



*Qualitative change to close Austria's Paris gap:  
Shaping the pathway for passenger transport*

## **Policy Packages to decarbonize the Austrian passenger transport sector by 2040**

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## 1. Introduction: Policy packages for qualitative change in the transport sector

Within the framework of QUALITY, a research project focusing on qualitative change to close Austria's Paris gap in passenger transport, different policy packages for the passenger transport sector are examined. They are to ensure that Austria achieves its international and national GHG reduction targets.

The policies investigated are based on a **literature survey** and were further developed in a **stakeholder workshop** as well as in subsequent bilateral **interviews** with the participation of more than 40 experts from science and practice, including ministries, federal state and municipality government administration, chamber of labour, chamber of commerce, passenger transport fora and interest groups (the transport norming platform FSV, the car owner association ÖAMTC), Austrian railways (ÖBB), (automotive) industry, as well as research institutions. In the workshop a back-casting approach was used to visualise a successful transition to a sustainable passenger transport system in Austria. In smaller groups, policies considered necessary for such a transition were derived by participants.

In the subsequent project work, the objective was to bundle policies into so-called **policy packages**. Given that single policies only develop selective effects, specifically in the area affected by them (e.g. fostering the use of electric vehicles by granting preferential treatment in lane use or parking restrictions), rebound effects may occur and may need to be mitigated (e.g. overall car mobility may increase triggering resulting traffic jams) or other unintended side effects (such as social inequality implications of pricing policies) may need to be taken care of. This can be done by combining different policies and strengthening an overall and comprehensive qualitative change in mobility. The identification of which types of policies are considered to be core elements in such a combining policy package was starting from a literature survey and developed in bilateral follow-up interviews and a workshop – now due to Corona in online format. In the course of his process each of the policies has been further specified in its specific intensity and timeline of implementation.

## 2. Legal typology of instruments

### a. „Direct behaviour control" [regulatory law]

In the broad range of environmental law instruments, **regulatory measures** are considered to be a powerful means of reaching a direct change in behaviour. In modern road traffic law, they primarily take various forms of traffic restrictions. The respective measures differ not only in the scope of their application and intensity of their effect, but also with regard to the intended protective effect. Most commonly, they include traffic flow controls such as **speed limits** and **driving bans** as well as technology-related regulations such as **pollutant emission** and **noise imission limits**. Concerning – legally most challenging and intervention-intensive – driving bans, one has to differentiate between local driving ban zones and general driving bans in the form of licensing or operating bans.

### b. „Indirect behaviour control" [economic incentives]

With regard to instruments of indirect behavioural control, the state does not intervene directly to achieve its environmental goals, but limits itself to exerting influence on the decision-making of those affected. Indirect behavioural control measures render environmentally damaging activities more expensive or represent a fee for the use of the environment. From the perspective of transport economics, such measures are at the center of government influence on the behaviour of road users as well. As adequate and effective procedural instruments, different kinds of environmental levies, such as taxes and fees, are considered. **Environmental taxes** are usually based on the burden placed on environmental resources. In the transport sector, they mainly appear as vehicle-related taxes, especially when purchasing and operating a motor vehicle (NoVA, motor-related insurance tax). Additionally, energy-related taxes - such as a tax on CO<sub>2</sub> emissions - can be considered as environmental taxes for the transport sector. On the other hand, **environmental fees**, in particular for the time- or route-related use of road infrastructure (tolls, road user charges), primarily aim at the internalization of external (environmental) costs.

### c. Planning instruments

Environmental planning instruments belong to the group of **target-oriented** behavioural control measures.

### 3. Policy Packages

Individual policies differ considerably in terms of their scope and intensity of impact, depending on their underlying instruments of behavioural control. However, a common denominator of these policies is that selective implementation of individual policies fails to achieve a qualitative change in the transport sector. One reason for that is the fact that prohibition norms remain ineffective and even lead to social resistance and circumvention movements if options for alternative behaviour are not established and promoted. Similarly, purely financial incentives, when implemented alone, lack the effectiveness needed for quick qualitative change. For this reason, policies derived from different instruments of behavioural control are combined to mutually support their impact.

In the following, **three policy packages** are examined, which follow different mechanisms with regard to their fundamental approach. Accordingly, they feature a varying degree of intensity of intervention. Besides the package-specific policies (see sections b to d), all three policy packages contain the same set of accompanying measures (see section e). This structure not only serves to support the package-specific policies, but also to promote a comprehensive change in the transport sector independent of the policy package.

Overview:

- Regulatory policy package (P1): The core of this policy is the regulatory approach. Policy package I contains both a driving ban and a rule change.
- Capacity policy package (P2): This package is a variant of a regulatory approach, one that is focusing on infrastructure capacity constraints (reducing the number of road lanes available for cars, local car operation restrictions)
- Economic policy package (P3): Promotes an economic approach (financial incentives) and contains no “hard” regulatory measures such as bans.

<b>Regulatory package (P1)</b>	<b>Capacity package (P2)</b>	<b>Economic package (P3)</b>
[1] Stop new admission of fossil fuelled cars	[4] Restriction on the overall admission and operation of fossil fuelled cars	[7] Ecological tax system
[2] Ban on the use of fossil fuelled cars	[5] Car-free city centres	[8] Congestion charge for city centres
[3] Management and reduction of parking areas	[6] Conversion and reduction of road infrastructure	
<b>All packages (P1-P3)</b>		
[9] Reduction of speed limits	[14] Carpooling/-sharing, on-call bus and share taxis	[19] Electrification of individual motorized transport
[10] Road Pricing	[15] Regional development and planning	[20] Electrification of public transport
[11] Socio-ecological redesign of commuting allowance system	[16] Raising awareness for alternative mobility modes	[21] Company mobility Plans
[12] User orientation of public transport	[17] Support of non-motorised private transport	[22] Teleworking
[13] Public transport kick and guarantee	[18] Intelligent technologies and digitalization	[23] Mobility efficiency act

#### **4. Legal Feasibility of policy packages and respective measures**

[currently evaluated]

## 5. Policies: detailed characterization

Policy 1	<b>Stop new admission of fossil fuelled cars</b>
<b>Policy type</b>	Regulatory
<b>Policy description</b>	Legally prohibit new admissions (currently around 300.000-350.000 vehicles per year) of fossil fuelled cars.
<b>Implementation</b>	<p><i>Ban of fossil fuelled cars (diesel, petrol, plug-in hybrids)[1][2] by 2025, assuming modest market improvements for EV [1].</i></p> <p><i>Intensities investigated in survey:</i></p> <ul style="list-style-type: none"> <li>● <i>disruptive: start in 2025</i></li> <li>● <i>little disruptive: start in 2030</i></li> <li>● <i>Non-disruptive: start in 2035</i></li> </ul>
<b>Scientific and practical background</b>	<p>Case study for the UK for different phase-out scenarios of fossil-fuelled vehicles [1]. Comparison of phase-out plans of various countries [2]</p> <p>New admission stop in Norway by 2025, Sweden, Ireland and Netherlands by 2030 etc.</p>
<b>Legal background</b>	[]
<b>Regional differentiation</b>	No

[1] Brand, C., Anable, J., Ketsopoulou, I., & Watson, J. (2020). Road to zero or road to nowhere? Disrupting transport and energy in a zero carbon world. *Energy Policy*, 139(February), 111334. <https://doi.org/10.1016/j.enpol.2020.111334>

[2] Plötz, P., Axsen, J., Funke, S. A., & Gnann, T. (2019). Designing car bans for sustainable transportation. *Nature Sustainability*, 2(7), 534–536. <https://doi.org/10.1038/s41893-019-0328-9>

Policy 2	<b>Ban on the use of fossil fuelled cars</b>
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<b>Policy type</b>	Regulatory
<b>Policy description</b>	Legally prohibit the use of fossil fuelled cars.
<b>Implementation</b>	Coming into effect by 2035 for cars with internal combustion engines, and by 2040 also for Plug-in hybrid electric vehicles.  <i>Intensities investigated in survey [1]:</i> <ul style="list-style-type: none"> <li>● <i>Disruptive: start in 2030</i></li> <li>● <i>Little disruptive: start in 2035</i></li> <li>● <i>Rather Non-disruptive: start in 2040</i></li> <li>● <i>Non-disruptive: start in 2045</i></li> </ul>
<b>Scientific and practical background</b>	Comparison of phase-out plans of various countries and cities [1]
<b>Legal background</b>	□
<b>Regional differentiation</b>	No

[1] Plötz, P., Axsen, J., Funke, S. A., & Gnann, T. (2019). Designing car bans for sustainable transportation. *Nature Sustainability*, 2(7), 534–536. <https://doi.org/10.1038/s41893-019-0328-9>

<b>Policy type</b>	Indirect and infrastructural
<b>Policy description</b>	<p>The aim is the reduction of cars in general as well as the traffic density emerging through searching for parking spaces:</p> <ul style="list-style-type: none"> <li>- Linkage of parking permission and type of vehicle (restriction of parking permissions for emission-intensive vehicles) [1]</li> <li>- Demand-based parking control system [2]</li> <li>- Elimination of parking spaces for free and increase of parking fees [3]</li> <li>- Reduction of parking spaces for parking-free estates and city areas [3]</li> <li>- Base parking management on mobility points/mobility service stations (<a href="https://www.smartertogether.at/mobility-point-in-simmering">https://www.smartertogether.at/mobility-point-in-simmering</a>)</li> </ul>
<b>Implementation</b>	<p>Parking management measures are planned starting in 2020</p> <p>Example Köln: Reduction of parking spaces by 10 % per year in the public urban area [3]</p> <p><i>Intensities investigated in survey:</i></p> <p><i>For short-stay parking zone in city center starting in 2022 after transition period:</i></p> <ul style="list-style-type: none"> <li>● <i>disruptive: 200% increase in parking prices (tripling of prices)</i></li> <li>● <i>little disruptive: 100% increase in parking prices (doubling of prices)</i></li> <li>● <i>Non-disruptive: only small increases below 100% increase in parking prices</i></li> </ul> <p><i>Smaller increase than 200% outside the city center; no parking fees in suburban regions</i></p> <p><i>For long-stay on-street parking zones (Dauerparkpickerl, in Austria ca. 10€ per month) in city center, starting in 2022 after transition period :</i></p> <ul style="list-style-type: none"> <li>● <i>disruptive: increase in parking prices up to the level of commercial underground parking garages</i></li> <li>● <i>little disruptive: increase in parking prices up to the level of private underground parking garages (70/80€ per month)</i></li> <li>● <i>Non-disruptive: only small increases below the level of private underground parking garages</i></li> </ul>

*Reduction in parking spaces, parking management in cities:*

- *disruptive: more than 10% reduction of all on-street parking spaces, either until 2025 in accordance to renovation plans or if no renovation is planned, as temporary measures (e.g. pop-up cycling path, parklet) with implementation after positive/high public acceptance is achieved*
- + *Reduction of parking radius for long-stay parking permissions (less than the total district of residence); as of now*
- *little disruptive: 10% reduction of all on-street parking spaces, either until 2025 in accordance to renovation plans or if no renovation is planned, as temporary measures (e.g. pop-up cycling path, parklet) with implementation after positive/high public acceptance is achieved*  
*+Reduction of parking radius for long-stay parking permissions (less than the total district of residence); as of now*
- *Non-disruptive: 10% reduction of all on-street parking spaces, either until 2025 in accordance to renovation plans or if no renovation is planned, as temporary measures (e.g. pop-up cycling path, parklet) with implementation after positive/high public acceptance is achieved*

**Scientific and practical background**

See the example of Köln: Parking-free inner-city and the shift of parking to surrounding car parks [3]

Expert consultation

**Legal background**

Raumordnung (of the individual federal states)

§ 23 Straßenverkehrsordnung 1960; Bundesstraßengesetz, Landesstraßengesetze...

**Regional differentiation**

Especially for urban areas relevant

[1] Robert Haakman, Ivo Beenakker, Harry Geerlings, 2020, "Reducing vehicle-related NOx and PM emissions in metropolitan areas: A comparison between the Randstad and the Rhine-Ruhr area", Journal of Cleaner Production

[2] BMLFUW, Umweltfreundliches Parkraummanagement - Leitfaden für Länder, Städte, Gemeinden Betriebe und Bauträger, Wien 2015

[3] Agora Verkehrswende (2019): Parkraummanagement lohnt sich! Leitfaden für Kommunikation und Verwaltungspraxis, [www.agora-verkehrswende.de](http://www.agora-verkehrswende.de)



Policy 4	<b>Restriction on the overall admission and rides of fossil fuelled cars</b>
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<b>Policy type</b>	Regulatory
<b>Policy description</b>	<p>The policy consists of two components:</p> <p>a) The introduction of a cap on the overall admission of new fossil fuel cars. Fulfilling certain requirements, the admission is based on a first-come first-serve principle. Specific requirements for the allocation need to be specified, including socioeconomic, regional and distributional aspects.</p> <p>b) The introduction of a cap on the annual driven car-kilometres for the whole fossil fuel vehicle stock.</p>
<b>Implementation</b>	<p>Linear phase-out for both new admissions and annual car-kilometres by 2040, starting immediately.</p> <p><i>Intensities investigated in survey for cities:</i></p> <ul style="list-style-type: none"> <li>● <i>disruptive: xx% on annual car-kilometers, until 2025</i></li> <li>● <i>little disruptive: xx% of annual car-kilometers until 2027</i></li> <li>● <i>non-disruptive: xx% of annual car kilometers, until 2030</i></li> </ul>
<b>Scientific and practical background</b>	
<b>Legal background</b>	□
<b>Regional differentiation</b>	□

Policy 5	<b>Car-free city centres</b> (Einfahrtsbeschränkungen für Stadtzentren)
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<b>Policy type</b>	Regulatory
<b>Policy description</b>	Limiting the general access of passenger cars to larger city centres, while incorporating exceptions criteria (like residency, disabilities etc.).
<b>Implementation</b>	Stepwise implementation of car-free zones in all larger cities (>40.000 inhabitants), starting in 2022 and increasing zones until 2030
<b>Scientific and practical background</b>	See general traffic limitations in other cities e.g. in Italy, or superblock concept in Barcelona [1,2].
<b>Legal background</b>	Bundesgesetz required (Verkehr in Gesetzgebung und Vollziehung Bundeskompetenz: Art 10 Abs 1 Z 9 B-VG)
<b>Regional differentiation</b>	city specific

[1] Natalie Mueller, David Rojas-Rueda, Haneen Khreis, Marta Cirach, David Andrés, Joan Ballester, Xavier Bartoll, Carolyn Daher, Anna Deluca, Cynthia Echave, Carles Milà, Sandra Márquez, Joan Palou, Katherine Pérez, Cathryn Tonne, Mark Stevenson, Salvador Rueda, Mark Nieuwenhuijsen. (2020). Changing the urban design of cities for health: The superblock model. *Environment International*, (134), 105132, doi.org/10.1016/j.envint.2019.105132.

[2] López Iván, Ortega Jordi, Pardo Mercedes. (2020). Mobility Infrastructures in Cities and Climate Change: An Analysis Through the Superblocks in Barcelona. *Atmosphere* (11), 4, 410, doi.org/10.3390/atmos11040410.

Policy 6	<b>Conversion and reduction of road infrastructure</b>
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<b>Policy type</b>	Regulatory and infrastructural
<b>Policy description</b>	<p>The policy consists of two components to free up space currently used for car mobility for other transport modes and non-mobility.</p> <p>(i) Road-dieting in urban and rural centres, i.e. reduction and conversion of driving lanes</p> <p>(ii) Reduction of traffic lanes on motorway feeders ('Autobahnzubringer').</p> <p>The policy is also closely connected to car-free city centres (Policy 5(2)).</p>
<b>Implementation</b>	<p>Both policy components are initialized by 2020. Road-dieting will be introduced on a region and traffic specific base. Motorway feeders will be continuously reduced each by one lane to a minimum of 2 and by 2030 all motorway feeders will be reduced to a maximum of 2 lanes.</p> <p><i>Intensities investigated in survey for cities:</i></p> <ul style="list-style-type: none"> <li>● <i>disruptive: all 6 lane highways (incl. both directions) will be reduced about 2 lines (one per direction), until 2025, especially if renovation is planned</i></li> <li>● <i>little disruptive: all 6 lane highways (incl. both directions) will be reduced about 2 lines (one per direction), until 2030</i></li> <li>● <i>non-disruptive: Curbside Management (multi-functional streets: purpose of street changes during the day; e.g. before noon: loading zone, afternoon/evening: sitting options for coffeeshops/restaurants) in city centers, as of now</i></li> </ul>
<b>Scientific and practical background</b>	<b>Expert consultation</b>
<b>Legal background</b>	□
<b>Regional differentiation</b>	□

Policy 7	<b>Ecological tax system</b>
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<b>Policy type</b>	Economic
<b>Policy description</b>	The policy considers (i) a general increase in taxation of transport fuels (MoeSt) and a levelling of taxation of Benzin and Diesel fuels (“Dieselprivileg”) and (ii) an adaptation of taxation of company cars.
<b>Implementation</b>	<p>The increase in fuel taxation (currently 39.7 cents for 1L Diesel and 48.2 cents for 1L Benzin) considers the following additive steps:</p> <ul style="list-style-type: none"> <li>● by 2020: annual indexing of nominal tax values according to the general CPI</li> <li>● 2020-2023: additional annual increase by 4 Cent per L of Diesel taxation to equal the taxation level of Benzin</li> <li>● 2020-2027: additional annual increase of Benzin and Diesel taxes by 2.5 cent per L</li> </ul> <p>A reduction of fringe benefits (from 2% to 1.5% of vehicle purchase costs) is currently granted for company cars with maximum emissions of 118g/km (2020) and annually reduced by 3g/km. This annual reduction will be increased to 6g/km until 2030.</p> <p><i>Intensities investigated in survey [1][2]:</i></p> <ul style="list-style-type: none"> <li>● <i>disruptive: increase of MöSt of 20 Cent per L until 2027</i></li> <li>● <i>little disruptive: increase of MöSt of 15 Cent per L until 2025</i></li> <li>● <i>non-disruptive: increase of MöSt of 10 Cent per L until 2025</i></li> </ul>
<b>Scientific and practical background</b>	
<b>Legal background</b>	<p>(i) § 3 Mineralölsteuergesetz 1995 (i.d.F. BGBl. I Nr. 117/2016) Bundesministerium für Finanzen (BMF)</p> <p>(ii) § 15 (2) Z2 EStG (i.d.F. BGBl. I Nr. 16/2018); PKW-Angemessenheitsverordnung (BGBl. II Nr. 466/2004); Sachbezugswerteverordnung (i.d.F. BGBl. II Nr. 395/2015) Bundesministerium für Finanzen (BMF)</p>
<b>Regional differentiation</b>	-

[1] UBA (2019): “Sachstandsbericht Mobilität”, retrieved from <https://www.umweltbundesamt.at/fileadmin/site/publikationen/rep0688.pdf>

[2] Goers S.R., Schneider F. (2019): "Österreichs Weg zu einer klimaverträglichen Gesellschaft und Wirtschaft - Beiträge einer ökologischen Steuerreform Langfassung", JKU Linz

Policy 8	<b>Congestion charge for city centres (City Maut)</b>
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<b>Policy type</b>	Economic
<b>Policy description</b>	Implementation of a daily charge for entering certain city zones and during certain hours while incorporating exceptions criteria (such as disabilities etc.).
<b>Implementation</b>	<p>Stepwise implementation of congestion zones in all larger cities (&gt;40.000 inhabitants), starting in 2022 and increasing zones until 2030.</p> <p>Reduced fees under certain circumstances like residency etc.</p> <p>Specific charging zones and hours adaptable according to city and traffic situation.</p> <p><i>Intensities investigated in survey [1][2]:</i></p> <ul style="list-style-type: none"> <li>• <i>Disruptive: city (size such as Graz/Salzburg) congestion charge of 8€/day; metropolitan city (Vienna): congestion charge 11€/day</i></li> <li>• <i>Little disruptive: city (size such as Graz/Salzburg) congestion charge of 3€/day; metropolitan city (Vienna): congestion charge 5,5€/day</i></li> <li>• <i>Non-disruptive: city (size such as Graz/Salzburg): low emission zone (Umweltzone), metropolitan city (Vienna): congestion charge 2,65€/day</i></li> </ul>
<b>Scientific and practical background</b>	Estimations for the city of Graz and Vienna [1][2]; Example of the city of London
<b>Legal background</b>	<p>[who is responsible for implementation and control of the policy? Each city? Or is there a Austrian-wide coordination across cities?</p> <p>§ 43 (2) Straßenverkehrsordnung 1960 (i.d.F. BGBl. I Nr. 30/2018) BMVIT (§ 94 StVO)/Länder (§ 94a StVO)/Gemeinden (§ 94d Z4a StVO)]</p>
<b>Regional differentiation</b>	applicable for metropolitan cities and large cities; suburban areas?; not for rural areas

[1] <https://www.umweltbundesamt.at/fileadmin/site/publikationen/REP0657.pdf>

[2] <https://www.wien.gv.at/stadtentwicklung/studien/pdf/b008550.pdf>

Policy 9	<b>Reduction of speed limits</b>
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<b>Policy type</b>	Regulatory
<b>Policy description</b>	A reduction of speed limits is foreseen for built-up areas, outside built-up areas and on motorways.
<b>Implementation</b>	The reductions will be implemented immediately (by 2020) with general limits of 30 km/h for built up areas, 80 km/h outside built-up areas and 100 km/h for motorways.
<b>Scientific and practical background</b>	While speed limits have shown to reduce GHG emissions on motorways and outside built-up areas [1], in metropolitan areas PM exposure was found to be significantly reduced [2,3].
<b>Legal background</b>	§ 20 Straßenverkehrsordnung 1960 (i.d.F. BGBl. I Nr. 30/2018) BMVIT (§ 94 StVO)/Länder (§ 94a StVO)/Gemeinden (§ 94d Z1 StVO); Immissionsschutzgesetz-Luft (IG-L) (idF BGBl I 2018/73)
<b>Regional differentiation</b>	according to road network

[1] <https://www.eea.europa.eu/themes/transport/speed-limits-fuel-consumption-and>

[2] IntPanis, L. Beckx, C., Broekx, S. et al. (2011). PM, NOx and CO2 emission reductions from speed management policies in Europe. Transport Policy. 18, 32-37  
doi.org/10.1016/j.tranpol.2010.05.005

[3] Lopez-Aparicio, S., Grythe, H., Thorne, R., Vogt, M. (2020) Costs and benefits of implementing an Environmental Speed Limit in a Nordic city. Science of The Total Environment, 720, 137577, doi.org/10.1016/j.scitotenv.2020.137577

Policy 10	<b>Road Pricing</b>
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<b>Policy type</b>	Economic
<b>Policy description</b>	Introduction of comprehensive road pricing, differentiated by vehicle emissions (average emissions per km), time of the day and region (and actual speed driven?).
<b>Implementation</b>	By 2020 a road pricing system will replace the current time-based charge (Vignette) on motorways with a starting value of 1,1 Cent/km. This is linearly increased to 6 Cent/km by 2026.
<b>Scientific and practical background</b>	[1]
<b>Legal background</b>	Bundesstraßen-Mautgesetz 2002 (i.d.F. BGBl. I Nr. 37/2018) BMVIT im Einvernehmen mit BMF, auch EU-rechtlich relevant (grenzüberschreitender Bezug)
<b>Regional differentiation</b>	depending on road network

- [1] Steininger, K., Friedl, B., Gebetsroither, B. (2007) Sustainability impacts of car road pricing: A computable general equilibrium analysis for Austria. *Ecological Economics*, 63(1) 59-69. doi.org/10.1016/j.ecolecon.2006.09.021



Policy 11	<b>Socio-ecological redesign of commuting allowance system</b> (Pendlerpauschale)
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<b>Policy type</b>	Economic
<b>Policy description</b>	Redesign of commuting allowance system based on availability of public transport and utilisation.
<b>Implementation</b>	By 2020, designation of areas with sufficient public transport, in which commuting allowances are granted when a public transport mode is actually utilised for commuting in dependence of travel distance (20-40km: 58 €/M; 40-60km; 113 €/M; more than 60km: 168 €/M). Outside the areas with sufficient public transport, an additional allowance is granted for arrival at the next public transport station (2-10km; 16 €/M; more than 10km: 31 €/M). Under certain conditions (no public transport available at all, disability), the current system remains active until 2030.
<b>Scientific and practical background</b>	
<b>Legal background</b>	§ 16 (1) Z 6 und § 33 (5) EStG (i.d.F. BGBl. I Nr. 16/2018) Bundesministerium für Finanzen
<b>Regional differentiation</b>	according to public transport areas

[1] A

[2] B

Policy 12	<b>User orientation of public transport</b>
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**Policy type**                      Indirect measure, regulatory, economic etc

**Policy description**

**Implementation**

**Scientific and practical background**

**Legal background**                      []

**Regional differentiation**                      []

Policy 13	<b>Public transport kick and guarantee</b>
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<b>Policy type</b>	Regulatory and infrastructural
<b>Policy description</b>	Legal regulation by the government to increase the public transport provided esp. in non-urban areas based on population density and demand. The government is obliged to guarantee a certain public transport frequency (e.g. continuous 30min/1h) for routes on which a certain number of passengers daily move.
<b>Implementation</b>	Legal implementation by 2020 and followingly continuous investment in public transport expansion (starting also by 2020).
<b>Scientific and practical background</b>	See public transport approach and regulation in Switzerland [1]
<b>Legal background</b>	[]
<b>Regional differentiation</b>	Based on population density.

[1] Petersen, T. (2016) Watching the Swiss: A network approach to rural and exurban public transport. *Transport Policy*, 52, 175-185. doi.org/10.1016/j.tranpol.2016.07.012

**Policy type****Policy description**

In order to strengthen carpooling and carsharing systems as well as on-call buses and shared cabs, existing support programs integrated into klimaaktiv are being expanded and extended. This is particularly intended to support municipalities in setting up a suitable system.

Furthermore, it is necessary to adapt legal regulations, such as the distortion of competition in commercial Ride-Hailing or the clear regulation of parking spaces for e.g. e-carsharing vehicles.

**Implementation**

Legal implementation in 2020/2021, expansion of funding programs starts in 2020 and is ongoing

**Scientific and practical background**

[1,3]

**Legal background**

mainly road traffic regulations [2]

**Regional differentiation**

The implementation of carpooling and carsharing systems as well as on-call buses and shared cabs is very region-specific and must be developed accordingly. Financial and regulatory support can be provided at state and federal level. [2]

[1] Anu Tuominen, Antti Rehunen, Juha Peltomaa, Kirsi Mäkinen, "Facilitating practices for sustainable car sharing policies - An integrated approach utilizing user data, urban form variables and mobility patterns" Transportation Research Interdisciplinary Perspectives vol. 2, 2019.

[2] VCÖ (Hrsg.), „Sharing und neue Mobilitätsangebote“, VCÖ-Schriftenreihe Mobilität mit Zukunft 3/2018, Wien 2018.

[3] Klimabündnis Österreich, "Good-Practice-Datenbank: defMobil-Rufbus", <https://www.klimabuendnis.at/defmobil-rufbus> (accessed at 07.05.2020)

**Policy type** Indirect measure, regulatory, economic etc

**Policy description** Consideration of counteracting urban sprawl, concentration of declared centres and shortening of distances within affairs of regional development and planning

**Implementation** Starting with 2020 – long-run impact, after 20 years of implementation

- Daily destinations as workplace, habitation and shopping possibilities shall be reached within max. 5 km in combination with the provision of public transport infrastructure [1]
- Prioritization of pedestrian and bicycle traffic as well as consideration of public green areas in the development of estate and mobility concepts
- Consideration of settlement density for the dedication of land
- Residential building subsidies in combination with the accessibility of public transport, electric mobility and infrastructure and by the bicycle [1]
- Elimination of the “Stellplatzverpflichtung” for cars [1]

**Scientific and practical background**

**Legal background** [Raumplanungsgesetze of the individual federal states – LandesROG and BauO]

[2]

**Regional differentiation** []

[1] Umweltbundesamt, Sachstandsbericht Mobilität und mögliche Zielpfade zur Erreichung der Klimaziele 2050 mit dem Zwischenziel 2030. Endbericht 2019.

[2] Madner / Grob, Potentiale der Raumplanung für eine klimafreundliche Mobilität, juridikum 2019/4

Policy 16	<b>Raising awareness for alternative mobility modes</b>
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<b>Policy type</b>	Indirect measure (mix of different soft measures)
<b>Policy description</b>	<p>The policy aims at raising awareness for alternative mobility modes by addressing three groups:</p> <p>a) Children and young people by embedding sustainable mobility as obligatory element in the curriculum [5,6]</p> <p>b) Public decision makers (like mayors and delegates) by providing mobility trainings for them</p> <p>c) The general public by awareness and marketing campaigns, mobility trainings and laboratories [2,3]</p>
<b>Implementation</b>	<p>Starting by 2020, continuing until 2040.</p> <p>Raise the budget for activities of klimaaktiv to € 50 Mio per year (see also [4]).</p>
<b>Scientific and practical background</b>	<p>Scientific studies show, that raising awareness for mobility behaviour by different measures can reduce car trips significantly (by up to 20% as single policies) [1,2,3,].</p> <p>Practical implementation for children and young people can build on existing knowledge by klimaaktiv and Klimabündnis [5,6].</p>
<b>Legal background</b>	[]
<b>Regional differentiation</b>	[]

- [1] Bamberg, S., Fujii, S., Friman, M., & Gärling, T. (2011). Behaviour theory and soft transport policy measures. *Transport Policy*, 18(1), 228-235. doi:10.1016/j.tranpol.2010.08.006
- [2] Möser, G., & Bamberg, S. (2008). The effectiveness of soft transport policy measures: A critical assessment and meta-analysis of empirical evidence. *Journal of Environmental Psychology*, 28(1), 10-26. doi:10.1016/j.jenvp.2007.09.001
- [3] Fujii, S., & Taniguchi, A. (2006). Determinants of the effectiveness of travel feedback programs- a review of communicative mobility management measures for changing travel behaviour in japan. *Transport Policy*, 13(5), 339-348. doi:10.1016/j.tranpol.2005.12.007
- [4] Umweltbundesamt, Sachstandsbericht Mobilität und mögliche Zielpfade zur Erreichung der Klimaziele 2050 mit dem Zwischenziel 2030. Endbericht 2019.
- [5] klimaaktiv (2019). Mobilitätsmanagement für Kinder, Eltern und Schulen. [https://www.klimaaktiv.at/mobilitaet/mobilitaetsmanagem/bildung/Materialien/Leitfaden\\_MMK\\_ES0.html](https://www.klimaaktiv.at/mobilitaet/mobilitaetsmanagem/bildung/Materialien/Leitfaden_MMK_ES0.html)

[6] Klimabündnis; diverse Unterrichtsmaterialien. [https://www.klimabundnis.at/unterrichtsmaterialien/download\\_unterrichtsmaterialien\\_oe](https://www.klimabundnis.at/unterrichtsmaterialien/download_unterrichtsmaterialien_oe)

**Policy type****Policy description**

Continuation, implementation and review of the master plans for cycling and walking as well as the expansion of subsidies through klimaaktiv to support municipalities in planning and implementation [5,6], expansion of the cycling infrastructure budget [4], adaptation of STVO and RVS guidelines [1]

**Implementation**

Starting in 2020, short implementation periods

**Scientific and practical background**

Practical policy recommendations as well as strategies for the promotion of cycling and walking [3,4]

**Legal background**

Bicycling: §§ 65 ff Straßenverkehrsordnung 1960 (i.d.F. BGBl. I Nr. 30/2018); Fahrradverordnung (i.d.F. BGBl. II Nr. 146/2001).  
walking: §§ 76ff Straßenverkehrsordnung 1960 (i.d.F. BGBl. I Nr. 30/2018) [1, p.159]

**Regional differentiation**

regional specifications are present, as direct implementation is mostly at the municipal level, but various policy and legislative areas are affected

- [1] Umweltbundesamt, "Sachstandbericht Mobilität - Mögliche Zielpfade zur Erreichung der Klimaziele 2050 mit dem Zwischenziel 2030", Wien 2019.
- [2] Y. Yang, A.H. Auchincloss, D.A. Rodriguez, D.G. Brown, R. Riolo, and A.V. Diez-Roux, "Modeling spatial segregation and travel cost influences on utilitarian walking: Towards policy intervention", Comput. Environ. Urban Syst., vol. 51, pp. 59-69, 2015.
- [3] bmvit, "Kosteneffiziente Maßnahmen zur Förderung des Fußverkehrs in Gemeinden", Wien 2019.
- [4] bmvit, "Kosteneffiziente Maßnahmen zur Förderung des Radverkehrs in Gemeinden", Wien 2017.
- [5] BMLFUW, bmvit, "Masterplan Gehen – Strategie zur Förderung des FußgängerInnenverkehrs in Österreich", Wien 2015.
- [6] BMLFUW, "Masterplan Radfahren 2015-2025", Wien 2015.



**Policy type** Indirect measure, regulatory, economic etc

**Policy description** Two levels for the integration of intelligent technologies are considered: First, the promotion of mobility as a service by merging local public transport companies with other mobility platforms (ticketing, route planning, ...) [3,4] and also the introduction/implementation of the Austria Ticket. On the other hand, by adapting traffic light changes [1,2,4,5], where public transport and active mobility are given priority, thus reducing the speed and attractiveness of motorized vehicles [4,5]

**Implementation** Starting 2020

**Scientific and practical background**

**Legal background** [StVO]; ev eigenes Gesetz

**Regional differentiation** regional differences in the possibilities of implementation (different in urban space than in rural areas) [2, 3]

- [1] Daniel H. Stolfi, Enrique Alba, "Sustainable Road Traffic Using Evolutionary Algorithms." Sustainable Transportation and Smart Logistics: Decision-Making Models and Solutions, 2018, Pages 361-380.
- [2] Andrea Villagra, Enrique Alba, Gabriel Luque, "A better understanding on traffic light scheduling: New cellular GAs and new in-depth analysis of solutions.", Journal of Computational Science, Volume 41, March 2020.
- [3] I. Docherty, G. Marsden, J. Anable, "The governance of smart mobility." Transport Research Part A, Volume 115, 2018, 114-125.
- [4] Umweltbundesamt, "Sachstandbericht Mobilität - Mögliche Zielpfade zur Erreichung der Klimaziele 2050 mit dem Zwischenziel 2030", Wien 2019.
- [5] Michael David Eichler, "Bus lanes with intermitted priority: Assesment and design", University of California, Berkeley, 2005.

Policy 19	<b>Electrification of individual motorized transport</b>
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<b>Policy type</b>	Indirect measure, regulatory, economic etc
<b>Policy description</b>	Focusing on the increased usage of electric vehicles and the development of charging infrastructure through funding and tax concession
<b>Implementation</b>	<p>There are sources of funding from federation (E-Mobilitätsförderung 2019+2020), states (e-mobil in NÖ) and municipalities. Funding for:</p> <ul style="list-style-type: none"> <li>- charging stations between 600 and 1800 EUR</li> <li>- purchase of electric cars (BEV, FCEV) about 5000 EUR, Plug-in Hybrid (PHEV) and Range extender (REX, REEV) cars 2500 EUR</li> </ul> <p>in 2020 (since 1. July 2020) for privates [1][2][3][4]</p> <p>Reduced funding in 2019+2020 in comparison to 2017+2018 (4000€/BEV, 1500€/PHEV), extension of funding initiatives till 2022 but there is no concrete long-term scaling conceivable.</p> <p>Free of Nova and motorbezogene Versicherungssteuer</p>
<b>Scientific and practical background</b>	
<b>Legal background</b>	[]
<b>Regional differentiation</b>	-

[1] BMLFUW, BMVIT, BMWFJ, "Umsetzungsplan - Elektromobilität in und aus Österreich", Wien 2012

[2] Umweltbundesamt, Sachstandsbericht Mobilität und mögliche Zielpfade zur Erreichung der Klimaziele 2050 mit dem Zwischenziel 2030. Endbericht., Wien 2019

[3] Umweltbundesamt, Szenarien zur Entwicklung der Elektromobilität in Österreich - bis 2020 und Vorschau 2030, Friedrich Pötscher, Wien 2015

[4]

[https://www.umweltfoerderung.at/fileadmin/user\\_upload/media/umweltfoerderung/Uebergeordnet\\_Dokumente/Factsheet\\_E-Mobilitaetsoffensive\\_2019\\_2020.pdf](https://www.umweltfoerderung.at/fileadmin/user_upload/media/umweltfoerderung/Uebergeordnet_Dokumente/Factsheet_E-Mobilitaetsoffensive_2019_2020.pdf)

<b>Policy type</b>	Regulatory, investment and economic
<b>Policy description</b>	Aim is the implementation of measures to encourage the further electrification (mainly through catenary, hydrogen propulsion or battery operation) of public passenger transport, with focus on the rail and road traffic.
<b>Implementation</b>	<p>Implementation of the electrification offensive for railway tracks according to „#mission2030“. The aim is to increase the electrification of the rail tracks of the ÖBB to 85% till 2030 as well as the extension of the share of electrified busses [1] [3]</p> <p>Adaptation of legal framework, as simplification of authorization processes in the building law and of permission processes for alternative fuel supply [2]</p> <p>Definition of goals for public procurement [2]</p> <p>Monetary incentives through funding of the purchase of electrified vehicles and the building of infrastructure</p> <ul style="list-style-type: none"> <li>- e.g. funding of buses of the car classification M3 in 2020: €52.000 - €130.000 per car depending on the passenger capacity (klimaaktiv mobil) [3]</li> </ul>

**Scientific and practical background**

**Legal background** Measures based on “Richtlinie 2014/94/EU”

**Regional differentiation** []

[1] BMVIT, Sachstandsbericht Mobilität, Wien 2019

[2] BMLFUW, BMVIT, BMWWF, Nationaler Strategierahmen „Saubere Energie im Verkehr“, Wien 2016

[3] BMNT, BMVIT, #mission2030 – Die österreichische Klima- und Energiestrategie, Wien 2018

<b>Policy type</b>	Legal and indirect measure (mix of soft and financial incentives)
<b>Policy description</b>	<p>Legally oblige companies with more than 50 employees to implement low carbon mobility plans.</p> <p>Such mobility plans include a combination of push and pull measures and support the integrated use of different transport modes.</p> <p>The implementation is supported by klimaaktiv:mobil, providing region- and company-specific information and criteria for each company.</p>
<b>Implementation</b>	<p>Starting by 2020, continuing until 2040.</p> <p>Based on the experience of klimaaktiv:mobil and the scientific literature [1] effective measures include:</p> <ul style="list-style-type: none"> <li>- parking management both for car parking and for bicycle parking</li> <li>- encouragement for the use of public transport and providing timetables for work trips</li> <li>- financial rewards for using public transport</li> <li>- integrated measures to promote various alternative modes of transport</li> </ul>
<b>Scientific and practical background</b>	[]
<b>Legal background</b>	[]
<b>Regional differentiation</b>	Consultancy and criteria are differentiated by region and company.

[1] Van Malderen, L., Jourquin, B., Thomas, I., Vanoutrive, T., Verhetsel, A., & Witlox, F. (2012). On the mobility policies of companies: What are the good practices? the belgian case. *Transport Policy*, 21, 10-19. doi:10.1016/j.tranpol.2011.12.005

Policy 22	<b>Telework</b>
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<b>Policy type</b>	Regulatory
<b>Policy description</b>	Legal entitlement for a certain amount of telework for employees and employers. The minimum extent of telework is based on employer-based parameters (e.g. size, main type of work). The entitlement is applicable if conditions such as availability of a home office, sufficient infrastructure (hardware and software) and training programs for digital tools for employees are fulfilled.
<b>Implementation</b> (Zeitplan +Intensität)	Starting by 2020 and continuously rising until 2040; Aim for 2040: 35% of all employees (among all sectors) conduct telework on 2 days per week
<b>Scientific and practical background</b>	Measures are based on: <ul style="list-style-type: none"> <li>• surveys on acceptance and future visions of telework and videoconferencing in Austria[1][2][3]</li> <li>• expert’s opinions collected in a discussion session on the topic: emission reduction potential of telework</li> </ul>
<b>Legal background</b>	[]
<b>Regional differentiation</b>	No differentiation between urban, suburban and rural areas.

[1] TU Wien (2020): <https://blog.fvv.tuwien.ac.at/corona/covid-19-questionnaire-results-austria-de/>

[2] Umweltbundesamt (2020): [https://projekte.ffg.at/anhang/5eb401d7267aa\\_ZWISCHENBERICHT\\_POVIMOB\\_7.5.2020.pdf](https://projekte.ffg.at/anhang/5eb401d7267aa_ZWISCHENBERICHT_POVIMOB_7.5.2020.pdf)

[3] VCÖ (2020): <https://www.vcoe.at/ergebnisse-corona-befragung>

Policy 23	<b>Mobility efficiency act</b>
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**Policy type** Regulatory

**Policy description** Similar to the energy efficiency act, this policy aims at decoupling mobility demand by companies while keeping production and product/service quality unaffected.

**Implementation**  
(Zeitplan  
+Intensität)

**Scientific and practical background**

**Legal background** []

**Regional differentiation** []