



Present Status of Introduction and Production of Biofuels in the Republic of Slovenia

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Introduction

Car facts - From Grist Magazine

(<http://www.gristmagazine.com/grist/counter/counter011900.stm>):

- 70 million motor vehicles were on the world's roads in 1950.
- 630 million motor vehicles were on the world's roads in 1994.
- 1 billion motor vehicles are expected to be on the world's roads by 2025, if the current growth rate continues.
- 50 million new cars roll off the assembly line each year -- 137,000 a day.
- 27 tons of waste are produced in the manufacture of the average new car.



Introduction-cont.

- 11 million cars are junked annually in the US.
- 12,000 pounds of carbon dioxide are emitted by the average car each year.
- 5% of a car's fuel can be wasted by underinflated tires.
- 2 billion gallons of gasoline could be saved annually if 65 million car owners kept their tires properly inflated.
- 85% of auto fuel is consumed just to overcome inertia and start the wheels turning.
- 2.5 times more emissions are generated by SUVs (Sports Utility Vehicles) and light trucks than by standard cars.
- 33,000 natural gas vehicles were in use in the US in 1993.
- 75,000 natural gas vehicles were in use in the US in 1998.



Introduction-cont.

Average BTU consumed per passenger mile by mode of travel:

SUV: 4,591

Air: 4,123

Bus: 3,729

Car: 3,672

Train: 2,138

Source: US Bureau of Transportation Statistics
<http://199.79.179.77/publications/nts/index.html>



Introduction-cont.

According to a 2004 US Transportation Research Board report,
public transportation:

- ◆ Reduces CO₂ emissions by more than 7.4 million tons per year in the U.S.;
- ◆ Produces 95% less CO, at least 92% fewer VOCs, and nearly half as much CO₂ and NO_x for every passenger mile traveled than private vehicles.



Introduction-cont.



Biomass burning - Natural energy release





Introduction-BF and Slovenia

Republic of Slovenia has started activities on biofuels introduction in the automotive traffic in 2005. According to the European Directive **2003/30/ES** preparation of national legislation in the field of fuel quality with the aim of introduction of a mechanism to monitor and reduce greenhouse gas emissions from the road transport fuels has started.



Introduction_{-cont.}



First biofuel candidate in RS - oil turnip rape





Directive 2003/30/ES

According to Directive 2003/30/ES EU member states had to introduce certain amount of biofuels (BF) and other renewable fuels into automotive traffic with target/reference values of 2% till the end of 2005 and 5,75% in 2010.

Percentage is calculated on the basis of BF energy values with regard to the energy values of petrol and diesel fuel used in the traffic.



Directive 2003/30/ES-cont.

According to the 4. article each member state has to report to EC before 1st July of the current year on the:

- Measures for promotion of BF use;
- National resources of biomass production for energy;
- Total fuel sale in traffic and the amount of BF (pure or mixed in) as well as the other renewable fuels for the past year;
- When applicable member states report on the exceptional conditions at the fuel market resulting in different structure and sources of fuels.



Legislative accepted in Slovenia

(and prepared by the Ministry of Environment and Spatial Planning)

- 2005: first BF Regulation defined BF types, yearly obligations of putting them to the market by distributors (those who import only!), **not restrictive!**
- 2006: Operative programme of GHG emission reduction aiming at minimum reduction of **120.000 t CO₂** equivalent yearly in the first period of Kyoto Protocol, what leads to the need of replacing of **45.000 t petrol and diesel by BF**. In other words this means 3% of all in automotive transport used fuels in the period 2008 – 2012;
- Excise Duty Act excludes pure BF and up to 5% BF when mixed with mineral fuels.



BIOFUEL TYPES

- **Bioethanol,**
- **Biodiesel,**
- **Biogas,**
- **Bio ETBE and ETME**
- **Bio dimethyleter.**







Legislative accepted in Slovenia-cont.

New Decree on Promotion of BF and other renewable fuels for automotive vehicles (October 2007) has replaced the Regulation, introduced some changes and defines:

- BF types, yearly obligations of putting them to the market by all distributors (not only those who import!);
- Obligations of distributors (e.g. announcement of putting on the market, new yearly target amounts of BF, monitoring the amount of BF put to the market and to end-users and surveillance of implementation of Decree;
- Obligations of public sector users and those managing the public transportation in road traffic;
- **Fines in case of violation of Decree!**



European Council recommendations - March 2007:

- 20% reduction of GHG emission according to reference year 1990;
- 20% higher energy efficiency with end users;
- 20% replacing of the primary energy from fossil fuels by energy from renewable sources;
- In the frame of target values of the energy from renewable sources at least 10% of mineral fuels should be replaced by BF.

New dynamics of implementation of demand on the 10% amount of BF in fuels for the 2010-2020 period is already announced.



Biofuels production from our own agricultural products

- For stimulating BF production our government decided to give incentives directly to the producers of energy plants (about **300 €/ha** in 2005);
- In 2005 on cca **2.500 ha** were planted by oil turnip rape in RS, what could give **7.500 t** of oil turnip rape seeds or **2.500 t** of biodiesel (BD) per year;
- Ministry of Agroculture: no more than **6.000-7.000 ha** are available for oil turnip rape in Slovenia.



Biofuels production from our own agricultural products-cont.

- **In 2005 three important BD producers existed in Slovenia;**
- **6.000 t of BD was produced in Slovenia in 2005, partially from imported energy plants.**
- **In 2006 a smaller amount of BD was produced due to various reasons;**
- **Some more BD producing plants were planned to be founded in close future.**



Biofuels production from our own agricultural products-cont.

- **BD production is based on the imported oils, used oils, fats from animal origin while domestic rape represents a minor part only;**
- **Bioethanol production facilities not available in Slovenia!**



BIOMASS FOR THE ENERGY – NOT FOR TRAFFIC



Republic of Sloveni contributes to the implementation of European target values on the realibility of energy supply with its Energy Programme of use of individual biomass sources aimed primarily at electric energy production, reduction of GHG as well as creating the new possibility of sustainable development of rural areas.

According to the SURS data at least **18,7 PJ/yr** (P=Peta= 10^{15}) of energy was obtained out of wood and other solid biomass that is used for production of electric energy and heat what represents about 6% of total annual primary energy use (**320^PJ/yr**).



Total fuels put on the market in RS:

Fuel type	SALE in 2006 (tonnes)
Diesel	901.607
Unleaded motor petrol- UMP (95<=RON<98)	546.340
Unleaded motor petrol- UMP (RON>=98)	52.637
TOTAL	1.500.584



Biofuels put on the market in 2006

Fuel type	SALE in 2006 (tonnes)
Biodiesel	4.642
UMP 98	4,9
UMP 95	267
TOTAL	4.915



Fraction of Biofuels put on the market in 2006

Type of fuel	BF fraction (%)	Planned (%)
Average mass fraction of BF for automotive traffic	0,328	/
Average energy fraction of BF for automotive traffic	0,275	2



According to new Decree on Biofuels, distributors in RS:

MUST obey the obligation
from 2006 on the amount of
BF put to the market that
was **NOT** fulfilled and
SHOULD be realised by the
end of 2008!



GENERAL CONCLUSIONS

- **Strategy of promoting renewably sources, e.g. introducing biofuels, is well incorporated into our national policy;**
- **Biofuels, above all biodiesel, are accepted as a fact for entirely “fuel distribution society” at present and for near future in Slovenia;**
- **On the other hand, there exists a “stratified” or “structured” opinion on that in public; doubt and sometimes fear is present;**
- **Therefore in promotion of this field both professionalism and sense for public must be present;**
- **Last but not least, sustainable development must be taken into account in every approach to energy issues.**



Future vs. dilemmas



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Future vs. dilemmas





Thank you!