



time

to connect

The r2L connector solution



<https://youtu.be/MZEzsIQ7GzI>

<https://youtu.be/OMCXvPbyhzQ>



Avoiding CO² Emission!



The result of using trucks



CO² Emission

1 kg of Diesel fuel needs 1,7kg Oxygen = 2,7kg CO²

Truck consumption 33l on 100km = 89kg CO²

Kiel- Verona equivalent 1,1 ton CO² Emission

~50gr per transported bottle of beer



Avoiding CO² Emission!



What does the Green Deal mean and what does
CO² cost?



CO² Price history

CO²-Certificate costs at the stock exchange:

2021 €25 per ton

2024 €66 per ton

...

2030 € 220 per ton

Expert expectations predicting a price increase of up to €600 per ton in 2030 per certificate



Avoiding CO² Emission!



Is the shift from road to rail a solution?



Energy consumption

Railway

- When it comes to freight transport, the railroad is ahead in the environmental comparison. The consumption equivalent of a freight train is 1.8 liters of diesel fuel per ton of goods and 100 kilometers of transport route - per 100 "ton-kilometers", as they say.

Truck

- This means that trains consume less than 40 percent of what trucks need: It uses 4.8 liters of diesel, according to figures from the Heidelberg Institute for Energy and Environmental Research (ifeu).



Energy efficiency

Vergleich der durchschnittlichen Emissionen einzelner Verkehrsmittel im Güterverkehr in Deutschland 2022

Quelle: Umweltbundesamt, TREMOD 6.5.1

Verkehrsmittel		Treibhausgase ¹	Stickoxide	Partikel ⁴
Lkw gesamt²	g/tkm	121	0,198	0,010
^L davon Lkw 3,5-7,5 t		569	1,775	0,068
^L davon Lkw 7,5-12 t		398	1,115	0,041
^L davon Lkw >12 t		253	0,604	0,022
^L davon Last- & Sattelzüge		103	0,139	0,008
Güterbahnen³		16	0,032	0,001
^L davon Dieseltraktion		28	0,242	0,007
^L davon Elektrotraktion		15	0,018	0,001
Binnenschiffe		36	0,415	0,011

g/tkm = Gramm pro Tonnenkilometer, inkl. der Emissionen aus der Bereitstellung und Umwandlung der Energieträger in Strom, Diesel, Flüssig- und Erdgas

¹ CO₂, CH₄ und N₂O angegeben in CO₂-Äquivalenten gemäß AR5 (5. Sachstandsbericht des IPCC)

² Lkw ab 3,5 t zGG, Sattelzüge, Lastzüge

³ Die in der Tabelle ausgewiesenen Emissionsfaktoren für die Bahn basieren auf Angaben zum durchschnittlichen Strom-Mix in Deutschland. Emissionsfaktoren, die auf unternehmens- oder sektorbezogenen Strombezügen basieren, können daher von den in der Tabelle dargestellten Werten abweichen.

⁴ ohne Abrieb von Reifen, Straßenbelag, Bremsen, Oberleitungen

[Für Informationen zu den Emissionen aus Infrastruktur- und Fahrzeugbereitstellung siehe UBA-Broschüre "Umweltfreundlich mobil!"](#)

- **Railway**
- **The energy efficiency of an E-locomotive is 80%**
- **Truck**
- **An E-truck has got an efficiency of 60%**
- **A Diesel truck has got an efficiency of 25%**



Avoiding CO² Emission!



But my semi-trailer is not suitable for the
railroad!



r2L Connector

- 95% of all trailers in Europe are non-craneable
- 5% of the trailers in Europe are liftable
- With the usage of the r2L connector tool nearly every trailer can be loaded to a railway wagon!

- <https://youtu.be/OMCXvPbyhzQ>





What is possible with r2L

- **All intermodal loading units:**
 - Trailer up to P400
 - 40' /45 Ft Container HC
 - 30' ft Container
 - 20' to 26' ft Container
- **Non- craneable trailer:**
 - Almost every trailer fits to our r2L connector



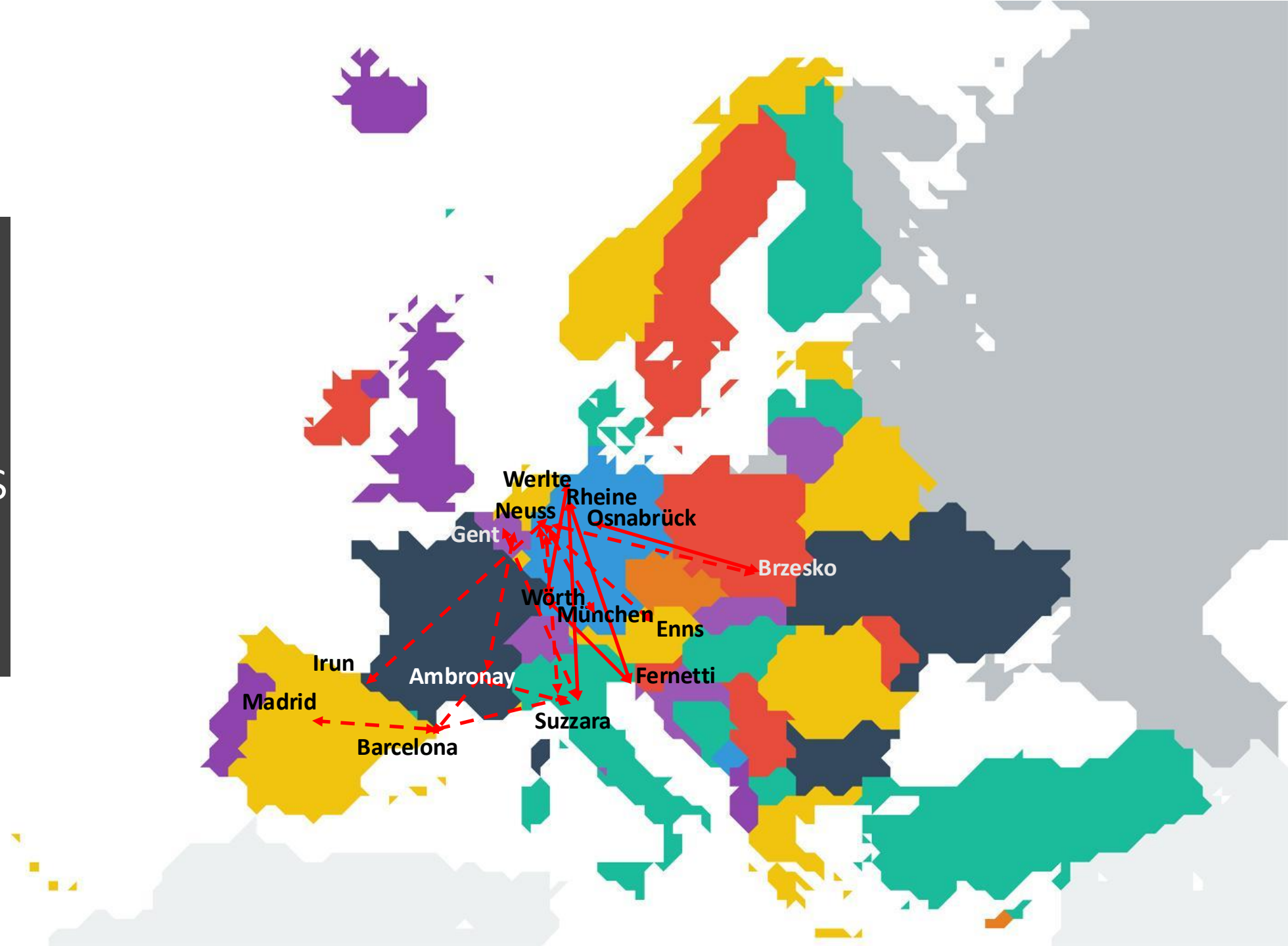


Our train connections

Multi-Use Connector



Multi-Use Connector
(planned)





Avoiding CO² Emission!



The path is mapped out.
You can avoid CO² emissions already today.
Start tomorrow!

If you do not begin to reduce CO² you will be forced to do it which will be much more expensive.

It's your turn!



Many thanks for your kind attention

Jens Burmester

Wilfried Klein



Please watch also

- <https://www.youtube.com/watch?v=B-oqYh9uSDI>
- <https://www.youtube.com/watch?v=3CfiwaH27Wc>
- <https://www.puregreenpioneers.com/green-deal/>
- <https://www.youtube.com/watch?v=jp5qxwt0fTI>