

Alternative fuels and vehicles different aspects on current and future policy instruments

**REPORT on the National Workshop , ITALY
Sandro Furlan
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A. General information

Date of the workshop: **1st October, 2010**

Location: **San Donato M.se (MI), Italy Eni Corporate University /E.Mattei Hall**

Organisers: **Eni Corporate University**

Number of Participants: **40 + 2 = 42**

Number of invitations sent: **200**

B. List of participants

Nr ¹	Last name	Name	Institution	Type ²
01	FURLAN	SANDRO	ECU	OS
02	CANOVA	LUCIANO	ECU	OS
03	BIANCHI	DANIELE	ENI	ENC
04	ZANIBELLI	LAURA	ENI	ENC
05	MANERA	MATTEO	MILAN UNIV	AC
06	GALEOTTI	MARZIO	BERGAMO UNIV	AC
07	AZZORI	ROBERTO	A2A	FUP
08	FAZIO	FULVIA	ENEL	FUP
09	BARBERO	FILIBERTO	FIAT	VHP
10	VILLAVECCHIA	BRUNO	AGENZIA MOBILITA' MILANO	POL
11	ZUCCHETTI	ROBERTO	CENTRO ECONOMIA TRASPORTI MIL	POL
12	BERTONE	PIERGIORGIO	PROVINCIA TORINO	POL
13	LASAGNI	ELISA	PROVINCIA BOLOGNA	POL
14	POZZA	SILIVA	GEFCO-PEUGEOT	VHP
15	RIAZZOLA	STEFANO	AG.MILANESE MOBILITA' AMBIENTE	POL
16	NINNI	AUGUSTO	BOCCONI UNIV IEFE	AC
17	LANZINI	PIETRO	BOCCONI UNIV IEFE	AC
18	BOSATTI	VALENTINA	FEEM	INA
19	BORRADORI	MARCO	MENDRISIO INFOVEL	INA
20	DI GIULIO	ENZO	ECU E.MATTEI SCHOOL	ENC/AC
21	MAGNAGHI	MATTEO	PIRELLI	R&D
22	NINNI	AUGUSTO	PARMA UNIV	AC
23	PANVINI	ANTONIO	CTI2000	INA
24	ABD ELNABI	TAMER	MEDEA MASTER SCHOOL	ENC/AC
25	HAMZA	LINA	MEDEA MASTER SCHOOL	ENC/AC
26	SARTORELLO	BRUNO	MEDEA MASTER SCHOOL	ENC/AC
27	SEMENOVA	ELENA	MEDEA MASTER SCHOOL	ENC/AC
28	RADLOFF	JAN RICHARD	MEDEA MASTER SCHOOL	ENC/AC
29	KASSYMBEKOV	DIAS	MEDEA MASTER SCHOOL	ENC/AC
30	KHARCHI	ABDELHALIM	MEDEA MASTER SCHOOL	ENC/AC
31	KYDYRKESHOV	ALIBEK	MEDEA MASTER SCHOOL	ENC/AC
32	MAMENOV	NURZHAN	MEDEA MASTER SCHOOL	ENC/AC
33	GUARNIERI	FRANCESCA	MEDEA MASTER SCHOOL	ENC/AC
34	GUSMAO	RUBEN	MEDEA MASTER SCHOOL	ENC/AC
35	H Aidir	YUKI	MEDEA MASTER SCHOOL	ENC/AC

36	HENRIKSEN	MARIUS	MEDEA MASTER SCHOOL	ENC/AC
37	CHERNYAVSKAYA	MARIA	MEDEA MASTER SCHOOL	ENC/AC
38	CHUKWU	CHIDIEBERE	MEDEA MASTER SCHOOL	ENC/AC
39	MUCCI	MARCO	MEDEA MASTER SCHOOL	ENC/AC
40	MUCCIOLI	ANNALISA	MEDEA MASTER SCHOOL	ENC/AC
41	PARLIONE	DANIELE	MEDEA MASTER SCHOOL	ENC/AC
42	PISTELLI	FRANCESCO	MEDEA MASTER SCHOOL	ENC/AC

1) Own staff are listed first. 2) Stakeholder category (type): **OS**=own staff, **ENC**=energy company, **FUP**=fuel producer, **FUD**=fuel distributor, **AC**=academia, **INA**= Interest association, **FLT**=fleet, **POL**=policy maker, **MUN**=municipality, **NGO**=non-governmental organisation, **R&D**=research and development, **VHP**=vehicle (technology) provider, **VHD**=vehicle dealer.

C. AGENDA of the Workshop

09:30 Register

10:00: Introduction to the national Workshop (Sandro Furlan, ECU)

10.15: The ALTERMOTIVE project: The LCA approach (Sandro Furlan, ECU)

11.15: Questions&Answers

11.45: (Daniele Bianchi, Donegani Institute)

12.45 Questions&Answers

13.15: Lunch/Pause

14:30: (Laura Maria Zanibelli, Eni)

15.30: Questions&Answers

16.00: General Discussion on Biofuels Updating Towards Sustainable Transport

17.30: Conclusions and end of the National Workshop

D. Short summary

The Italian national workshop was quite successful. The feedback from 30 questionnaires over 40 participants confirms a quite positive response from participants.

Some of the participants (especially some researchers/students) admitted that some common views and opinions have been affected by the discussion (i.e. food prices vs Biofuels markets)

Further, the invited speakers, were given top marks and all participants found the given presentations informative. Positive feedback was also given to the chairman, Sandro Furlan, for arranging and presenting the activities, leading the discussions and holding together the workshop. A plus for this initiative considering few initiatives in Italy were able to allow a very open discussion on alternative fuels.

A wide range of stakeholders within the area of alternative fuels and car makers took part in the workshop. The participants represented also energy companies, fuel producers/distributors, interest associations within fuels and fleets, local and regional policy makers, municipality representatives. Academic researchers as well as other research and development partners took part of the discussion. The spectrum of the stakeholders present at the workshop was

therefore defined as appropriate. However, it would have been interesting to involve also national policy makers but this was not possible.

Discussion of participants revealed some critical issues:

- One of the main obstacles to the diffusion of alternative vehicles diffusion and use. Italian peculiarity is that the **administrative levels of decisions are redundant and sometimes in conflict**. city, province, regional, national and of course European levels all are in charge of sustainable transport issues.

For example EU state the environmental standards of fuels and car performances, national governments decide the fiscal policy that affects the fuels, the regional and province levels promote local policies but, the city authorities have the right to promote and fix some policies that are not necessarily consistent with the higher levels. The result is a jeopardized situation with remarkable different situations around the country. This appeared the major obstacle to a considerable development of alternative vehicles. The technology is mostly available but some administrative issues risk to reduce dramatically the success of such alternative.

- A general consensus has been found over the need to develop second generation biofuels that will overcome the dispute on the food VS fuels prices impact.
- Italy has a significant biofuels production but the diffusion of alternative vehicles has been historically driven towards gas fuelled vehicles. In fact the gas vehicles fleet is one of the biggest in the world. This is not consistent with a technology policy that should invest more on biofuels technology.
- Again the major problem raised was the lack of consistency between technology improvements, fiscal policies, sustainable transport actions. What appear is a jeopardized number of actions at small scale that have not the magnitude to solve such huge problem of emissions from transport sector.
- Seems that the decentralised administrative powers do not fit the dimension of the problem that overcome even the national dimension and needs transnational decisions.

The issues addressed:

- 1) Critical review of the state of the art on biofuels reseach: yes**
- 2) Recent and planned policy development : yes**
- 3) Cost/benefits from second generation biofuels: yes**
- 4) Past and actual trends in transports: yes**
- 5) Obstacles to technology diffusion: yes**

E. Detailed report on the speakers' subjects and the debate

- **Speech given by Sandro Furlan, Eni Corporate University, ALTER-MOTIVE project partner for Italy. "The ALTERMOTIVE project in the Italian context of sustainable transports"**

- Sandro Furlan presented the overall framework of the ALTERMOTIVE PROJECT. In particular the Life Cycle Analysis on biofuels has been presented and figures commented.
 - They mostly come from the CONCAWE studies because they results found a major consensus in comparison with other partial or specific studies performed in USA (i.e. DOE, UCLA-Davis, Argonne) or in Europe (i.e. IFEU).
 - Many aspects still need to be better investigated and evaluated. Land use is a major factor in such appraisal, and can affect the final results.
 - Comparison among the major studies show wide ranges in emissions values, at the point that is not even easy to establish a hierarchy of impacts.
 - If LCA has to be an instrument to suggest best alternatives to conventional fuels, other non pure technical-environmental aspects should be taken into account.
 - Security of supply, energy diversification, and even geopolitical issues should be taken into account when decision to invest in biofuel has to be taken.
- **Questions&Answers** session debated about the goals to perform such wide project on biofuels and sustainable transports. Some questions were raised about the lack of econometric analysis about the vehicle fleet evolution. Some observed econometric instruments are not appropriate to depict trends in vehicle stocks due to possible technology shocks in the long term (i.e. diesel/gasoline split).

- **Speech given by Daniele Bianchi, on "Biomass research at Donegani Inst."**

Daniele Bianchi depicted the updated research activity on biomass at Donegani Institute. He started with describing a wide range of conventional first generation biomass fuels to the last updating research activities involving second generation biofuels. Both technical and economics factors were described and investigating pros and cons. The economics of the equipment and infrastructures needed to produce biofuels has been offered.

Question&Answers session drove to the issue if a fuel producer should be a promoter of alternative to conventional fuels. The question is delicate because a more differentiate fuel offer (more complex refineries producing smaller quantities of different fuels) lead to higher costs. This could have been seen, for example in the USA where each state has different fuel specifications obliging the refineries to produce several different gasolines to satisfy different demand. Industry needs clear long term rules to adapt to the situation. Further the fuel industry has to couple with the car industry where new engines are designed to answer to the new market needs. Such complex equilibrium needs clear strong commitments.

- **Speech given by Laura Zanibelli R&M Division Eni, on “The second generation biofuels and the updating about the algae option”**

Laura Zanibelli introduced the research framework the R&M division of eni is involved.

The Algae project objective is to develop a technology for CO2 mitigation capable to transfer the algal cultivation systems from the production of low quantity-high value products (current status) to the biofuel market (large quantities, low unit price).

The main goals of the R&D topics are:

- To develop cheap, stable, high efficiency cultivation systems
- To use CO2 from oil refining activities
- To use wastewater for cultivation
- To develop procedures for oil extraction
- To identify options for energetic conversion of residual biomass (pyrolysis, methane conversion)

As main conclusions, the author pointed out:

- Biofuels appear the most realistic renewable automotive fuel
- Biodiesel appears the preferred option Vs bioethanol (higher heating content, European deficit, gasoline surplus)
- FAME is the best solution to meet present needs, but has several drawbacks (stability, cold-flow properties, quality related to feedstock)
- Green Diesel can play a major role (properties independent by feedstock, full compatibility with existing fuel infrastructures)
- Green Diesel is capable to meet environmental requirements and interests of all stakeholders (governments, consumers, fuel suppliers and car manufacturers)
- Competition with food and land requirements for vegetable oil can strongly limit the diffusion of renewable diesel oil
- Algal biomass might offer interesting perspectives, provided an economically viable technology is developed

Question&Answers session was devoted to questions concerning how viable is the algae option, the costs and the environmental impacts related. It appeared quite clear that algae option is one of the ones (together with Jatropha and palm oil) that avoid the potential price conflict between food commodities and biofuels. Further it has been pointed out the fact at the moment the algae is still an experimental small scale project that needs to be tested at higher stage with large quantities at low unit price.

F. Debate: Italian stakeholders' views of policy instruments to achieve the sustainable transport objective and overall conclusions

Is not easy to include all remarks, recommendations, suggestions into a consistent "road map" to offer to policy makers.

- The initial question about the possible competition between food and biofuel commodities prices has been discussed. Few studies in fact use quantitative approaches to confirm/deny such relation. Seems most of the documentation is the result of statements instead of a scientific approach. Some researcher announced a forthcoming paper on an econometric analysis to verify if any relation between food-biofuels prices can be established. First results seems quite complicate and not clear if any relation can be tested in a long term context due to the complexity of the international commodities markets.
- A major consensus was found around the need to have clear long term policies. For too long time Italy experienced not consistent short term policies that were driving to nowhere.
- The debate around the need to rise fuel taxes did not find a wide consensus. In Italy the majority of transports are on road. This means that rising taxes on fuels will have inflationary effects on a depressed economy. Being on of the country with the highest tax rate on the final fuel prices, Italy did not register any reduction in use of car. At the contrary, in periods when fuel prices decreased, a further increase in car use was observed. This is confirming the delicate relation between taxes and fuel prices in car use decisions.
- Car scrappage system was revealing some distortions in the car markets, not even suitable for car companies. The argument concerning new cars are less consuming is disputable cause the new cars pollute less but perform much more kilometers per year. Was suggested that the only environmental driven car scrappage policy was adopted by Denmark because the bonuses were paid to people that did not buy new cars after destroying the old ones.
- Local, time to time policy measures risk to be dispersive especially in a period of dramatic reduction of public budget cuts. Too many examples of local initiatives introducing pilot micro projects on alternative vehicles ended with no follow up.
- It seems that technology achievements, both on fuel and engine, find a difficult diffusion due to the uncertain administrative, policy framework.

G. Recommendations for policy makers

- Resources and efforts should be **concentrate on some technologies** that proved to have positive perspectives.
- **Ministry of Environment should monitor and coach local initiatives** (even building up a national database) to avoid dispersion of resources, and support in consistent way the overall efforts.

- **Administrative framework and specific rules must facilitate the new alternative fuels/vehicles.** They must be clear, viable and sustainable for all actors involved. This has to be true at all administrative levels: local, regional, national according to the EU directives.
- Rising taxes on fuels is not seen as a sustainable fiscal policy: again the **whole energy fiscal policy should comply with environmental constraints** instead to be the easiest and fastest option to collect resources to cover the budget deficit.
- Italy has one of the **highest rates per squared km in fuel stations**. This led to higher costs if we add also the fact that most of such stations have not exclusive self-service infrastructures.
- To **modernize such distribution infrastructures**, pushing people to shift to self servicing could be the occasion to **propose multi-fuel stations** to make alternative fuels more a more acceptable option.