



EUSALP EU STRATEGY FOR THE ALPINE REGION

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**OVERVIEW OF EXISTING PRICING
COMPONENTS THAT INFLUENCE THE
COMPETITIVENESS BETWEEN
ROAD AND RAIL FREIGHT TRANSPORT**

FINAL REPORT

Author: TRT Trasporti e Territorio
Commissioned by: Eusalp AG4 Mobility

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AlpGov



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Introduction

Objectives of the study

The Alpine regions are particularly sensitive to negative environmental and social impacts caused by the excessive traffic flow of freight and passenger transport through the Alps. In order to tackle this challenge, the harmonisation and implementation of modal shift policies is of utmost relevance.

There is generally agreement that achieving ‘fair and efficient pricing’ is a key step in rebalancing the use of different transport modes. However, the way this is turned into practice is far from straightforward.

So far EUSALP Action Group 4 Mobility (AG4) activities on implementing modal shift policy have focused primarily on the internalisation of external cost of transalpine road transport through the Toll Plus system, a pricing measure that was initially proposed in the frame of the Suivi de Zurich Process and then further developed by the alpine network iMONITRAF!, which considers the application of differentiated external cost charges or mark-ups on top of existing infrastructure tolls.

EUSALP AG4 however wants to take a broader perspective and aims at the development of a comprehensive instrument mix which supports modal shift, considering pricing components that support a better level playing field between road and rail freight transport and a streamlining of policy approaches (integrated pricing). Overall, an integrated pricing approach should lead to a more transparent pricing for road and rail transport and, for both road and rail, should set incentives to pick-up innovative and low-emission technologies (see e.g. iMONITRAF! 2018).

To this aim EUSALP Action Group 4 Mobility (AG4) has commissioned to TRT Trasporti e Territorio a study intended to support the AG4 in designing a proper mix of modal shift policies by providing an overall analysis of existing policy-induced pricing components affecting the competitiveness between road and rail freight transport in and through the Alps with a focus on vehicles operating costs.

The objectives of the study are:

- To collect detailed information on policy-induced pricing components that influence road and rail transport;
- To develop a comparative illustration of them for supporting political discussions and communication;
- To provide preliminary recommendations to improve the instrument mix for balancing the transport modal split in the Alps.

It is worth to mention that this study does not include an analysis of labour costs as these are also affected by social provisions and working standards and are difficult to compare in the common EU labour market.

Structure of the report

The report is structured as follows.

- **Chapter 1** provides an overview on taxes, charges and subsidies in the road and rail sectors of Austria, France, Germany, Italy, Liechtenstein, Slovenia and Switzerland.
- **Chapter 2** provides a comparative analysis of policy-induced cost components for relevant Alpine transport relations.
- **Chapter 3** formulates the policy recommendations to improve the modal shift policies in the Alpine area.
- **Annex 1** provides an in-depth analysis of the data on taxes, charges and subsidies in the road and rail sectors of Austria, France, Germany, Italy, Liechtenstein, Slovenia and Switzerland.
- **Annex 2** provides a detailed data on the alpine transport relations of the chapter 2.

1. Overview of taxes, charges and subsidies schemes

This section provides an overview on taxes, charges and subsidies applied in the seven Alpine countries represented in EUSALP: Austria, France, Switzerland, Italy, Slovenia, Germany and Liechtenstein. Data are presented in dedicated country factsheets for road and rail modes, which cover **energy taxes, vehicle taxes, infrastructure charges and subsidies / grants**. Data have been collected from various sources, which are listed at the end of each factsheet.

Focus	Road	Rail
Energy taxes	Fuel tax	Electricity tax
Vehicle taxes	Purchase and registration tax Ownership tax Insurance tax	n.a.
Infrastructure charges	Tolls, including specific tolls for Alpine crossing	Rail infrastructure charges
Subsidies / Grants	Reduction or exemption from motor vehicle tax	Rail freight subsidies VAT reductions/exemptions

Table 1-1: Structure for data collection

1.1 Austria

1.1.1 Road transport

The table below presents the data collected on road costs component determined by fiscal policies applied in Austria and by the road charging schemes adopted. It also includes the exemptions and reduction granted according with the rules set in the country. More detailed values are reported in annex 1 (A1.1.1).

Tax components are presented as share of energy cost, vehicle purchasing and vehicle operating costs.

HGV road toll charges are differentiated according to the category and the emissions of the vehicle.

Austria – Road																			
Energy taxes	Fuel tax	- Gasoline, less than 0.046 biofuel mixed: €/l 0.515 - Gasoline, at least 0.046 biofuel mixed and max sulphur content 10mg/kg: €/l 0.482 - Diesel, less than 0.066 biofuel mixed: €/l 0.425 - Diesel, at least 0.066 biofuel mixed and max sulphur content 10mg/kg: €/l 0.397 - LPG: €/l 0.261 - CNG: € 0																	
Vehicle taxes	Purchase and registration tax	VAT= 20% Registration lorry= EUR 191.10																	
	Ownership tax	3.5 t<GVW<12 t: €/t 1.55 per month, minimum € 15 per month 12 t<GVW<18 t: €/t 1.70 per month - GVW>18 t: €/t 1.90 per month, maximal € 80 for vehicles and EUR 66 for trailers per month Every part of a ton has to be rounded up to the next full ton.																	
	Insurance tax	The engine-related insurance tax is levied in addition to the 11% insurance tax levied on the insurance fee (premium) for motor vehicle liability insurance, and must be withheld and paid by the insurer.																	
Infrastructure charges	Tolls	The toll rates are based on the distance travelled during the day, during the night, the category and the emission class of the vehicle. There are 3 categories of the vehicle: - Category 2= 2 axles - Category 3= 3 axles - Category 4+= 4 axles and more There is a special focus on category 4+ (HGV category): <table border="1"> <thead> <tr> <th rowspan="2">Rate groups</th><th colspan="2">Category 4+ 4 axles and</th></tr> <tr> <th>Day</th><th>Night*</th></tr> </thead> <tbody> <tr> <td>A EURO-emission class EURO VI</td><td>0,3806</td><td>0,3818</td></tr> <tr> <td>B EURO-emission class EURO V and EEV</td><td>0,4103</td><td>0,4115</td></tr> <tr> <td>C EURO-emission class EURO IV</td><td>0,4204</td><td>0,4216</td></tr> <tr> <td>D EURO-emission class EURO 0 to ...</td><td>0,4524</td><td>0,4536</td></tr> </tbody> </table> Rates in EUR per km, excl. 20% VAT, valid as 1st of January 2018 * The night rates apply between 10 p.m. and 5 a.m.	Rate groups	Category 4+ 4 axles and		Day	Night*	A EURO-emission class EURO VI	0,3806	0,3818	B EURO-emission class EURO V and EEV	0,4103	0,4115	C EURO-emission class EURO IV	0,4204	0,4216	D EURO-emission class EURO 0 to ...	0,4524	0,4536
Rate groups	Category 4+ 4 axles and																		
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C EURO-emission class EURO IV	0,4204	0,4216																	
D EURO-emission class EURO 0 to ...	0,4524	0,4536																	

Austria – Road		
Subsidies / Grants	Reduction or exemption from motor vehicle tax	If motor vehicles and their trailers exceeding 3.5 tonnes are used exclusively for Combined Transport within a calendar month, they are exempted from motor vehicle tax for that month. Alternatively, 15% of the monthly motor vehicle tax can be reimbursed for every journey affected by unaccompanied Combined Transport or Rolling Road

Table 1-2: Road costs components – Austria

1.1.2 Rail transport

This section presents data on electricity taxes, rail infrastructure charges, subsidies/grants for rail transport in Austria. Among the seven countries within the EUSALP area, Austria applies the highest

tax on electricity: € 15 / MWh.

The specific values are shown in the table below and better explained in annex 1 (A1.1.2).

Austria – Rail		
Energy taxes	Electricity tax	€ 15 / MWh
Infrastructure charges	Rail infrastructure charges	Rail infrastructure charges depend on: • Train type (e.g. wagon load / container train) • Train dimension (short/long) • Noise emission A representative average of the rail infrastructure access charge, including electricity tax is: 3.70 €/km, excl. VAT (representative for both electric and diesel powered train).
Subsidies / grants	Support programme for rail freight Förderprogramm “Schienengüterverkehr neu”	All rail transport undertakings performing single wagon load transport, unaccompanied combined transport or accompanied transport may be granted by this scheme. The subsidy is based on the comparison of infrastructure use costs of road and rail and the difference in external costs of both modes. Differentiated subsidy levels are applied.

Table 1-3: Rail costs components – Austria

1.2 France

1.2.1 Road transport

This paragraph presents data on fuel tax, purchase and registration tax, ownership tax, insurance tax, toll and the reduction from motor vehicle for road transport in France. The specific values are shown in the table below and more widely detailed in annex 1 (A1.2.1).

The taxation of electricity, oil and gas products in France is governed by Community law, in particular by European Directives 2003/96 / EC of 27 October 2003 and 2008/118 / EC of 16 December 2008.

Directive 2003/96 / EC provides for the system of excise duties, the minimum levels of taxation

and, under certain conditions, the exemptions or differentiated rates of taxation applicable.

In France, there are four different types of excise duties on energy. Specifically, TICPE (Tax on domestic consumption of energy products) is the component applying to road transport. The level of the tax is linked to the CO₂ consumed. The initial level of this tax was 7€/t CO₂ in 2014 and has been ambitiously increased in the following years (14.50 €/ton CO₂ in 2015, 22 €/ton CO₂ in 2016, 30.5 €/ton CO₂ in 2017, 44.6 €/ton CO₂ in 2018). It is foreseen to further increase to 86.2 €/ton CO₂ in 2022.

France – Road		
Energy taxes	Fuel tax	Excise duties (including CO2 tax): • Leaded petrol: 0.7156 €/l • Unleaded petrol: 0.6829 €/l • Gas oil (propellant): 0.5940 €/l * • LPG (propellant): 159.0 €/ton • Natural gas (propellant): 1.53 €/gigajoule ** • VAT: 20% rate applies to all fuel types * In order to discourage the use of diesel, it is planned to tax it as follows: 0.6476 €/l in 2019, 0.7012 €/l in 2020, 0.7547 €/l in 2021 and 0.7823 €/l in 2022. ** The rate is actually 5.80 €/100m³ (which equals about 1.53 €/gigajoule).
Vehicle taxes	Purchase and registration tax	VAT= 20 % Depending on the region, the uniform charge, per unit horsepower, as specified in the registration documents, can vary between €27 (minimum) and €51.2 (maximum) in 2017. A supplement of €6.76 has been introduced to cover the overall cost of implementation of the new Vehicle Registration System (SIV). For commercial vehicles over 3.5t and road tractors of more than 10 years, the rate is reduced by 75%. (see annex 1, chapter A1.2.1.2 – Purchase and registration tax)
	Ownership tax	There is a system of taxes in France, all of which make up the ownership tax. These taxes are settled annually irrespective of the use made of the vehicle (empty, full, passengers or goods, etc). These taxes are divided into: • Annual malus • Tax on company cars (TVS) • Special tax on certain motor vehicles (e.g. axle tax)
	Insurance tax	Commercial vehicles whose total permissible laden weight is higher than 3.5t are subject to a 15% tax. Additionally, basic insurance premiums (third-party cover) for all vehicles are subject to a parafiscal charge of 2%, and for other types of guarantee there is another parafiscal tax of €5.90 as of 1 January 2017 per insurance policy.
Infrastructure charges	Tolls	The toll rates are based on the distance travelled and the category of the vehicle. The freight vehicles are divided in different categories: • Category 1= light vehicles – weight up to 3.5 t – 2 axles • Category 2= intermediate vehicles – weight up to 3.5 t – 2 axles • Category 3= weight over 3.5 t – 2 axles • Category 4= weight over 3.5 t – 3 axles or more The average HGV (category 4) toll rate related to alpine crossing is 0.2648 EUR per km. (see annex 1, chapter A1.2.1.3 – infrastructure charges – toll)

France – Road		
Subsidies / Grants	Excise duties reduction	Transport companies may require a reduction on the excise duties (TICPE), which bring the related value close to the minimum EU taxation. The reduction is currently (1st semester 2018): EUR 0.1775 per litre of diesel fuel. The beneficiaries of this reduction are all heavy goods vehicles with a maximum laden mass of 7.5 tonnes or more.

Table 1-4: Road costs components – France

1.2.2 Rail transport

This section presents data on electricity taxes, rail infrastructure charges, subsidies/grants for rail transport in France. The specific values are shown in the table below and better explained in annex 1 (A1.2.2).

In France the standard rate for electricity tax is 22.5 €/MWh but for railways it is applied a reduced rate: 0.5 €/MWh.

France – Rail		
Energy taxes	Electricity tax	Excise duties (including CO2 tax): - Gas oil (propellant): 0.1882 €/l - Electricity: 0.5 €/MWh (reduced rate applied for railways, the standard rate is 22.5 €/MWh) <i>VAT: 20% rate applies to all fuel types and electricity</i>
Infrastructure charges	Rail infrastructure charges	Rail infrastructure charges depend on: Power – electric or diesel A representative average of the rail infrastructure access charge, for electric powered trains, including electricity tax, is: 1.55 €/km, excl. VAT. Access charges for diesel trains are normally lower than electric ones: 0.62 €/km, excl. VAT
Subsidies/grants		The reduction of the electricity tax can be seen as a support to rail freight. Other measures supporting combined transport and the revitalisation of last mile infrastructure have been announced.

Table 1-5: Rail costs components – France

1.3. Germany

1.3.1. Road Transport

The table below presents the data collected on road costs component determined by fiscal policies applied in Germany and by the road charging schemes adopted. It also includes the exemptions and reductions granted according with the rules adopted in the Country.

Tax components are presented as share of energy cost, vehicle purchasing and vehicle operating costs.

The specific values are shown in the table below and better explained in annex 1 (A1.3.1). The toll rates are set down in the German Federal Trunk Road Toll Act (BFStrMG). The total amount is based on the distance that a vehicle or a vehicle combination travels on a road subject to toll and a toll rate per kilometre that includes the infrastructure costs and costs due to the air pollution caused by the vehicle.

No costs for modern trucks of emission class Euro 6 (category A) is charged for causing air pollution. Only the infrastructure costs are calculated for the partial

toll rate for this type of truck but from the beginning of 2019 it will be applied an air pollution surcharge of 1.1 €ct/km even on Euro 6 vehicles.

Germany – Road																							
Energy taxes	Fuel tax	Amount of charge by type (2018): - Gasoline/Petrol (low sulphur): 0.6545 €/l - Gas oil (propellant – low sulphur): 0.4704 €/l - LPG (propellant): 180.32 €/ton (level from 01.01.2019 –31.12.2019: 226.06 €/ton, 01.01.2020–31.12.2020 271.79 €/ton, 01.01.2021–31.12.2021 317.53 €/ton, 01.01.2022–31.12.2022 363.94 €/ton, level from 01.01.2023 409.00 €/ton) - Natural gas (propellant): 13.90 €/gigajoule (level from 01.01.2024–31.12.2024 18.38 €/gigajoule, 01.01.2025–31.12.2025 22.85 €/gigajoule, 01.01.2026–31.12.2026 27.33 €/gigajoule, level from 01.01.2027 31.80 €/gigajoule) VAT: 19% rate applies to all fuel types																					
Vehicle taxes	Purchase and registration tax	VAT= 19% Registration lorry= the average duties collected at the time of an initial registration amount to €26.30.																					
	Ownership tax	Charge base for trucks: Total weight in kilograms, exhaust emission group and noise HGV ownership tax is: - EUR 556 for pollution categories S2, S3, S4, S5 and EEV (with/without noise category G1) - EUR 914 for the pollution category S1 (with/without noise category G1) - EUR 1,425 for the noise category G1 (see annex 1, chapter A1.3.1.2 – Ownership tax)																					
	Insurance tax	19% on the whole insurance premium																					
Infrastructure charges	Tolls	The toll rates are based on the distance travelled, the category and the emission class of the vehicle. <table><thead><tr><th></th><th>Category A</th><th>Category B</th><th>Category C</th><th>Category D</th><th>Category E</th><th>Category F</th></tr></thead><tbody><tr><td>Emission class</td><td>S6</td><td>EEV class 1, S5</td><td>S4, S3 with particulate reduction class 2*</td><td>S3, S2 with particulate reduction class 1*</td><td>S2</td><td>S1, no emission class</td></tr><tr><td>Euro emission class</td><td>Euro 6</td><td>EEV 1, Euro 5</td><td>Euro 4, Euro 3 + with particulate reduction class 2*</td><td>Euro 3, Euro 2 + with particulate reduction class 1*</td><td>Euro 2</td><td>Euro 1, Euro 0</td></tr></tbody></table> Toll rates per kilometre from 1 October 2015: HGV toll ranges from 13.5 €ct. for category A to 21.8 €ct. for category F. From 01/01/2019 HGV toll ranges from 18.7 €ct. for category A to 26.1 €ct. for category F. (see annex 1, chapter A1.3.1.3 – Toll)		Category A	Category B	Category C	Category D	Category E	Category F	Emission class	S6	EEV class 1, S5	S4, S3 with particulate reduction class 2*	S3, S2 with particulate reduction class 1*	S2	S1, no emission class	Euro emission class	Euro 6	EEV 1, Euro 5	Euro 4, Euro 3 + with particulate reduction class 2*	Euro 3, Euro 2 + with particulate reduction class 1*	Euro 2	Euro 1, Euro 0
	Category A	Category B	Category C	Category D	Category E	Category F																	
Emission class	S6	EEV class 1, S5	S4, S3 with particulate reduction class 2*	S3, S2 with particulate reduction class 1*	S2	S1, no emission class																	
Euro emission class	Euro 6	EEV 1, Euro 5	Euro 4, Euro 3 + with particulate reduction class 2*	Euro 3, Euro 2 + with particulate reduction class 1*	Euro 2	Euro 1, Euro 0																	
Subsidies/ grants	Reduction or exemption from motor vehicle tax	None																					

Table 1-6: Road costs components – Germany

1.3.2. Rail transport

This section presents data on electricity taxes, rail infrastructure charges, subsidies/grants for rail transport in Germany. The specific values are shown in the table below and better explained in annex 1 (A1.3.2).

Regarding electricity tax, the normal rate is 20.50 €/MWh but for railways a reduced rate is applied: 11.42 €/MWh.

Germany – Rail		
Energy taxes	Electricity tax	A reduced tax of € 11.42/MWh is applied (instead of €20.50/ MWh normally applied.) However, on top of this it is applied a surcharge (EEG Umlage) which is paid to all network operators to support the transition towards the development of the renewable energy production and distribution. It is fixed for 2018 at 6.792 €cent/kWh, slightly lower for 2019 (6.405 €cent/kWh). In addition, 19% VAT is applied
Infrastructure charges	Rail infrastructure charges	Rail infrastructure charges depend on: • Train dimension (short/long train) • Noise emission A representative average of the rail infrastructure access charge, including electricity tax is: 2.25 €/km, excl. VAT (representative for both – Electric and diesel train).
Subsidies/grants		No specific

Table 1-7: Rail costs components – Germany

1.4. Italy

1.4.1. Road Transport

The table below presents the data collected on road costs component determined by fiscal policies applied in Austria and by the road charging schemes adopted. It also includes the exemptions and reduction granted according with the rules adopted in the country.

Tax components are presented as share of energy cost, vehicle purchasing and vehicle operating costs.

More detailed values are reported in annex 1 (A1.4.1).

Italy – Road		
Energy taxes	Fuel tax	Excise duties: • Leaded petrol: 0.7284 €/l • Unleaded petrol: 0.7284 €/l • Gas oil (propellant): 0.6174 €/l • LPG (propellant): 267.77 €/ton • Natural gas (propellant): 0.09 €/gigajoule * VAT: 22% rate applies to all fuel types *The rate is actually 0.331 €/100m³ (which equals about 0.09 €/gigajoule)

Italy – Road

Vehicle taxes	Purchase and registration tax	<u>VAT</u> VAT is applied at the rate of 22% on the sales of new vehicles. <u>Registration tax</u> A series of duties, relating to the fulfilment of formalities with the various public institutions such as the Italian Public Automobile Register (PRA), are imposed on the registration of motor vehicles. <table><tr><td>First registration of vehicle <i>Emoluments, stamp duty, registration fees, licence plate</i></td><td>± € 145,00</td></tr><tr><td>Transfer of property (second-hand vehicle) <i>Emoluments, stamp duty, registration fees</i></td><td>± € 85,00</td></tr></table> <u>Transfer tax</u> A tax on both the registration and transfer of both new and second-hand vehicles is levied at a provincial level (IPT). Concretely, each province can increase taxes for registration and transfer by up to 30% above the national base rate. Transfer tax ranges from 380.63 € to 646.60 €. <i>(see annex 1, chapter A1.4.1.2– Purchase and registration tax)</i>	First registration of vehicle <i>Emoluments, stamp duty, registration fees, licence plate</i>	± € 145,00	Transfer of property (second-hand vehicle) <i>Emoluments, stamp duty, registration fees</i>	± € 85,00	
	First registration of vehicle <i>Emoluments, stamp duty, registration fees, licence plate</i>	± € 145,00					
	Transfer of property (second-hand vehicle) <i>Emoluments, stamp duty, registration fees</i>	± € 85,00					
	Ownership tax	Charge base depends on the vehicle category: <table><tr><td>Commercial vehicles with GVW < 12t</td><td>Global weight*</td></tr><tr><td>Commercial vehicles with GVW ≥ 12t</td><td>Global weight, number of axles and full pneumatic shock absorption</td></tr><tr><td>Speciale vehicles (eg road tractors, motor caravans)</td><td>Engine rating calculated on the basis of ‘kW</td></tr></table> Ownership tax ranges from 185.00 € to 815.51 €. <i>(see annex 1, chapter A1.4.1.2 – Ownership tax)</i>	Commercial vehicles with GVW < 12t	Global weight*	Commercial vehicles with GVW ≥ 12t	Global weight, number of axles and full pneumatic shock absorption	Speciale vehicles (eg road tractors, motor caravans)
Commercial vehicles with GVW < 12t	Global weight*						
Commercial vehicles with GVW ≥ 12t	Global weight, number of axles and full pneumatic shock absorption						
Speciale vehicles (eg road tractors, motor caravans)	Engine rating calculated on the basis of ‘kW						
Insurance tax	Charges levied on the premiums for compulsory liability insurance (collected by insurance companies) are the following: • a 12.5% fiscal tax (which may be varied upwards or downwards by a maximum of 3.5 percentage points by the provinces, almost all of which increase the rate by the maximum, thus bringing the total rate to 16%).), • a 10.5% para-fiscal tax allocated to the National Health Service (as contribution for emergency treatment costs related to road accidents) and • a 2.5% para-fiscal tax (due on 96.4% of the premium) allocated to a Road Accident Victims Warranty Fund.						
Infrastructure charges	Toll	The toll rates are based on the distance travelled and the category of the vehicle. The average HGV toll rate related to alpine crossing is 0.3066 EUR per km. <i>(see annex 1, chapter A1.4.1.3 – infrastructure charges)</i>					
Subsidies/grants	Toll reduction	Transport companies may require a reduction on the toll. This reduction is based on: • annual turnover of the company • emission class of the vehicle The reduction percentage ranges from 2 to 13 %. The reduction is bigger for companies paying larger amount of tolls.					

Italy – Road		
	Excise duties reduction	Transport companies may require a reduction on the excise duties. The reduction is: EUR 0.21418 per litre of diesel fuel. The beneficiaries of this reduction are all heavy goods vehicles with an emission class greater than and equal to EURO 3 and a maximum laden mass of 7.5 tonnes or more.

Table 1-8: Road costs components – Italy

1.4.2 Rail transport

This section presents data on electricity taxes, rail infrastructure charges, subsidies/grants for rail

transport in Italy. The specific values are shown in the table below and better explained in annex 1 (A1.4.2).

Italy – Rail		
Energy taxes	Electricity tax	Excise duties: - Gas oil (propellant): 0.18522 €/l - Electricity: exempted <i>VAT: 22% rate applies to all fuel types and electricity</i>
Infrastructure charges	Rail infrastructure charges	Rail infrastructure charges depend on: - Train type (wagon load / container train) - Power – electric or diesel - Day/night time A representative average of the rail infrastructure access charge, including electricity tax is: 2.26 €/km, excl. VAT. Access charges for diesel trains are normally lower than electric ones: 1.93 €/km, excl. VAT.
Subsidies/grants	Ferrobonus	This subsidy scheme is meant to strengthen the intermodal transport chain in Italy and develop the modal shift of freight traffic from road to rail. The destination of the incentive is aimed at users of intermodal and / or trans-shipment railway transport services and combined transport operators (MTOs) who commission complete trains to railway undertakings and undertake to maintain train traffic volumes and increase them during the incentive period. The amount of the subsidy is up to € 2.50 per train-km to be equally divided (50/50) between MTO and the company that commissioned the transport (customer). Other incentives are granted by Lombardy, Piedmont and Friuli Venezia Giulia (as regional Ferrobonus) and by the autonomous provinces of Trento and Bolzano in a coordinated manner.

Table 1-9: Rail costs components – Italy

1.5 Liechtenstein

1.5.1 Road transport

The rules applied to road transport in Liechtenstein correspond to the Swiss case.

These are therefore summarised in Table 1 12.

1.5.2 Rail transport

As for the road case, also in the case of rail Liechtenstein does not apply individual rules.

In the rail domain however, the reference case is Austria; consequently, the table summarising the rules valid in the countries is Table 13.

1.6 Slovenia

1.6.1 Road transport

The table below presents the data collected on road costs component determined by fiscal policies applied in Slovenia and by the road charging schemes adopted. It also includes the exemptions and reduction granted according with the rules adopted in the country.

Tax components are presented as share of energy cost, vehicle purchasing and vehicle operating costs.

More detailed values are reported in annex 1 (A1.6.1).

Slovenia – Road																																			
Energy taxes	Fuel tax	Amount of charge by type (2018): - Gasoline (only unleaded available): 0.57628 €/l - Gas oil (propellant): 0.50232 €/l - Gas oil (when used as motor fuel for agricultural purposes): 0.17453 €/kl - LPG (propellant): 200.57 €/ton - Natural gas (propellant): 3.74 €/gigajoule VAT: 22% rate applies to all fuel types																																	
Vehicle taxes	Purchase and registration tax	<u>VAT</u> VAT is applied at the rate of 22% on the sale of new vehicles. The registration tax is expressed as a percentage of the vehicle's purchase price and based on the engines fuel type and CO2 emissions of the vehicle. Tax rates (2017/2018): <table><tr><th>CO₂</th><th>Petrol (%)</th><th>Diesel (%)</th></tr><tr><td>0-110</td><td>0.5</td><td>1.0</td></tr><tr><td>111-120</td><td>1.0</td><td>2.0</td></tr><tr><td>121-130</td><td>1.5</td><td>3.0</td></tr><tr><td>131-150</td><td>3.0</td><td>6.0</td></tr><tr><td>151-170</td><td>6.0</td><td>11.0</td></tr><tr><td>171-190</td><td>9.0</td><td>15.0</td></tr><tr><td>191-210</td><td>13.0</td><td>18.0</td></tr><tr><td>211-230</td><td>18.0</td><td>22.0</td></tr><tr><td>231-250</td><td>23.0</td><td>26.0</td></tr><tr><td>> 250</td><td>28.0</td><td>31.0</td></tr></table>	CO ₂	Petrol (%)	Diesel (%)	0-110	0.5	1.0	111-120	1.0	2.0	121-130	1.5	3.0	131-150	3.0	6.0	151-170	6.0	11.0	171-190	9.0	15.0	191-210	13.0	18.0	211-230	18.0	22.0	231-250	23.0	26.0	> 250	28.0	31.0
	CO ₂	Petrol (%)	Diesel (%)																																
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211-230	18.0	22.0																																	
231-250	23.0	26.0																																	
> 250	28.0	31.0																																	
	Ownership tax	All road vehicles, including those covered by the Motor vehicles tax, are subject of payment of an annual motor vehicles fee. For trucks (depending on the max. allowed weight): - till 4 t: 101.94 EUR - over 4 t: 22.86 EUR/t For trucks with trailer depending on the designated power of the motor - kW: - till 190 kW: 5.37 EUR/kW - over 190 kW: 1,019.37 EUR/truck For trailers (depending on the weight): - till 2 t: 38.22 EUR - over 2 t: 19.11 EUR/t																																	

Slovenia – Road		
Vehicle taxes	Insurance tax	8.5% of the insurance premium 8.5%+1% of the premium. Additional 1% represents the Fire brigade tax which is only applicable to insurance contracts which also cover fire risks.
Infrastructure charges	Tolls	The toll rates are based on the distance travelled, the category and the emission class of the vehicle. There exist 2 toll classes: - R3 (1st toll class): Motor vehicles with two or three axles and whose maximum permissible weight exceeds 3,500 kg, and groups of vehicles with two or three axles and whose maximum permissible towing vehicle weight exceeds 3,500 kg. Also differentiated on EURO class. Price per kilometre in EUR without VAT: 0.205940 - R4 (2nd toll class): Motor vehicles with more than three axles and whose maximum permissible weight exceeds 3,500 kg, and groups of vehicles with more than three axles and whose maximum permissible towing vehicle weight exceeds 3,500 kg. Also differentiated on EURO class. Price per kilometre in EUR without VAT: 0.428356 (see annex 1, chapter A1.6.1.3 – infrastructure charges)
Subsidies/ grants	Excise duties reduction	Transport companies may require a reduction on the excise duties. The reduction is: EUR 0.0853 per litre of diesel fuel. The beneficiaries of this reduction are all heavy goods vehicles with a maximum laden mass of 7.5 tonnes or more.

Table 1-10: Road costs components – Slovenia

1.6.2 Rail transport

This section presents data on electricity taxes, rail infrastructure charges, subsidies/grants for rail transport in Slovenia. The specific values are shown

in the table below and better explained in annex 1 (A1.6.2).

Slovenia – Rail		
Energy taxes	Electricity tax	Amount of charge (2018): EUR 3.85 / MWh No tax exemption or reduced rates are applied in the railway sector.
Infrastructure charges	Rail infrastructure charges	Rail infrastructure charges depend on: - Train type (wagon load / container train) - Train dimension (short/long train) A representative average of the rail infrastructure access charge, including electricity tax is: 0.98 €/km, excl. VAT (representative for both – electric and diesel train).

Table 1-11: Rail costs components – Slovenia

1.7 Switzerland

1.7.1 Road transport

The table below presents the data collected on road costs component determined by fiscal policies applied in Switzerland and by the road charging schemes adopted. It also includes the exemptions and reduction granted according with the rules adopted in the country.

Tax components are presented as share of energy cost, vehicle purchasing and vehicle operating costs.

More detailed values are reported in annex 1 (A1.7.1).

Switzerland – Road																																			
Energy taxes	Fuel tax	The petroleum tax varies heavily depending on the product and the use of the product (engine fuel, heating fuel, technical purposes). Relevant tax for road transport per litre is: 73.12 Rappen for unleaded petrol (≅ 65 cents) 75.87 Rappen for diesel oil (≅ 70 cents)																																	
Vehicle taxes	Purchase and registration tax	<u>VAT</u> VAT is applied at the rate of 22% on the sale of new vehicles. The registration tax is expressed as a percentage of the vehicle's purchase price and based on the engines fuel type and CO2 emissions of the vehicle. Tax rates (2017/2018): <table><tr><th>CO₂</th><th>Petrol (%)</th><th>Diesel (%)</th></tr><tr><td>0-110</td><td>0.5</td><td>1.0</td></tr><tr><td>111-120</td><td>1.0</td><td>2.0</td></tr><tr><td>121-130</td><td>1.5</td><td>3.0</td></tr><tr><td>131-150</td><td>3.0</td><td>6.0</td></tr><tr><td>151-170</td><td>6.0</td><td>11.0</td></tr><tr><td>171-190</td><td>9.0</td><td>15.0</td></tr><tr><td>191-210</td><td>13.0</td><td>18.0</td></tr><tr><td>211-230</td><td>18.0</td><td>22.0</td></tr><tr><td>231-250</td><td>23.0</td><td>26.0</td></tr><tr><td>> 250</td><td>28.0</td><td>31.0</td></tr></table>	CO ₂	Petrol (%)	Diesel (%)	0-110	0.5	1.0	111-120	1.0	2.0	121-130	1.5	3.0	131-150	3.0	6.0	151-170	6.0	11.0	171-190	9.0	15.0	191-210	13.0	18.0	211-230	18.0	22.0	231-250	23.0	26.0	> 250	28.0	31.0
	CO ₂	Petrol (%)	Diesel (%)																																
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211-230	18.0	22.0																																	
231-250	23.0	26.0																																	
> 250	28.0	31.0																																	
	Ownership tax	Lump-sum heavy vehicle charge – Heavy vehicle charge (PSVA – Pauschalierte Schwerverkehrsabgabe) A performance-related heavy vehicle charge is payable for transport motor vehicles and trailers with a total weight of over 3.5 tonnes <table><tr><td>Tractors and motor carriages, Other motor vehicles for the carriage of goods and with a maximum speed of 45 km/h</td><td>The rate of charge per 100 kg of total weight: CHF 11,-- (≅ EUR 9.75)</td></tr><tr><td>Semi-trailers, which are pulled of passenger cars or motorhomes with a total weight of over 3.5t</td><td>The rate of charge per 100 kg of trailer load: CHF 22,-- (≅ EUR 19.49)</td></tr><tr><td>Semi-trailers, which are pulled of tractors and motor carriages, other motor vehicles for the carriage of goods and with a maximum speed of 45 km/h</td><td>The rate of charge per 100 kg of trailer load: CHF 11,-- (≅ EUR 9.75)</td></tr></table>	Tractors and motor carriages, Other motor vehicles for the carriage of goods and with a maximum speed of 45 km/h	The rate of charge per 100 kg of total weight: CHF 11,-- (≅ EUR 9.75)	Semi-trailers, which are pulled of passenger cars or motorhomes with a total weight of over 3.5t	The rate of charge per 100 kg of trailer load: CHF 22,-- (≅ EUR 19.49)	Semi-trailers, which are pulled of tractors and motor carriages, other motor vehicles for the carriage of goods and with a maximum speed of 45 km/h	The rate of charge per 100 kg of trailer load: CHF 11,-- (≅ EUR 9.75)																											
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Semi-trailers, which are pulled of tractors and motor carriages, other motor vehicles for the carriage of goods and with a maximum speed of 45 km/h	The rate of charge per 100 kg of trailer load: CHF 11,-- (≅ EUR 9.75)																																		
	Insurance tax	7.7% (VAT) on the whole insurance premium																																	

Switzerland – Road														
Infrastructure charges	Toll	Distance based road charge - Performance-related heavy vehicle charge (LSVA- Leistungsabhängige Schwerverkehrsabgabe)												
		The LSVA is calculated on the basis of the kilometres driven, the total permissible laden weight as well as the emission values of the towing vehicle.												
		<table><tr><th>Tax category</th><th>Euro category</th><th>Rate</th></tr><tr><td>I</td><td>Euro 3*, 2*, 1 and 0</td><td>3.10 ct./tkm (≙ 2.75 €ct)</td></tr><tr><td>II</td><td>Euro 4 and 5 (EEV)</td><td>2.69 ct./tkm (≙ 2.38 €ct)</td></tr><tr><td>III</td><td>Euro 6</td><td>2.28 ct./tkm (≙ 2.02 €ct)</td></tr></table>	Tax category	Euro category	Rate	I	Euro 3*, 2*, 1 and 0	3.10 ct./tkm (≙ 2.75 €ct)	II	Euro 4 and 5 (EEV)	2.69 ct./tkm (≙ 2.38 €ct)	III	Euro 6	2.28 ct./tkm (≙ 2.02 €ct)
		Tax category	Euro category	Rate										
		I	Euro 3*, 2*, 1 and 0	3.10 ct./tkm (≙ 2.75 €ct)										
II	Euro 4 and 5 (EEV)	2.69 ct./tkm (≙ 2.38 €ct)												
III	Euro 6	2.28 ct./tkm (≙ 2.02 €ct)												
* 10% discount for vehicles retrofitted with particle filter systems which keeps the particle limit value Euro 4 (0,02 g/kWh)														

Table 1-13: Rail costs components – Switzerland

1.7.2 Rail transport

This section presents data on electricity taxes, rail infrastructure charges, subsidies/grants for rail transport in Switzerland.

The specific values are shown in the table below and better explained in annex 1 (A1.7.2).

Switzerland – Rail																										
Energy taxes	Electricity tax	In Switzerland no tax on electricity is existing																								
Infrastructure charges	Rail infrastructure charges	Rail infrastructure charges depend on: • Train type (wagon load / container train) • Train dimension (short/long train) • Power – electric or diesel • Noise emission A representative average of the rail infrastructure access charge, including electricity tax is: 2.83 €/km, excl. VAT. Access charges for diesel trains are normally lower than electric ones, but in Switzerland they are higher: 3.30 €/km, excl. VAT.																								
Subsidies/grants	Bundes-subsvention Schienengüter-verkehr	Federal governmental subsidies for rail freight operations can be given to railway undertakings and third parties to cover governmental ordered combined transport and single wagon load performance that is not covered by market prices (no fixed subsidy levels).																								
	Subsidy for transalpine unaccompanied transport	For 2019 the maximum subsidy rates in Swiss francs are: <table> <tr> <th>Region of train's place of origin/destination</th><th>Subsidy per consignment (in CHF)</th><th>Subsidy per train (in CHF)</th><th>Max. subsidy for a train (since 2017: 32 eligible consignments)</th></tr> <tr> <td>France</td><td>82</td><td>450</td><td>CHF 3,074</td></tr> <tr> <td>The Netherlands (excluding Limburg)</td><td>82</td><td>530</td><td>CHF 3,154</td></tr> <tr> <td>Limburg (NL)</td><td>82</td><td>700</td><td>CHF 3,324</td></tr> <tr> <td>UK, Belgium, Luxembourg, Scandinavia, northern Germany, Rhine-Ruhr and Main area</td><td>82</td><td>800</td><td>CHF 3,424</td></tr> <tr> <td>Southwest Germany and Switzerland</td><td>82</td><td>1050</td><td>CHF 3,274</td></tr> </table> (see annex 1, chapter A1.7.1.4– subsidies/grants)		Region of train's place of origin/destination	Subsidy per consignment (in CHF)	Subsidy per train (in CHF)	Max. subsidy for a train (since 2017: 32 eligible consignments)	France	82	450	CHF 3,074	The Netherlands (excluding Limburg)	82	530	CHF 3,154	Limburg (NL)	82	700	CHF 3,324	UK, Belgium, Luxembourg, Scandinavia, northern Germany, Rhine-Ruhr and Main area	82	800	CHF 3,424	Southwest Germany and Switzerland	82	1050
Region of train's place of origin/destination	Subsidy per consignment (in CHF)	Subsidy per train (in CHF)	Max. subsidy for a train (since 2017: 32 eligible consignments)																							
France	82	450	CHF 3,074																							
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Limburg (NL)	82	700	CHF 3,324																							
UK, Belgium, Luxembourg, Scandinavia, northern Germany, Rhine-Ruhr and Main area	82	800	CHF 3,424																							
Southwest Germany and Switzerland	82	1050	CHF 3,274																							

Table 1-13: Rail costs components – Switzerland

1.8 Summary tables

1.8.1 Road transport

The table below presents a summary compared view of the data collected on road costs component determined by fiscal policies applied in the seven EUSALP countries and by the road charging schemes adopted.

It also includes the exemptions and reduction granted according with the rules adopted in the country.

Tax components are presented as share of energy cost, vehicle purchasing and vehicle operating costs.

		Austria	France	Germany	Italy	Liechtenstein	Slovenia	Switzerland
Fuel tax	<i>criteria</i>	Based on fuel type and a minimum content of biofuel	Based on fuel type and including CO2 tax	Based on fuel type and differentiated by the sulphur content	Based on fuel type	Based on fuel type	Based on fuel type, including surcharge: on energy end-use efficiency, for promotion of electricity generation from renewable energy sources and high-efficiency co-generation, on CO2 tax. Gasoline is additionally subject to a strategic stockpile fee	Based on fuel type
	<i>indicative taxes applied (diesel)</i>	0.4250 €/l	0.5940 €/l	0.4704 €/l	0.6174 €/l	0.7100 €/l	0.5023 €/l	0.7100 €/l
VAT		20%	20%	19%	22%	7.7%	22%	7.7%
Registration tax		Based on registration fees (191.10 EUR)	Bonus/ malus system based on CO2 emissions	Based on purchase price + registration fees (EUR 26.30)	Based on GVW + registration fees (EUR 145.00)		Based on CO2 emissions and purchase price	
Ownership tax		Based on GVW	Based on Weight, Axles, use of the Trailer	Based on weight, exhaust emission group and noise	Based on weight, axles, suspension	Based on GVW	Based on GVW	Based on GVW

		Austria	France	Germany	Italy	Liechtenstein	Slovenia	Switzerland
Taxes on insurance	<i>Taxes levied, excluding VAT</i>	11% of the annual premium	15% of the annual premium + 2% of parafiscal charge		12.5% of the annual premium + 10.5% allocated to the National Health Service + 2.5% allocated to a Road Accident Victims Warranty Fund		8.5%+1% of the annual premium. Additional 1% represents the Fire brigade tax which is only applicable to insurance contracts which also cover fire risks.	
Infrastructure charges: Toll	<i>Based on vehicle category (number of axles)</i>	✓	✓	✓	✓	✓	✓	✓
	<i>Based on EURO emission class</i>	✓		✓		✓	✓	✓
	<i>Based on maximum allowed GVW</i>					✓		✓
	<i>Based on day/night time</i>	✓						

Table 1-14: Summary data collected on road costs component determined by fiscal policies applied in the 7 EUSALP countries and by the road charging schemes adopted

1.8.2 Rail transport

This section presents data on electricity taxes and rail infrastructure charges for rail transport in the seven

EUSALP Countries. The specific values are shown in the table below and better explained in annex 1.

		Austria	France	Germany	Italy	Liechtenstein	Slovenia	Switzerland
VAT		20%	20%	19%	22%	7.7%	22%	7.7%
Energy tax	<i>Electricity tax</i>	15 €/MWh	0.5 €/MWh	11.42 €/MWh	Exempted	15 €/MWh	3.85 €/MWh	Exempted
Rail infrastructure charges	<i>Train type (wagon load / container train)</i>	✓			✓	✓	✓	✓
	<i>Train dimension (short/long)</i>	✓		✓		✓	✓	✓

		Austria	France	Germany	Italy	Liechtenstein	Slovenia	Switzerland
Rail infrastructure charges	Power – electric or diesel		✓		✓	✓		✓
	Day/night time				✓			
	Noise emission	✓		✓				✓
	Average access charge, including electricity tax for electric trains	3.70 €/km, excl. VAT	1.55 €/km, excl. VAT.	2.25 €/km, excl. VAT	2.26 €/km, excl. VAT	3.70 €/km, excl. VAT	0.98 €/km, excl. VAT	2.83 €/km, excl. VAT
	for electric trains							
	Average access charges for diesel trains	3.70 €/km, excl. VAT	0.62 €/km, excl. VAT	2.25 €/km, excl. VAT	1.93 €/km, excl. VAT	3.70 €/km, excl. VAT	0.98 €/km, excl. VAT	3.30 €/km, excl. VAT

Table 1-15: Summary data collected on rail costs component – electricity tax, rail infrastructure charges and their differentiations.

2. Comparative analysis of policy-induced cost components for relevant Alpine transport relations

This section provides a comparative analysis of policy-induced cost components for relevant Alpine transport relations.

All costs are computed VAT excluded and are based on the assumptions reported in Table 2.1. Rail access charges are inclusive of energy costs.

	Unit	AT	CH	DE	FR	IT	LI*	SI
Fuel price excluding VAT**	€/litre	1.0417	1.4206	1.1042	1.0674	1.0648	1.4206	0.9883
Fuel price including VAT**	€/litre	1.250	1.530	1.314	1.281	1.299	1.530	1.206
Country excise duties***	€	0.425	0.7100	0.4704	0.3919	0.4032	0.7100	0.4159
% on prices excluding VAT	%	41%	50%	43%	37%	38%	50%	42%
VAT	%	20%	7.7%	19%	20%	22%	7.7%	22%
% Excise duties + VAT	%	61%	58%	62%	57%	60%	58%	64%
Fuel consumption HGV	Km/l	3.33	3.33	3.33	3.33	3.33	3.33	3.33
Average load HGV	tonne/veh	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Data at 1st January 2018 * Assumed equal to Switzerland ** Fuel price take into account excise duties reimbursed in IT, SI and FR *** Excise duties are net of the reimbursement rates in IT, SI and FR								

Table 2-1: Assumptions used for cost components calculation

2.1 Comparison of costs for Alpine road transport relations

Table 2-2 provides a synthesis of the key cost components for the road mode on main Alpine transport relations. Toll cost is computed by

considering a heavy good vehicle of emission class EURO VI driving during the day.

		Fuel tax (€)	Fuel cost* (€)	Toll** (€)	Toll** + Fuel (€)	Total cost (€/tkm)	Total cost (€/km)
FR - IT	Ventimiglia [409 km] Genoa/Marseille	65.3	150.5	93.4	243.9	0.04	0.55
	Montgenevre [227 km] Turin/Grenoble	36.3	83.6	30.2	113.8	0.04	0.45
	Frejus [315 km] Turin/Lyon	50.0	115.5	369.6	485.1	0.11	1.50
	Mont-Blanc [241 km] Ivrea/Belle-garde-sur-Valserine	38.6	88.8	372.7	461.5	0.14	1.87
CH - IT	Gr. St. Bernard [255 km] Turin/Lausanne	41.0	101.0	283.6	384.7	0.11	1.48
	Simplon [299 km] Gallarate/Lausanne	47.7	121.5	152.1	273.7	0.07	0.90
	Gotthard [288 km] Chiasso/Basel	49.9	122.9	216.1	338.9	0.09	1.18
	San Bernardino [246 km] Chiasso/St. Margrethen	42.6	104.9	184.6	289.5	0.09	1.18
AT-IT/SI-DE	Reschen [124 km] Merano/Landeck	21.2	47.2	9.4	56.6	0.03	0.42
	Brenner [432 km] Verona/Munich	74.6	168.4	127.0	295.4	0.05	0.65
	Felbertauern [295 km] Villach/Innsbruck	53.9	110.7	113.7	217.4	0.05	0.74
	Tauern [285 km] Salzburg/Ljubljana	52.1	89.3	150.9	257.0	0.07	0.90
	Tauern & Tarvisio [317 km] Udine/Salzburg	57.6	116.8	116.4	283.5	0.06	0.74
	Semmering [338 km] Villach/Vienna	61.7	105.7	36.9	142.6	0.03	0.42
	Wechsel [364 km] Villach/Vienna	66.5	113.9	135.9	249.7	0.05	0.69
	Pyhrn [285 km] Linz/Maribor	51.8	91.0	121.8	212.8	0.06	0.75

*Fuel costs are inclusive of fuel taxes

** Toll is computed for HGV class emission EURO VI driving during the day

Table 2-2: Cost components on Alpine road transport relations (excluding VAT)

Figure 2-1 shows a comparison of cost components for road mode on Alpine transport relations. The highest tolls are observed for the Mont-Blanc, the Frejus and the Gr. St. Bernard crossing which are

due to the high tunnel tolls. If tunnel tolls are not considered, the highest tolls are recorded along the north-south corridors crossing Switzerland.

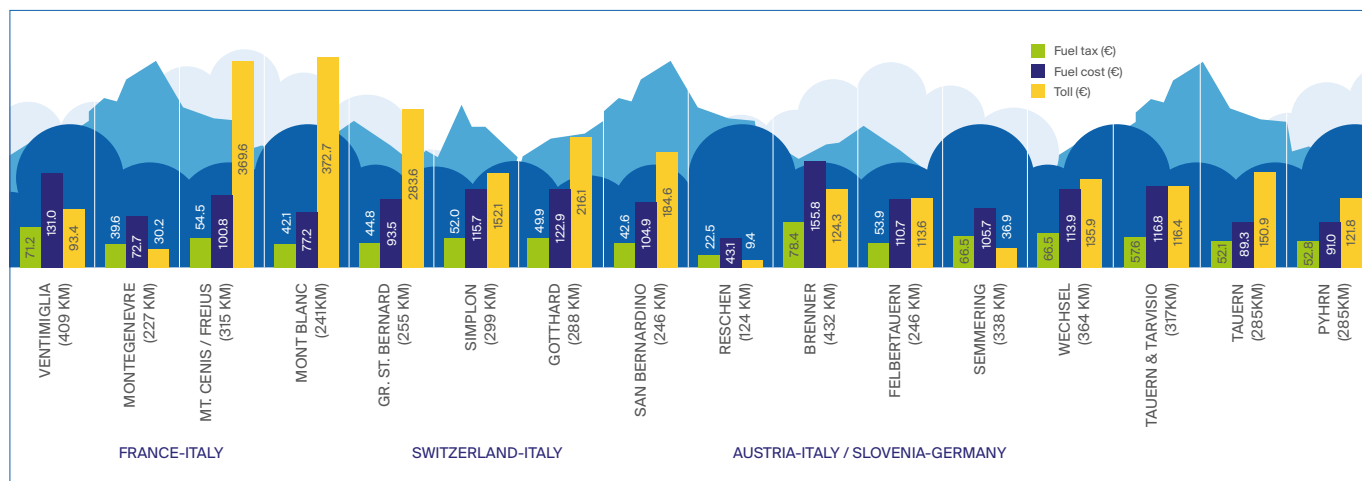


Figure 2-1: Comparison of cost components for road mode on Alpine transport relations (€/vehicle, excluding VAT)

Fuel costs are inclusive of fuel taxes

Toll is computed for HGV class emission EURO VI driving during the day

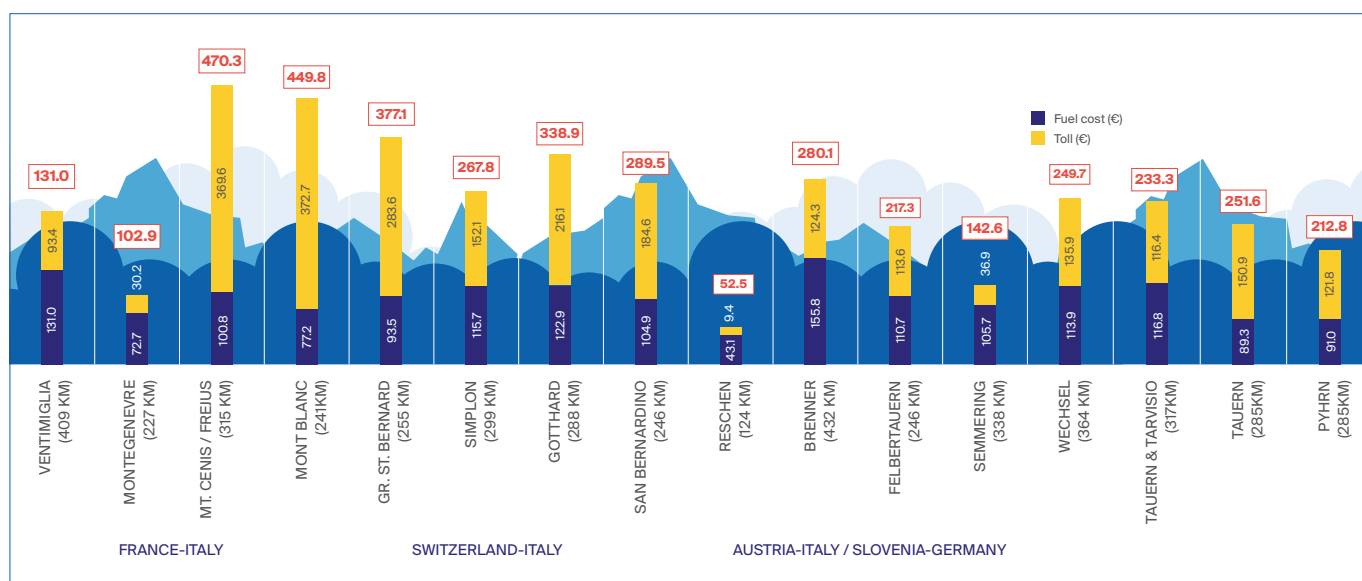


Figure 2-2: Comparison of total cost (toll + fuel) on Alpine road transport relations (€/vehicle, excluding VAT)

Fuel costs are inclusive of fuel taxes

Toll is computed for HGV class emission EURO VI driving during the day

The distribution of unit cost represented in the following figures (Figure 2 3 and Figure 2 4) is

influenced by the cost of tolls which in proportion impact more on the overall cost.

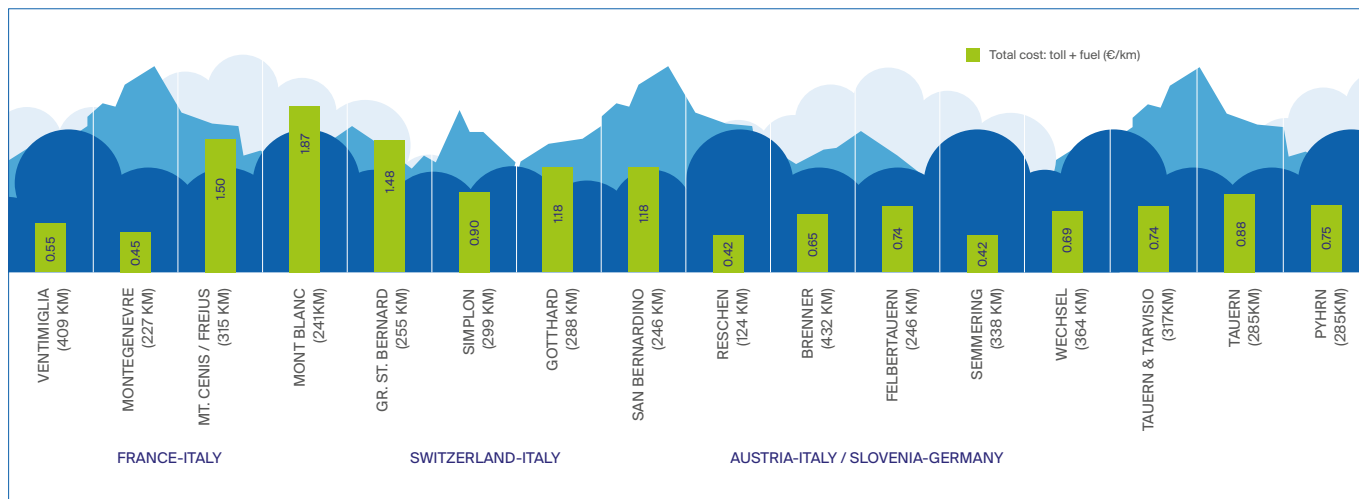


Figure 2-3: Unitary costs of road Alpine transport relations - Euro per km (excluding VAT)

Fuel costs are inclusive of fuel taxes

Toll is computed for HGV class emission EURO VI driving during the day

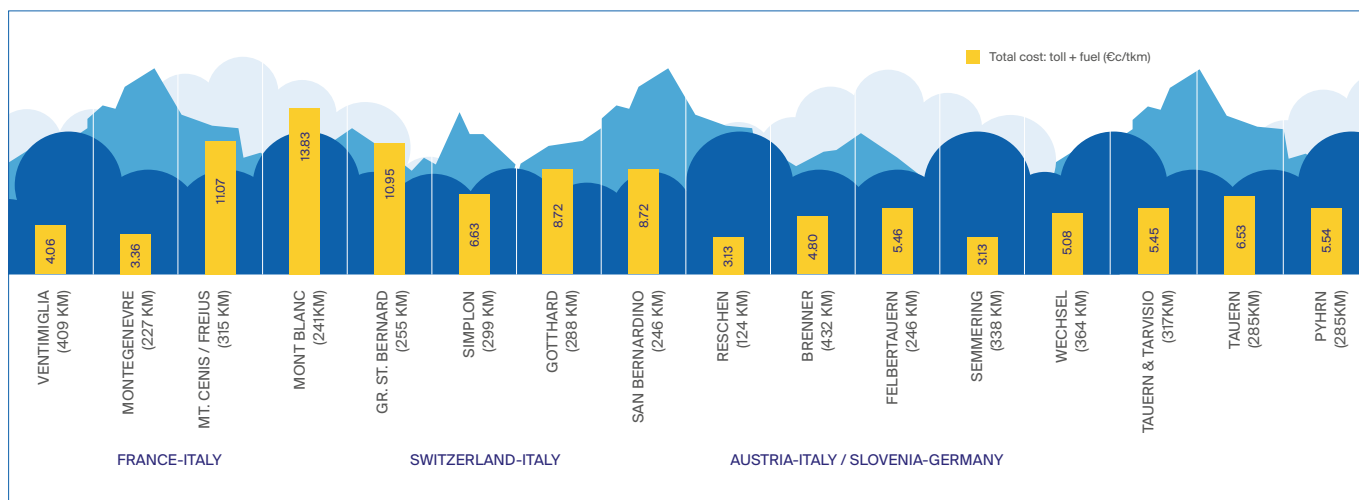


Figure 2-4: Unitary costs of road Alpine transport relations - Euro cent per tkm (excluding VAT)

2.2 Comparison of costs for Alpine rail transport relations

Table 2-3 provides a summary view of the access charges component of the cost for the rail mode on

main Alpine transport relations. Access charges are inclusive of energy cost.

		Access charge* (€)	Access charge (€/tkm)	Access charge (€/km)
FR - IT	Ventimiglia [388.3 km] Genoa/Marseille	714.8	0.0037	1.84
	Mt. Cenis/Frejus [330.7 km] Turin/Lyon	586.2	0.0035	1.77
CH - IT	Simplon [269.6 km] Gallarate/Lausanne	502.0	0.0039	1.93
	Gotthard [278 km] Chiasso/Basel	785.3	0.0057	2.83
	San Bernardino [325.5 km] Chiasso/St. Margarithen	919.6	0.0057	2.83
AT-IT/SI-DE	Brenner [431.7 km] Verona/Munich	1083.0	0.0050	2.51
	Tauern [281 km] Salzburg/Ljubljana	848.3	0.0060	3.02
	Tauern & Tarvisio [289.4 km] Udine/Salzburg	955.2	0.0066	3.30
	Pyhrn [313 km] Linz/Maribor	1115.6	0.0071	3.56
	Semmering [359.2 km] Villach/Vienna	1332.2	0.0074	3.71

*Access charges are inclusive of energy cost

Table 2-3: Cost components on Alpine rail transport relations

Figure 2-5 shows a comparison of total rail access charges on Alpine transport relations. The differences

are explained by the different unit cost (highlighted in the table above) and the difference travel distance.

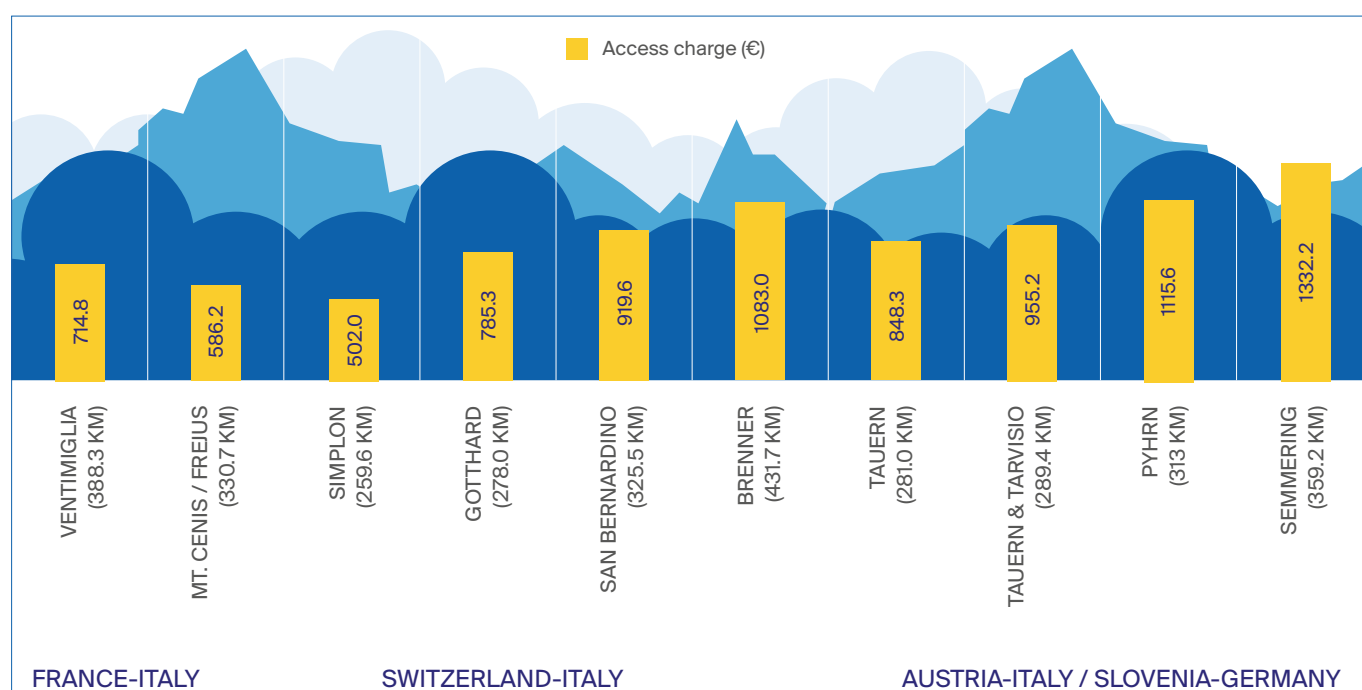


Figure 2-5: Comparison of rail access charges on Alpine transport relations

*Access charges are inclusive of energy cost

Figure 2-6 shows the unitary costs of rail Alpine transport relations calculated as Euro per kilometre.

The average cost of these Alpine relations spreads between 1.77 (Mont-Cenis) and 3.71 Euro/km (Semmering).

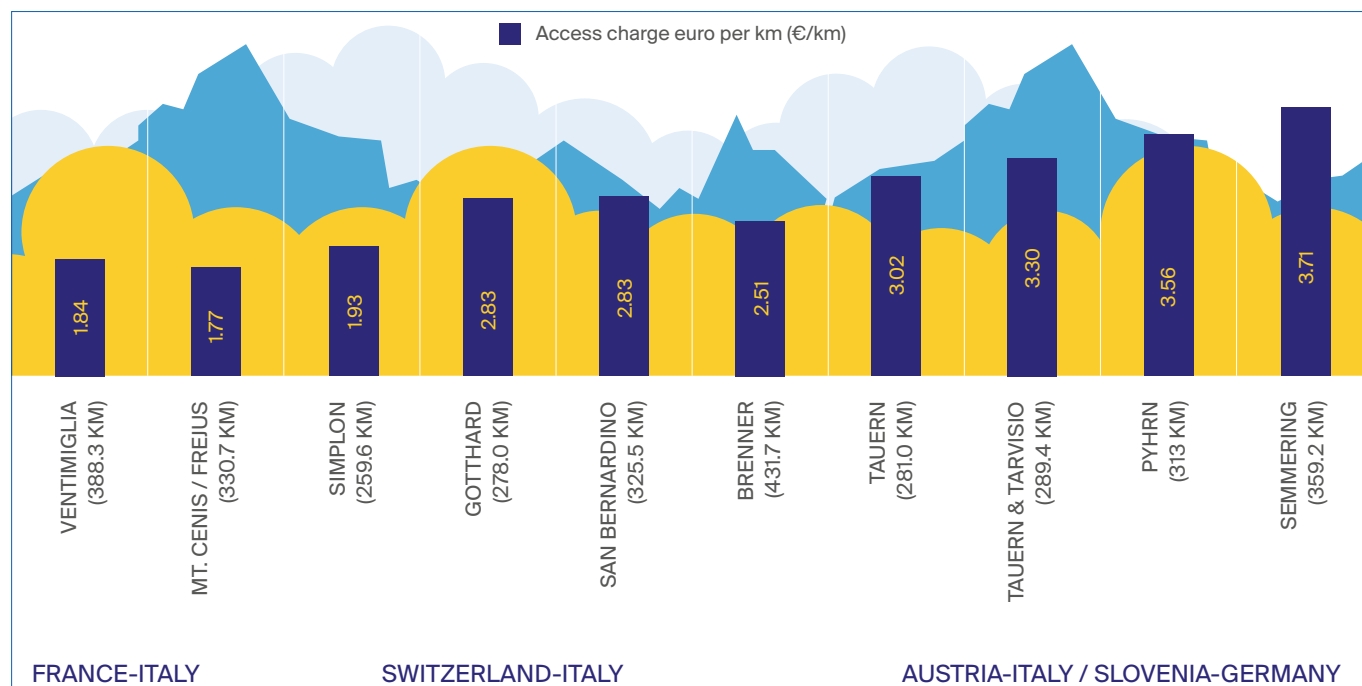


Figure 2-6: Unitary costs of rail Alpine transport relations - Euro per km (€/km)

Figure 2-7 shows unitary costs of rail Alpine transport relations calculated as Euro cent per tonne-kilometre.

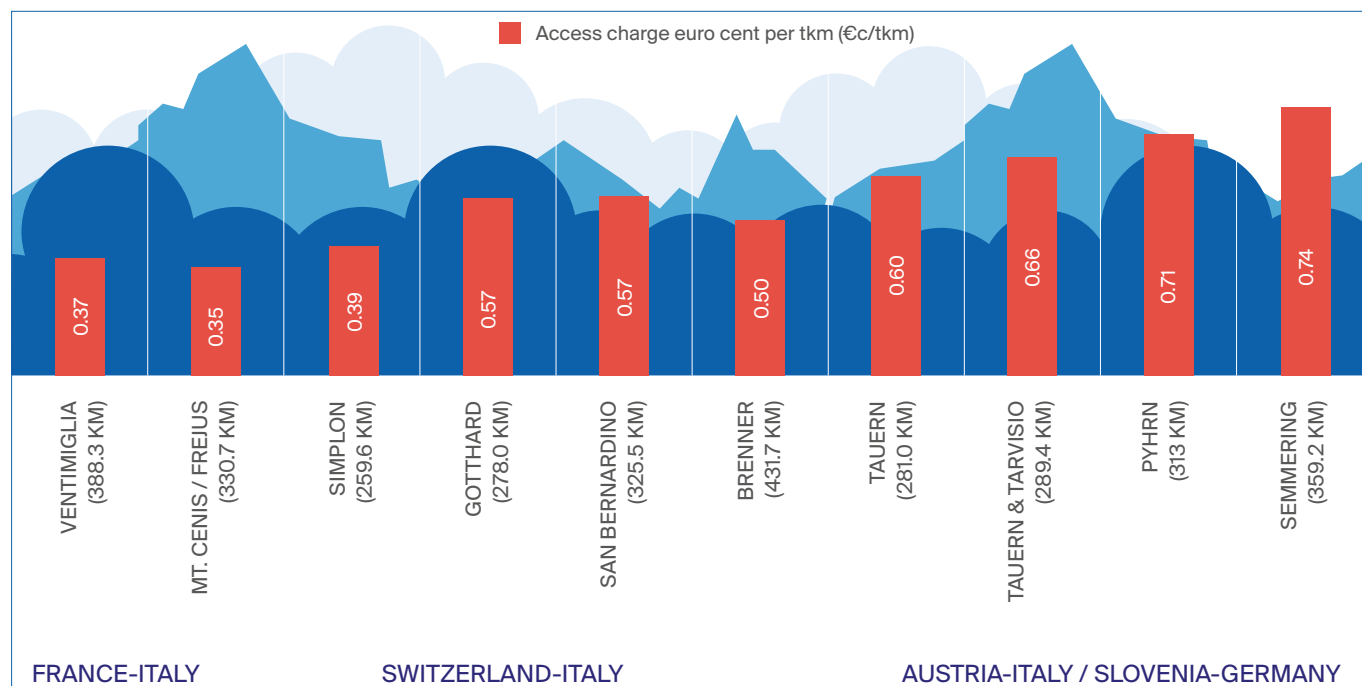


Figure 2-7: Unitary costs of rail Alpine transport relations - Euro cent per tkm (€/tkm)

3. Modal shift policy: needs for streamlining and harmonisation

The Alpine regions are particularly sensitive to the negative impacts of freight transport. To tackle the common challenges, one promising way is to encourage the shift of goods from road to rail.

The analysis provided in the previous sections has demonstrated that there are different policies applied in the various member states for both the road and rail sectors that set incentives for modal shift. One objective of this study is to propose some next steps for better streamlining and harmonising modal shift policies and measures in the Alpine Region.

Besides the operational problem and the lack of interoperability some issues related to the fiscal and administrative burden have been identified that jeopardise the possibility to reach a better balance in mode usage:

- The application of different road tolls, taxes and charges in the different countries and along the different corridors crossing the Alps
- The diverse criteria that lie behind the application of the taxes levied on either one or the other mode: various tax components have been identified that can affect the costs of both road and rail modes.

The following recommendations have been identified and are described below.

3.1 Harmonisation of tolls: the way to go

The following graph illustrates average road tolls (€ct/km) applied over specific corridors crossing the Alps at the selected crossing points.

Together with other cost components, road tolls are responsible for route choice and strong disparity between countries can lead to market distortions. Typically, detours can be observed, which lead to higher absolute polluting emissions in the Alpine area.

As a matter of fact, while higher tolls could be seen as an incentive to shift goods from road to rail, in some cases, they can produce only a change of route.

The map shows the corridors where tolls are comparatively higher. The disparity of application is sharpened by the presence of high punctual tolls to pass through some road tunnels (e.g. Mont Blanc, Fréjus) – short trip involving the passage through one tunnel may be further penalised in terms of unit cost.

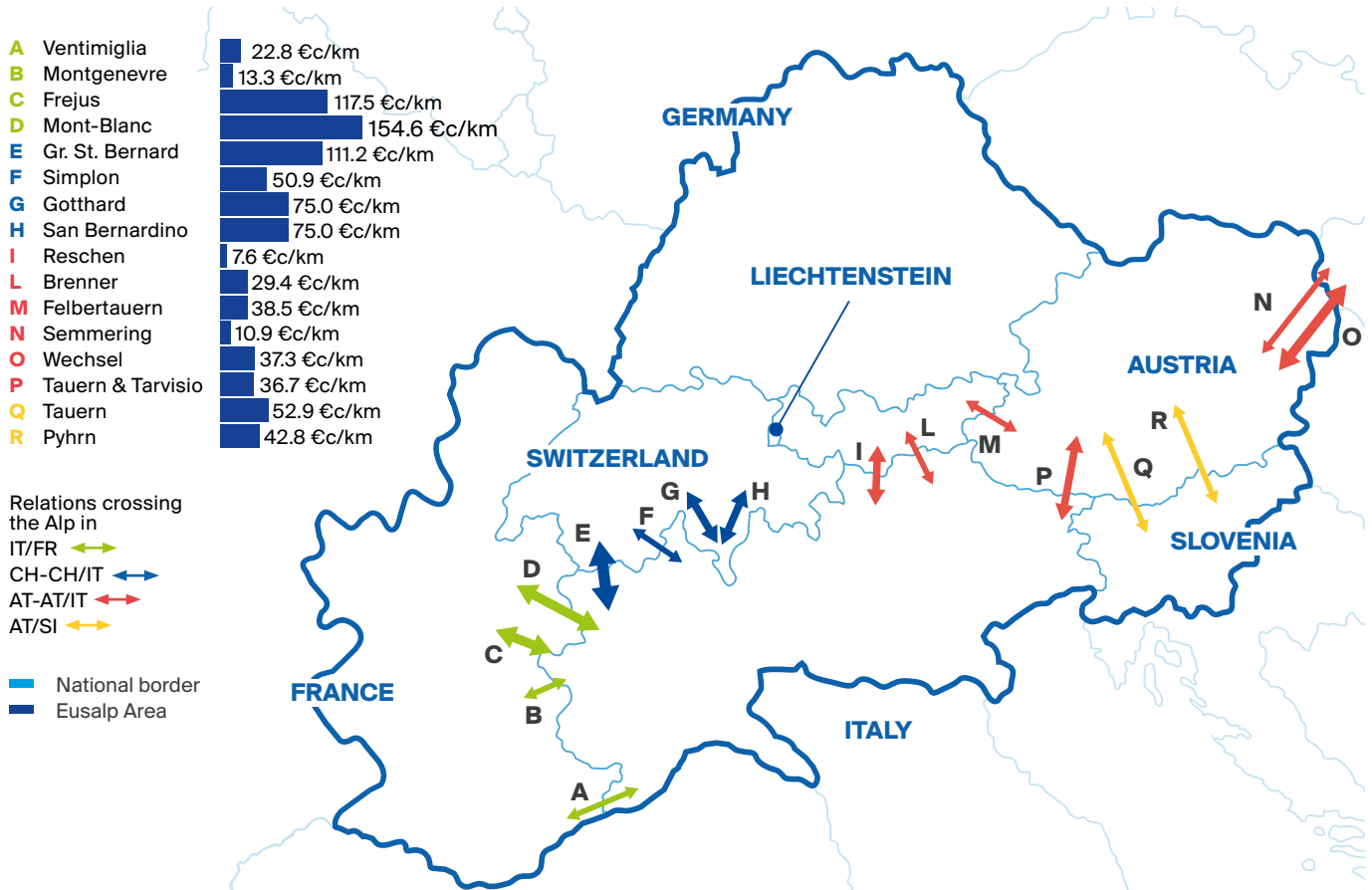


Figure 3-1: Average tolls calculated on representative relations (per alpine crossing point)

The question is whether there should be one common toll rate for all alpine crossings/routes or different rates for different crossings/routes or different countries. The "optimum" tolls applied should be indeed analysed and possibly fixed with a focus on: minimising detours and thus reducing the overall distance travelled in the Alpine Space.

The current level of road traffic at different crossings would suggest that some deviations are adopted by transport operator, avoiding the transit through Switzerland.

However, it must be remarked that road tolling is just one of the factors driving the route choice. Significant administrative burden related to other aspect of

the transport regulation may apply. In the case of Switzerland, the time constraints are relevant due to: night driving bans, customs controls, inspections and control of compliance with the existing regulations (e.g. social legislation, road worthiness, goods carried, etc.) and the dosing system at the Gotthard tunnel (up to 150 HGV admitted per hour per direction, depending on the passenger traffic volume).

The following graph, by considering only the distance related tolls (so without the tunnels) shows clearly that Swiss transits are far more expensive than the other corridors:

In order to harmonise tolls across the transalpine corridors, it would be recommended that all Member

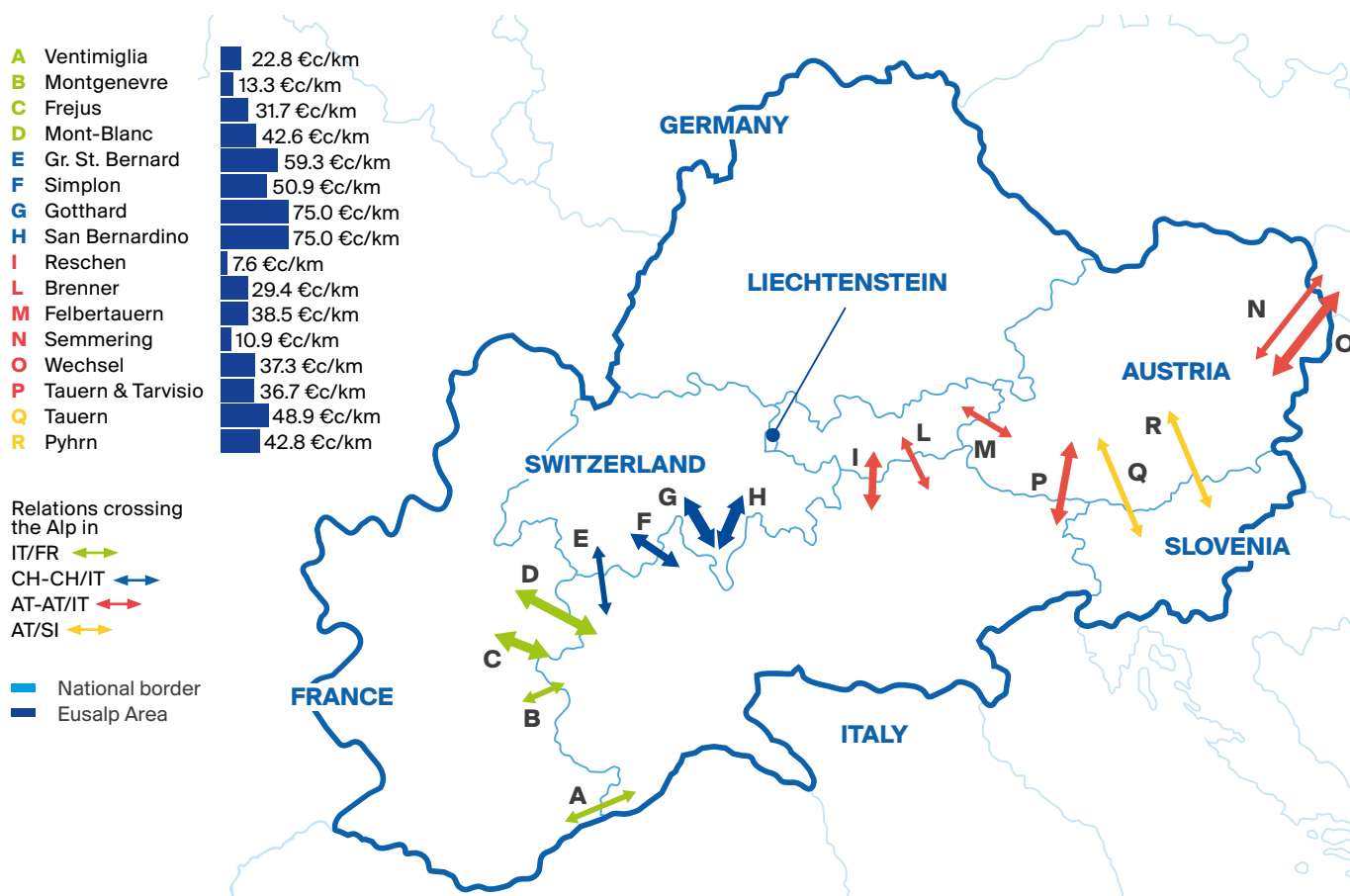


Figure 3-2: Average tolls calculated on representative alpine relations without tunnel fees

States apply the full potential of the Eurovignette Directive (revision process currently ongoing) by internalising all external costs and/or making full use of the mark-up factor for mountain regions.

iMONITRAF! (www.imoitraf.org) has elaborated similar proposals on Toll Plus, claiming for:

- Full internalisation of external costs;
- Harmonisation of tolls to avoid uneven distribution of traffic
- Differentiation of tolls according to Euro Class, and CO2 emissions
- Special provisions for regional transport
- Investment of (part of) the revenues in rail infrastructure

3.2 Differentiation of vehicle charges: a common approach

Differentiating HGV road charges to CO₂ emissions could be a good policy instrument to incentivise the use of more efficient HGVs in terms of environmental impact, particularly as there is little support for other potential instruments (e.g. increasing fuel taxes, CO₂ regulation for new HGVs or CO₂-differentiated

purchase taxes). Experiences with differentiation of HGV road charges to EURO standards show that such schemes can be effective (Austria, Switzerland where the large majority of the fleet used in international transport is respecting the most advanced standards). It would be recommended

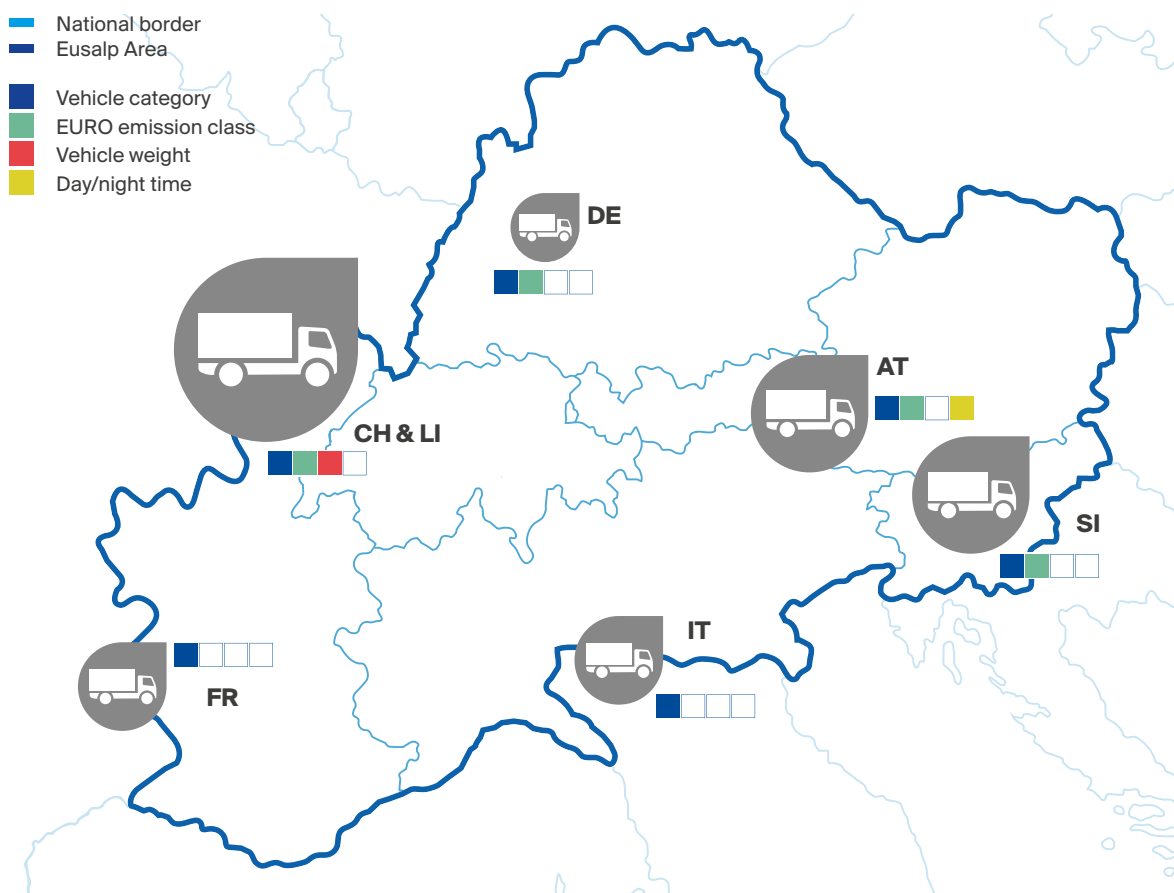


Figure 3-3: Criteria adopted to differentiate tolls in the EUSALP Countries

that the methodology for such differentiation (CO₂-differentiated road charging) is harmonised at the EUSALP and EU-level. This will increase its effectiveness (HGV owners perceive the same incentive in all EUSALP and EU countries), ensure that the internal market is maintained, reduce the administrative burden to international hauliers and public authorities and lower the risk that national charging schemes are designed in favour of domestic OEMs.

Additionally, differentiations are applied with respect to the time of the day (Austria). This causes sometimes long lines of vehicles, close to the

Austrian borders, waiting for day time to cross Austria. A wider application of differentiated tolls could limit this type of distortions.

Another option to support the modernisation of the HGV vehicle fleet is the differentiation of vehicle registration and purchase taxes according to CO₂-emissions (as already implemented in some EUSALP countries, most favourable is a bonus-malus system). Even if this measure only relates to the purchase of new vehicles, it can set additional incentives.

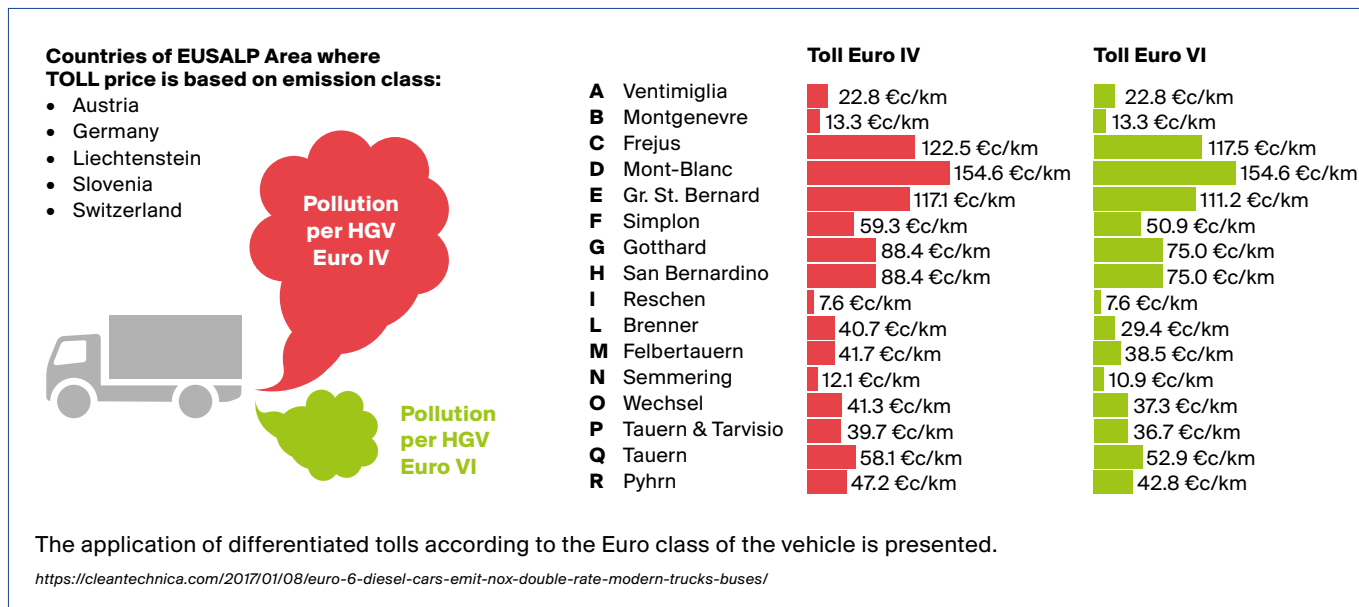


Figure 3-4: Toll based on emission class

3.3 Harmonisation of energy taxes

3.3.1 Road

While the industrial price of energy can be seen as nearly aligned among countries of the EUSALP Region, the energy tax of a vehicle is quite different. Within **road freight transport** the common means of

transport is an HGV powered by diesel. The following map shows the diesel tax per country (net of the excise reimbursement allowed for in Italy, France and Slovenia):

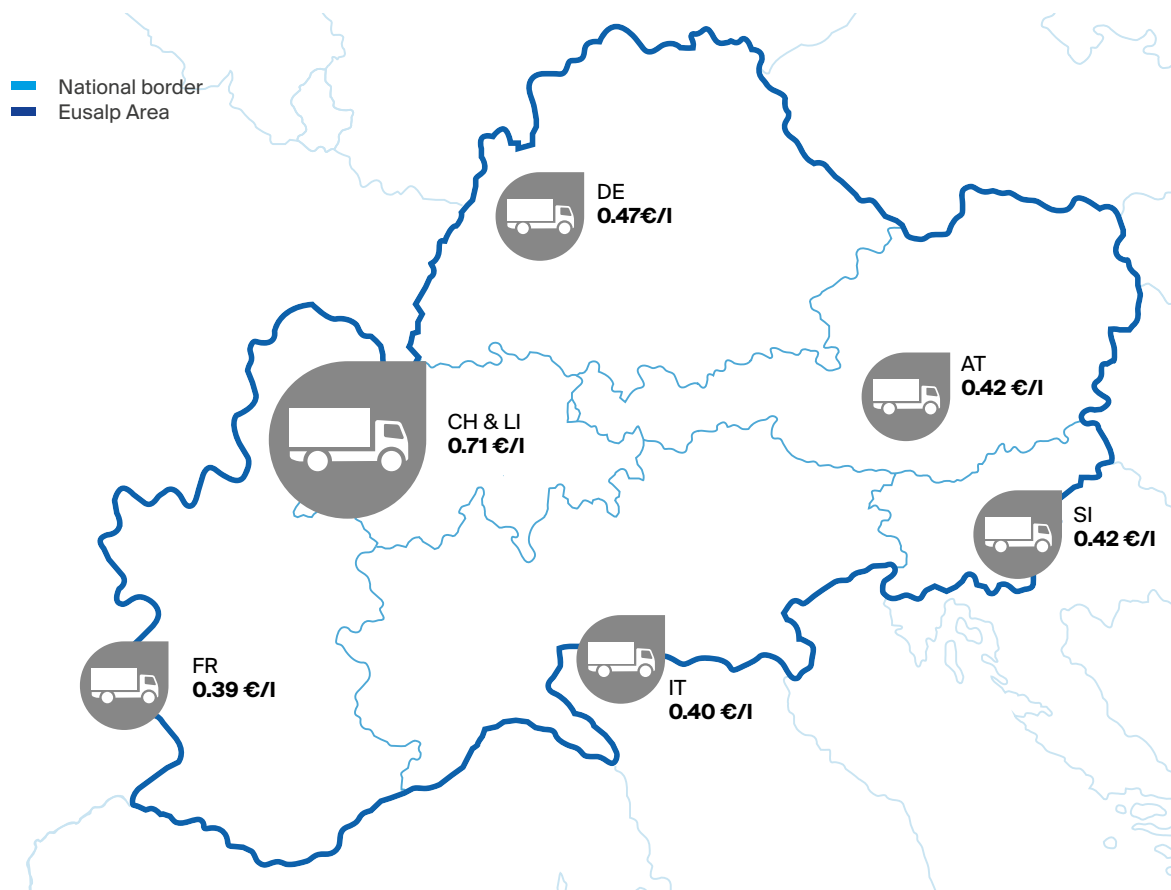


Figure 3-5: Diesel tax in the 7 EUSALP Countries

The maximum spread highlighted (32 €/l) would influence the operating cost of an HGV crossing the Alps for approximately 9-10 €/km and consequently makes certain corridors more attractive than others. However, strategies for tank filling can reduce this

impact and therefore the effect of differentiated taxes on energy is rather limited. On the other hand, high taxes on fuels can be seen as a way to internalise the external costs of air pollution.

3.3.2 Rail

Looking at rail transport (figure below), the electricity tax within EUSALP area, though it represents a very small share of the operating costs of a railway undertaking shows a wide differentiation. The

exemption applied in Italy and Switzerland may be seen as a good practice to be extended to the whole EUSALP area.

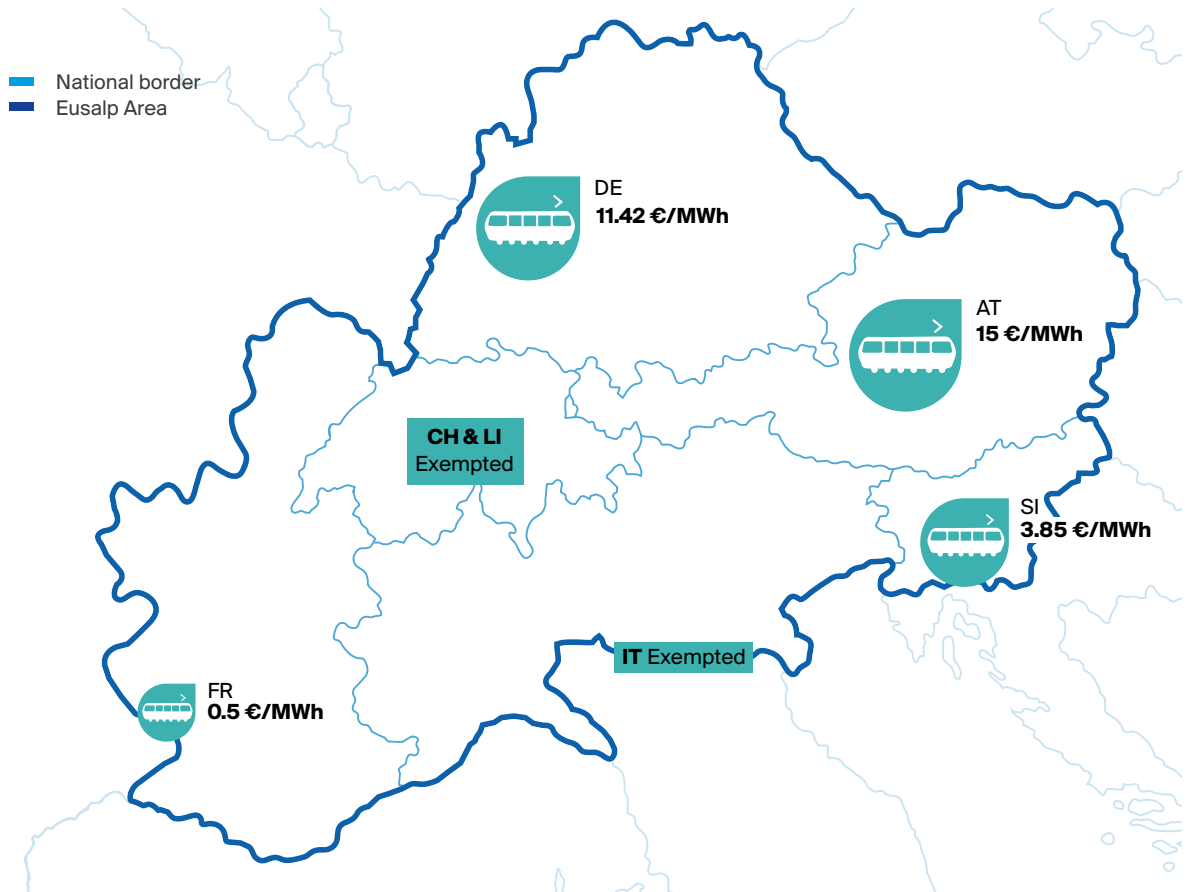


Figure 3-6: Electricity tax in the 7 EUSALP Countries

3.4 Rail infrastructure charges: clarity and harmonisation of design criteria

Rail infrastructure charges are determined and calculated in different ways as shown below.

A simplification of the calculation methods and the application of the same criteria to differentiate

the charges would be beneficial for the operators. Especially, a common approach to consider environmental aspects (especially regarding noise emissions) would be favourable.

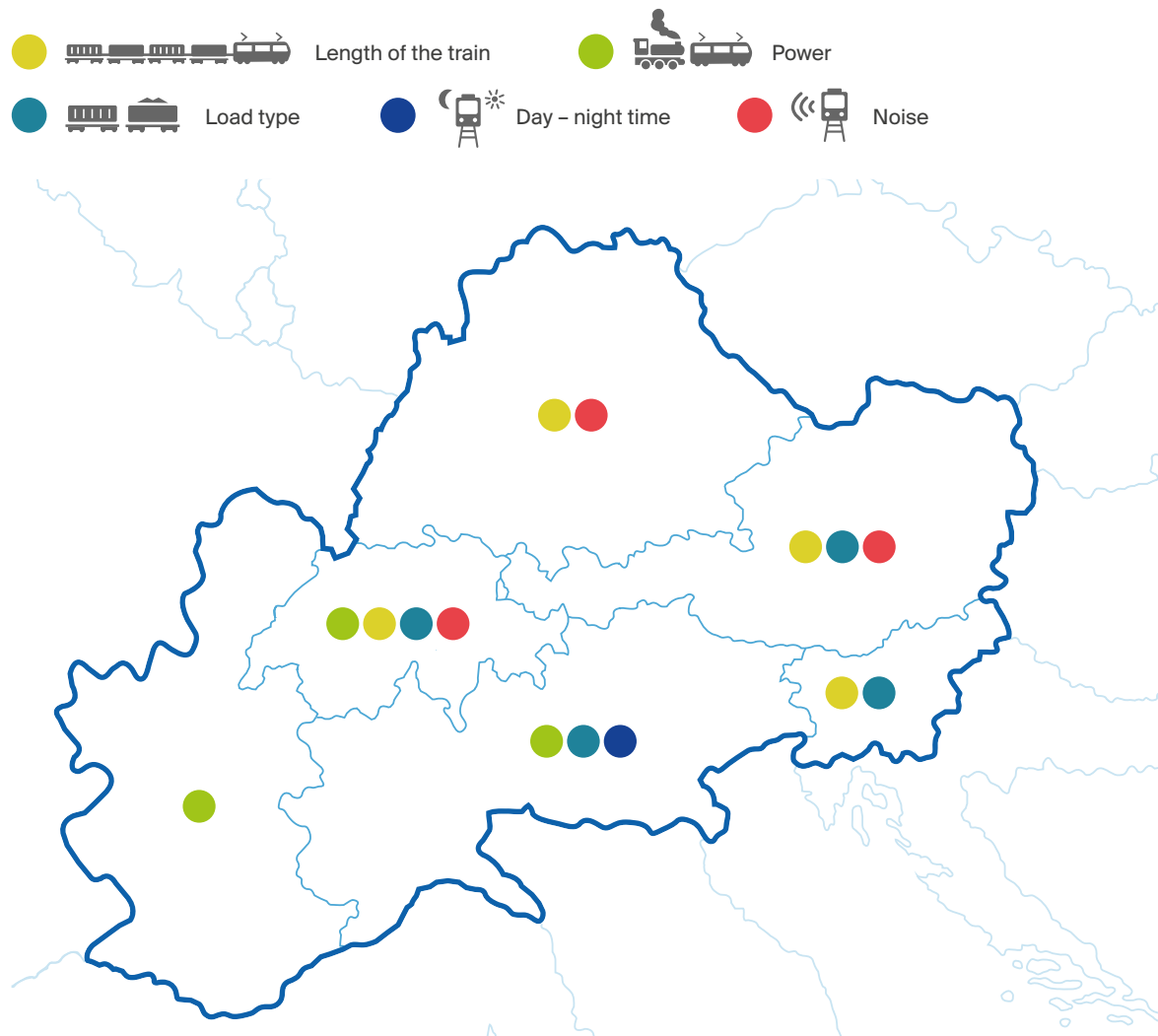


Figure 3-7: Differentiation of rail infrastructure charges in the 7 EUSALP Countries

3.5 Level-playing field

The analysis of the cost components demonstrates that, with respect to access charges and tax components of the transport costs, rail benefits of a favourable regulatory framework. Policy-induced cost components for rail transport (calculated per ton-km) are, in all Alpine countries, considerably lower than the comparable cost components for road transport. The measures that are applied to reduce the fiscal burden on road hauliers (e.g. the reimbursement of the excise taxes on fuel applied to a different extent in Italy, France and Slovenia) do not change this overall picture.

Even if a direct comparison is not possible, the current application of charges and taxes thus goes in the direction of levelling the playing field between road and rail transport. The negative environmental and social impacts of road transport are much more significant than those of rail and should be internalised fairly. The analysis of this study points out that external costs are partly considered in the existing pricing components for road freight transport but that additional steps are necessary to ensure their full internalisation. The ongoing revision of the Eurovignette Directive is a window of opportunity to better internalise the external costs and to give higher flexibility for mountain regions to consider over-proportional impacts.

Despite the favourable framework highlighted, rail still lacks competitiveness against road in many cases. In the case of transalpine transport, limitations are applied to the dimension of the trains that can be carried. This depends on the physical and geographical characteristics of the lines (e.g. slopes, tunnels).

Furthermore, one of the main barriers that hamper modal shift development is the cross-border

interoperability of the railway networks. This lack of interoperability in the rail sector is a complex barrier as it is the combination of a series of technical, administrative and infrastructural problems that generate operational problems resulting in: (i) slower transport operations; and (ii) increasing the operating costs borne by railway undertakings.

While overall the EU policy is targeting at eliminating the bottlenecks and to improve the interoperability, measures should be found to increase the quality of the services including the reliability, the speed and the information exchange.

With respect to the incentives and subsidies to increase the share of rail transport and to improve modal shift, a common and coordinated strategy of the EUSALP regions could contribute to the attainment of significant results. Among the relevant experiences and examples within the area

- the Swiss transport policy (including earmarking of revenues from road tolling in rail infrastructure and support),
- the coordination of the strategy of the three North Western regions in Italy (Lombardy, Liguria and Piedmont) as well as Friuli Venezia Giulia that also in combination with the national Ferrobonus have led to a significant increase of rail traffic in Northern Italy,
- the actions taken to support Combined transport in both Bozen and Trento provinces.

An analysis of the actual use of the incentives adopted in the various countries, of their impact in terms of modal shift objectives obtained, could represent a sound basis for designing a common strategy and common instruments for supporting the modal shift within the whole EUSALP region.



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