
DanuP-2-Gas

Potentials for Renewable Hydrogen Production in Serbia

 28 September 2021 | STAKEHOLDERS EVENT | FER Zagreb

 DanuP-2-Gas | RDA Banat | Dejan Stojadinović



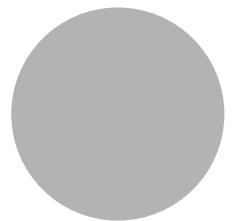
PRESENTATION STRUCTURE

HYDROGEN PRODUCTION IN SERBIA

DEVELOPMENT OF LEGAL AND
REGULATORY FRAMEWORK FOR
RENEWABLE HYDROGEN IN SERBIA

POTENTIALS FOR RENEWABLE HYDROGEN
PRODUCTION IN SERBIA

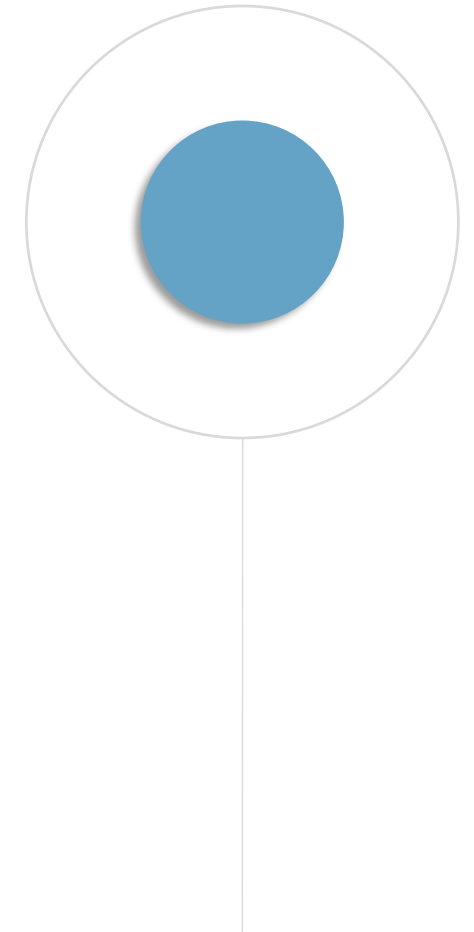
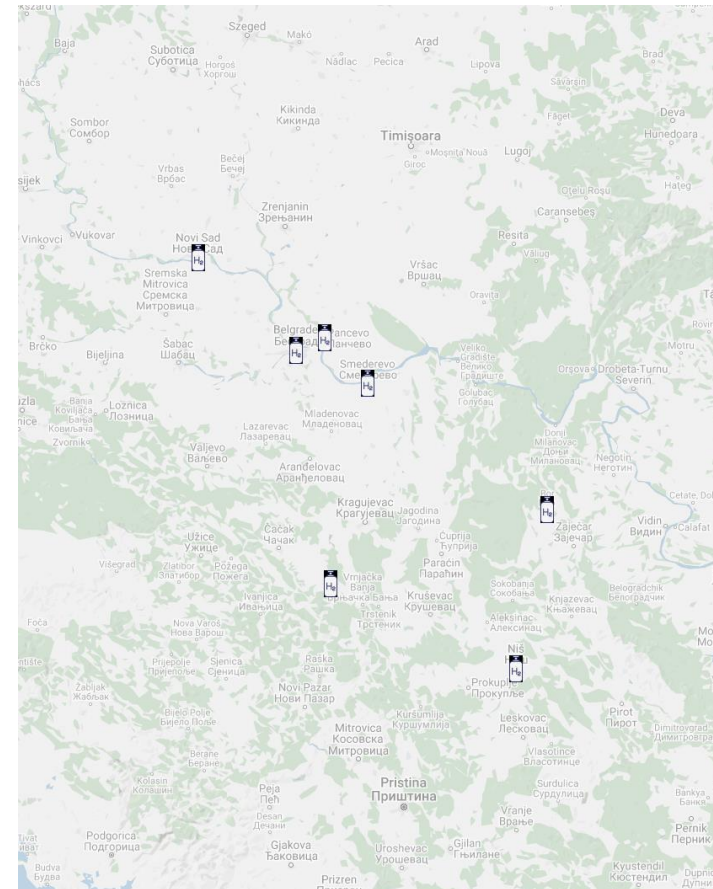
HYDROGEN PRODUCTION IN SERBIA





GREY HYDROGEN PRODUCTION

- Hydrogen in Serbia is currently produced mainly via steam methane reforming which is carbon-intensive method
- There are 6 locations / production facilities in Serbia
- Companies Messer Tehnogas and Linde Gas are key market players
- Commercial price of grey hydrogen – 20 EUR/kg i.e. 0.6 EUR/kWh
- Lower calorific value (LCV): 120 MJ/kg
- Largest consumers: Power industry, Oil refineries, Iron and Steel Industry, Glass manufacturers, Fertilizers production



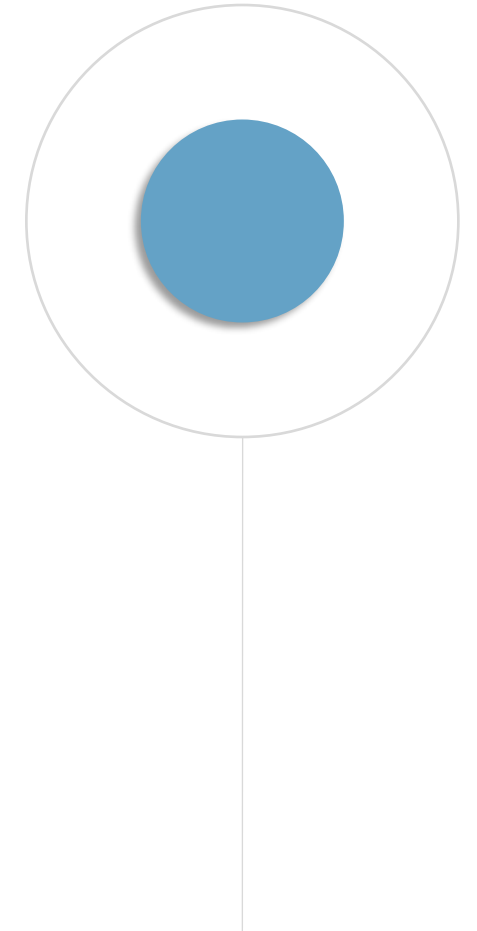
DEVELOPMENT OF LEGAL AND REGULATORY FRAMEWORK FOR RENEWABLE HYDROGEN IN SERBIA





LEGAL AND REGULATORY FRAMEWORK

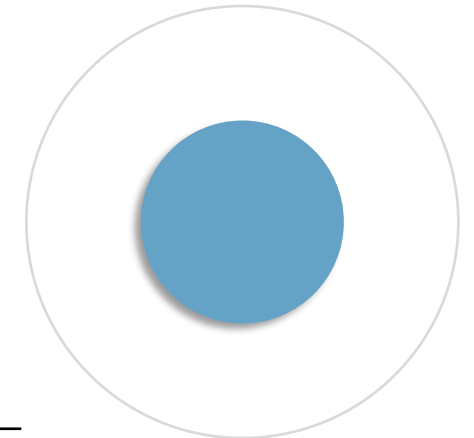
- Serbia adopted new Law on Utilization of Renewable Energy Sources, and amendments to the Energy Law in 2021
- The Law on Utilization of Renewable Energy Sources introduced definition of renewable hydrogen „as hydrogen used for energy purposes, produced from water electrolysis using renewable electricity“
- It also contains definition of renewable liquid and gaseous fuels of non-biological origin as fuels made of renewable energy sources other than biomass and biofuels, which are used in transport
- Amendments to the Law on Energy introduced term low-carbon gases as an instrument to mitigate climate change
- However, the bylaws, which should specify the rules, regulations and requirements for implementation of the mentioned laws have not been drafted/adopted yet





INSTITUTIONAL FRAMEWORK

Sector	Institutional responsibility	Legal framework
Hydrogen production, storage, transport and distribution	Ministry of Environmental Protection	Law on chemicals
	Ministry of Internal affairs	Law on explosive substances and flammable liquids and gases
	Ministry of work, employment and social policy	Law on fire protection
		Law on disaster risk reduction and emergency situation management
		Law on Safety and Health at Work
Electricity Networks	Ministry of Mining and Energy	Energy Law
Gas Networks	Ministry of Mining and Energy	Energy Law
Use of hydrogen as motor fuel and infrastructure for supply	Ministry of Internal affairs	Law on Road Traffic Safety
	Ministry of transport, infrastructure and construction	Law on Navigation and Ports on Inland Waters
	Ministry of Mining and Energy	Energy Law



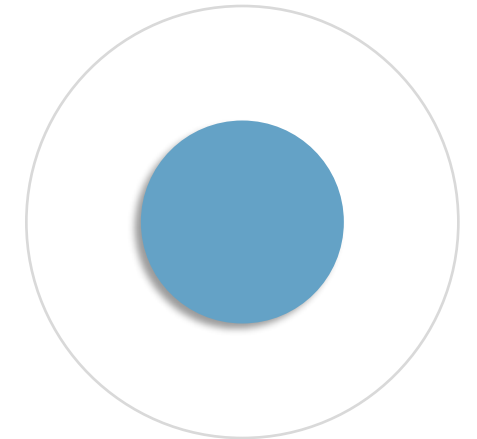


KEY LEGAL AND REGULATORY BARRIERS

- Serbian legislation does not provide specific legal and regulatory framework for electricity and gas sector coupling i.e. P2G plant operation
- Blending of renewable hydrogen into the existing natural gas pipeline is not specifically foreseen in the Serbian legislation
- P2G plant would be obliged to pay system charges, levies, and taxes for both electricity (as consumer) and natural gas (as producer) thus creating obstacle for financial operations of P2G plant
- Financial incentives and guarantees of origin for production of renewable hydrogen or renewable natural gas are not available in Serbia

IT IS EXPECTED THAT UPCOMING BYLAWS ADDRESS SOME OF THESE ISSUES AND HELP OVERCOME ADMINISTRATIVE BARRIERS

WITH FINE TUNING OF SOME PROVISIONS, EXISTING ELECTRICITY AND GAS LEGISLATION WOULD BE APPLICABLE TO OPERATION OF P2G PLANT AND RENEWABLE HYDROGEN PRODUCTION/FEEDING INTO THE GAS NETWORK



POTENTIALS FOR RENEWABLE HYDROGEN PRODUCTION IN SERBIA



T4



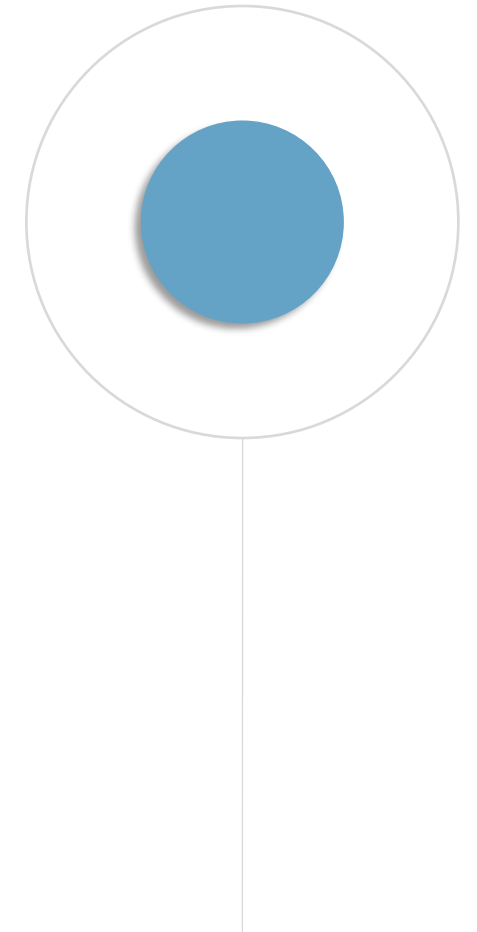
RENEWABLE ENERGY PRODUCTION

NO EXCESS RES-E GENERATION

- RES share in final energy consumption in 2019 – 21.4%
- RES-E share in final electricity consumption in 2019 – 30.1%
- Serbia is currently establishing decarbonization path up to 2050 – drafting of NECP and Energy Strategy up to 2050 (including Hydrogen strategy)

UNUSED AGRICULTURAL BIOMASS POTENTIAL

- Technical biomass energy potential 2.7-3.3 Mtoe annually (out of which 1.1 Mtoe is being used)
- Greatest potential lies in agricultural biomass – 1.7 Mtoe (currently not used)



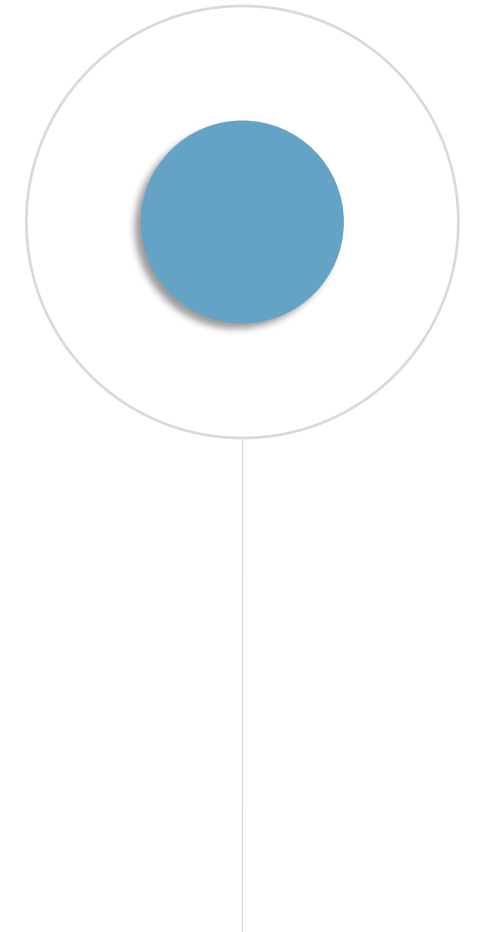


POTENTIAL HYDROGEN APPLICATIONS IN SERBIA

STUDY ON THE POTENTIAL FOR IMPLEMENTATION OF HYDROGEN TECHNOLOGIES AND ITS UTILISATION IN THE ENERGY COMMUNITY

Energy Community Secretariat, June 2021

- Most attractive applications for Serbia:
 - Transport (due to high diesel prices)
 - Industry (iron and steel, food and tobacco, chemicals and petrochemicals, oil refineries, ammonia)
 - Residential and district heating
 - Power generation
- Research / Academia related initiatives for hydrogen applications
 - Institute for Nuclear Sciences „Vinča“
 - University of Belgrade – Faculty of Mechanical Engineering (drafting of Hydrogen Strategy)





THANK YOU

RDA BANAT Serbia

Email: Branislav.Milosav@rcrbanat.rs
www.banat.rs

Dejan Stojadinović

Email: dejan.stojadinovic@energytransition.rs



Danube Transnational Programme
DanuP-2-Gas

