

“Alternative Fuels for Green Transportation”

Report

on the National workshop

GREECE



Author: Myrsini Christou

Partner: CRES

Location: Auditorium Event B, Expo Athens,
Anthousa, Attiki

Date: Friday, 23 April 2010



**ΚΑΠΕ
CRES**

ΚΕΝΤΡΟ ΑΝΑΝΕΩΣΙΜΩΝ ΠΗΓΩΝ
ΚΑΙ ΕΞΟΙΚΟΝΟΜΗΣΗΣ ΕΝΕΡΓΕΙΑΣ

A. General Information

Title of the workshop: **Alternative Fuels for Green Transportation”**

Date of the workshop: **Friday, 23 April 2010**

Location of the workshop: **Auditorium Event B, Expo Athens, Anthousa, Attiki**

Organizer: **CRES**

Number of participants: 66 + 5 own staff

Number of invitations sent: 150

Number of registrations received (prior to the event): 38

C. List of participants ¹

	Name	Speciality	Company	E-MAIL	Company type ²
1	Agathoklis Dimitrios	Individual		agathdim@yahoo.gr	INI
2	Adonopoulou Eleni	Mechanical Engineer	Polytechnic University of Patra	ANTELEN1@GMAIL.COM	ACA/RTD
3	Varouhas Georgios	Mechanical electrical engineer, Director of internal sales	Asprofos Technical Company S.A	gvarux@asprofos.gr	ENC
4	Vasiliou Theodoros	Mechanical Engineer	REVOIL A.E.	vasileiou@revoil.gr	FUP
5	Vertopoulos Stamatis	Engineer of solar production systems	EARTH HELLAS ΕΠΕ	stamvertopoulos@yahoo.gr	ENC
6	Georgantopoulou Andriana	Mechanical Engineer		andrianouli13@hotmail.com	INI
7	Gianelou Vaso	Sales Manager	EUROFLAME	INFO@EUROFLAME.GR	ENC
8	Ganakis Evripidis	General Manager	VIOANAKYKLOSI (Biorecycling)	E.GANAKIS@BIORECYCLING.GR	ENC
9	Dontas Evripidis	Managing Director	BIODIESEL AE	INFO@BIODIESEL.SA.GR	FUP

¹ In bold letters are the attendants, the rest have registered but did not attend.
Total number of national participants: 71 (national participants: 66 and own staff:6)

² Stakeholder type: OS=own staff, **ENC**=energy company, **FUP**=fuel producer, **FUD**=fuel distributor, **AC/RTD**= academia, research and development, **INA**= Interested association, **INI**= Interested individual, **FLT**=fleet, **POL**=policy maker, **NGO**=non-governmental organisation,

10	Evangelidis Michalis	Chemical Engineer Msc	ALPHA PLAN	evangelidis@aplan.gr	ENC
11	Zaharopoulos Athanasios	Chemical engineer - Head of Research Department	Ministry of Environment, Energy and Climate Change	ZACHAROPOULOS@YPAN.GR	POL
12	Kavatza Efpraksia	Dr, chemic /Head of standardisation and public relations department	Ellinika Petrelea AE (Hellenic Oils S.A)	EKAVATZA@HELLENIC_PETROL AIM.GR	FUD
13	Kavadias Georgios	Mechanical Engineer	KSCG Councillors	INFO@KSCG.GR	ENC
14	Kaloudis Xristos	Chemical Engineer	Ministry of Environment, Energy and Climate Change	CH.KALOUDIS@DEARTH.MINEN V.GR	POL
15	Kapodistrias Spiridon	Mechanical Engineer	National Technical University of Athens	spiros87@yahoo.com	ACA/RTD
16	Karampasis Ioannis	INNOVATION MANAGEMENT CONSULTANT,CLIMATE CHANGE	GREEN EVOLUTION AE.	I.KARAMPASIS@GREEN-EVOLUTION.EU	ENC
17	Katis Stefanos	Economist - Head of KIE	KIE Nomarhia Anatolikis Attikis (Prefecture of East Attiki)	STKATIS@OTENET.GR	MUN
18	Koutsolelos Athanasios	Professor	University of Crete	COUSOLE@CHEMISTRY.UOC.GR	ACA
19	Koutsomihos Nikos	Electrical Engineer	Educator	elemisae@otenet.gr	ACA
20	Konstas Stefanos	Dr. Chemical - General Consultant	ELIN Biofuels A.E.	KONSTAS@ELINBIO.GR	FUP/FUD
21	Lapokonstantakis Nikolas	General Director	BIODIESEL AE	INFO@BIODIESEL.SA.GR	FUP
22	Liapis Dimitrios	Mechanical Engineer	Afoi Tolia	liapisjim@msn.com	ENC
23	Linardi Xristina	Mechanical Engineer Aeronautical Engineer		xris.lin@hotmail.com	INI

24	Malamos Dimitrios	Mechanical Engineer	Mathios Pyrimaha A.E.	DMALAMOS@MATHIOS.GR	ENC
25	Markakis Manolis	Director of programming & function optimisation	Ellinika Petrelaia (Hellenic Oils S.A)	mmarkakis@helpe.gr	FUD
26	Masonos Ermis	Sales Manager	Magnetizer Hellas EPE	MAGNETIZER@OTENET.GR	ENC
27	Minogiannis Minas	Mechanical Engineer	TEI Pirea	minoyiannis@yahoo.gr	ACA
28	Mouzaki Paraskevi	Architect	Plegma Kataskeves	BMOUZ@OTENET.GR	ENC
29	Bastas Dionisis	Undergraduate of Energy Technology Department		DIOBASTA@HOTMAIL.COM	INI
30	Boulios Kostas	Mechanical Engineer	Plegma Kataskeves	BOULLOS@PLEGMAKATASKEVES.GR	ENC
31	Pappas Ioannis	Mechanical EngineerCEO	GREEN EVOLUTION AE.	I.PAPPAS@GREEN-EVOLUTION.EU	ENC
32	Pavlou Stavros	Agricultural Engineer - Economy Department	Individual	STAVROS.PAVLOU@GMAIL.COM	INI
33	Plitas Nikiforos	Economist-Energy engineer	Mediterranean SOS	nikiforosec@gmail.com	NGO
34	Roumpis Grigorios	Student	TEI Pirea	roubiskoubis@yahoo.gr	ACA
35	Touliou Sofia	Chemical Engineer	Centre for Research & Technology Hellas / Institute for Solid Fuels Technology & Applications (CERTH/ISFTA)	touliou@certh.gr	ACA/RTD
36	Touloumis Georgios	Student - Mechanical Engineer	National Technical University of Athens	george_toul@hotmail.com	ACA/RTD
37	Touloumis Kirikos	Student - Electrician Engineer	National Technical University	kirtoul@hotmail.com	ACA/RTD

38	Tsinsifatos Spyros	Director	EUROFLAMM	INFO@EUROFLAMM.GR	ENC
39	Tsitseksian Stylianos	Student	TEI PIREA STEF Electrology Department	STELIOS106Q@YAHOO.GR	ACA/RTD
40	Fragkos Stauros	Mechanical Engineer	Consultant	sfrank@teemail.gr	INI
41	Chilios Dionisis	Mechanical Engineer	OASA - Athens Urban Transport Organisation	DIONISISH@OASA.GR	FLT
42	Christodoulou Christos	Mechanical Engineer	National Research Center and Technical Development	xristodoulou@certh.gr	ACA/RTD
43	Alexopoulou Efthimia	Agricultural Engineer	CRES	ealex@cres.gr	OS
44	Daras Nikos	Chemical Engineer	CRES	ntaras@cres.gr	OS
45	Karathanasis Nikolaos	Civil Engineer	N. Karathanasis & Sia E.E.	nkarathanassis@gmail.com	ENC
46	Liapis Nikos	Director	ELIN S.A (Oil company)	liapis@elin.gr	FUP/FUD
47	Gantinas Dimitris	Electrical Engineer	TERRA-VERDE	support@terra-verde.gr	ENC
48	Sigkas Christos	Technical Director	TERRA-VERDE	info@terra-verde.gr	ENC
49	Ioannidis Dimitris		ELVE	elve@otenet.gr	ENC
50	Charalampidis Nikos	General Director	Greenpeace		NGO
51	Tzamalios Giorgos	Engineer	CRES	gtzamal@cres.gr	OS
52	Patrianakos Ilias	Civil Engineer	Individual	iliaspatrianakos@yahoo.com	INI
53	Travlos Stavros	Civil Engineer	Individual	travlos@otenet.gr	INI
54	Stratiotis Panagis	Investor	Individual		INI
55	Melissaris Ioannis	Mechanical Engineer	Individual	konmeloe@gmail.com	INI

56	Ntilinko Dimitris	Student - Electrology		napsteras@hotmail.com	INI
57	Rigas Emanouil	Student - Electrology		manos_lowbap@hotmail.com	INI
58	Rigalos Ioannis	Public Employee		Dalles45@gmail.com	INI
59	Tsantarliotis Leonidas	Electrical Engineer	Individual	tsantarll@gmail.com	INI
60	Mitsolidis Theodoros	Civil Engineer	Individual	theo781977@hotmail.com	INI
61	Komninos Konstantinos	Mechanical Engineer	Individual	komninoskos@tellas.gr	INI
62	Tzavaras Konstantinos	Investor	Individual		ENC
63	Tzavdaridis Athanasios	Dentist	Individual	atavda@otenet.gr	INI
64	Tsavdaridou Maria	Doctor	Individual	mariatsavdaridou@hotmail.com	INI
65	Mpohtis Gerasimos	Mechanical Engineer			INI
66	Anagnostou Vasilis	MARKETING	Individual	anagnostouvasil@yahoo.com	ENC
67	Ioannidou Theodora	Biologist - Environmentalist	Individual		INI
68	Voudouri Anna	Economist - business consultant	Free lancer	voudour203@yahoo.com	INI
69	Pitsidimos Dimitris	Commercial attaché	Ministry of Foreign Affairs	bos@mfa.gr	POL
70	Vragkalas Kostas	Environmental Engineer	Individual	vragalasenv@gmail.com	INI
71	Mpelias Vagkelis	Electrical Engineer			INI
72	Papadogianni Katerina	Chemical Engineer	Ministry of Environment, Energy and Climate Change	papadogiannia@ypan.gr	POL

73	Leontiadis				INI
74	Koroneos Ioannis	Mechanical Engineer	Individual	busafht@yahoo.gr	INI
75	Mpozias Panagiotis		Individual		INI
76	Piagkos Nikolaos	Phycisian	Individual	npiang@otenet.gr	INI
77	Posoulidis Kosmas	Agricultural Engineer		pousas90@hotmail.com	INI
78	Mastrantoni Sevasti	Civil Engineer (student)		vassia.m@gmail.com	ACA/RTD
79	Gianopoulos Sotiris	Mechanical Engineer		sgiannopoulos@tee.mail.gr	INI
80	Tampakakis Ioannis	Dealer - Photovoltaics			ENC
81	Antipas Anastasios	Environmental Consultant	Individual	t.antypas@yahoo.com	INI
82	Mpardas Dimitris	Agricultural Engineer	Iliatida AE	ydrocit1@gmail.com	INI
83	Tasiou Rea	Civil Engineer	ELETAEN (Hellenic Association for Wind Energy)	rtasiou@otenet.gr	INA
84	Anastasopoulos	Free lancer			INI
85	Anastasopoulos Georgios	Free lancer			INI
86	Plototis Georgios	technician			INI
87	Papadelis Thrasivoulos	Free lancer		thrasosPapadellis@gmail.com	INI
88	Zervas Panagiotis				INI
89	Moraitis Alexandros				INI
90	Stamatakis Manos	Chemical Engineer	CRES	mstamatakis@cres.gr	OS

91	Kalivrousis Frantzeskos	Architect		fhall@tee.gr	INI
92	Tolgou Dimitrios	Mechanic Engineer	Individual	dimtol123@gmail.com	INI
93	Vergos Christos	Engineer	Individual		INI
94	Varkaraki Elli	Chemical Engineer	CRES	evarkara@cres.gr	OS
95	Lompotesi Hryssa		Invest in Greece Agency		INA
96	Sosos Ilias	Sales manager		eliasozos@yahoo.gr	ENC
97	Kondilis Dimitris	Mechanic Engineer			INI

C. Workshop Programme

10:00 - 10:30	<i>Registrations</i>
Part A : 10:30 - 11:30	Green Transportations : Strategies and Targets
	ALTER-MOTIVE Project presentation <i>Myrsini Christou, Biomass Department, CRES</i>
	Strategies for the acceleration of the penetration of biofuels and other alternative fuels in the Greek market. <i>Ioannis Maniatis, Deputy Minister, Ministry of Environment, Energy and Climate Change</i>
	Alternative vehicles. Policies and applications experience. <i>Maria Zarkadoula, Environment and Transportation Department, CRES</i>
	Transportation, environmental effects and climate change <i>Nikos Charalampidis, Greenpeace Greece</i>
	<i>Coffee brake</i>
Part B : 11:45 – 13:00	Alternative fuels : Today and tomorrow
	Biofuels in Greece: Today's situation and future prospects <i>Nikos Liapis, Technological Platform of Biofuels in Thessaly</i>
	Biodiesel – A promising biofuel. <i>Kyriakos Pettas, Pavlos Pettas AVEE</i>
	Biogas and bio-methane production for transport utilization. <i>Christos Zafiris, Industry and Measurements Department, CRES</i>
	Hydrogen utilization in transport sector. <i>Manolis Stamatakis, Hydrogen Technologies Department, CRES</i>
Round table 13:00 – 14:00	Effective policies for the alternative fuels and green transportation. <i>Coordinator: Panagiotis Papastamatiou ELETAEN</i>
14:00	<i>Lunch</i>

D. Short summary

The workshop was focused on the contribution of alternative fuels for green transportation. The fuels addressed by this workshop were **biodiesel, biomethane and hydrogen**. They were selected because either they are used at commercial scale (biodiesel) or because there is considerable research carried out in Greece (biomethane, hydrogen). Second generation biofuels were not covered.

The participants represented a range of fields, such as energy companies, fuel (biodiesel) providers and fuel distributors, academia, fleet while there was a high number of interested individuals/consultants who also attended and actively participated in the discussions.

From the replies we got (22 out of the 66 national participants), the audience found the project very interesting and able to provide efficiently new ideas or suggestions. It was contradictory though that the majority of the participants believed that the project can influence EU policy more efficiently than the local policy. That is due to the traditional resistance of the Greeks to new technologies but more to the lack of trust towards the policy makers, which is more acute in the view of the recent financial recession. The majority of the attendants found the workshop and relevant discussions useful and the presentations very informative.

It was unfortunate that Mr. Ioannis Maniatis, Deputy Minister of the Ministry of Environment, Energy and Climate Change could not finally attend the workshop, the reason being that the Ministry was not ready to present a solid policy at the time being, given the financial recession of the country, the harmonization of the EU Directives 29/2009 and 33/2009 and the development of the National Renewable Energy Action Plan which is under way. However, there were representatives of the Ministry attending the workshop for participating in the discussions.

The change towards diesel consumption was argued by the participants because diesel engines have advanced emission standards, higher performance efficiency, lower consumption and lower CO₂ emissions; but it was pointed out that diesel quality has to be improved. The higher diesel consumption would then facilitate the higher consumption of biodiesel that is produced since 2006 in the country by 13 small to medium size biodiesel plants. It was vividly discussed here that the higher biofuels production/consumption would give motives to farmers to shift towards the cultivation of energy crops in substitution of the crops that will be released from agriculture in the frame of the reformed CAP. It was agreed by the audience that that would rejuvenate the Greek agriculture in these difficult recession period.

The need for the introduction of alternative fuels and alternative vehicles was also supported by a number of participants. And the representative from the Athens Urban Transportation Organisation, Mr. Chilios Dionysis, was very proud to state that CNG busses was by far the most successful project for promoting the use of alternative fuels for alternative vehicles, and this will continue to be active.

Discussions were also focused on how biomass and biofuels will be dealt in the new Energy Policy and Planning of the country, in order to rejuvenate the poorly structured Agricultural sector and help towards regional development, now that the country is facing a financial recession.

Big interest was shown for the best suited biofuels and biofuel technologies to be used in marine transportation (small or bigger fishing vessels, yachts, ferries, etc.) and relevant people to address (fishermen, cooperatives of fishermen, transporting companies, etc) in our country that marine transportation especially in the high tourist period but also year around is quite crucial for the islands.

E. Minutes

The main input from the presentations and discussions with the audience is shortly presented below.

The project objectives, structure and expectations were presented by **Myrsini Christou, Head of Biomass Department of CRES** and partner of the ALTERMOTIVE project.

Mr. Ioannis Maniatis, Deputy Minister of the Ministry of Environment, Energy and Climate Change was excused because the Ministry was not ready to present a solid policy at the time being, given the financial recession of the country, the harmonization of the EU Directives 29/2009 and 33/2009 and the development of the National Renewable Energy Action Plan that all under way. However, there were representatives of the Ministry attending the workshop for participating in the discussions.

It was confirmed by **Ms. Maria Zarkadoula, Head of the Environment and Transport Department of CRES**, that the transport sector in Greece is highly contributing in CO₂ emissions as it is highly depended on fossil fuels, and at the same time it is characterized by a high contribution in energy consumption, therefore integrated policies aiming to decrease emissions on one hand and save energy on the other are of ultimate importance.

Measures like taxation of light vehicles according to their emissions, fuel economy labels and labeling tires did not work out successfully in Greece. The new Directive 33/2009 on the promotion of clean and energy-efficient road transport vehicles is however expected to make the difference and promote green transportation, because according to the Directive the public sector when buying public vehicles will have to integrate environmental criteria, measured in monetary units. Emissions costs are calculated for the entire lifecycle of the vehicle. Consequently the cost of purchase for the public vehicles will be charged with the cost of its emissions. According to the calculations, based on a specific methodology, the cost of a vehicle (purchase, use and emissions costs) could be even four times higher when the environmental criteria are added, making thus alternative - hybrid vehicles to be the most cost-effective and energy-efficient vehicles.

In Greece automotive gasoline is the dominating fuel in the transport sector in passenger cars, whereas diesel is mainly used in taxis and private fleet cars in Athens, Piraeus and Thessaloniki, as well as in passenger cars registered in the rest of the country. That was due to air pollution in Athens caused by busses, trucks and taxis of old technology and bad maintenance. Therefore, the demand in diesel and consequently in biodiesel for individual passenger cars is lower than in the EU average. It was pointed out that this trend should change because diesel engines have advanced emission standards, higher performance efficiency, lower consumption and lower CO₂ emissions. In addition, it was pointed out that diesel quality has to be improved.

The need for the introduction of alternative fuels and alternative vehicles was also argued by a number of participants.

The representative from the Athens Urban Transportation Organisation, Mr. Chlios Dionysis, pointed out that CNG buses have a high share, almost 20%, of the total buses circulating in Athens, one of the highest percentages in EU. That corresponds to 415 buses whereas there are another 200 now delivered. In addition to that there are 106 refuse collection vehicles now used in Athens and another 200 expected soon for Thessaloniki, Volo and Larisa. That was by far the most successful project for promoting the use of alternative fuels for alternative vehicles, and this will continue to be active. There were also attempts to use LPG in taxis, but did not work out as expected.

Representatives from the Ministry stated that in the programme "Saving" under the topic of improvement of energy efficiency, there are interventions on the improvement of energy efficiency and environmental performances of municipal fleets, in the frame of which there will be funding for heavy vehicles to use higher fuel blends and installation of particle retaining filters. There are also motives for gasoline vehicles to transform to LPG or natural gas vehicles.

In Greece, according to the new registrations data, it is pretty obvious that fleets are getting older and instead of replacing old cars people is still buying cars, so vehicles increase in number and age.

As for the introduction of plug-in-vehicles, it was pointed out that they are still very expensive and in need of larger batteries, therefore the tax incentives (zero registration tax, almost zero annual circulation taxes) are not enough to promote their use at present.

Mr. Nikos Charalambidis, General Director of Greenpeace stressed out that in order to achieve significant emission reductions in the transport sector in the country, the points that should be addressed are reduction of travels in the cities and especially those of short distances, eco-driving and "cities without cars", priority to public transportation and the railways, saving energy and optimization of the transport means, disengagement from fossil fuels and shift to renewable energy, net output in industry, sustainable biofuels.

Although diesel consumption is lower than gasoline, biodiesel is the only biofuel that is used in Greece. The biodiesel market has fast developed in the last 5 years, and a robust industry is developed with a capacity of more than 575,000 tons of biodiesel, that is around 4 times higher than the 2010 target for the substitution of diesel by biodiesel (140,000 tons).

Mr Nikos Liapis, Director of ELIN S.A oil company and President of the Technology Platform for Biofuels in Thessaly presented the background of biodiesel development in Greece. He stated that the sweeping investment climate that prevailed in Europe in 2003-2006 also prevailed in Greece and that was shown by the establishment of a capacity much higher than that imposed by the EU through the objectives of the Directive 30/2003. The high expectations of investors were based on the stated willingness of the EU to promote biofuels, on the awareness that climate change is occurring more rapidly than expected, on the relatively low level of investment and on the overall pre-and post-Olympic economic development climate. He thus called this a "video club" phenomenon, because of the expectations of the biodiesel market for immediate and high profits, the investing in original and modern idea, the heavy highlighting of the need by the media, and the ripening –at the end- market.

The intrinsic weaknesses of this ambitious project were a fully protected market, a failure by the state to define a clear, sustainable and long-term legal framework and the strong opponents and interested stakeholders that were formed because of the implemented policy. The result was a cloudy business landscape that led to the construction of a variety of units which are currently underperforming. The goals for biodiesel are not achieved and bioethanol is highly unlikely to be domestically produced. But also the European biofuel industry went surprisingly quickly from development to crisis.

Biofuel prospects for the country, as concluded by the Technology Platform are to replace 5.75% of total automotive fuel, to assure a farm income from cultivation of energy crops –now that cotton, tobacco and sugar beets are released according to the reformed CAP- that could reach € 300 million per year (according to a study carried out by the National Technical University of Athens), to outlook exchange benefits of ~ 170 M € by 2010, to gain on reduction of CO₂eq 35 million €, to assure economic benefit from new jobs ~ 4.5 million € and to use future grants of € 22 million. As necessary measures to promote biofuels, the following were agreed on and proposed by the Platform: A long standing national policy on biofuels, the development of sustainability criteria, the promotion of the energy crops in the country -key to sustainable use of biofuels, the coordination of the whole supply chain, the systematic and holistic approach of the issues involved in biofuels production as well as the full impact of this is a prerequisite and decision-making tool for shaping the strategy for biofuels.

Then discussion was then focused on the energy crops used for biodiesel production. As presented **by Mr Kyriakos Pettas, owner of the PETTAS S.A biodiesel plant**, energy crops can be a permanent solution for the farmers due to the existing ‘contractual farming’, assuring them a high income (around € 1,000/ha) because of the high seed prices and the existing subsidies. Sunflower and rapeseed as grown in Greece have small demands in irrigation and soil cultivation and are more productive than wheat or corn. The residues from the oil crushing are used a feed or solid biomass for several energy uses. Under the reformed CAP large areas of cotton, tobacco and sugar beets are expected to be released soon thus they could be used for growing oil crops for biodiesel. In 2010 80,000-90,000 ha are expected to be grown with mainly sunflower and rapeseed and they come from old cotton and tobacco fields as well as from areas in disadvantageous (mountainous, semi-mountainous) terrains in Greece.

According to Mr Pettas, there are many developments in the biodiesel market in Greece. The increase of the biofuels penetration in the transport sector from 5.75 to 10% by the year 2020 will imply the production of 450,000-500,000 tons of biodiesel in Greece, a quantity that can be fulfilled by the local biodiesel industry. In addition to that, it is recently discussed by the policy makers to open up the biodiesel market by changing the problematic quota system, strengthening competition among stakeholders and improving the quality of the transport fuels. It is also expected that Euro IV and Euro V engines will be able to use pure biodiesel leading thus to an increase in biodiesel demands. Finally, biodiesel could be used for electricity production in the islands not connected to the national grid to substitute diesel.

In the drawbacks of biodiesel production in Greece, 'saturation' of the market is highly stressed; 16 plants, 575,000 tons capacity, 140,000 tons the national demand to fulfil the 5.75 target, high investment costs (M€ 6 – 10 for a plant of 40,000 tons capacity). The impose of the excise tax since 2008 was a great burden for the use of biodiesel in fleets (i.e busses) coupled with the high imports of the American B99 in Europe. And last but not least the serious delays in announcing the annual quota create crucial problems in the annual operation of the plants.

In conclusion and on behalf of the biodiesel association he represents, he summed up the main prerequisites that the biodiesel market requires in order to have a blooming industry is: a) reining in subsidies/financial support for new biodiesel plants because there is danger that the market will collapse due to oversupply, b) exemption from the excise duties compensated by the state incoming funds from ETS (emission trading system) c) establishment of an interministerial committee that will deal with biodiesel (feedstocks, fuels, distribution), d) reduction of bureaucracy e) support of domestically grown energy crops to increase farmers income and promote regional development, f) financial support by the Ministry of Environment, Energy and Climate Change for 2nd generation pilot projects.

Mr Christos Zafiris, Head of the biogas unit in the Department of Industry and Measurements, presented the enormous potential of the country to produce biogas, which could be used among others in the transport sector. Huge quantities of wastes and slurries from agricultural industries and animal breeding farms are annually produced that are uncontrolled disposed causing enormous environmental problems. 250 MW could be produced from their exploitation, using a number of technologies that he analytically presented. He stressed out that the new Law on electricity is highly likely to greatly contribute to the exploitation of these wastes, as the feed-in tariffs for electricity produced by biogas are significantly increased.

The requirements for design and implementation of biogas projects are: a) advertising and awareness campaigns to all stakeholders with emphasis in schools, with particular emphasis on the environmental benefits, b) implementation of socially beneficial projects in the region where the biogas plant will be constructed could help in having social acceptance, c) simplification of licensing procedures, setting up a "one-stop-shop for licensing, which is now under discussions in the Ministry, d) simplified procedures for projects of up to 500 kW, with a further increase of tariffs in accordance with the German model e) establishment of a "gate fee" of 5 – 10 €/t and f) establishment of a price for heat energy, as well as for the solid and liquid fertilizer produced from the anaerobic digestion.

Possibilities for using hydrogen in vehicles and in the aviation were presented by **Mr Manos Stamatakis, Department of Hydrogen Technologies**. He informed the audience on the establishment of the Greek Technology Platform for Hydrogen and Fuel Cells, the main objective of which is the promotion of Hydrogen Economy in the country in order to contribute to sustainable development in Greece through the following actions: a) Definition of a Roadmap for the development and use of hydrogen and fuel cells in Greece with a time horizon of 2050, b) Detailed definition of research and development to be implemented at national level to support the actions outlined in the Roadmap, c) Obtaining the support of the Government on issues of strategy for the development of the market, and d) Coordinate efforts,

ensuring synergy and complementarity between research institutions and market forces.

Comments were made by **Mr Panagiotis Papastamatiou, ELETAEN** and chairman of the round table discussions that the representatives of science/technology together with investors is the best mixture of people to discuss on policies and propose solutions and measures in order to overcome the difficulties.

The new Law for the final acceptance on the acceleration of RES contribution for electricity production now submitted to the Parliament was mentioned and it was stated that with the high feed-in tariffs given to biomass and biogas new investments are highly anticipated.

Discussions were focused on how biomass and biofuels will be dealt in the new Energy Policy and Planning of the country, in order to rejuvenate the poorly structured Agricultural sector and help towards regional development, now that the country is facing a financial recession.

Big interest was shown for the best suited biofuels and biofuel technologies to be used in marine transportation (small or bigger fishing vessels, yachts, ferries, etc.) and relevant people to address (fishermen, cooperatives of fishermen, transporting companies, etc) in our country that marine transportation especially in the high tourist period but also year around is quite crucial for the islands.

F. Matrix of the replies to the questionnaire prepared by the project (Task leader: KISE, PL)

According to the matrix below, the following notifications can be made:

- The project addresses very sufficiently the topic, in a way that it makes it possible to provide efficiently new ideas or suggestions (63.7% of the replies), while the 32% believes that the level is just sufficient.
- The project results have a high (27%) to very high chance (70%) to positively influence the EU policies regarding the environmental threats of the automotive mobility in Europe. However, the participants doubted that the project will significantly influence local policies. 36.7% replied that it will greatly contribute (ranking 4-5), whereas the 59% replied that the influence will be lower (ranking 2-3).
- The majority of the attendants found the workshop and relevant discussions useful and the presentations very informative.
- It was also noticed that again the majority of attendants found that the spectrum of presenters was appropriate and that the presentations and discussions influenced their knowledge and views on the subjects raised.
- Coming to the questions on general issues, they envisage serious conflicts between the wide use of biofuels and nutrition needs on a global scale (91% of the replies) but not so much at local scale (36.4%).
- Similar were the replies on whether they envisage serious conflicts between the wide use of biofuels and biodiversity on a global scale and local scale. The 63% of the attendants believe that there will be such a conflict on a global scale but not so much at local scale (36.4%).
- Almost all participants agreed that environmental standards for biofuels –and not only – are necessary.
- Regarding the dilemma between alternative fuels (biofuels) and alternative propulsion will provide a solution for an environmentally friendly automotive mobility in the near future, or rather emphasis should be put on systemic solutions (public transport, rail, behavioural change, working time/place re-organization, influencing the settlement structure, eg. minimizing the urban sprawl), all attendants believed that it should be a mixture of both.

		Ranking								
		0	1	2	3	4	5	YES	NO	No of replies
Questions about the Project:										
1	In your opinion, based on the presentation of the ALTER-MOTIVE Project, do you think that the Project addresses the issues raised sufficiently clearly and in a way making it possible to provide effectively new ideas or suggestions (rank 0-5)	1			7	12	2			22
2	In your opinion, based on the presentation of the ALTER-MOTIVE Project do you think that its results have a chance to positively influence the EU policies regarding the environmental threats of the automotive mobility in Europe (rank 0-5)	1			6	7	8			22
3	The same question as above referred to the national policy of your country (rank 0-5)	1		4	9	5	3			22
Questions about the Workshop:										
4	Did you find the Workshop useful in general (rank 0-5)				4	7	11			22
5	Did you find the presentations given informative (rank 0-5)				1	9	12			22
6	Did you find the discussion useful from your point of view (rank 0-5)			1	4	7	10			22
7	Did you find the spectrum of the stakeholders present at the Workshop appropriate (rank 0-5). If not please specify who was missing							18	4	22
8	5. Has the discussion and the Workshop as a whole influenced your views/opinions on the subjects raised (yes/no)							16	6	22
Questions of a General Nature:										
9	In your personal opinion, do you see/envisage a serious conflict between the wide use of biofuels and the nutrition needs									0
	a) in your country (yes/no)							8	14	22
	b) on a global scale (yes/no)							20	2	22
10	In your personal opinion, do you see/envisage a serious conflict between the wide use of biofuels and biodiversity/wilderness protection									0
	a) in your country (yes/no)							8	14	22
	b) on a global scale (yes/no)							14	8	22
11	Do you think that the environmental standards related to production of biofuels are good in your country (yes/no)							3	19	22
	to what extent: rank 0-5	1	5	6	4	2				18
12	In your personal opinion, do the biofuels and/or alternative propulsion modes (electricity, hydrogen) provide a solution for an environment friendly automotive mobility in the near future, say in 15-20 years (yes/no)							20	2	22
	to what extent: rank 0-5			6	1	9	3			19
13or rather emphasis should be put on systemic solutions (public transport, rail, behavioral change, working time/place re-organization, influencing the settlement structure, eg. minimizing the urban sprawl. (yes/no)							21	1	22
	to what extent: rank 0-5			2	6	9	5			22

Photos from the event





ΚΑΠΕ | ΚΕΝΤΡΟ ΑΝΑΝΕΩΣΙΜΩΝ ΠΗΓΩΝ
CRES | ΚΑΙ ΕΞΟΙΚΟΝΟΜΗΣΗΣ ΕΝΕΡΓΕΙΑΣ



