



The Hungarian Presidency of the
EU Strategy for the Danube Region



SUMMARY - ASSESSMENT OF THE ALTERNATIVE ROAD FUELS INFRASTRUCTURE AND THE DEVELOPMENT PATHWAY TO INTEROPERABILITY



Choice of alternative fuel technologies in the Danube Region



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Alternative fuels relate to three major challenges within the transport sector

Excessive GHG emissions

Energy security considerations

Traffic congestion management

Due to the economic differences, these challenges are targeted at different levels in the Danube Region

The challenges though are most effectively overcome in cooperation with each other, as the transport sectors of the countries are connected through trade, tourism and the increased mobility of employees across borders.

The report argues that electricity and natural gas based mobility have the brightest future, as per the below criteria.

Environmental considerations

- At the regional level **electric mobility** provides **lower GHG emissions** than CNG
- **CNG** has the **advantage** of **lower PM and NOx emissions**, which is especially important in urban environments

Economic considerations

- **E-mobility** though is **significantly more expensive** given current prices and support measures **than CNG or conventional fuels**
- In **some countries CNG's competitiveness approaches** that of **diesel**

Business environment issues

- In the region, **most countries support e-mobility** with a wide variety of measures
- **Non-EU countries do not provide support**
- **CNG models** are often **more difficult to buy** than electric ones

Suggested choice of alternative fuels for the region

- For **M1 category**, **e-mobility** should be promoted given the climate benefits and the orientation of the market
- **CNG** is already a popular fuel in the region, but in the long term it should be the clean fuel **for public transportation**
- In **freight transport LNG** should be promoted, as it does not have any alternatives

It is suggested that in the passenger vehicle category, electric mobility is promoted, with CNG serving as the clean fuel of public transportation in the long term and LNG providing for the needs of the freight transport.

Suggested target of internationally coordinated support measures for alternative fuels



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The policy support for alternative fuelled vehicles is most effective if follows the below hierarchy.

Level 3: Support to help usage

Level 2: Removing infrastructure bottlenecks

Level 1: Reduction of fixed costs (subsidies)

Removing infrastructure bottlenecks requires international cooperation, other measures fall into national jurisdiction.

1

Developing **AFVs** is **meaningless without** the related filling **infrastructure**.

2

It is through the **TEN-T network** that the EU wishes to **enhance transport connections** between countries.

3

EU member states are required to provide alternative fuels infrastructure along core TEN-T networks.

4

The **TEN-T network is indicatively extended into third countries** as well.



Policy support for the development of alternative fuels is most effective if targeted at three levels: reducing the fixed cost of vehicle purchases, removing infrastructure bottlenecks and helping the usage of the vehicles. Of these measures, infrastructure development requires international cooperation.

Clean transport infrastructure development along the most important transport corridors



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Proposals

1

In the **Western Balkans**, have indicative **TEN-T** network routes be **equipped with electric and** in a few cases with **LNG** infrastructure.

2

The **capitals of Moldova and Ukraine** should be **accessible with electric vehicles from EU MS**.

3

Have the **LNG Blue Corridors** extended into Danube Region countries, **connecting existing and proposed SSLNG developments in the Region**.



Map sources: European Commission and Google

To create interoperability within the Danube Region, it is suggested that the indicative TEN-T routes that penetrate Western Balkan countries are equipped with electric charging infrastructure, and if needed LNG, while the capitals of Ukraine and Moldova should be accessible from EU countries with electric vehicles.

Estimated costs of the proposed infrastructure developments



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	No. of electric charging points	No. of LNG filling stations	Cost of electrification	Cost of gasification
Ukraine	10-12	0	EUR 600,000	n/a
Moldova	2-3	0	EUR 150,000	n/a
Serbia	12-15	2	EUR 750,000	EUR 2,000,000
Bosnia and Herzegovina	7-10	0	EUR 500,000	n/a
Montenegro	5-7	0	EUR 350,000	n/a
Bulgaria	Dealt through Directive 2014/94/EU and national alternative fuels framework policies.	1	n/a	EUR 1,000,000
Romania		2	n/a	EUR 2,000,000
Germany		1	n/a	EUR 1,000,000
Austria		1	n/a	EUR 1,000,000
Czech Republic		1	n/a	EUR 1,000,000
SUM	36-47	8	EUR 2,350,000	EUR 8,000,000

1. It is assumed that EU countries will develop appropriate electric charging network along core TEN-T networks as per 2014/94/EU.
2. An additional 36-47 fast charging points in non-EU countries are sufficient for interoperability in the Danube Region.

Assuming a 500 km effective driving range of an LNG truck, 8 additional filling stations are adequate for interoperability.

It was assumed that a 100 kW charger costs EUR 50,000 as per the average of CEF projects.

It was assumed that 1 LNG filling station costs EUR 1 million, as per the average of CEF funded projects.

With an additional 36-47 fast charging points and 8 LNG stations, the Danube Region could be interoperable with such vehicles. The combined costs of the developments account to EUR 10,350,000. These infrastructure developments should take place by 2025, so that the Region will not lag behind the EU-wide roll-out.

National policy frameworks about alternative fuels infrastructure development for Energy Community countries



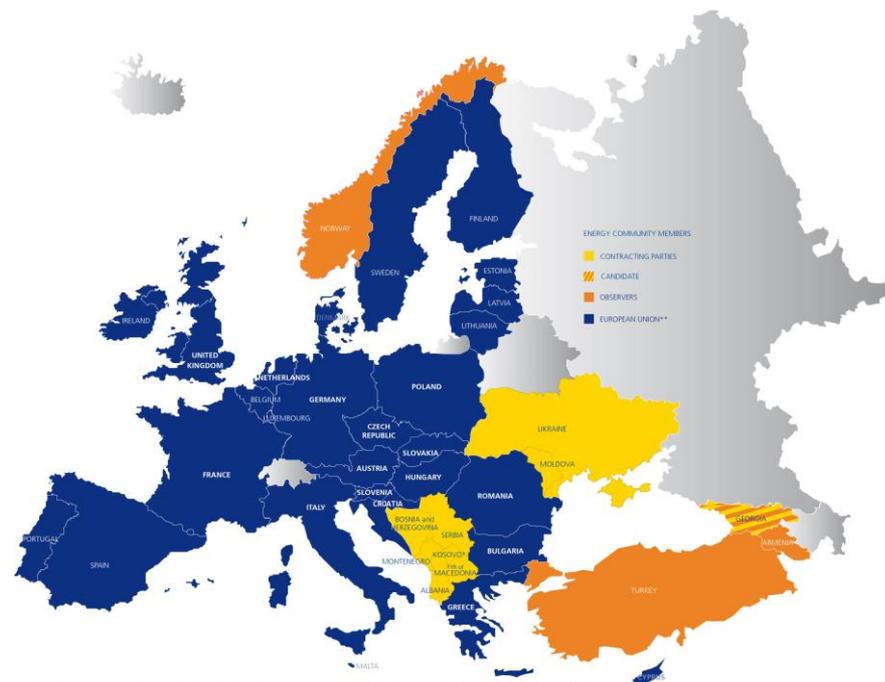
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With the emergence of electricity and natural gas as fuels, transport, energy and climate policy will become increasingly inseparable.

Therefore, the energy security issues pertaining to electricity and natural gas that form a large part of energy policy will appear in transport policy, too.

It is thus advisable that countries of the Energy Community declare their intentions by 2020 about the development of their alternative fuels markets.

Thereby establishing non-binding targets that set the development paths for 2025, 2030 and 2035 for the alternative fuel sectors in the respective country.



* This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Energy Community

As natural gas and electricity further advance as transport fuels, energy, climate and transport considerations will become increasingly inseparable from each other. As a result, it is suggested that Energy Community countries set themselves targets and development plans in the alternative fuels sector, on common grounds.



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Thank you for
your attention!