

UDC 353

**DECARBONIZING TRANSPORT: THE ROLE OF
ELECTRIFICATION, BIOFUELS, AND OTHER LOW-CARBON
TECHNOLOGIES**

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Decarbonizing transport is critical to achieving global climate goals and reducing the negative impact of transport on public health and the environment. Transport is one of the largest sources of carbon emissions globally, accounting for

around a quarter of all greenhouse gas emissions. Therefore, it is essential to reduce the carbon footprint of the transport sector through various low-carbon technologies.

One of the most promising technologies for decarbonizing transport is electrification. The electrification of transport involves the use of electric vehicles (EVs) that use batteries or fuel cells to power the vehicle. EVs have been gaining popularity in recent years, with many countries announcing plans to phase out internal combustion engines (ICEs) and switch to electric vehicles. Electric vehicles produce no tailpipe emissions, making them an attractive option for reducing carbon emissions from transport.

Another low-carbon technology for decarbonizing transport is the use of biofuels. Biofuels are fuels derived from biomass, such as agricultural crops and waste materials. The use of biofuels in transport can significantly reduce carbon emissions, particularly in the aviation and shipping sectors, where electrification is challenging due to technical and economic constraints. However, the use of biofuels has raised concerns about food security and land use, which require careful consideration in policy and regulatory frameworks.

In addition to electrification and biofuels, other low-carbon technologies such as hydrogen fuel cells, compressed natural gas, and hybrid vehicles can play a role in decarbonizing transport. However, each technology has its advantages and limitations, and policymakers must evaluate and select the most appropriate technologies for their particular circumstances.

Policy and regulatory frameworks are also critical to supporting the transition to low-carbon technologies in transport. Governments can provide incentives for the purchase and use of low-carbon vehicles, such as tax credits, rebates, and subsidies. Additionally, policies that support the development of charging infrastructure for electric vehicles and the production of low-carbon fuels can accelerate the transition to a low-carbon transport system. Behavioral change is another essential factor in decarbonizing transport. Encouraging people to switch to low-carbon transport modes, such as walking, cycling, and public transport, can reduce the demand for high-carbon transport modes and help to reduce carbon emissions from the sector.

In conclusion, decarbonizing transport is crucial to achieving global climate goals and reducing the negative impact of transport on public health and the environment. Electrification, biofuels, and other low-carbon technologies can play a significant role in reducing carbon emissions from transport. However, policymakers must also implement supportive policy and regulatory frameworks and encourage behavioral change to achieve the necessary emissions reductions.

Decarbonizing transport is critical to achieving global climate goals and reducing the negative impact of transport on public health and the environment. Transport is one of the largest sources of carbon emissions globally, accounting for around 25% of all greenhouse gas emissions. Therefore, it is essential to reduce the carbon footprint of the transport sector through various low-carbon technologies.

One of the most promising technologies for decarbonizing transport is electrification. The electrification of transport involves the use of electric vehicles (EVs) that use batteries or fuel cells to power the vehicle. EVs have been gaining popularity in recent years, with sales increasing by 41% in 2020. However, EVs still

only account for around 4% of global vehicle sales, highlighting the need for more rapid adoption of this technology. Electric vehicles produce no tailpipe emissions, making them an attractive option for reducing carbon emissions from transport.

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Behavioral change is another essential factor in decarbonizing transport. Encouraging people to switch to low-carbon transport modes, such as walking, cycling, and public transport, can reduce the demand for high-carbon transport modes and help to reduce carbon emissions from the sector. For example, a study by the European Environment Agency found that if all short car trips in Europe were replaced with cycling or walking, this would save around 9% of all car emissions.

In conclusion, decarbonizing transport is crucial to achieving global climate goals and reducing the negative impact of transport on public health and the environment. Electrification, biofuels, and other low-carbon technologies can play a significant role in reducing carbon emissions from transport. However, policymakers must also implement supportive policy and regulatory frameworks and encourage behavioral change to achieve the necessary emissions reductions. With global carbon emissions from transport projected to double by 2050, urgent action is needed to decarbonize the sector and mitigate the impacts of climate change.

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