

ENERGY IS FOR ALL

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ENERGY AS A CONDITION FOR ECONOMIC INDEPENDENCE

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WE, having in mind the improvement of the Society and the People-to-People cooperation in order to guarantee the Justice and the priority of the Individuals as steps toward the Security and the Welfare for us and our descendants, recognize Energy as a common property of the Human Being.

Energy must be available to everybody including the poorest.

World energy resources belong to all humans and everybody should take benefit of it.

Argentina and Italy are complementary Countries in this connection. The former has wide availability of energy resources related to the population. The latter has access to technological competences environment friendly.

Sharing of efforts and of resources brings benefits to all without drawbacks.

Namely, energy is a public resource that must be checked, regulated and improved for us and our children.

Checking of energy is needed because of declining resources: immediate actions are needed.

Improving energy means sustainability of energy sources: governments, public servants and banks should be on charge for this. Current resources must be preserved.

Controlling energy implies technological efficiency, but also international agreements.

The rational exploitation of energy must be pursued in a planet that has no owner nowadays or in the future.

During the history energy has been the engine for the development and only the use of energy resources allowed the progress. This was possible due to the various energy sources ranging from fossil fuel (coal, oil and natural gas) to the geothermal source, to the renewable (hydro, wind, biomass, solar) to the fission energy.

We must optimize the use of energy with main connection to the conversion. The irrational exploitation of energy sources will unavoidably enlarge the gap between the rich and the poor. We shall not allow this to happen. We shall involve the undeveloped Countries in the rational energy use: this is the only opportunity to make these Countries part of the worldwide global economy.

Reliable and cheap energy constitutes a condition for the development. Peoples and individuals welfare is connected with pro-capita energy availability. Increase in electricity consumption and conversion is connected with improvement. Energy use must be consistent with the environment. Different processes are necessary for producing, transporting and consuming energy: all the processes must be sustainable for the environment.

A proper change in the Kyoto protocol with main connection to the CO₂, should allow investments in the range 7 – 15 billions (euro). Such investment will make possible the production of hydrogen from wind as well as the production of bio-fuel and the full exploitation of the nuclear energy source.

The Italian government has decided to re-enter again in a nuclear program. Following the strong engagement in nuclear programs that characterized Italy starting from the '50, in the middle of the '80 due to a badly planned and interpreted referendum, the nuclear energy production in the Country was banned. The overall nuclear infrastructure has been destroyed in more than 20 years of anti-nuclear politics, even though a few experts still exist. On the contrary Argentina has always had continuity in pursuing the exploitation of the nuclear technology and maintained a suitable infrastructure of competence. Therefore, it is obvious to conclude that perspectives of cooperation exist in this field.

Argentina can also be the suitable partner for the production of hydrogen from the wind energy owing to the wide wind resources in Patagonia (4500 hr/year). The possibility to produce H₂ or other clean fuels in Argentina from the wind power and to transport this to Italy can be pursued.

Furthermore Argentina can be an ideal partner for the production of bio-fuel again owing to the wide territory available growing biomass. Different conversions of biomass can be exploited.

Obviously in order to finalize the envisaged roadmap, an official agreement is needed between governments of Argentina and Italy. This agreement could be prepared with the support of technical meetings involving experts from both parts.

The nuclear energy is a “political” other than a clean energy. Furthermore, a high technical complexity is associated with the deployment of the connected technology. The complexity also derives from the safety needs and, so far, the economic convenience for the electricity production has been associated with high power densities.

Pursuing the safety and the design optimization should be considered as ‘must’ for pursuing the exploitation of nuclear technology.

Nuclear energy must be seen as an engine for the economic and social development of a Country and as such needs of long lasting planning. This concept appears clear in Argentina: various governments having different political ideas did not change the interest and the attention of the Country toward the nuclear technology.

A strategic plan of CNEA includes the road map traced above, although a formal National Energy Plan does not exist.

The different actors in nuclear technology should update their competence, keeping their expertise and increasing their participation in international initiatives, strictly connected with the national objectives and strategies. All activities should be properly integrated within a consistent, long-term framework approved by the national government. Therefore, a development plan should be approved at political level: in this connection the newly installed nuclear power in Argentina should be in the range of 3000 – 6000 electric MW in the year 2025.

A growing nuclear sector exists in Argentina and capabilities are available to sustain the development. However, the following conditions should be considered carefully:

- The doubts of the public opinion must be addressed and solved in relation to the acceptance of the nuclear technology.
- The human resources in terms of number of engaged technicians and scientists in the nuclear technology must be increased mostly considering future developments.

Geothermal resources in Argentina are localized close to the Ande chain of mountains. Unstable regions exist due to the collision of different tectonic zones. In these areas the geothermal activity shows up as geysers, steam streams or boiling water. The most important geographical areas are “La Puna” and “La Cordigliera Principale”. These are separated by a tectonic segment located between 27° and 32° latitude where no active volcanic mechanism occurs. In this area the most important Argentine geothermal production fields are located. Italy has been the first country to create a sustainable technology to exploit geothermal energy. In this area strong cooperation can be envisaged between Argentina and Italy.

The cooperation between Italy and Argentina could include the energy saving sector and the so-called ‘white certificates’. Creating a market for energy efficiency and in adapting the market to the efficiency could be a remarkable target.

Technical assistance could be provided to the Argentinean Authority to define the strategies in the sector of renewable energies including the definition of suitable financial incentives also connected with the generated power. This can be achieved based on the cost-risk-benefit taking into account the value for the local territory.

The wind energy production could take advantages including areas where wind power is not very high.

Joint Projects between Argentina and Italy could be created to match the Kyoto protocol. Namely, 2 projects to be started in the next 12 months within the CDM (Clean Development Mechanism) area and to be concluded in 5 years term (assuming the feasibility): the first could deal with the hydrogen production from the wind source, the second related to the production of biomass in the regions not suitable for food production.

Simultaneously in Italy a coordinating group could be created between the CDM and financial incentives suitable for a sustainable development of the renewable energies and the consumption of the related outcomes.

Energy is an ‘external’ source of richness. It comes into the economic system through different ways: e.g. the direct way for the family use (heating, lightning) and the indirect way for the production of industrial goods.

The outcome of the job of economists should be to present results of computations that show the possibilities in different field and connect with financial investments. At the very end the most convenient solution for the Argentina Country

should be identified and characterized. This will involve detailed and skillful consideration of costs and loans on the international grounds.

A general model suitable for the above purpose has been created in Argentina in 2004 and is named General Calculation Equilibrium. This is recognized by GAMS/MPSGE and includes the consideration of 29 sectors in the production, 10 sample families, the government and the energy sector. The selected variables are 1) the decrease in the production of fossil fuels, 2) the increase in oil price, 3) the improved efficiency of energy use by the industry and by families with and without new capitals availability. The results of the model allow the evaluation of changes in each sector, in the taxation sector as well as in the families standard of living and allows evaluating the overall macro-economy sustainability.

The key variable is the cost of the goods that achieve a suitable equilibrium, simultaneously in all the international markets. One only exception is constituted by the labor cost that in case of permanent loss of working places needs a specific assumption: in this case the assumption was constant remuneration. In this situation any investment grows up in one period and is available to a subsequent period for the production system. The new capital will spread in the various sector following the laws of a free market with main consideration to the taxation regime. A good strategy consists in tracing a trajectory for the Argentinean economy growth (now estimated as 4% / year in terms of PBI) and in observing feedbacks originated by strong variations of the financial markets. At the end of the 4 years, in this way we can observe a growth of 29.6 % again in terms of PBI.

Recommendations

Pursuing the following roadmap is recommended:

- Make reference only to consolidated scientific knowledge.
- Do not create alarming situation based upon emotional behavior
- Critically evaluate what is a fashion and what brings benefit to only a part.
- Promote only what is technologically feasible and solid and continuously check the actuation of a project.
- Avoid uncertain and useless innovation by performing financial evaluation and by comparison different solutions.

Different energy sources should be exploited in order to guarantee the sustainability, having in mind the following objectives:

- Renewable energy sources should be supported by government (benefits given to production and consumption) like in other developed countries.
- Increase investments in the research in the areas of renewable energy and of hydrogen as energy vector.
- Support the construction of passive systems when deploying the solar energy at low temperature (boilers, etc.).
- Support the connection with the existing electric grid of photovoltaic systems.

It is definitely important to promote the cooperation of scientists of the two brother countries in fundamental technological areas like energy and environment.

The trap and the illusion of fossil fuels should be recognized. This slowed down the research and the progress all over the world. Italy and Argentine have unsolved critical issues in the sector of Energy derived from the past, mainly due to lack or deficient energy strategies. This implied an irrational use of energy and very high costs of electrical energy compared with other countries, thus limiting the perspective for a sustainable development in both countries. The possible solutions, consistent with current technological knowledge are:

- Energy saving and high efficiency in the processes.
- Use of all renewable energy sources.
- Use of the nuclear technology.

Pursuing such a roadmap that includes the three aspects above might not cause an immediate reduction of energy cost (kw-hr value), but will constitute a basis for restarting the economy in our countries, thus answering the question of the workshop “Energy as a condition for the economic independence”.

Thus let us start from pursuing the above three targets by setting up a platform of complementary and well founded cooperation for the economic and social development of the two countries.

The evolution of the consumption and of the production of electrical energy in Italy and in the World started in the first half of the past century and was dominated by local, regional or national, unique producers. In the second half we saw governments owning the electricity production (ENEL, e.g. the National Utility) thus opening to privatization of the electricity industry towards the end of ‘90s. These changes in Italy, including the stop to the use of the nuclear energy, brought to deep variations in the technology and in the management.

Namely, from the dependence upon fossil oil we passed to the dependence upon methane that showed up heavier for the Country, notwithstanding higher thermodynamic efficiency allowed cost reduction per unit power production. At present, different inadequacies in the production of electricity are part of the national scenario of energy production. We basically have over-capacity in the production with the consequent competition of different utilities that try to survive and that arrive to the results of perturbing the energy production sector. Definitely, we did believe in the free market and in the privatization, but now we observe that the free market without any streamlining action from the government does not bring to the progress nor to advantages for the Country.

In the sector of nuclear energy Italy and Argentine might have cooperation outlined by the following directions:

- Organizing joint Courses for getting Master and Doctorate degrees in nuclear technology and safety.

- Evaluating the possibility for Italy to buy quotas of clean nuclear energy production in Argentina to alleviate the debits of our Country in connection with the Kyoto protocol.
- Consider the capabilities of the nuclear industry in Argentine (fuel production but not only) for the possible renaissance of the nuclear industry in Italy
- Support the nuclear industry in Argentina within a context where feedback for Italy are planned.
- To organize standard Seminar to explain to various levels of the societies in Argentine and in Italy the benefits of the nuclear energy, specifically discussing about the false problem that are now so popular for the mass media.

The undersigned have the common feeling that wide changes in the energy sector are at the horizon. The changes will impact many aspect of the society with main connection to the economics and the labor market. We should be part of this change and have the capability of directing the changes.... **YES WE CAN.**

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