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The role of manufacturing in sustainable development

Good evening everybody. Before delving into the issue before us today, I wanted to assure the Councillor, while he is still here, that the likelihood is good that State aid will be available for green products, and it is before Chigi palace (Council of Ministers) at this moment, and it is the temporary framework for state aids which will raise the “de minimis” threshold to half a million Euro for enterprises oriented towards green and environmentally-friendly products; therefore what is required, through the undersecretary and through President Formigoni, is to press the Government to adopt this temporary framework which the Commission itself has recently been promoting. Forgive me if I begin on this point of information, but I think that it’s not inappropriate to raise such matters here.

As I am an entrepreneur involved in the production of paints, I have been made aware of the environmental issue since I began production. Since I was with Confindustria (the Italian Manufacturers’ Association), I have dealt with environmental issues and recently, with this delegation to Europe, the last six months of 2008 were devoted exclusively to the theme of emissions trading; therefore I have been involved primarily in emissions trading and global warming. Hence I’m in a position to go beyond the protocols of Confindustria, so to speak, and to offer some unconstrained reflections on the themes you have discussed, declaring at the outset that I believe strongly that enterprises are genuine engines of change. This has been the case in relation to all environmental issues, and since I was a young entrepreneur (when even Fiorenzo was a young entrepreneur) the work of the Brundtland commission partly inspired our own work, in particular the idea that technological innovation itself can result in the de-materialisation of the economy and enable us to engage in production using less energy and fewer raw materials, therefore with a reduced environmental impact. Sustainable development, therefore, has been our guiding light and ever since then – it’s somewhat old hat to those who were around in 1987 - it has been the correct attitude to take towards the environment, seen in the cold light of day. This very phrase “the cold light of day” is what most appealed to me about the initiative of Fiorenzo and of the Museum and of all the friends, because what does this mean, the idea of looking at this red-hot issue in the cold light of day? It means identifying parameters for measuring these phenomena to guide policies, attitudes and ways of tackling a problem which will not go away. In recent years we have invited the Nobel Laureate Krutzen to the Science Festival of Bergamo mentioned earlier, as well as Lomborg, and all of those “in the middle”, thus we have had a truly diverse range of opinions; to date, absolutely nobody has yet managed to prove to my satisfaction why we would benefit by emitting more greenhouse gasses; there are different opinions on the causes of climate change, but I think we are all in agreement on the answer to the question whether it is more or less beneficial to emit greenhouse gasses. Starting with this assumption, for me the three important parameters at this time are: carbon productivity, hence the relationship between GDP and emissions, then the controversial measurement known as energy return on investment (EROI), which essentially means the amount of energy consumed in order to obtain energy from another source, and the topic that has monopolised public debate last year throughout Europe - the mythic CO₂ abatement cost curve devised by Mc Kinsey which we have seen in England, in Germany and has been recently promoted by Confindustria and by Enel (Italian National Electricity Board) in Italy, where the x-axis shows the potential for abatement in tons of CO₂ and the cost in Euro in tons of CO₂ abated. Carbon productivity: a simple joke to illustrate the problem is the following: if I had to cut off an arm in order to lose weight, this would be a problem, objective-speaking, even though I would weigh less on the weighing scales; a similar concept underlies carbon productivity: we could easily achieve the objective of eliminating emissions if we halted all activities, but that is not how the system works, for the country would stop creating wealth and value. Our objective as an economic and scientific community, also indicated by the European Commission, is to cut carbon emissions by 50% from 1990 by the year 2050, and I trust that this too has been the presupposition this morning. To achieve this objective - and looking at carbon productivity, and therefore the GDP/carbon emissions ratio, progress cannot be by way of natural acceleration (it is estimated that productivity – so-called carbon productivity – would improve by around 1% each year) - it is necessary to go as high as 5% to 7% if global warming is to be contained within +2° C in 2050 for the whole planet in reference to current values. To achieve this acceleration in productivity, there

are quasi-market phenomena such as the pressure exerted by consumers, who will demand products with lower impact in terms of emissions, there will be new models in the production chain targeting the prevention of unnecessary emissions along the value chain, and then there are undoubtedly public policies applicable on different levels which have the effect of reinforcing particular kinds of behaviour by consumers and enterprises. All of these activities which can reduce emissions without cost or with little cost, or which benefit from public aids, are to be considered growth markets and, as such, opportunities for enterprises; current automobile advertisements reveal that no-one is advertising low-emissions SUV vehicles for cities, but everyone promoting vehicles that operate on methane. Therefore the strategy reflects a market in a state of growth and it is crucial to grasp this opportunity, just as it has been important in the past to grasp the opportunities afforded by the dematerialisation of the economy. The producer of paints will tell you that to varnish a parquet floor up to twenty years ago you needed 200 gr, the houses smelt of solvent and there were considerable problems of maintenance; today however we produce already-finished products, UV dessication, not a single gram of volatile organic compound in the atmosphere, and the floor is much more resistant: this is the meaning of eco-efficiency applied to this case.

The concept of energy return on investment has come back - that very useful EROI parameter. In pre-industrial societies, briefly, the quantity of energy utilisable by a particular source barely exceeded the energy expended in obtaining that source, leaving a small surplus. This concept is still applied today, and it is useful because every so often unconventional ideas surface - do you remember the fine book by Rifkin on the hydrogen economy? But no-one has ever shown how much it costs to produce hydrogen in energy terms. Every so often someone comes along with the idea of making electric machines and charging them by using the electric current at home, but forgetting how much it costs, how much energy I am deviating in order to obtain it. Therefore using the EROI index seems a highly rational step to me, and given our current experience with industrialisation and the use of fossil fuels, this index has now possibly come into its own, because we have had an extraordinary energy yield or surplus over the last 150 years; this EROI is at its peak because today it costs little to produce other energies. If we look around, we discover that two years ago in the city of Abu Dhabi, two years ago an investment of 15 billion dollars was announced for Masdar, the completely solar city that the insiders certainly know ; this fund was created precisely with a view to investment exclusively in renewable and sustainable technologies, and one might well ask: how can this type of investment be made in the most oil-rich country in the world? However, it's inescapable that the time to invest significantly in finding an alternative to the current energy source is precisely when we have such a surplus, because in a future emergency, when there will be no more fossil fuels, these decisions will be much more difficult and traumatic.

These three parameters, for me, represent a cold and rational approach to these problems. Within this conceptual framework, four guidelines are set out for the international climate accord, to be concluded later this year, which will apply to the industrial world as a whole. This is also a good opportunity to say that the media have always confused us with those who were against emissions trading within the European framework. In reality no-one ever disputed the objectives of emissions trading, only the method used; but it is much easier to say: 'those industries emit CO₂, now they're trying to evade their obligations', but it wasn't like that. The intellectual framework is more or less the one I have generally described so far, involving four guidelines: first, that the problem is global and therefore all the world economies must be mobilised to reduce emissions: this is the problem for Copenhagen and is presently being tackled by Obama; second, that a level playing field is required for industry - equal competition throughout the world; third, that market mechanisms exist which can better ensure the process of technological transfer to less developed countries; fourth, that it is necessary to invest significant resources in technologies and in research.

Now I will briefly show you some slides to help get my message across. This is the development of energy demand as presented by the World Energy Outlook 2006, and represents a movement in the use of energy sources: why to I show this to you? Because the issue of greenhouse gas emissions is so closely connected with the energy problem that it is easy to forget that the issue of energy emissions represents the underlying, consistent subtext.

The next slide is of a graph which, like the first one, speaks for itself: the malign red line of an economy undergoing extraordinary development, namely China: see how many tons of CO₂ this country will emit over the coming years. I prefer the next slide: the current situation. The data are in millions of tons, it shows us where Europe stands in relation to the rest of the world. The situation in 2005 is in blue, the red represents the situation of zero intervention to reduce emissions, the green represents the ultimate aim of achieving two tons per person. Two tons per person is more or less the amount of CO₂ consumed on a return trip Brussels - New York; but the most noticeable thing is this: that Europe shows a 12.5% increase from 4000 to 4500, China from 5100 to 11400, India 1100 to 3300, or 200%; the USA itself, if it does nothing, will register an increase of 24% for the type of energy production they have.

Therefore we ask the following questions in light of the above: firstly, in relation to the idea of 2 tons

per person, what will the planet's population be in 2050? 9 or 10 or 8 billion? Why do I say this? Because all our environmental problems are linked, and to omit from consideration the increase in world population when discussing the future of our planet seems rash; family planning in some parts of the world could prove as crucial as the reduction in greenhouse gas emissions. And as well as CO₂, as we saw in the fine film earlier, we have the nitrogen-based fertilisers we no longer wish to mention, I don't know why; water stress, why is this not also on the table? All the infections, the diseases of which the world is full, and especially Africa.

We once had Cesare Marchetti with us at the Science Festival of Bergamo : a great physician, a somewhat provocative elderly gentleman who at one point said: "Basically we have three key problems: food, energy and raw materials. They can be resolved using GMOs, nuclear energy and recycling, therefore I anticipate a very rosy future for humanity." It was particularly gratifying to hear this enunciated by an elderly man, for it's more likely that a person who reaches a certain age does not feel the problem as intensely as we do, however I believe that we must reply to these provocative thoughts and in particular those of Lomborg, who said: "With the money spent to save a single person, we could - through indirect climate policies - save 36,000 persons from malaria with just one direct intervention annually: the important thing is to choose and set priorities". The theme is a global one, however, and we have repeated this; nor can cost benefit analyses regarding the other environmental questions be neglected, after that it is for each person to make his or her choice, and democracy should facilitate this.

The second theme is what you see in this chart: that Europe, as in other environmental themes, has concentrated on industry, because it is easy to do so: we go to the steelworks, to heating plants and so on and we measure CO₂ and we say "you must reduce them!" This is much easier than going around telling people not to drive cars any more, or to heat their homes less – this is a whole sector classified as "not subject to greenhouse gas regulations".

But what this graph shows is something more: the red lines above the rectangles show that European industry has been most virtuous in recent years, from 1981 to 2005: in effect, the red shows that energy consumption, despite increased output – showing at the top of the rectangle - has been constant if not reduced, but this is not the case for North America or South Asia or China. Therefore to devise a mechanism such as the ETS only for Europe seems to us to be misguided, also because of the infamous issue of "carbon leakage", which essentially means that if you own or are shareholders in a cement factory in Calabria and they make you pay for CO₂ emissions, and you then decide to close up and relocate to North Africa, Egypt or another country, you not have solved the environmental problem but simply created a bigger one, therefore the mechanism is a perverse one when limited to Europe. On this theme, Italian industry has succeeded in forming a coalition with the whole of European industry, by demonstrating these kinds of figures, therefore we should show other countries how to go about reducing CO₂ emissions, yet the real challenge has been to come up with mechanism for the market – which we will speak further about - that actually works to produce the relevant limitation. We, however, uphold the benchmark idea, and believe it should be equal for all throughout the world: the benchmark is established, namely the maximum possible level of emissions reduction in the current state of technology: whoever achieves the best result in relation to this benchmark gains credits and will invest in even lower emissions; but whoever achieves a poor result will be given incentives to achieve it; the benchmark system is the right system, and it has been promoted by countries that are finely attuned to environmental questions – countries such as Denmark.

On the other hand – and we pass to the third theme - this graph tells us that our emissions in Europe are much lower than other countries.

You know that the choice of politicians is either to apply a carbon tax, or a tax on emissions, or to apply a cap-and-trade: the latter is the mechanism adopted by Europe, which fixes a cap on emissions and encourages trading in emissions permits.

In the first case the cost or tax is fixed, and the emission levels fluctuate. In the second case the emission levels are fixed and the value of the permit to emit CO₂ fluctuates. The 20-20-20 you have heard about was a choice of the second kind. The Ministry for the Environment issued an important document around last September which said – and numbers are important here – that compliance with the 20-20-20 objective as it was, would have cost Italy from 23 to 27 billion Euro. At this point, the position of European manufacturing is encouraging in its view that emissions permits, in compliance with objectives, should be allocated for free on a benchmarked basis, namely based on the best available technology. We have proposed – in contrast to what Obama terms the 'Wall Street' of emissions trading - the Main Street of industry, technological innovation, research, genuine environmental protection, and we have also sought flexibility in market mechanisms to ensure that they are consistent with the global nature of the problem.

This is the famous cost curve I was talking about. The x-axis represents the potential quantities of CO₂ which can be saved annually, against the cost per ton in Euro. Over these few months, there is one thing I have not managed to understand : how is that we have all been concentrating on

inventing the 'Wall Street' of emissions trading when – and today it's not hard to play to the crowd here - there is always be people who will enrich themselves without doing a thing, and why, despite these curves which demonstrate that certain technologies exist which can be produced with negative costs, why have we not all been concentrating on these, and on the McKinsey graphs which demonstrate the position at the level of the nation, the continent, the individual enterprise: let's invest here ! let us spell out this approach, which Bruntland would have referred to twenty years ago as eco-efficiency.

We should respond to another provocative thought of Lomborg: "each nation should devote 0.05% of its GDP to the exploration of 0-carbon emissions technologies", this would cost 25 billion dollars per annum which, compared with the 25 billion Euro which the Ministry for the Environment envisages for Italy annually, might make one sit up and take note, he applies this to the whole planet, one seventh of the cost of the Kyoto protocol.

I will mention one more set of figures. Al Gore, in his fascinating presentations says: "we need 6 thousand billion dollars to solve the problem of global warming". The figure of six thousand billion dollars should be compared with the three thousand billion dollar figure applied by the Federal Reserve to solve the financial crisis. To make this kind of comparison is genuinely shocking...I will conclude by adverting to four issues: first, the scale of intervention for the world of industry and the opportunities for industry is at a global level, and we have seen that the sector primarily implicated is the energy sector, therefore it is necessary to measure the EROI, or indeed to measure something else, but one must try and understand our ability to create other energy sources, because the fossil fuels we have used to date are no more than batteries created by solar energy over so many millions of years, and we are using them up. We must invent something new and understand what technologies should be invested in; but I believe that everyone is more open to dusting off the nuclear theme, precisely as a result of the CO₂ issue; much interest has been generated in the so-called CCS for the capture of CO₂ (which does not greatly interest me from a technological point of view, but the technology is said to cost little and to be available, so let's use it), there are the renewables which will increase in efficiency and productivity. But let us, above all, be more efficient; for a whole year now, a manual has been available on the Confindustria website, but no-one has looked at it: it is on how to save energy in our factories and houses: it's enough to be told that electric engines can reduce energy consumption to astonishing levels, and hence CO₂ emission levels, for us to realise what can be done on a daily basis to achieve this, and in the final analysis, the political framework that should be adopted - and I think this is relevant to the theme of this round table - should always, if possible, be one that incentivizes behaviour rather than penalises it through suppression. Thank you.