

INDUSTRIAL AND ENVIRONMENTAL NGO DIALOGUE THE API OIL REFINERY EXPERIENCE

The challenge concerning the sustainability of economic processes can no more be faced with the traditional environmental policies based on the “command and control” approach.

In the last ten years, both scientific research and the analysis on the effects of environmental policies have shown that – even in the best applications – the regulating provisions on production processes and environmental effects have not allowed for a full exploitation of all the possibilities to improve the environmental quality; on the contrary, they risk to halt technology innovation and to concentrate all the economic resources only on interventions in the latter phases of production processes.

To prescriptive regulation (standard of emissions, limits to discharges etc.) and to control activities more flexible instruments must be added, which can better adapt to real situations and which are more open to the possible technologic innovations; such instruments should also be oriented towards environmentally feasible practices: both economic and voluntary means.

These means are important by themselves, but also because they can promote an innovative and pro-active approach towards the emerging environmental problems.

Within this context an important role – but not exclusive - can be played by the agreement and the negotiations among the different social actors operating on a given territory, that is to say firms, public bodies and citizen organisations.

The objective of these negotiation processes is neither to look for a “compromise” between opposite needs nor to reduce and lighten environmental requirements.

The objective is to identify solutions that, with a positive exchange, would allow to meet different needs and minimise the global costs.

Usually, it is hard to find these solutions in the pedantic application of simple regulating provisions. On the contrary, they can be found when, moving from environmental requirements on a given territory, the sector of dialogue is extended.

For these strategies to be feasible and reliable, an effort for transparency and for an innovative approach towards environmental management is required.

The agreement among the different social actors becomes possible only when a climate of trust and real collaboration exists and when the reliability of the different actors is evident.

Within this context, a fundamental role is played on one hand by the reliability of the public sector as a body capable of planning and assuring control and verification functions and, on the other hand, by the reliability of firms as subjects capable of technologic innovation and efficient management of production processes, also at environmental quality level.

Legambiente has started the above mentioned process vis-à-vis a company – the Api oil refinery of Falconara – whose presence in the social tissue of the Marche city has represented a positive element for employment but also a strong environmental impact and an irreversible transformation of the urban tissue. Furthermore, no integration between citizens and the company had ever taken place; on the contrary, the presence of the oil refinery had always been considered as an invading element, with a strong impact, as it was and still is.

Therefore, the objective was to kill the monster and to re-establish the situation prior to the refinery installation, that is to say to come back to Falconara as a small urban centre with an economy essentially linked to the development of seaside tourism.

However, the economic, social and structural transformation imposed by the presence of the oil refinery and by the administration decisions in the last forty years made such an objective very difficult to reach, if not even vain.

The opportunity to start a reduction process of the total impact of api in Falconara arose when the company had to undergo a deep reorganisation imposed by a Law of 1989 which fixed the objective to reduce sulphur trioxide emissions by 63% within 2003, compared to the 1980 levels.

Consequently, there would have been a sharp reduction of heavy fuels, that is to say rich in sulphur, after the year 2000. This obliged oil refineries to opt for two possible choices.

The first possibility was that of strengthening the refining process in order to obtain products which could better meet the requirements for the quantity of sulphur – a choice that implies the extension of hydrogen plants necessary for the refining cycle and the problem of a considerable quantity of debris to dispose of. The second possibility was to gasify heavy fuels and the refining bottom, using the remaining sulphur as a primary product for other production cycles.

At the same time, Law 9 of 1991 introduced the obligation, for ENEL (the National Utility for electric power production) to buy electric power from private firms. Within this regulatory context, crude oil refining industries were obliged to modify their products, reducing or eliminating the quantity of heavy fuels, and at the same time they could start to produce electric power to be sold to ENEL, thus recovering some of the reorganisation investments.

The type of reorganisation chosen by api refinery of Falconara has been that of adopting an innovative technology which implies an integrated cycle of gasification-co-generation called IGCC (Integrated Gasification and Combined Combustion).

This technology allows to integrate the gasification process of a highly polluting heavy fuel (coke or refining debris) and to exploit the synthesis gas obtained, purified of all the polluting substances (that can be totally used as commercial products) in a turbine in order to generate electric power.

Within this reorganisation process, api had elaborated a plan called “Safety, Energy, Environment” which concerned a set of interventions for the reduction of the environmental impact and the refinery safety. This plan was started in 1991 and received all the authorisations in July 1994; it implied the participation of the competent administrations and brought to a set of provisions to be respected by api in the implementation of the reorganising interventions.

From a merely formal point of view everything was fine. However, the social consensus was still missing, also because during this process api did not give much space to the participation of the social actors operating on the territory.

Legambiente intervened in this situation, not only to fill this gap and to start an information process, but also to push the company to introduce some further improvements in its environmental performances.

This in order to minimise the environmental impact on the territory and the social impact due to its strong presence.

Therefore, the role played by Legambiente has been to promote a change in the logic of “we must do” into the more correct and effective “do together” and this has brought to three different conventions signed by api with union organisations, the Municipality of Falconara and with Legambiente.

These are different conventions which nevertheless form a single strategy aiming at opening the company towards the territory it operates in and to carry out a responsible and transparent

management of corporate activities; in all these three cases there has been the active role of the “control authorities” external to the company which ensured the interests of the whole community.

In 1996 Legambiente signed a protocol of agreement with api, a company that for its products and cycles had always had a strong external impact and with which the local groups of Legambiente had always had a relationship of fighting and disputes instead of a collaborative one.

Despite these preliminary conditions, Api and Legambiente have established a different relationship, no more based on ideological contrasts but on the possibility to collaborate, with some big efforts from both sides towards a form of dialogue, that was made possible also thanks to a more responsible attitude shown by api.

This protocol (see appendix) establishes five fundamental points:

- Voluntary reduction of the global SO₂ and NO_x emissions in the entire refining system beyond the limits already fixed by the Ministry for Environment, from 5.700 to 5.400 ton/year and from 1.200 to 1.100 ton/year respectively for the two polluting substances;
- Intervention for a reduction in cases of peak concentrations of SO₂;
- elaboration of the annual report on environment starting from 1998;
- Annual forum on environment;
- Study on procedures and implementation of an emergency intervention system on sea in case of crude oil leakages during the transfer from oil tankers to refinery reservoirs.

What is the sense of this report and why has this choice been adopted?

Certainly Api and Legambiente remain two different subjects with different aims and objectives whose pursuit often leads to eventual opposite choices.

But in this specific case Legambiente has decided to establish this dialogue because it offered two opportunities.

From a specifically technical point of view and in terms of technology innovation this dialogue could lead to a more positive environmental evaluation.

In fact, it has allowed to better know a complex industry and it has offered the possibility to obtain more information in order to verify data, ask for improvements and have a greater control on the meeting of the requirements and objectives presented, with the possibility to constantly adapt and improve the environmental criteria vis-à-vis the direct needs of the territory.

The second opportunity has been a political one. In fact, a general environmental evaluation was obtained, not exclusively linked to the area of Falconara Marittima, but to the whole country.

In this way, a concrete experience has been obtained which can be exported to other industrial situations.

The correct and active relationship established with api of Falconara shows that technology innovation and sustainable development – a challenge for the entire industrial system - can be compatible in a transparent and participation process.

PROTOCOL OF AGREEMENT

BETWEEN LEGAMBIENTE AND API FOR THE INSTALLATION OF AN IGCC PLANT IN api REFINERY OF FALCONARA MARITTIMA

BETWEEN

LEGAMBIENTE, based in Rome, Via Salaria, 402 (hereafter called **LEGAMBIENTE**)

AND

Api refinery of Ancona S.p.A., based in Rome, Corso d'Italia, 6 (hereafter called **api**)

Both of them called **PARTIES**,

CONSIDERING THAT

The project **api energy** for the installation of an integrated plant for gasification – combined cycle of 260 Mw in api refinery of Falconara Marittima has risen a large debate within the local community for the type and complexity of the problems deriving from the application of a technology considered as highly innovative and environmentally advanced by international experts.

In particular, the integrated gasification – combined cycle plant will bring to a 27% reduction of air emissions of the entire refinery, it will allow for the total disposal – without dispersion in the environment – of the heavy bottom of the refining cycle which contains potentially polluting metals, thus contributing to a sharp reduction of the air emissions from the industrial sites of the Marches region and from the entire refinery hinterland, and it will provide clean electric power that will reduce the electric power deficit of about 30% in the Marches Region without altering its environmental conditions.

LEGAMBIENTE is aware of the environmental advantages that can be usually obtained thanks to such a technology. However, it has been necessary for them to ask for detailed explanations about the environmental impact caused by the interaction between the plant and the existing refinery in order to assess the compatibility of the entire installation with the surrounding social tissue.

Api has underlined its firm conviction that the positive results of VIA (Environmental Impact Evaluation) preliminary investigation carried out by the Ministry for the Environment – that was concluded with the Decree of “positive judgement” pronounced on April 22 1994 – are the fruit of some accurate assessments carried out by the Authorities which authorised the installation of the plant; **api** has agreed to examine more in depth a certain number of issues proposed by **LEGAMBIENTE** concerning the improvement of the environmental situation after the installation of the plant.

In fact, this is considered as an important occasion for the development of knowledge and know-how in the area of Falconara Marittima, an opportunity to promote a widespread growing culture for

the environment safeguard and life quality.

The close and constructive dialogue between the **PARTIES** has allowed on one hand to clarify the development perspectives and the industrial strategies of the refinery and, on the other hand, to rise some different and interesting proposals aiming at further consolidating the improving effects that can be obtained both for the environment and for employment thanks to the starting of operation of the plant.

Furthermore, following the considerable investments for the isomerization of light petrols, which can highly contribute to reduce the benzene and aromatics percentage in commercial petrols, since June 1st 1996 the refinery of Falconara Marittima has produced unleaded petrol exclusively with a percentage of benzene below 1%, about three years in advance on the dates fixed by the Ministry for the Environment.

Since this date, **api** has delivered such a petrol to all its gas stations and those of third companies of the hinterland (the whole Marches Region, part of Umbria and Abruzzi and large areas of Emilia Romagna) in order to give its contribution to the reduction of polluting emissions caused by urban and extraurban traffic.

api, for its part, has already stressed how much it is open to a constant dialogue both with Institutions and Associations, as shown by a certain number of initiatives such as meetings and fora carried out in Falconara Marittima, whose aim has been the spreading of data concerning the plant and the entire refinery's emissions; **api** has also stipulated an **Agreement of Programme**, signed on July 24 1996 with the Union Organisations and a **Convention** with the Municipality of Falconara Marittima, that was deliberated by the City Council on October 15 1996.

These two agreements, that are synergic and complementary, regulate the mutual behaviours and fix a set of social engagements for the company that go far beyond the obligations vis-à-vis the Authorities for the safe and environmentally compatible management of the refinery and the new IGCC plant.

Following the debate between the **PARTIES** and the appreciation of the proposals, **api** has declared to voluntarily and autonomously undertake a set of engagements vis-à-vis **LEGAMBIENTE**; these engagements are in line with those already taken after the provisions decided by the Authorities; such a behaviour aims at improving **api**'s relationship with the Associations and the local community, at playing an active and stimulating role in the social, cultural and economic sectors and at providing the correct information on the refinery's management; **api** will also cover the considerable implementation's costs.

Considered the above statements,

IT IS AGREED THAT

api, will confirm the already undertaken engagements vis-à-vis the Ministry for the Environment, the Marches Region and the Municipality of Falconara Marittima, with the different official acts and authorisations (decree VIA, conventions etc.) which also include the reduction of the annual SO₂ emissions concerning the maximum load of the refinery from 7.800 to 5.700 ton/year and the No_x annual emissions from 1.220 to 1.200 ton/year; such obligations will be carried out following the time and methods already agreed upon; **api** will also undertake further engagements in the environment sector.

LEGAMBIENTE expresses its satisfaction for the positive results of the dialogue; it has verified that the engagements undertaken by **api** in order to carry out the actions of its competence are in line with the orientation of the demands **LEGAMBIENTE MARCHE** expressed to Local Authorities on May 21 1996 on the matter in question; **LEGAMBIENTE** expresses a positive judgement on the environmental aspects of the project, and, at the same time, it asks **api** to undertake some further efforts to reduce, as much as possible, SO₂ and No_x emissions in the refinery after the starting of operation of the new IGCC plant.

Reduction of the refinery emissions

api, after a large and open debate, which examined all the aspects of an innovative exchange between environmentalists and industrial operators, hopes that the economic engagements it has independently undertaken for the general interest will be appreciated, and this within the framework of a constructive dialogue and a reciprocal recognition of the objective efficacy of a relationship without prejudices and suspicions. **api** will engage to carry out some further efforts for the self-regulation of the total emissions' management after the starting of operation of the IGCC plant and the closing down of the existing thermoelectric station, thus undertaking every possible effort to further reduce the maximum quantities of annual emissions as follows:

- SO₂ emissions further reduction from 5.700 to 5.400 ton/year
- No_x emissions further reduction from 1.200 to 1.100 ton/year

Furthermore, starting from the beginning of operation of the IGCC plant, **api** - in order to prevent peaks of sulphur dioxide concentrations - will engage to immediately intervene on the boilers fired with fuels containing a high percentage of sulphur, temporarily changing the mix of firing with a higher percentage of fuels with a lower degree of sulphur as soon as the control stations will signal the exceeding of the value of 20 µg/mc average per hour of sulphur dioxide, until the end of the critical phase detected by the same monitoring stations.

Eco-audit

Accordingly to its strategies for an ongoing improvement of the results in the sectors of safety and environment and for the ongoing consolidation of the objectives of environmental protection within its corporate mission, **api** will independently engage to write an annual Report on the Environment, starting from 1998, on the refinery of Falconara Marittima; this Report will contain objectives, action programmes, adoption of the most suitable systems for the environmental control, results whose aim is to provide a complete and significant review for what concerns the environment protection and safeguard as well as to develop and consolidate **api** eco-management and eco-audit programmes.

Annual Forum on Environment

Furthermore, **api** agrees on the opportunity to organise an Annual Forum on Environment, together with **LEGAMBIENTE** and in collaboration with national and local Administrations, in order to formally establish an occasion of exchange and study; this forum will be held in Falconara Marittima and will aim at establishing the state of the art on environment protection, on the relationship between environment and enterprises and on the issues of social and environmental

safety in industrial activities, in the light of the development of new advanced technologies from an environmental point of view and of the pilot experiences carried out by **api** in environment enhancement and recovery.

Finally, api will engage to examine the possibility of using watercrafts for the recuperation of possible accidental leakages of hydrocarbons that could take place during the poring of products on sea.

LEGAMBENTE

api S.p.A.

signed Francesco Ferrante, Director general

signed Clemente Napolitano, director general

signed Luigi Quarchioni, president of Legambiente Marche signed Giovanni Saronne, director of the refinery

Falconara Marittima (AN), December 16 1996

State of the Art of the Engagements According to the Protocol of Agreement api-Legambiente

Activities	1° phase project	2° phase works	Results	Annotations	End of works
Further SO ₂ reduction		underway	20 billions have been invested. This will allow to obtain, by 1998 and with a two-year advance, the objective of 5700 ton/year of total emissions. The second phase will end with the starting of operation of the IGCC and the closing down of the thermoelectric station, thus reaching a further reduction until the level of 5400 ton/year prescribed by the convention.	Confirmed in the year 2000 the objective of 5400 ton/year of emissions	31-12-2000
Further No _x reduction	-	underway			31-12-1998
Reduction of the chlorine used in the cooling system	carried out	underway	A study has been carried out to reduce chlorine concentration in normal environmental conditions with a possible rising until the limits fixed by the law only when necessary	The concentration level is within the limits fixed by the law	
Report on the Environment	carried out	underway	The models have been built, the environmental indexes have been identified, the data collection for 1998 has started; this will be the year "0" of reference for the following measurements.	First version of the Report on Environment. April 1999	30-4-99
Forum on the Environment	carried out				Annual activity
Study for the emergency intervention on sea	carried out		the research on the market has just been carried out. The possible alternative systems are being evaluated. By the end of July the experimentation on the chosen system will be started.		