

8th INTERNATIONAL CONFERENCE
"TOWARDS A HUMANE CITY"
New Mobility Challenges
Novi Sad 11th and 12th November 2021

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LOW CARBON URBAN TRAFFIC DEVELOPMENT IN FUNCTION OF ENERGY AND CLIMATE SUSTAINABLE DEVELOPMENT

Key Words

Sustainable
development

Traffic

Decarbonization

Abstract

The ambitious goal of decarbonization of Europe by 2050 is also reflected in Southeast Europe, including Bosnia and Herzegovina. As a Contracting Party of the Energy Community, Bosnia and Herzegovina has made a number of commitments in the energy and climate sector. However, the biggest challenge is to preserve a pleasant living environment, which in the future will imply the need for a series of activities aimed at increasing energy efficiency and share of renewable energy sources, as well as decarbonising the transport sector. The Sustainable Energy and Climate Action Plan (SECAP) and the Sustainable Urban Mobility Plan (SUMP) are just some of the instruments that cities and municipalities are developing to achieve their goals.

1. INTRODUCTION

The ambitious goal of decarbonization of Europe by 2050 is also reflected in Southeast Europe, including Bosnia and Herzegovina. As a Contracting Party (CP) of the Energy Community, Bosnia and Herzegovina has made a number of commitments in the energy and climate sector. The obligation to integrate energy

and climate planning is being transferred from the State to the entity level, and local governments, as the ultimate implementers of policies and strategies adopted at various levels of government. However, the biggest challenge is to preserve a pleasant living environment, which in the future will imply the need for a series of activities aimed at increasing energy efficiency and share of renewable energy sources, decarbonising the transport sector. The Sustainable Energy and Climate Action Plan (SECAP) and the Sustainable Urban Mobility Plan (SUMP) are just some of the instruments that cities and municipalities are developing to achieve their goals. In its 2019, the European Commission presented the European Green Deal for the European Union. The European Green Deal specifically accepts the acceleration of the transition to sustainable and smart mobility, as transport accounts for a quarter of EU greenhouse gas emissions (GHG). In order to achieve climate neutrality, it is necessary to reduce emissions in transport by 90% by 2050. An integral part of the European Green Deal is a strategy for sustainable and smart mobility, which, among other things, envisages that about 75% of the land freight transported by road today should be shifted to rail and inland waterways. The transition to low-emission mobility also requires the deployment and market acceptance of alternative fuel-powered vehicles. This depends on the wide availability of the corresponding charging infrastructure. Journeys across Europe in electric vehicles should be straightforward: this means electric charging must be as easy as filling the tank. The Commission is actively encouraging electric mobility through legislation (e.g. EU-wide technical specifications) and investments. By 2020, over 1200 alternative fuelling points, notably e-mobility charging points, have received EU financial support under the Connecting Europe Facility alone [1].

2. SUSTAINABLE & SMART MOBILITY STRATEGY OF EU

The new EU Transport Strategy (Sustainable & Smart Mobility Strategy) [2] is fundamental and will, if successful, change the European transport sector completely with impacts on many other aspects of life such as the economy, environment, and health. The objectives new EU Transport Strategy are (Figure 1):

- ✓ Sustainable mobility.
- ✓ Smart mobility.
- ✓ Resilient mobility.

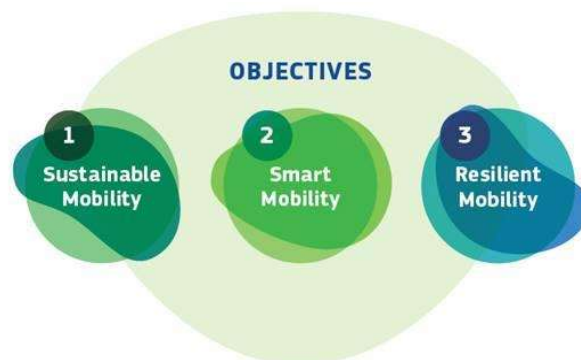


Figure 1. Objectives the New Transport strategy EU, (2020)

Main topics on the new transport strategy are:

- ✓ electric mobility,
- ✓ digitalization,
- ✓ aviation,
- ✓ SUMP,
- ✓ automated driving,
- ✓ road safety, and
- ✓ infrastructure.

The first objective of the new EU Transport Strategy is Sustainable Mobility, which defines the following sub-goals:

- ✓ **Reducing dependence of transport on fossil fuels** (By 2030, there will be at least 30 million zero-emission cars and 80 thousand zero-emission lorries in operation; By 2030, there will be at least 100 climate-neutral cities in Europe; Scheduled collective travels under 500 km should be carbon neutral by 2030 within the EU; Zero-emission large aircraft will become ready for market by 2035.)
- ✓ **Making alternative choices available** (All large and medium-sized cities put in place their own sustainable urban mobility plans by 2030; Traffic on high-speed rail will double by 2030; By 2050 rail freight traffic will double; Transport by inland waterways and short sea shipping will increase by 25% by 2030.)
- ✓ **Pricing to reflect environmental impact** (The internalisation of external costs of transport at the latest by 2050 will ensure that those who use transport will bear the full costs rather than leaving others in our society to meet them).

The second objective of new EU Transport Strategy is Smart Mobility, which defines the following sub-goals:

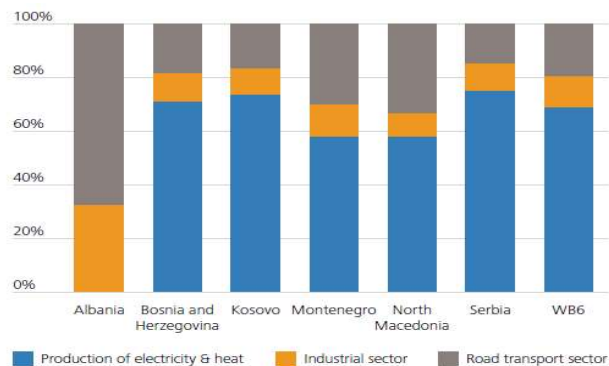
- ✓ Unleash full potential of data.
- ✓ By 2030, integrated electronic ticketing facilitates seamless multimodal passenger transport.
- ✓ Freight transport will be paperless.
- ✓ By 2030, automated mobility will be deployed on large scale.

The third objective of the new EU Transport Strategy is Resilient Mobility, that defines the following sub-goals:

- ✓ **Building a strong and resilient Single Market** (Investment in transport infrastructure across the EU Member States; By 2050, a fully operational, multimodal Trans-European Transport Network for sustainable and smart transport with high speed connectivity.)
- ✓ **Creating a mobility system that is fair and just for all** (Make mobility affordable and accessible in all regions and for all passengers; Improve the conditions for transport workers.);
- ✓ **Ensuring the highest standards of safety and security in European transport** (By 2050, the death toll for all modes of transport in the EU will be close to zero).

3. DETERMINANTS OF THE ENERGY COMMUNITY SECRETARIAT

In its first Report [5], the Energy Community Secretariat (ECS) presented data of CO2 emissions per sector for the Western Balkan 6 (WB6) countries (Figure 2).



Source: compiled and calculated by the Energy Community Secretariat.

Figure 2. CO2 emissions per sector, 2018, WB6

The CPs have committed to the share of renewable energy sources in transport by 2020 (biodiesel, batteries, etc.) to 10%, which is not achieved until mid-2021. (Figure 3).

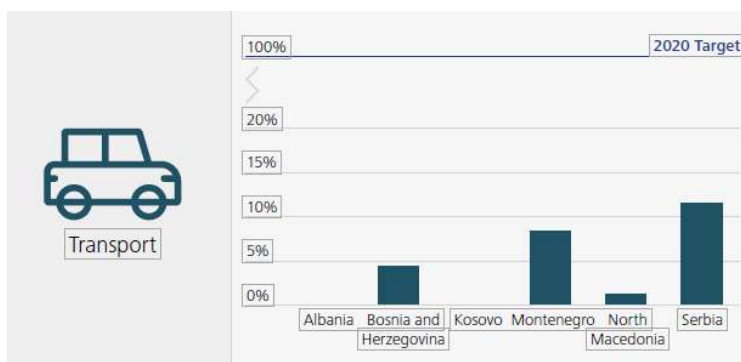


Figure 3. WB6 implementation of renewable energy 2020 targets

As of January 2020, Bosnia and Herzegovina has been sanctioned by ECS due to non-compliance with the Second Energy Package in the gas sector, the Sulfur and Fuels Directive, as well as the Third Energy Package for electricity and gas. The sanctions were adopted at a session of the Ministerial Council on December 17th, and before that, BIH was warned several times that this could happen. In a report published on November 30th, ECS stated that eight proceedings had been initiated against BIH for violating obligations and laws in almost all spheres covered by the Energy Community Treaty. Also, ECS has initiated misdemeanor proceedings due to the fact that the authorities in BIH still allow a larger amount of sulfur in petroleum products, in order to protect the production in the Brod Oil Refinery. Misdemeanor proceedings have also been initiated for non-transposition of the Energy Efficiency Directive (EED). ECS has warned Bosnia and Herzegovina that it does not have a gas law, nor does it have a state regulator for gas, which could control, among other things, the issue of monopolies.

4. SUMP IN THE FUNCTION OF LOW CARBON AND ENERGY EFFICIENT URBAN TRANSPORT

In the EU, transport is currently responsible for a quarter of total CO₂ emissions related to energy and reaches a share of 30% in Luxembourg, France and Spain, where in Slovenia it was around 21%. According to the Renewable Energy Directive 2009/28/EC, the share of renewable energy sources in the gross final consumption (GFC) in the European Union must be 20% by 2020. In the long run, the goals of the share of RES in GFC by 2040 in the EU shall reach over 50% (electricity 52%, heating 32%, transport 13%). (Source: IEA - World Energy Outlook 2016). Sustainable Urban Mobility Plans (SUMPs) have been designed to tackle transport-related problems in urban areas more efficiently. SUMPs are a structured process whereby visions are created, objectives and targets are set, policies and measures are selected and active communication, monitoring and evaluation all take place.

SUMPs contribute to reaching the European climate and energy targets set by EU leaders. SUMPs have been promoted by the Commission as a planning concept that is able to address transport-related challenges of urban areas in a more sustainable and integrative way.

The Sustainable Urban Mobility Plan (SUMP) is a strategic plan designed to meet the mobility needs of people and businesses and its surroundings for a better quality of life. New approaches to urban mobility planning include developing a strategy that can encourage a shift to cleaner and more sustainable modes of transport, such as walking, cycling, public transport, new patterns of car use and ownership, the use of new technologies, and the adoption of new concepts of sustainable city logistics.

The SUMP measures focus on strategic directions towards building a system that will provide the citizens with the expected mobility and accessibility and a successful dynamic environment that promotes sustainable development and environmental protection. The measures include actions in sustainable urban mobility that should result in a healthier and safer environment for all the residents and the participants in the system of traffic and transport, emphasizing non-motorized movement and transport, pedestrians, cyclists, and people with reduced mobility [6] (Figure 4).

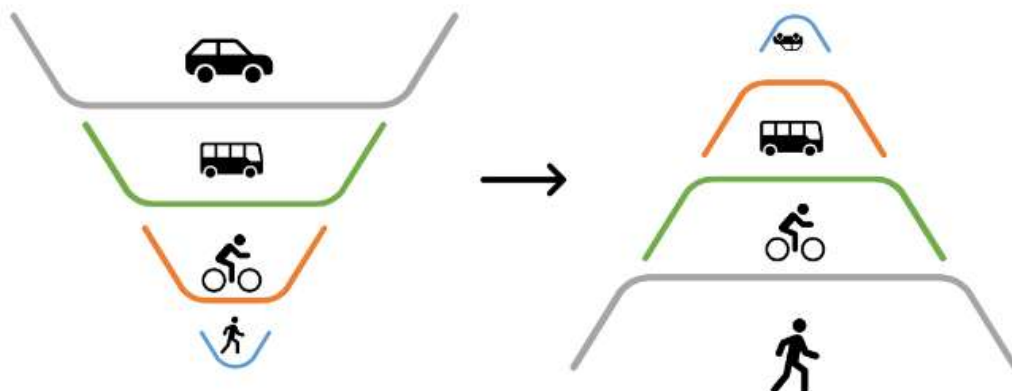


Figure 4. Integrated spatial and urban mobility planning

Strategic pillars and measures of SUMP, include Zero- And Low-emission transport system (Ensure affordable, available, and accessible transport with low-carbon emissions, low noise, and low vibrations; Ensure a simple and quality access to all modes of transport and non-motorized movement; Ensure the quality networking of transport systems into an integrated urban mobility system; Raise awareness of alternative ways of transport and movement.) [8].

The implementation of sustainable mobility from the aspect of low-carbon development of urban areas contributes to [9]:

- ✓ Expanding the offer of transport options that provide all residents and visitors with access to key destinations and services,
- ✓ Encouraging the development of entrepreneurship and the economy,
- ✓ Stimulating clean and sustainable modes of transport (walking, cycling, public transport, electromobility and innovative forms of vehicle use and ownership),
- ✓ Increasing security and protection,
- ✓ Reduction of air and noise pollution, greenhouse gas emissions, and energy consumption,
- ✓ Improving the quality of life and public health,
- ✓ Improving the efficiency and economy of transport of persons and goods,
- ✓ Improving the concept of city logistics, and
- ✓ Increasing the attractiveness and quality of the urban environment and urban design.

5. SUSTAINABLE ENERGY AND CLIMATE ACTION PLANS

The Covenant of Mayors is the world's largest movement for local climate and energy actions. By joining this initiative, cities that have signed the Covenant of Mayors' Charter commit to reducing their greenhouse gas emissions by 40% by 2030. In order to achieve the goals set (or at least get closer to them), they are committed to developing the SECAP, a strategic document in which transport is one of the key sectors.

Sustainable Energy And Climate Action Plan (SECAP) defines measures for reducing energy consumption and CO₂ emissions through the sectors of construction, transport (public transport) and public lighting.

Globally achievable targets and guidelines for reducing carbon emissions from transport can be achieved by:

- ✓ Increasing the number of publicly available means for non-motorized movement.
- ✓ Increasing the share of low-carbon vehicles in public transport.
- ✓ Providing accessible and affordable transportation with low carbon emissions, low noise, and vibration.
- ✓ Increasing the number of charging stations for electric vehicles.
- ✓ Support technologies with zero emissions in transport (e-vehicles, e-bus, e-bike, e-scooters, etc.).
- ✓ Increasing space free from motor vehicle movements.
- ✓ Increasing the degree of acceptability of the price of a public transport tickets.

- ✓ Decreasing the average annual growth rate of the degree of motorization of vehicles with SUS engines.
- ✓ Encouraging innovative acceptable solutions in planning, sustainable development and low and zero emission urban mobility.

In addition to the stated achievable goals for low carbon traffic and transport, the following activities need to be carried out:

- ✓ Informing consumers about fuel economy and CO2 emissions of new passenger vehicles,
- ✓ Training of motor vehicle drivers for eco driving,
- ✓ Obligation to use biofuels in traffic,
- ✓ Introduction of special environmental charge for motor vehicles,
- ✓ Introduction of special tax on motor vehicles,
- ✓ Financial incentives for the purchase of hybrid and electric vehicles,
- ✓ Development of infrastructure for alternative fuels,
- ✓ Promotion of integrated both ITS and alternative fuels in urban areas,
- ✓ Monitoring, verification, and reporting of greenhouse gas emissions in urban areas.

6. CONCLUSION

The EU is on the path to creating the sustainable, smart and resilient mobility system of the future and bringing about the fundamental changes needed to achieve the objectives of the European Green Deal. The application of modern technologies provides significant potential for cost-effective improvement of motor vehicle performance and reduction of CO2 emissions. With new technologies, cost-effective reduction of CO2 emissions from motor vehicles of at least 20% can be achieved.

Efficient and effective urban mobility planning in Bosnia and Herzegovina can significantly contribute to achieving the targets. The policies that yet need to be fully transposed from the EU level to the legal and regulatory framework of Bosnia and Herzegovina are efficiency of the EU transport system, socio-economic objectives, energy dependency, and climate change, partly depends on actions taken by national, entity and local authorities. However, the development of mobility plans by local authorities is highly influenced by national and entity governance frameworks.

Furthermore, The EU Covenant of Mayors for Climate & Energy brings together thousands of local governments voluntarily committed to implementing EU climate and energy objectives. Cities and Municipalities in Bosnia and Herzegovina have pledged by signing the Covenant, where apart from energy planning, climate planning will be made by conducting baseline emission Inventories to track mitigation actions and a climate risks and vulnerability assessments. SECAPs and SUMP's can be considered as tools for low carbon urban traffic development in function of energy and climate sustainable development.

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