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An Evaluation of Chapter 14 of EU Acquis Communautaire Energy Acquis, Albanian Law Approximation and Challenges

Abstract

As it is known, the pre-accession period should be maximally used to provide concrete evidence of the country's ability to respond to the EU membership requirements.

The current paper aims at analyzing the approximation of Albanian Legislation with Energy *acquis,* which represents the body of all energy related EU law, regulations and policies and the challenge Albania faces to its implementation.

We really hope to raise the awareness of governmental institutions and the public regarding the tendencies and trends of EU policies in the field of energy.

Key words: Energy, biofuels, environment, Albania

Introduction

Albania's EU integration process represents perhaps one of the most debated matters in the national public and political discourse. On 18 February 2008, the Council adopted a new European partnership with Albania. The Stabilisation and Association Agreement (SAA) was signed on 12 June 2006, which entered into force on 1 April 2009. Eventually, Albania submitted its application for EU membership on 28 April 2009.

Following the entry into force of the Stabilization and Association Agreement, Albania entered a new and more advanced stage in its EU integration process. The successful transition towards the attainment of the final goal requires therefore better capacities to respond to membership obligations and certainly a firmer commitment to consolidate the governance system, democratic institutions and economic performance.

As a matter of fact, sound administrative capacities to implement the EU legislation (Madrid criteria) constitute one of the core criteria that a country has to fulfill in order to join the European Union. In its "Guide to the Main Administrative Structures Required for Implementing the *Acquis*" (May 2005)**, the European Commission** suggests that "a candidate country preparing for accession to the EU must bring its institutions, management capacity and administrative and judicial systems up to Union standards with a view to implementing the *acquis* effectively or,

as the case may be, being able to implement it effectively in good time before accession".

Furthermore, Albania's efforts to join the European Union (EU) are presently coordinated by the Ministry of European Integration (MEI), which was established in 2004. Point 1 of the 2004 decision establishing the Ministry reads that "MEI's mission involves technical management and coordination of Albania's EU integration process through approximation of legislation, design of integration policies, coordination of financial assistance and informing the public about this process".

Some of the core competencies and functions of the Ministry of Integration involve:

- the coordination and monitoring of the Stabilization and Association Process (SAP);
- coordination and monitoring of the process of addressing the SAP objectives and obligations;
- coordination, monitoring and implementation of the process of approximation with EU *acquis communautair*e;

In addition, the Albanian Government has also established specialized European Integration Units (EIU) in all line ministries to act as focal points for EU-related assistance, reporting and monitoring. The Decision of the Council of Ministers No. 179, dated 22/2/2006 outlines the responsibilities of these units, which inter alia involve:

- internal coordination, ensuring direct links and cooperation with the MEI and other line ministries regarding the obligations the country has assumed with the SAP;
- internal institutional coordination with the MEI and other line ministries regarding the approximation of legislation and reporting on legal acts adopting the *acquis communautaire* under TAIEX;

Despite the continuous improvements in the country, the Stabilization and Association progress reports still underline a number of shortcomings in specific areas related to **legal gaps** and/or **blurred implementation** performance (Vurmo, 2008).

This study does not intend to fill all the gaps regarding the capacities to respond to membership obligations. It focuses mainly on some of the most essential components of the Energy Acquis as part of Chapter 15 of EU *Acquis Communautaire*. It also tends to provide an analytical examination of the afore-mentioned Chapter focusing on renewable energy and energy efficiency, Albanian Law approximation with the last EU Directives, which promotes such implementation, and Challenges in Albania's EU integration process – experience and future prospects. Obviously, the current study hopes to increase the sensitivity on the process and to generate continuous debate and far-reaching analysis on this topic.

The climate change and EU policies toward clean energy

Where does the environment leave off and society begin? That is the question that concerns the whole world for some decades now. In a world expanding production and consumption and driving greenhouse gas emissions, it is unclear where the climate ends and the economy begins. Climate change, brought about by increasing atmospheric concentrations of carbon dioxide and other heat-trapping greenhouse gases, has been described by David King (2004), the UK's Chief Scientist, as "the most severe problem that we are facing today - more serious even than the threat of terrorism". The watershed event that brought the question of global warming, which began with the advent of the industrial revolution and fossil fuel consumption, to the forefront in the scientific community, was the publication of Revelle's data in 1957, which quantified the geologically unprecedented build-up of atmospheric CO2. Revelle characterized the potential risk of global climate change this way:

> "Human beings are carrying out a large scale geophysical experiment of a kind that could not have happened in the past nor be produced in the future. Within a few centuries, we are returning to the atmosphere and the oceans the concentrated organic carbon stored in sedimentary rocks over hundreds of millions of years."

Indeed, Revelle's concise statement of the risks at play in global climate change remains the best framing of the issue available for policy makers today.
Today the world is becoming more conscious of the risks of global climate change and the policies toward the clean energy are projected as the key to resolve it. Alternative, carbon neutral energy technologies and the so-called renewable energy technologies are considered as crucial towards the reduction of greenhouse gas emissions. This includes wind, marine energy, small hydropower, solar energy, geothermal energy and energy from waste, and biomass energy (FREDS 2005a). The burning of fossil fuels (conventional source of energy) is thought to be the primary cause of increased carbon dioxide concentrations, thought to be responsible on a global scale for up to 80% of annual emissions.

On the other hand, scarcity of traditional energy resources (fossil fuels) nowadays remains one of the main concerns of governments all over the world. It is estimated that coal resources, if utilized in accordance with current rates, would last for 167 years, gas resources for 67 years and fossil oil resources for only 41 years (World Coal Institute 2007). In "World oil production and peaking outlook" Kopelaar (2005) asserts that "Oil production is expected to peak at some time in the near

future, although there is considerable debate as to exactly when this will occur". As such, the solution lies in utilizing renewable energy sources as well as increasing energy efficiency, which minimizes energy transmission losses and promotes energy efficient usage.

Over the last decades, there has been a worldwide unprecedented explosion of new concepts, theories, facts, and techniques that were followed by consequently Action Plans, Policies, and Legal Frameworks, to achieve the main objectives of the policymakers towards the security of supply and sustainability of energy and to tackle the global climate change, in order to promote the so-called renewable energy technologies and new approaches to promote the energy efficiency both considered as key solutions.

On a European Scale, the Renewable Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market was the first initiative to put mandatory targets for the Member States in order to promote the renewable energy production, which set a target of 22.1% renewable electricity by 2010. This initiative was followed in 2003 by the Biofuel Directive 2003/30/EC where the EU set an indicative target of a 5.75% biofuel share of the transport fuel market by 2010 (EC 2003).

The European Commission, on the other hand, has consequently communicated guides to help Member States implement such targets. It is worth mentioning here Biomass Action Plan launched in December 2005, followed by a EU Strategy for Biofuels in February 2006, Renewable Energy Road Map in January 2007 and in November 2008, the Commission issued a major Green Paper "Towards a secure, sustainable and competitive European energy network" [COM(2008)782].
In December 2008, the European Parliament adopted the Climate Change Package with an aim to achieve:

- a 20% reduction in greenhouse gas emissions,
- a 20% improvement in energy efficiency,
- and a 20% share for renewables in the EU energy mix.
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Finally on 23 April 2009 the European Parliament and the Council adopted the Directive2009/28/EC on the promotion of the use of energy from renewable sources. This new renewable energy Directive lays down mandatory national targets to be achieved by EU-27 through promoting the use of renewable energy in the electricity, heating and cooling, and transport sectors in order to ensure that renewable energy makes up at least 20% of the EU's total energy consumption by 2020. The agreement foresees also that renewable energy, such as biofuels, electricity and hydrogen produced from renewable sources, account for at least 10% of the EU's total fuel consumption in all forms of transport by 2020

Albania's position in this new era of changes

a) **Current energy situation in Albania**

Energy consumption in 2005, according to Energy Strategy 2006-2020, was estimated as follows: fossil fuels topped the list with 1269 ktoe, followed by electric energy with 551.7 ktoe, with woody fuels at the bottom with 235 ktoe (AKBN, 2007). Figure 1 indicates the distribution in percentages of energy supply in Albania as provided by above-mentioned data. In fact, Internal Energy Agency (2006) provides approximately the same results for Albania. Such statistics indicate that total energy consumption consist of 213 ktoe more and the consumption of fossil fuels appears to be with 263 ktoe more. Tables 1 and 2 indicate the Enery Balance for Albania *in thousand tonnes of oil equivalent (ktoe) on a net calorific value basis* (IEA, 2006)

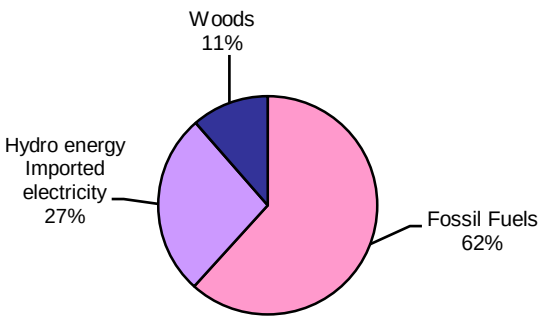


Fig. 1: Distribution in percentages of energy supply sources in Albania

SUPPLY	Coal and Peat	Crude Oil	Petroleum Products	Gas	Nuclear	Hydro	Geothermal, Solar, etc.	Combustible Renewables and Waste	Electricity	Heat	Total
Production	22	500	0	14	0	430	2	230	0	0	1198

Imports	3	0	1014	0	0	0	0		53	0	1070
Exports	0	0	0	0	0	0	0	0	0	0	0
Stock Changes	0	0	0	0	0	0	0	0	0	0	0
Total supply	**25**	**500**	**1014**	**14**	**0**	**430**	**2**	**230**	**53**	**0**	**2268**
Consumption	**18**	**0**	**1437**	**0**	**0**	**0**	**0**	**227**	**236**	**1**	**1919**

Tabela 1: 2006 Energy Balance for Albania *in thousand tonnes of oil equivalent (ktoe) on a net calorific value basis: energy supply (International Energy Agency, 2006)*

Tabela 2: 2006 Energy Balance for Albania *in thousand tonnes of oil equivalent (ktoe) on a net calorific value basis: energy consumption (International Energy Agency, 2006)*

CONSUMPTION	Coal and Peat	Crude Oil	Petroleum Products	Gas	Nuclear	Hydro	Geothermal, Solar, etc.	Combustible Renewables and Waste	Electricity	Heat	Total
TFC	**18**	**0**	**1437**	**0**	**0**	**0**	**0**	**227**	**236**	**1**	**1919**
Industry sector	**14**	**0**	**187**	**0**	**0**	**0**	**0**	**10**	**62**	**0**	**273**
Transport sector	**0**	**0**	**754**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**754**
Other sectors	**4**	**0**	**337**	**0**	**0**	**0**	**0**	**217**	**174**	**1**	**733**
Non-Energy Use	**0**	**0**	**159**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**159**

According to AKBN, 99% of energy production in our country is secured by large hydropower dams (AKBN, 2007). In fact, concentrated production of energy is

regarded nowadays as a policy which does not abide by EU directives/*acquis* towards a sustainable development. Electric energy generation by means of HEC poses serious risks such as:

Risk of ensuring continuous energy supply

Currently, the risk of energy supply cuts by means of such large providers has become even more evident.

Considerable loss while being transmitted

Lack of diversified generating sources plays a considerable role in technical losses, while energy is being transmitted, amounting to a staggering 25.5%. Introduction of distribution sources does play a primary role in allocating active and reactive fluxes of energy. As such, such distribution sources lead to the reduction of energy loss as energy sources are placed close to consumers. (Boškov E, Gubina A. F. et al).

Environmental impact

The environmental impact of large hydropower dams is well-known nowadays as the construction of dams and reservoirs implies hydrographic changes which, as a result, have a negative effect on biodiversity itself.

To put it differently, electric energy production by means of a small number of large HEC in Albania has created a situation when the amount of energy that could be generated can't possibly be anticipated and it eventually leads to heavy transmission losses. As a result, Albania remains an electric energy importer. Statistically speaking, 22% of electric energy consumed in Albania is imported (IEA 2006).

Nevertheless, as previously stated, fossil fuels top the list of energy consumption in Albania. Rapid development of the transportation sector (which consumes 55% of fossil fuels) has led to considerable consumption of crude oil byproducts such as (diesel and gasoline). The annual average rate of oil byproducts consumption has been estimated **6.2% (**AKBN, 2007). In fact, the data provided by IEA match the above-mentioned rate. It is also worth mentioning that the majority of fossil fuels consumed in Albania have been secured by imports (table1).

As such, it is evident that energy situation in Albania requires immediate and efficient actions by means of well-established and reliable policies based on EU experience and directives in order to realize the two main objectives of energy aquis, that is, security of supply and sustainability.

b) **Legal framework in Albania and its implementation.**

Law No. 7072 dated 22.05.2003 "For electric energy sector", article 38, provides for awarding the privileged electric energy production status on the part of ERE (as the Albanian Regulatory Authority) to the producer who secures electric energy by means of renewable energy sources with an installed capacity of up to 25

MW, and, in the case of energy hydroelectric sources, with a capacity of up to 10 MW. As for self producers, the above-mentioned law provides for its electric energy surplus as in cases when renewable energy sources and its installed capacity do not exceed 10 MW.

The privileged producer shall enjoy, pursuant to this law, complimentary treatment by transmission system operator. Likewise, article 39 provides that, electric energy producers with a capacity exceeding 100 MW shall produce 2% of its general energy production by means of renewable energy for electro-energetic system or shall buy equal amounts from renewable certified sources.

However, the current law fails to set national targets with regard to energy production from renewable sources. In addition, there exist no mechanism, whatsoever, to promote the production of energy from renewable sources.

It was only in February 2008 when the Albanian Assembly passed the law No.9876 "For production, transmission, and trading of bio-fuels and other renewable fuels for transportation". This law provides that Council of Ministers shall annually determine the minimal amount of renewable bio-fuels and other renewable fuels to be utilized in the successive year in the transport sector. Annual minimal amount to be launched as of 2010 shall not consist of less than 3%, whereeras as of 2015 onward; the same amount shall not consist of less than 10. As for bio-fuels, targets tend to be clear yet delayed.

So, how about the current situation of renewable energy production in Albania and existing mechanism and policies to overcome the current 0% rate of clean energy? (table 1). How about the administrative and legal actions to be taken by Albania in order to implement the targets assigned by EU to all member states,which has eventually become mandatory even for cnadidate countries?

As argued earlier on, the mandatory targets laid down by the new renewable energy Directive 2009/28/EC to be met by EU-27 through promoting the use of renewable energy are really ambitious: at least 20% of the EU' s total energy consumption by 2020 and at least 10% of the EU's total fuel consumption in all forms of transport by 2020.

In respect with the total energy consumption, Albania consumes 11% renewable energy from woody fuel combustion so 10 % target for the renewable energy consumption (heat and electricity) seems reachable (figure 1). Nevertheless, utilization of timber remains beyond control and has led to a state of deforestation. A comprehensive study with regard to consumption of timber in Albania titled "Analysis of markets and Marketing of forest based products" (Development Researcher network, 2003) reveals that Albania annually utilizes 2.75million m3 whereas the annual capability of forest based products according to national forestry census/inventory of 2004 was 1.15 million m3, which means that annual timber deficit

consists of 1.6 million m3 or, in other words, 58% beyond the current capability. Such a result hints at the degradation of forest-based sources and contradicts with sustainable forest development. Timber surfaces in Albania and its climate-soil conditions shall normally cover the needs for timber. However, under current conditions, in order to meet the needs, interventions in the way of converting timber energy into heat are required. The conversion of biomass to heat in modern heat systems today is very efficient, with most of the energy being converted to heat compared with low efficiency current stoves utilized for heating. The combustion in modern pellet boilers can reach more than 90% of efficiency (AEBIOM 2008).

This means that directing public money to support a change of the actual heating system toward the modern pellet boilers would have positive impacts in several directions:

- Energy efficiency
- Improved security of supply.
- Sustainable Forestry development (thus improving the implementation of environmental *acquis*)
- Incentives for the regional economy including job creation. (by means of establishing factories specialized in the production of pellets utilized for heating in similar systems of pellet boilers).

What is more, Albania possesses large potentials even for the production of energy from other renewable sources such as solar and wind power and small HPPs. The development of well-studied policies would diversify the network in order to increase transmission efficiency generated in the system.

This study mainly focuses on the target of producing at least 10% total fuel consumption in all forms of transport by 2020 which remains the most serious current challenge towards the implementation of energy *acquis* as the EU objectives tend to be very ambitious at a time when the production of biofuels in Albania has not been set in motion yet. So the problems lying ahead involve:

Firstly, the target of 3% provided for by law No.9876, which enters into force in 2010, remains too low when compared with the target of 10% set by EU for Member States. It should also be taken into account that, on European level, an indicative target of a 5.75% biofuel share of the transport fuel market has been set since 2003. Thus, it is self-evident that Law No.9876 does not abide by the actual ambitious objectives of EU; at least as far as 2010-2015 period is concerned. Secondly, the way the above-mentioned targets will be implemented pose a serious concern as the law will enter into force in 2010. The current law becomes even more important if it is taken into account that 70% of fossil fuels in Albania are imported (table 1). Such a situation renders Albania prone to current oil crisis. In fact, this tendency puts at risk not only the security of supply but it also might bring about price fluctuation.

Thirdly, what is the environmental impact of the use of biofuels compared to conventional ones? Can Albania implement the environmental *acquis* as well as Energy acquis or would the situation get worse? Tirana is estimated to be one of the most polluted cities in the world, behind New Delhi and Beijing. In its website, the European Commission states that: "As Albania gears up to join the European Union, pollution troubles get in the way. Albania is facing a humanitarian catastrophe due to growing pollution, 10 times above the tolerance level set by the World Health Organizations (WHO)" (European Commission http://ec.europa.eu/enlargement).

In the issue of ill-informed policies in the environmental ambit of Albania, the question remains if the replacement of fossil fuels with bio-genereted ones would improve or worsen the actual situation. Therefore, the questions to be answered remain: what might be the immediate results of the implementation of the above mentioned directive? Does such a directive contribute to Albania's adoption of the environmental acquis, and thus consequently to the success of the Stabilisation-Association process or does it have an adverse effect?

Biofuels compared with Conventional fuels, their environmental impacts

The main purpose of the current study remains the revision of literature with information on life cycle air pollutant emissions as well as combustion emissions. Interpreting published data on emissions from transport fuels including biofuels is not without problem. Variability is often quite high and studies that present only average values often do not provide an indication of the significance of the results. An attempt has also been made in this review to present data which are likely to be relevant to Albania.

Biodiesel

1. Light Duty Vehicles

Table 3 summarizes the results of some recent European studies on changes in biodiesel emissions for light duty vehicles relative to fossil diesel. Although there is much variability in the data, as demonstrated in Table 3, there seems to be a general trend in light duty vehicles towards slightly increased NOx emissions relative to fossil diesel, but decreased HC, PM and CO emissions (Scottish Executive Environment and Rural Affairs Department, 2006).

Ref.	Fuel	Ref. fuel	Drive Cycle	NO_x	HC	PM	CO	Aldeydes
Krahl et al. 2003	100% RME	Low S Diesel	ECE49	+ 6%	- 56%	+16%	-44%	-40% (total)
Aako 2000	30% RME	EN590 Diesel	FTP 75	-2 +/- 5%	-12.5%	-14 +/- 10%	+5.5%	Form: +25% Ace: +6%
Aako 2000	30% UVO ME	EN590 Diesel	FTP 75	-3 +/- 5%	-30%	-25 +/- 12%	-22%	Form: +12% Ace: -14%
Concawe 2005	5% RME	Low S Diesel	NEDC	-2 +/- 2.5%	-10 +/- 25%	-4.5 +/- 5%	-10 +/- 15%	-

Acronyms: RME – Rape Methyl Ester; UVO ME – Used Vegetable Oil Methyl Ester; cat. – catalyst; Form. –

Table 3: Illustrative Changes in Biodiesel Exhaust Emissions from Light Duty Vehicles Relative to Mineral Diesel (Scottish Executive Environment and Rural Affairs Department, 2006).

2. Heavy Duty Vehicles

A major review of the exhaust emissions of biodiesel from heavy duty vehicles was published in 2002 (EPA 2002), but many of the studies reviewed used soybean biodiesel.

The generic results of the study, without taking into consideration engine standards, were as follows:

$[NOx] = [NOx]_{MO} + 0.1[biodiesel]$ i.e. for 20% biodiesel there is a 2% increase in NOx

$[PM] = [PM]_{MO} - 0.5[biodiesel]$, i.e. for 20% biodiesel there is a 10% decrease in PM

$[HC] = [HC]_{MO} - 0.9[biodiesel]$, i.e. for 20% biodiesel there is a 18% decrease in HC

$[CO] = [CO]_{MO} - 0.5[biodiesel]$, i.e. for 20% biodiesel there is a 10% decrease in CO

Table 4 gives the % change in emissions reported by two European studies for heavy duty vehicles running on various biodiesel blends in relation to mineral diesel. These findings are broadly in line with the EPA study results, although it is clear that there is much variability in the data.

Ref.	Fuel	Ref. fuel	Standard	Drive Cycle	NO_x	HC	PM	CO
Aako 2000	100 % RME	EN 590 Diesel	Euro II w/ cat.	FTP 75	+12 +/- 3%	-47 +/- 5%	-82 +/- 10%	-3 +/- 5%
Aako 2000	30% RME	EN 590 Diesel	Euro II w/ cat.	FTP 75	-3 +/- 4%	-2 +/- 8%	-32 +/- 7%	+6 +/- 5%
Aako 2000	30% UVO ME	EN590 Diesel	Euro II w/cat.	FTP 75	-1 +/- 6%	-6 +/- 6%	-46 +/- 21%	-3 +/- 4%
Concawe 2005	5% RME	Low S Diesel	Euro III w/ cat.	NEDC	+1 +/- 12%	+10 %	-10 +/- 10%	+15 +/- 20%

Table 4: Changes in Pollutant Emissions from Biodiesel Combustion in Relation to Mineral Diesel (Scottish Executive Environment and Rural Affairs Department, 2006).

Bioethanol

Perhaps the most relevant data for bioethanol emissions are given from an AEA Technology study carried out in 2002. The main conclusions of this study, which compared emissions from an E10 splash blended ethanol/gasoline mixture with petrol, are shown in Table 5. It is evident from the table that, as with biodiesel emissions, there is much variability associated with emissions from bioethanol, although there does appear to be a consistent **decrease in PM emissions** and considerable increase in acetaldehyde emissions.

Pollutant	Size	Error
FC	No consistent change	+/- 4%
NOx	No consistent change	+/- 50%
PM	-46%	+/- 13%
HC	No consistent change	+/- 20%
CO	-21%	+/- 24%
Acetaldehyde	+500%	+/- 300%
1,3 butadiene	+28%	+/- 24%
particle number emissions	-50%	+/- 25%

Table 5: Illustrative Change in Emissions (%) of E10 Bioethanol Blend in Relation to Petrol.
(Scottish Executive Environment and Rural Affairs Department, 2006).

Another review on bioethanol emissions was produced by TNO for the GAVE (Gaseous and Liquid Climate Neutral Energy Carriers) Programme. In general terms, these results are in agreement with those from the earlier AEA Technology report, even though no numerical values were provided in the report.

The conclusions of the GAVE review (Senter Novem 2005a), quoted verbatim below, can be seen as representing the best available knowledge regarding air pollutant emissions from bioethanol:

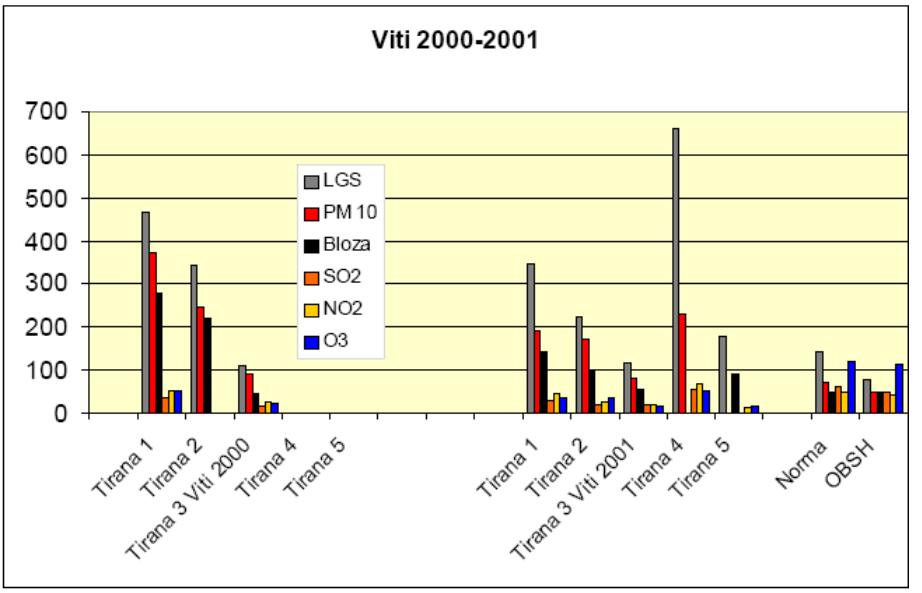
The use of ethanol in both petrol and diesel engines reduces PM emissions. For the other regulated pollutants (CO, HC and NOX) less consistent results are reported. The effect of ethanol on these pollutants can be positive, negative or negligible.

A few studies have examined the potential of high ethanol blends to achieve future emissions standards with modified vehicles. These studies were generally successful, which suggests that attainment of future standards should be expected for high ethanol blends, provided that engine modifications are being made. In this respect, a potentially significant advantage is noted in using ethanol in spark ignition direct injection (SIDI) engines because of a reduction in soot and PM formation.

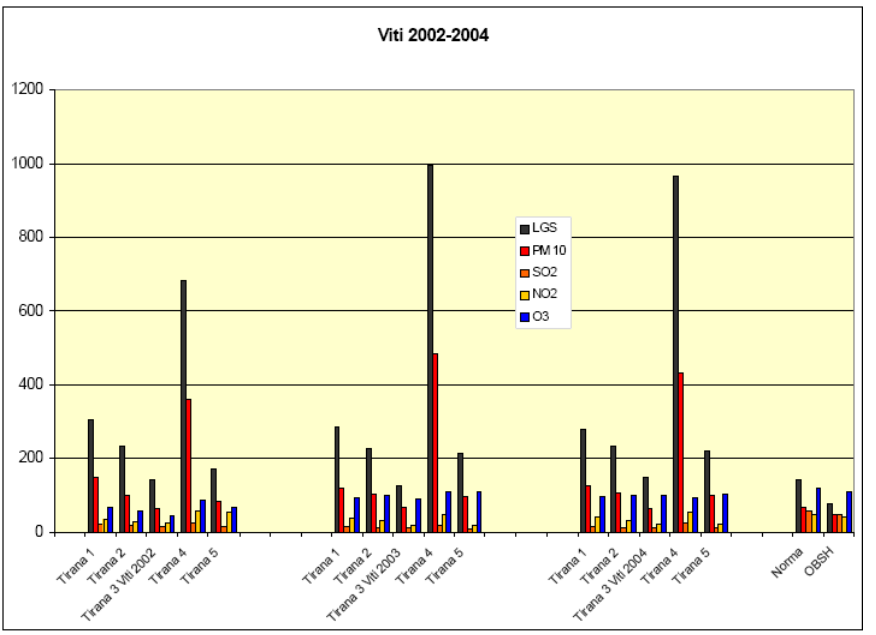
Albanian air quality data

In a specific study on Tirana air quality made by Deliu A, Ndroqi M (2005) the following results has been drawn:

The particulate matter results to be the most prominent component many times above the tolerance level set by the World Health Organizations (WHO) (***graphic 1***). Soot level also happens to be above the acceptable norms. In fact, soot generally comprises 25-40% of urban dust. Other indexes, on the other hand, tend to be below the acceptable norms as industrial gases such as SO2 have undergone reductions due to decrease of industrial activity in cities after 1990s. As for 2002-2004, the increase of NO2 and O3 seems evident as well as the rapid rise of Pb concentration. Nevertheless, they still fall under acceptable norms (Deliu A, Ndroqi M, 2005).



Grafiku 1: Tirana air quality years 2000-2002
Source: Deliu A, Ndroqi M.(2005)



Grafiku 2: Tirana air quality years 2002-2004
Source: Deliu A, Ndroqi M.(2005)

Conclusions

Thus, as previously stated, the Albanian Legislation in the field of energy ought to be revised and involve economic mechanisms as well in order to implement and support the legislation.

Firstly, it results that the Albanian legislation has not set targets for the total of renewable energy related to the total energy consumption in the country. Nevertheless, the 10% target of total renewable energy is currently being met in Albania. This energy is a conversion of wood energy into heat but such a conversion fails to convert efficiently, so there is much of lost energy. Meanwhile, the forests are in a degrading state. Therefore, it is crucial to put into motion mechanisms aiming at increasing the efficiency of biomass energy conversion to heat in order to decrease the amount of fire woods utilized for heating as well as promoting other renewable forms in Albania such as solar power and wind power, which offer large potentialities.

Secondly a 3% target of the Albanian's total fuel consumption in all forms of transport by 2015 has been set too lately and remains too low as compared with the recent 10% target of EU for its Member States. On the other hand, Albania's actual consumption of renewable sources in all forms of transport remains zero and there exist no incentives or mechanism to promote such sources and as a result launch alternative energy production.

Thirdly, the comparison of above-mentioned results with regard to release of various air polluting components from the burning of biofuels both for bio-diesel and ethanol, as compared to fossil fuels, reveals very low levels of particulate matter (PM). Meanwhile, in Albania it is exactly the particulate matter PM which poses the main threat as it tops the world list. Even the levels of Nox and So2 released by biofuels in some studies seem to be higher; however the studies carried out by Deliu A. and Ndroqi M. (2005) reveal that such components in Albania tend to be below the standards set by WHO. Therefore, even if such values increased, it wouldn't pose any risk for Albanian air quality.

As such, introduction of bio-generated fuels for transport sector is a must as it would bring about the following positive impacts:

- Implementation of Energy *acquis*
- Implementation of Environmental *acquis*
- Improvement of Health quality
- More security in transport fuels supply
- Sustainable development

To reach such objectives, a well studied Action Plan promoting liquid biofuels production in Albania is required. Besides, apart from renewable energy targets, the government should introduce support mechanisms; integrate RES policies with the

other clean development mechanisms such as: energy and CO2 Taxes, tradable emissions permits**,** economic incentives, tradable green certificates and renewable energy or power auctions, and should well coordinate the regulation of such instruments.

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