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Conversation with Roberto Cingolani

This issue of "Aspenia international" revolves around the power struggle between the United States and the People's Republic of China. As China's ambitions evolve and as President Biden presses ahead with his agenda, a sort of extreme competition is emerging, leading to a partial decoupling between the giants. Neither country can truly, completely distance itself from the other, so the economies are locked together, gaining advantage where they can. That competition is particularly intense with regard to new technologies – a sort of battle between techno-authoritarianism and techno-democracy. Given those different approaches, and given the global impact of the Covid-19 pandemic – both in economic and in social terms – the world may well emerge from the battle with no clear winner. We stand today at the dawn of a sort of "cold peace", as the title of this issue suggests.

Extreme competition, however, does not preclude the need for cooperation in specific areas, starting with the environment. China, the United States and Europe are increasingly focused on the energy transition, and on how to make it sustainable. Much of the developing world too – due to suffer the worst effects of climate change – are joining the fight. Technologies are clearly strategic here, and the race is on to meet the zero emissions goals without sacrificing growth.

In this context, we were lucky to discuss the hopes and prospects for a clean energy future with an Italian expert – physicist, founder of Italy's Institute of Technology in Genoa and Minister for Ecological Transition in the current Draghi government.

DASSÙ. *Minister Cingolani, Italy – and Europe – are committed to reducing their carbon dioxide emissions by 55% in comparison to 1990 levels by 2030, the ultimate goal being to achieve total decarbonization by 2050. These are ambitious scenarios that demand a series of consistent choices in the technological, economic and geopolitical fields if they are to be achieved. Let us begin with technology, which also happens to be your own personal area of expertise. I was struck by an International Energy Agency report suggesting that the development of renewable energy in the medium term is going to rely largely on technologies that we do not yet have. So is our plan not a little over optimistic?*

CINGOLANI. Well in the meantime we are introducing those changes that can be made with the technologies that we do have, after which we shall seize whatever new opportunities are inevitably bound to present themselves. I say this because technological development moves forward by "disruptive" leaps that are difficult to predict yet have a revolutionary impact. The important thing for economic systems and decision-making processes is that we move forward in a pragmatic manner with all necessary flexibility.

Applying that approach to energy transition, this means, for a start, that we need to electrify everything we possibly can, from cars and trains to blast furnaces and manufacturing. The technologies are already available and we need to pick what low-hanging fruit we can find.

Over the next two decades, we will be changing our energy mix on the basis of a process that is already under way. The goal that we need to aim for, of course, is increasingly widespread use of sources that are totally or almost totally decarbonized with very low or even zero emissions. I am talking about wind power and photovoltaic energy to power batteries and grids. But we also know that we are going to have to combine renewable energy with stable sources, so we are going to need gas as a transitional source of energy. According to the forecasts we are working on, about one-third of our electricity output is going to continue to be sourced from gas or from an energy source capable of stabilizing the system. And we are also going to need a smart grid capable of managing that mix, but we do not have one yet.
This is the outlook for the next 10 to 15 years of what we might call "technological invariance". But after that, new paths are going to open up with other technologies, such as hydrogen. Hydrogen, indeed, is rightly triggering huge expectations, but its cost is not yet competitive.

There is an important distinction that we need to make in order to truly understand the goals we have set ourselves with the energy transition. We are not talking about totally eliminating carbon dioxide emissions in absolute terms because that would be unrealistic; we are talking about eliminating net emissions. In other words, we aim to achieve a zero balance between what we emit and what we eliminate.
You are right, we need to be quite clear about that. We cannot achieve 0% emissions, or at least we are not capable of achieving that now. But it is crucial to compensate the emissions that inevitably are going to be produced with an equivalent level of elimination. The important thing here is primarily that the many possible solutions obey the principle of "neutrality". Even planting trees is a form of "carbon capture", after all.

We need to adopt a balanced approach. Of course there are landscape constraints, especially in a country such as Italy. Of course there is a principle of economic rationality. And of course we need to assess the social impact of the choices we are making. Energy transition will be successful if it takes all of that into account. Sectors such as the manufacturing, concrete and steel industries provide jobs for millions of people. We certainly cannot envision shutting them down simply because they are high energy consumers. In a nutshell, what we are going to need is a thoroughly pragmatic approach in our management of the green transition. Explicit goals must be set and they must become part of our national responsibility. But the way we achieve those goals is going to have to be flexible, as indeed the European Commission has readily acknowledged, with analyses based on extremely meticulous technical study.

Getting back to the energy mix and to the principle of "technological neutrality", France is suggesting that small nuclear reactors be listed among the green sources for European investment purposes. What is your view? Is it a possibility that would change the energy industry's competitive scenario?

First of all, we should define exactly what we mean by a nuclear microreactor. It is, in effect, comparable to a ship's engine or to a container yet it produces hundreds of megawatts of energy. When we talk about microreactors, it is a definition that we can certainly apply to a very small physical plant, thus a plant that is simpler to use, in theory, than some of the completely green technologies. But we are certainly not talking about a "small" power station in terms of its output.

It is common knowledge that France has had a nuclear policy based on large, high-cost and potentially high-risk power stations, in addition to which there is the problem of eliminating radioactive waste. So for France,

microreactors make sense. But aside from France, there are about ten other EU member states (especially from Central and Eastern Europe) that are interested in moving in that direction. It is still an open debate, but such a choice would unquestionably have a major impact on Europe's Green New Deal scenario.

Let us turn from the technological side to the social and economic aspects. The struggle against climate change is still coming up against a basic underlying obstacle – namely food production (and meat production in particular). This continues to be one of the worst sources of pollution and it demands a change of lifestyle, not simply a technological solution. Are we going to succeed in making such a change?

You are right, the entire food production chain – not just meat – is based on a kind of global paradox. Roughly one-third of all food produced in the wealthier countries is wasted, and diabetes and obesity kill far more people than road accidents. Livestock farming robs farmers of land for growing crops, and its use of water, a primary yet scarce resource in global terms, is highly inefficient. At the same time, hunger and drought still affect significant swathes of the world's population. The picture is clearly distorted, yet we cannot seem to correct it and this distortion has a social as well as an environmental impact.

Indeed, it is a very depressing picture if we look at it in terms of the efficient use of resources. I would like to point out, however, that Italy is a model of virtue in this regard, not just because it occupies a position of global excellence in both animal husbandry and agriculture but also because it offers a particularly well-balanced nutrition and food consumption model. There is always room for improvement, of course, which is why I am working with a number of professional associations to see if we can help our country to

make a further quantum leap. It is not just a matter of lifestyle, in the end; it is a question of combining our behavior, our regulatory environment and technology in an intelligent manner.

You recently said that sustainability is always a compromise, adding that we cannot defend the environment with de-growth. How is it possible to combine economic growth with the struggle against climate change? In other words, the energy transition is extremely costly in any case. And while the development of the economy needs to become sustainable in environmental terms, energy transition needs to be sustainable from an economic standpoint too.

Yes, reconciling different pressures is a problem that has beset homo sapiens from time immemorial. Today we might put it this way: Can we turn green without ending up skint? As you pointed out, the energy transition comes at an enormous cost, and we should be aware of that. That is why I think that it is necessary to mediate; it is totally unrealistic to argue that the cost of transition should be economic de-growth.

Such constraints become even more important if we are talking in global terms. The concept of sustainability is, of course, difficult to apply across the board to a planet with a population of 8 billion and widespread inequality. We have created a seriously unbalanced economic model: roughly 3 billion people around the world still lack access to electricity while we in industrially advanced nations take power for granted, and are now talking about "the right to be digitally connected".

This global situation requires a major effort in terms of redistribution and of the construction of infrastructures. That is where we encounter obvious hurdles, because investing in infrastructure and economic growth goals is to some extent at variance with our sustainability and decarbonization goals. Several developing countries are laying claim to their right to growth and they have no

environmental policy. They need to be helped with financial transfers, as we pledged to do at the G20. When we look at the problem on a global scale, we actually see two different visions of what sustainability entails.

I would also add that it is far more difficult to implement the environmental transition in countries that are coming from years of low growth. In short, we need to shelve ideology and take into consideration all the parameters involved in the planet's existence, not just those that we might call thermodynamic but also the economic and social parameters relating to the requirements of growth, income and jobs.

Let us now look more specifically at the case of Italy. Are investments in the National Recovery and Resilience Plan going to be sufficient to achieve the energy transition? It is common knowledge that the investments in question are quite considerable, accounting for over 30% of the European Next Generation EU funds allotted to Italy. Are we going to manage to use them efficiently? And what are the crucial programs? The idea is to install 70 gigawatts of power for the production of energy from renewable sources by 2030. Are we setting ourselves credible targets?

First of all, in order to get the National Plan into proper perspective, we need to understand that it is not going to be possible to support all of Italy's energy transition projects with European funding. National funding is going to come into play as well, and of course the effort made by the country as a whole is also going to count. Italy has identified its primary strategic goals, such as empowering the agrifood chain, developing a "smart grid", and improving battery-recharging infrastructure ahead of the necessary transition to electric mobility.

At this juncture, we know what we want: new infrastructure, protection of our natural environment and electric mobility. But where mobility is con-

cerned, for example, it is obvious that the transition will not happen in the space of a year or two. The average Italian certainly cannot shell out 30,000 euro for a car that normally costs 15,000. It is a race that is just starting now and that is going to take thirty years. The Plan covers the initial effort, the first five or six years perhaps.

The general goal is to install 70 GW of energy from renewable sources by 2030. That means that roughly 70% of electricity generated is going to have to come from renewable sources, which is far more than is currently the case. It is an ambitious goal, given that we have installed only 0.8 GW so far; but it is reasonable nevertheless and it can be achieved on condition that we unfreeze a system that is still suffering from a number of paralyzing constraints. Above all, it is a necessary goal if we are to achieve a 55% reduction in emissions compared to 1990 by 2030. The real challenge lies in putting in place a mechanism capable of persuading Italian firms to bid, and thus take part in the competition. We should remember that the latest calls for tender for renewable energy attracted very little participation compared to what we have seen in Spain or in the United Kingdom. In short, we need to develop the right incentives and cut through the red tape in order to allow our private sector to operate. The National Recovery and Resilience Plan, with the reforms and investments that it contains, needs to create an environment capable of fueling our businesses' dynamism.

In this connection, when discussing the "systemic" hurdles that exist in Italy, you mentioned an acceleration law. What does that mean exactly? And is it going to be necessary to resort to choices akin to those adopted in the famous "Genoa model", so successful following the Morandi bridge collapse?

The reason major businesses have been loath to stick their necks out in recent years is clearly the chain of red tape they come up against: the process

takes far too long and fails to provide administrative certainty. That is why I envisage a law focusing on speeding up the process rather than merely simplifying it. It is a matter of removing bureaucratic obstacles, not a purely technical issue. The method adopted in Genoa after the Morandi bridge collapsed was an emergency model in the wake of a horrendous catastrophe that paralyzed one of Italy's most important cities by splitting it in two. We emerged from that pathological situation efficiently, but we should not think of the future only on the basis of an emergency rationale. We needs laws that allow us to work effectively on public infrastructure with rapid and guaranteed timeframes. Having said that, we know that the Genoa model exists, if it were ever to become truly necessary to fall back on it.

Let us now turn to the major geopolitical issues associated with the energy transition. We mentioned earlier that in order to achieve the environmental targets approved in Paris, it is crucial that we have the active cooperation of the less developed economies – these, to date, have traditionally polluted little. Even Europe currently accounts for only 9% of the world's emissions. Also, ahead of next fall's COP26, which is due to be co-chaired by the United Kingdom and Italy, two crucial problems arise: the accord that we need to thrash out with China, which produces far more emissions than any other country in the world and which has adopted the national goal of achieving climate neutrality by 2060; and the accord that we need to thrash out with the United States, with which we are going to have to debate the mechanism that Europe has proposed – namely, a carbon adjustment tax. This is a mechanism designed to forestall one of the risks involved in the energy transition, which is reduced competitiveness for the West's energy companies. But it also entails the risk of protectionistic tensions. How are we going to handle those two dilemmas?

On the international level, Italy shoulders major responsibilities with regard to the energy transition. But those responsibilities also open up a window of opportunity for our country. We currently hold the G20 presidency and we will co-chair COP26, so Italy will be able to play an important role, a driving role; this, among other reasons, because France and Germany are both beset by domestic political uncertainty in the run-up to these two appointments. Italy's central role in a year that looks set to be crucial for negotiations on the energy transition has been acknowledged by Commission Vice President Frans Timmermans and by President Biden's special envoy for the climate, John Kerry.

Italy needs to develop a position capable of fostering a multilateral consensus on the basis of a constructive global vision. Our position needs to be based on the credibility of our national environmental transition programs within the European context of the Green New Deal. Also, we must set our sights first and foremost on forging an agreement between the European Union and the United States, which is something that can be achieved with the Biden administration.

The border adjustment mechanism is based on a solid rationale that we have begun to discuss with Washington. Essentially, those who produce on the basis of sustainable criteria (with all the attendant costs) must not then be damaged in terms of competitiveness, either as a business or as an end consumer. On the other hand, there is the problem of potential discrimination to the detriment of smaller or poorer countries whom we cannot ask for too many sacrifices, even in the name of the environmental transition.

It is the more vulnerable countries that need to be helped and protected, certainly not China.