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EMPOWERING EUROPE

Energy, Security, and Environment

Lifelong Learning Programme

UNIVERSITÀ DEGLI STUDI FIRENZE

School of Political Science

Preface

The School of Political Science of the Università degli Studi di Firenze is pleased to present the fourth newsletter of its new course on the fields among energy, environment and international relations at European level.

The course "Energy, Environment and European Security" aims at presenting a comprehensive analysis of the issues of energy, environment and European policy from a strong multidisciplinary perspective, as this new course encompasses three different disciplines (Energy Economics, Environmental Economics and International History).

The course, entirely taught in English, is part of the postgraduate program in International Relations and European Studies.

Lecturers are Rossella Bardazzi, Maria Grazia Pazienza, and Alberto Tonini, associated professors at the School of Political Science. Being part of the Lifelong Learning Programme, the course has been awarded as a Jean Monnet Module by the European Union in order to enlarge and deepen the field of European integration studies. This funding support is employed to finance both incoming professors (seminars and visiting professors from other countries) and short exchange periods for students interested in theses on energy issues (incoming and outgoing).

This newsletter is intended to stimulate the debate on energy issues and to promote the activities, which have been proposed during the entire course, to the international academic and non academic network.

This fourth issue focuses on a cycle of lectures held by different guests on different energy topics such as EU-Russia energy relations, taxing energy use, and the Italian Energy Policy between EU energy obligation and national energy strategy.

Practical information and links close the newsletter.

Disclaimer

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

The reports included are made by University of Florence's students and are summaries of the lectures held by our guests.

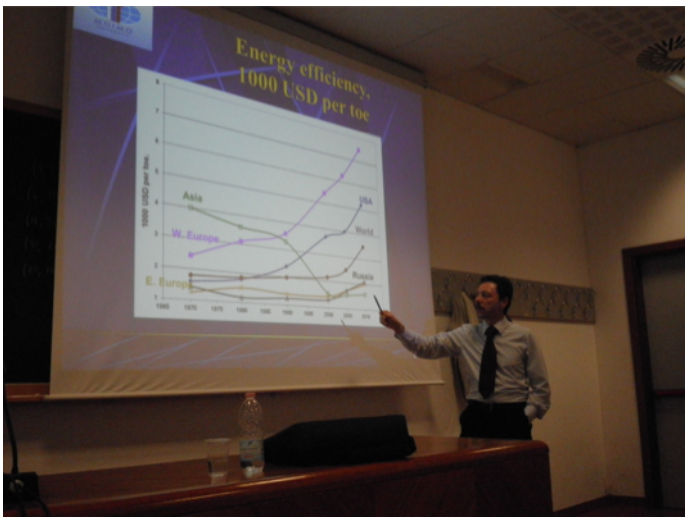
EU-Russia Energy Relations

Professor Nikolay Kaveshnikov - MGIMO University

Russia produces, consumes and exports a big amount of energy due to its big reserves of energy. Energy covers around 30% of Russian GDP, 65% of Russian export and 50% of budget revenues. During the past years the share of oil and gas revenues in Russian federal budget has increased dramatically as the oil price required to balance the budget. As a consequence, energy sector covers a crucial role in Russian economic development. So, even though Russia bases its economy on energy in a considerable way, it needs to reduce the share of energy sector on its GDP as well. Reducing the reliance of Russia on energy is essential to diversify its economy.

Russia, within 2030, will demand around 2,5 trillion of US dollars in investments according to Russian Energy Strategy. Such an amount cannot be found within Russia, it will be necessary to Russia to turn to Europe and the US in order to collect such a big amount of investments. Probably the most important priority for Russian Energy Strategy is an efficient energy system. Russia has an energy system which is not very efficient. On the contrary, Europe has the most efficient energy system in the world.

European market is also a priority for Russia since it is quite close to it. Moreover, Europe pays more than other consumers; its energy companies respect the terms of contracts and respect clauses. There are, in fact, doubts on



China, Turkey and other countries which could sign supply contracts with Russia. However, it is not certain whether these countries will respect the terms of contracts or not. To be a valuable partner, Russia should provide stable, uninterrupted and economically affordable energy transit from its production sites to consumers. Another priority for Russia is also to preserve its leading role in Central Asia. The aim of Russia is to avoid competition from central Asia countries such as Turkmenistan, Uzbekistan and Kazakhstan and avoid that their productions arrive on European market.

In order to be a pivotal leader, Russia is committed to export not only oil and gas but also products with more added-value such as nuclear

fuel, electricity and so on. As a consequence, there exists a need to synchronize Russian and European electricity systems and implement commercial effectiveness of Russian nuclear technology.
As for European Union Energy Policy, since 1990s there has been a commitment to transform the European energy market from monopolistic to a liberalized market. A lot has been done but there is still a lack to reach a complete liberalization. Moreover, there has been a strong commitment to reduce the footprint of energy on climate through the 20/20/20 package. Finally, Europe has put effort into a common trans-border infrastructure to unify Member State's energy systems.

However, there are some contradictions between European legislation and contracts signed by some European countries with Gazprom. According to European legislation, pipeline owners must allow to use pipelines to third parties. European laws presume a separation of production, transportation, and distribution activities through unbundling. However, real unbundling has not yet been reached. Lots of European countries have decided to enhance legal unbundling. As a consequence, transportation and distribution activities have been separated only on a legal point of view, whereas the owner of those activities remains the same. Given this particular legislation, it has been introduced a so-called "Gazprom clause" which expects that a foreign company may be owner of pipeline only in case that the foreign country is in line with unbundling European legislation, not only in Europe but also at home. As a consequence, if Gazprom wants to own pipelines in Europe it is mandatory for it to separate production, transportation and distribution activities also in Russia. Gazprom doesn't have any intention to separate such assets, but it still wants to buy and own pipelines in Europe and it does have the ownership of certain pipelines in Europe, legacy of the Soviet time. Thus, contradictions are in place for this particular topic.
On Europe's side, it is important to underline that over the past years, EU import dependency has increased. Such growing import dependency is the main challenge for EU external energy policy. Europe needs to diversify its suppliers and supply routes. That may be achieved through three lines of action: LNG supply from Qatar and other countries with LNG capabilities, use and implementation of TAP and TANAP instead of NABUCCO to connect Europe with Georgia and Azerbaijan and, finally, the development of a Trans-Saharan gas pipeline which links Europe with Nigeria.
Another option is to export the energy *acquis*, i.e.

EU legislation and regulatory practice. The Energy Community is an attempt to export such acquis also to the outside of the European Union. It was established in 2005 and it is made by the European Union, Western Balkan States, Moldova and Ukraine. Norway and Turkey participate as observers. In 2005-2010 Energy Community member states implemented EU directives on energy market liberalization, buildings energy performance, energy labeling and energy end use efficiency. The Work Programme for 2012-2013 included the implementation of the Third Energy Package, the regulation on security of gas supply and the directive on renewables. Each Member State should inform the other members on energy issues and agreements which may affect their energy policy. So, each member State will be informed on the agreement signed and such a mechanism improve the negotiation power of each member State.

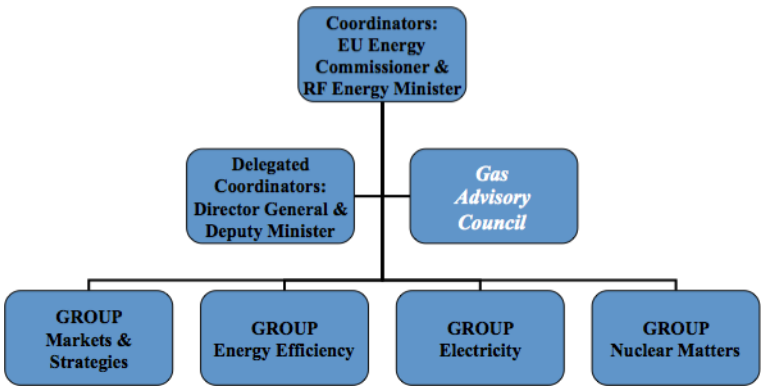
However, there exists a restriction on the EU external energy policy since Article 194 of TEU states that EU energy policy «shall not affect a Member State's right to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply». As a consequence, Member States have still the power to decide freely without many bindings set up by the EU. Thus, external energy policy is based more on political decisions and actions than legally binding decisions.

Regarding EU-Russia Energy Relations, it can be argued that between the two actors there exists energy interdependence due to different aspects such as infrastructures, exchange of assets, trade and forty years of commercial contacts which create a trustful relationship at a business level. Moreover, EU imports around 33-34% of oil and gas from Russia and the exports of the latter amount to 88% for oil and 70% for gas. As a consequence, it may be declared that the EU is a monopolistic client for Russian energy industry.

On one hand, between the EU and Russia there exists interdependence but, on the other hand, competition as well. Competition is on price setting mechanism, distribution of risks and benefits, control over resource base and market, influence on transit countries and, finally, there exists a confrontation on "game" rules.

The energy dialogue between the two actors may be presented as in Figure 1.

Figure 1



The Energy Dialogue was launched in 2000 to enable progress to be made in the definition of a EU-Russia energy partnership and arrangements for it. Such a dialogue took to the modification of long-term contracts for gas supply; contribution to the Russian ratification of the Kyoto protocol; maritime safety for heavy oil transport;

cooperation on gas flaring reduction, renewables, energy efficiency; feasibility study on the synchronization of electric grids; construction of North Stream; and assurance of no 30% restriction on import of natural gas or oil from Russia to the EU. However, despite these results, the dialogue didn't take to a strategic partnership due to a missing common view on long-term goals.

Russian energy companies have important investments in Europe. For example, Lukoil has petroleum retailing activities, petrochemical infrastructures, oil refineries and other investments and services all around Europe. Those investments have been made to secure the access to markets and demand.

Unfortunately, there are regulatory problems for Russian energy investments in EU. Centrica, North Stream and, in particular, South Stream are few examples of problems and issues encountered by Russia in the European energy affairs. On the other hand, Europe has energy investments in Russia as well. Sakhalin 1 and Sakhalin 2 fields have been financed by European companies as well as Kovykta gas field. Moreover, E.On, Enel, and Fortum have bought assets in Russian electricity market. Also for European companies there exist regulatory problems in Russia. For instance, the Law on Strategic Investments (2008) prohibits foreign companies in energy sector to hold more than 50% of the total capital of a company. In case the energy company holds production licenses for the subsoil parcel of federal importance, the limit decrease to 25% of the total capital. As a consequence, it is not possible for European companies and investors to withhold a sufficient share to appoint the executive body of such companies. Moreover, only Russian companies may have the license to use deposits on the continental shelf.

So, it may be argued that EU and Russia are both on a defense position. Russia is protecting its subsoil resources whereas the EU is protecting its energy market. There exist no open door for oil and gas investments in Russia. The legal framework in Russia and in the EU provides for substantial degree of political discretion. Moreover, it may be said that all large investment projects in the energy sector require political support both in Russia and Europe and energy investments should be accompanied with various forms of energy diplomacy.

To conclude, there exists an abundance of controversial rules between Europe and Russia which do not clarify the relationship between the two areas. The EU and Russia have different negotiation strategies. On one hand, the EU argues that an agreement is possible only on the basis of the EU rules, specifically of the Energy Community model. On the other hand, Russia asserts that such a model is not acceptable since rules should be mutually elaborated and accepted rather than imposed by the partner. As a consequence, nowadays it's easier to agree with separate Member States.

Moreover, it seems that EU has conflicting goals for its energy policy and it is divided by the promotion of a strategic relationship with Moscow and the decrease of its energy dependency from Russia. Thus, the alternatives may be two. On one hand, a simple trade-relationship where Gazprom supplies a certain amount of natural gas without caring about peaks in demand. On the other hand, a long-term energy partnership may be established.

However, the EU approach to use short-term favorable situation to reconfigure regulatory framework may cause serious risks on a long-term perspective.
Finally, we argue that Russia and the EU symbolize opposites poles of the foreign energy policy spectrum, i.e. liberal competitive market versus state intervention determined by geopolitical reasons. The EU builds a consumer market and attempts to change the regional regime in order to spread the market beyond European border. On the contrary, Russia takes up a defensive position and tries to maintain a gas producer market which, actually, exists at the moment in the European region. Despite this, the EU and Russia's tactics look very similar. In fact, both the European Union and Russia try to establish a regulatory regime that would answer their purposes; seek to reduce external dependency by diversifying energy import and export; aim to control external assets (e.g. deposits or access to final consumers); strive to reduce their risks and increase revenues; use the energy sector as an important source of tax revenues required to meet social obligations and further economic development. Two similar tactics and, sometimes, strategies, which will make difficult to reach a common and stable approach to energy issues.
One of the most crucial issues of the past months it's the Ukrainian crisis. There were other two crises before the last one. In March 2008, Gazprom partially cut-off supplies to Ukraine demanding payment for previous deliveries. The Ukrainian company responded with a statement where it claimed to be able to guarantee uninterrupted transit of gas to European consumers only as long as it does not threaten Ukraine's energy security. The European Energy Commissioner, Andris Piebalgs identified a "real threat" to the EU supply but preferred not to notice transit blackmail. He blamed both sides for the escalation of a "commercial" dispute.
Between December 2008 and January 2009 another crisis took place. In absence of supply contract between Russia and Ukraine, the former stopped gas supply to the latter. Despite the existence of transit contract, Ukraine started to take "transit gas" for domestic use. In several days the transit gas, transiting to Europe, was completely stopped. The EU Commission contributed to establish a technical monitoring mission, claiming again that it would have not interfered into a commercial dispute. As a consequence of this crisis, the EU Commission hoped for the development of a EU common energy market and infrastructure linkage among Member States in order to avoid the effects of such kind of crises.
Basically, the fulcrum of those disputes may be found in gas prices. Historically, Russia has provided Ukraine with subsidies through a cheaper market price but, nowadays, such a system cannot be sustainable anymore.

Taxing Energy Use - The OECD's role in policy making and implementation.

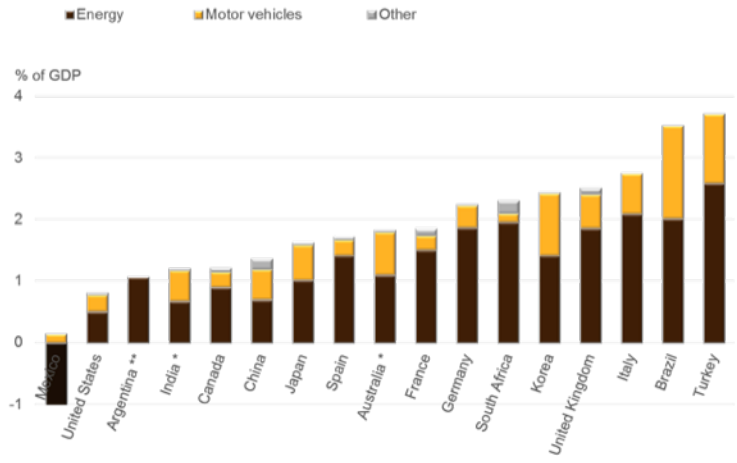
Michelle Harding - OECD

Energy use is a critical component of modern economies. On one hand, it is a key input to production and an important element of consumer spending but, on the other hand, many forms of energy - in particular for fossil fuels – contribute to significant environmental problems. Energy taxation is a key policy instrument that has a significant impact on energy prices, usage and, consequently, environmental impacts. It can influence energy use and, as a consequence, climate change, air pollution, social cost of vehicle use. It is a source of many explicit and implicit fossil fuel tax expenditures as well. Finally, energy taxation is an important source of government revenue. On average, 60% of environmentally related tax revenue is derived from energy taxes.

According to a cross-OECD analysis, transport fuels are most commonly taxed and taxed most heavily across the OECD. Heating and process use and also electricity generation are taxed at lower rates and are in some cases untaxed. There exist substantial variations in tax rates within each category of fuel use based on the fuels used and the users of fuel. Below is shown the OECD simple average taxation on specific areas of energy usage.

As for transport, all OECD countries tax transport fuels and almost all do so at higher rates than other categories of fuel use. That may be due to the taxes being used to raise revenue, due perhaps to an inelastic demand curve for

	Transport	Heating & process	Electricity	All fuels
Energy *EUR/GJ*	11.5	0.9	0.9	3.3
Carbon emissions *EUR/tonne CO_2*	161	12	13	52



transport fuels. So, road fuels are taxed more heavily than non-road fuels. A second reason for higher taxation may be found in the additional externalities associated with transport, for example noise, accidents, road congestions and so on. Oil products are most commonly taxed and, usually, at higher rates. Diesel is taxed at lower rates than gasoline in 33 OECD countries. For an environmental perspective, this difference has no rationale since diesel has a deeper impact on environment than petrol. Where used, CO_2 taxes tend to account only for a small proportion of effective tax rates.

Regarding heating and process fuel use, it is taxed at significantly lower rates than transport use. Effective tax rates on carbon send very different signals to different fuels and users. In fact, coal is often totally untaxed. We could compare tax rates on commercial and industrial energy use with rates on residential use to see if one or other pay more. However, there is no consistent path. Sixteen OECD countries tax industrial use of energy more lightly than residential and commercial use. We suspect two reasons exist for that. In some cases there is a clear policy choice to let industry be more competitive. In some cases there is a deliberate choice to have tax with lower rates for residential uses for equity reasons. The other reason it is, however, not a deliberate policy choice because the tax rate applied to these usersdepends on which fuel is used by residential activities and industrial ones. Residential users use less oil products than industries. Below is shown the simple average for each fuel used for heating and process.

Coal is taxed less than natural gas and fuel oil even though it is very polluting. The total amount of taxes (in EURper tonne of CO_2 produced by coal) is much smaller than natural gas, which is more efficient than coal. However, this simple average doesn't explicate and expose what happens in each country.

Finally, for the electricity generation sector both the consumption and generation of electricity may be taxed. Consumption is more commonly taxed than generation. Electricity can be obtained by different source of fuels. As a

	Diesel	Fuel oil	Natural gas	Coal	All fuels
Energy *EUR/GJ*	3.4	1.3	0.7	0.6	0.9
Carbon emissions *EUR/tonne CO_2*	46	17	13	5	12

consequence, the carbon content of electricity generation varies significantly, depending on the type and efficiency of fuel used. Taxes on the consumption of electricity provide no signal in terms of the underlying fuels used to generate electricity. Moreover, between different countries the carbon component of electricity varies a lot.

In conclusion, effective tax rates on energy vary widely and there are substantial non-neutralities in effective tax rates for different fuels and users. Tax preferences and low rates demonstrate many sectors don't face an adequate price signal. As a consequence, there is a little incentive to adopt low-carbon approaches to innovate. So, for road fuels we see a commonly substantial tax preference for diesel relative to gasoline and concessions are common for fuel use in certain sectors (e.g. aviation, rail, fishing etc.). Among heating and process fuels, natural gas is often under-taxed compared to oil products. However, often coal is taxed less or even at zero despite its impact on the environment.

Low tax rates and concession are often driven by distributional and competitiveness concerns. These facts have policy implications as well. Signals sent by OECD tax systems in terms of carbon emissions are uncoordinated and unclear. Other policy instruments should be considered in conjunction with energy taxes in order to better address externalities, distributional impacts or competitiveness concerns. Differences in tax rates between different fuels and users often do not seem to reflect deliberate policy choices. The OECD study concludes that reappraisal of country tax settings is warranted to ensure energy taxation meets environmental, fiscal and distributional goals.

The Italian Energy Policy between EU's obligation and National Energy Strategy

Ivan Faiella - Bank of Italy

We are used to think to energy issue as a triangle made up by climate policies, security of energy supply, and energy costs. These three objectives might have different impacts and contrast with each other. It is not straightforward to put these three different aspects together. Moreover, given that energy is a basic necessity - households require a certain amount of energy, which cannot be diminished in order to maintain a minimum standard of living and firms need a given quantity of energy as a input - , increasing energy costs affects firms' competitiveness and households' poverty. Energy is also an important factor for human development as it is revealed by the strong correlation between energy and life expectancy.

Studying energy issues in Italy if of utmost importance since Italy imports the majority of its energy. Starting by 1980s energy prices paid by Italy have risen up in real terms and have reached their maximum. However, Italy is not a big country and have a limited impact on energy market aspects (although being the sixth gas consumer in the OECD area). In order to compare Italy with the biggest energy user (and henceforth as a GHGs emitter), China, it can be argued that in one year Italy emits the same amount of GHGs emitted in 3 weeks by China. Therefore, developing an energy strategy without considering top emitters such as China, India and the US may not be wise.

To focus on Italy, it may be interesting to figure out how primary energy demand have changed in the last 40 years. In 1971 Italy had a total demand around 125 MTOE, three out four of it was satisfied by oil. The remaining amount was covered by gas, coal and imported electricity: the per capita consumption at that time was 2.2 TOE. Within 40 years, the picture has changed dramatically. Oil has reduced its share in favour of natural gas. In addition, the total energy consumed has increased to 182 MTOE, leading to a per capita amount of 3 TOE. During these four decades, the fuel mix to produce electricity

has changed as well. The role of oil has decreased considerably to the advantage of natural gas and renewables: the Italian electricity system may be considered one of the most efficient in the world.
Moreover, when considering Italian energy mix it may be noticed that Italy is one of the biggest users of natural gas together with the UK. Moreover, Italy is the only country with no nuclear energy, higher percentage of renewables on total energy, almost the same share of oil usage and smaller percentage of coal usage compared to other countries such as Germany, which satisfies the 25% of energy needs with coal.
However, Italy and Germany may be considered quite similar since both import the majority of their oil and gas from abroad with a non-negligible energy bill. In fact, in 2012 Italy spent almost 65 billion Euros to buy energy products, almost 4.1% of its GDP, and this amount entails smaller investments for firms and less consumption for households and policy makers should take into account this issue.
Thus, in order to deal with the main energy issues mentioned above, the Italian government has produced a National Energy Strategy. Such a strategy has four main goals:

1. Competitiveness: reduce significantly energy cost gap between Italy and the rest of the EU with a gradual alignment between European prices and costs. The aim is not to reduce prices but to let energy prices move in line with the European trend.
2. Environment and quality: reach and go beyond Euro 2020 targets
3. Security: improve the Italian energy security, mostly for natural gas, and to reduce its reliance on foreign sources
4. Growth: support sustainable economic growth through the development of energy sector.

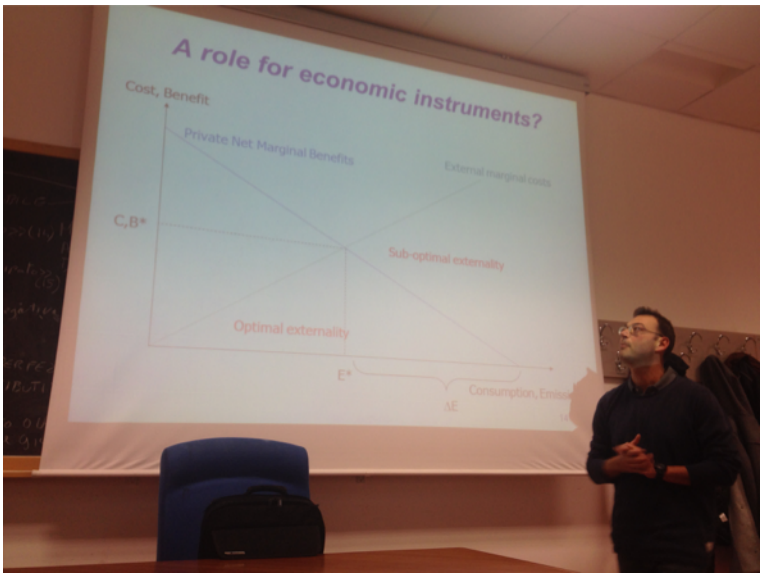
The first three points are very tough to be reconciled because they imply different and conflicting strategies to be satisfied. In addition to these three points, the goal to foster a sustainable growth through the development of energy sector is added, making the whole plan really hard to carry on.

Nowadays, the planning of the Italian Energy Strategy is a different process compared to the past. In fact, in the past, the energy plan goals were set with the state-owned companies, ENI and ENEL. Nowadays, after the privatization phase and with a free market of energy, policy makers have more room for manoeuvre, and indicating specific and clear targets is pivotal to reach the goals set.
Thus, it may today we need more than in the past a coherent framework which is necessary to create and foster a stable energy market. So, it may be question whether the policymakers have tested the coherence among the above mentioned goals or not. Apparently, it doesn't seem so. In fact, there are different targets which are contradictory with each other. For example, if energy subsidies can be considered successful to boost renewables at the same time this policy goes against the target of reducing costs.
So, it may be said that setting a hierarchy among these four goals and decide which target is more important than the others would have been more coherent. For example, if energy security is

more important than reducing costs, it will be more coherent to build a gas hub at the expense of higher energy prices for consumers. Unfortunately, this hierarchy is not declared in the Italian Energy Strategy and it may happen, as shown, that one goal may be contrary to another one.

However, let's face the main issues Italy must deal with. Through the comparison of Italian and European energy prices, it may be said that Italian consumers pay more for natural gas due to taxes whereas electricity costs more than the European average even before taxation. Italian households pay 30% more than European average. The picture is similar or even worse for firms, both for natural gas and electricity. Italian firms pay a lot for electricity with also a regressive component, which hampers dramatically small and medium firm profitability. The reason why electricity costs more in Italy than in Europe may be found in the great amount of natural gas used to produce electricity. Natural gas has higher energy efficiency than other fuels used (e.g. coal) but such a higher efficiency has its economic cost. If the ETS worked efficiently, Italy would pay more for natural gas but the other European countries, which use coal instead of gas to produce electricity, would be obliged to buy certificates for their emissions. Unfortunately, since ETS certificates have a very low price (a sign that the market is not working properly), using coal is more convenient than burning natural gas. As a consequence, energy prices are higher in Italy.

Moreover, concerning fuel prices, Italian industrial fuel prices are slightly higher than the average and they increase the most, except for UK's diesel prices, due to taxation.



Now let's hypothesize that the main goal for Italian National energy strategy were a climate strategy, even though Italy in one year covers only three weeks of Chinese emissions. What could Italy do? One way could entail public financing to renewables as done so far. However, Italy is one of the most efficient countries in the world. That entails that marginal costs are very high to further improve energy efficiency.

The Italian National Energy Strategy expects to allocate on average 12.5 billion yearly for electric renewables, about 1 billion for biofuels, 0.9 billion for thermic renewables, and 2 billion for energy efficiency. However, the return on investment for each euro invested in energy efficiency is 4.6€ in terms of the value of reduced emissions in front of 0.4€ for electric renewables. That proves that the resources have been allocated in the wrong way.

As for price trends, in the last decade, Italian prices rose consistently. As explained above,

such an increase is due to a very high taxation. However, energy costs and taxation are only a part of the energy bill. In fact, consumers pay also the electric system and the renewables financing. In Q2 2013, for each kWh paid by consumers, the 20% of it financed renewables energy. Such picture has impacts on households and raises questions on the vulnerability of the poorest families, which are affected more than rich people by these increases. In fact, around 10% of the total expenses of the poorest households are due to energy bills for heating system and electricity. As a consequence, it may be argued that there exists an energy poverty issue for certain consumers in Italy. Such an issue may cause a double problem in Italy: energy poverty for certain households in the Northern Italy during winters due to heating costs, and energy poverty for Southern Italian consumers during summers due to cooling costs. Moreover, it can be argued that energy poverty has increased in Italy. Energy prices have a negative effect on firms as well.

Thus, even though the Italian National Energy Strategy is ambitious and sets demanding targets, it can be argued that too many goals have been put inside of it without any hierarchy. As a consequence, it may happen that the instruments used to achieve a target of the same strategy counterbalance another goal of it. Perhaps it is necessary to decide the weight of each target in order to proceed properly and in coherence. So, notwithstanding the good starting point set by the Italian National Energy Strategy, the strategy is not sufficient and properly designed to deal with the main challenges that Italian energy system must face. Much more coherence among targets would be appreciated not only by energy system but also by consumers.

Links

School of Political Science

http://www.sc-politiche.unifi.it/mdswitch.html

International Relation and European Studies

http://www.rise.unifi.it/mdswitch.html

Empowering Europe: Energy, Security and Environment web site.

http://www.eu-ese.unifi.it/mdswitch.html

Jean Monnet Center of Excellence, University of Florence

http://www.unifi.it/vp-4085-centro-di-eccellenza-jean-monnet.html

Other events in Tuscany: Festival of Europe

http://www.festivaldeuropa.eu/en