
- When running on rail: safety distance to the overhead lines in travelling mode of at least 0.5 meters. Currently lowest contact wire height 3.87m (i.e. maximum height in operation of rail top edge 3.37m).

How to submit a solution/idea

Go to the challenge page. Click on the button "Lösung einreichen" on the top right side of the page.



- Beschreibung
Post a meaningful description (make references to the description of the challenge and evaluation criteria on the right side of the challenge page)
- Mehrwert
Highlight the benefits of your solution.
- Titelbild
Upload a picture to be displayed on the landing page of the challenge.
- Kooperationspartner
If you are handing in a joint contribution with other companies, this is where you make sure they are represented with logos and names.
- Dateien & Infos
If necessary in addition to the descriptions above: add pdf-files (e.g. existing product brochures). But: Keep your contribution manageable for the jury.
- Vertrauliche Infos
If necessary, place a confidential information for the jury, the sponsor and moderator (e.g. indication of approximate price range). All other parts of the contribution will be public.

Please be aware of the fact, that a challenge is market research / market engagement prior to a possible procurement. The challenge will not decide upon a contract award nor will it lead to any unfair advantage in a tender. Please balance your time and effort.

Contact Information

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