



Interview with Laurence Borie-Bancel,
Chair of the CNR Management Board

HYDROELECTRICITY

OPTIMIZING PRODUCTION, SHARING THE RESOURCE

*In an interview with Confrontations Europe, **Laurence Borie-Bancel**, Chair of the CNR Management Board, presents her vision of the role of hydropower in decarbonizing the French electricity mix.*

◆ Compagnie Nationale du Rhône had its concession for management of the Rhône renewed in February 2022. Under this concession, CNR fulfils three missions in the general interest: the production of hydroelectricity; river navigation and agricultural irrigation. Could your organisation be described as a comprehensive water company?

Laurence Borie-Bancel : Our mission on the Rhône is indeed holistic, with solidarity between these three aspects of our work and the fact that we are responsible for managing the Rhône from the Swiss border to the Mediterranean. We are therefore not simply a French hydroelectricity producer but a comprehensive water company. The production of electricity on the river enables us to fund navigation and irrigation. Throughout the history of our concession, the development of a major inland waterway has always been a key goal and the first infrastructure to be built was the Port of Lyon. Thanks to the infrastructure that CNR has built on the Rhône since 1933, it has been able to meet the various needs for water that have arisen, including during the unprecedented drought in 2022. That episode perfectly illustrates the scope of our responsibility within the river basin. Another key aspect of our model is the redistribution of the value created to local communities through which the river passes. It is therefore important for us to be seen as a developer of the river and not solely as an electricity producer.

◆ **In the context of decarbonising the energy mix in France and Europe by 2030, you have stated that hydroelectricity should play a greater role in this major industrial shift. In what ways can the major European river basins support Europe's transformation to carbon neutrality?**

L.B-B.: The Rhône basin supplies a quarter of all hydroelectricity in France. Our run-of-river plants only represent 3GW of installed capacity, out of 25 GW at national level. Power is not the only thing that counts; the energy produced also needs to be taken into account. The Rhône is a powerful river and our plants, stretching over more than 500 km, use every drop of water before returning it to the river. In 2023, production stood at more than 13TWh, contributing to both energy sovereignty and decarbonising the energy mix in France. So yes, I strongly believe that hydroelectricity will be one of the energies of the future, renewable, flexible and controllable, within the European mix.

This is taking concrete form as part of the extension of our concession, with a targeted contractual investment of €500 million (2018 value). This sum is close to €800 million after inflation. The aim is to increase electricity production by around 0.5TWh via the construction of six small hydroelectric plants on the southern part of the Rhône and the project for a 20th facility at the confluence with the Ain. This project, called Rhôneergia, should supply an additional 40MWh from 2033, if the State decides to go ahead with the project and once all the necessary authorisations have been obtained. This will make it the last large-scale facility in France.

Alongside this new infrastructure to increase capacity, we are also continuing to invest in our existing plants, which are an average age of 52 years old. €400 million is allocated to maintaining them in good condition over the period 2021-2024.

◆ **Last year, the Rhône Mediterranean Corsican Water Agency published a worrying report underlining the risk of a 20% reduction in the flow of the Rhône over the next 30 years. How is CNR preparing for the future of hydroelectricity production in the Rhône basin?**

L.B-B.: This 20% reduction in the flow of the Rhône concerns the summer period. The same study indicates that we should benefit from a more than 25% increase in flow in winter compared to the current average. By 2055, the average annual flow of the Rhône is not set to vary significantly, but there will be large variations from one season to the next. Periods of intense drought will become more frequent, in the order of every six years. Droughts are and will remain the primary threat to our hydroelectricity production.

We are currently able to adapt to a certain extent by scheduling the maintenance of our facilities in summer, to ensure maximum availability in winter when demand for electricity is high. Another way in which we adapt is by controlling the entire value chain: although our facilities are designed to be run-of-river, we control them on an intraday basis for greater flexibility (up to 1,000MW of modulation in a day) and to help keep the electricity grid stable.

We cannot manage production on an inter-seasonal basis, however, as it depends on the volume of water in the river and therefore on meteorological conditions. We are aware of this vulnerability and have diversified our production, while keeping it 100% renewable. We already have 1,000MW of power installed in wind farms and solar farms and we aim to increase this to 2,500MW by 2030, throughout France. At the same time, we are also working on battery storage and on the production of renewable hydrogen. And while we do not yet have an advanced STEP project, I think this type of infrastructure is also worth studying.

◆ Is the presence of elected officials in the governance of CNR an advantage, in particular when it comes to making difficult choices as water resources become less available? Is the public/private model a good model for the future?

L.B-B.: I firmly believe that the CNR's model constitutes an undeniable advantage. The investment of 183 local authorities, holding 17% of the capital, creates a vital source of solidarity between areas and dialogue with stakeholders around the river. With the extension of CNR's concession, we have reiterated and strengthened our commitment to the regions: our general interest missions, included in the specifications since 2003, are now supported by a budget of €165 million every five years.

Our actions linked to non-mature renewable energies, agriculture, biodiversity navigation and local development reinforce our ties to local communities. The concession monitoring committees bringing together our stakeholders - local elected officials, MPs, the State and non-profit organisations - are another way of encouraging support for our actions and concerted development. The balance of capital unique to CNR, with a majority public stake - local authorities and Groupe Caisse des Dépôts - and the 49.97% stake held by ENGIE, is a great strength. It confers credibility and legitimacy by representing a diverse range of voices.

◆ **The European Commission is counting on inland waterways for freight transport in the framework of the Trans-European Transport Network. At the same time, the declining flow of major European rivers poses a threat to this same traffic. What action is CNR and the other operators of European river basins taking to ensure the full potential of these ‘river highways’?**

L.B-B.: All European inland waterway operators need to be on board to achieve the goals of the Green Deal, reduce GHG emissions from transport and support the competitiveness of river transport. I support the proposed revision of the Combined Transport Directive, which will consolidate the shift from road freight to mass modes of transport like rail and river. This complementary approach is crucial in the Rhône valley in order to boost river transport, which has seen a significant fall in traffic. Again, this will also contribute to local economies. Today, the major inland waterway between Lyon and the Mediterranean has the capacity to handle four times as much traffic with no new investment, so let's use our rivers!

Within our scope, most of our industrial port sites have rail links and CNR encourages industry to use river freight, with discounts on the rent of plots, for example. A collective effort is also essential between the State, CNR, the Port of Marseille-Fos (GPMM), Voies Navigables de France (the French navigation authority - VNF) and the loading companies.

The Rhône-Saône river basin is less impacted by the effects of climate change than other river basins such as the Rhine or the Po, but the resilience of our port and hydroelectric facilities must be considered.

◆ **Four nuclear power stations are installed on the banks of the Rhône. Nuclear energy is another major source of electricity in the Rhône basin and is also very dependent on water resources. What are relations like between CNR and the nuclear power stations on the Rhône?**

L.B-B.: We have an excellent relationship with EDF, governed by agreements that regulate the supply of water, pumped from the Rhône to cool the nuclear power stations. As part of the Rhônergia project, at the confluence of the Ain and the Rhône, a new form of collaboration is emerging to ensure the compatibility of our hydroelectric project with the project for future EPRs at the Bugey site.

This dialogue between industries and with the authorities is essential. With climate change and the increasing scarcity of water, balancing the needs of nuclear power station cooling systems, hydroelectricity and uses such as irrigation and navigation will become more complicated. The temperature of the water is also a concern. With open-cycle cooling systems constituting 60% of the nuclear facilities on the Rhône, the study by the Water Agency points to their impact on the increasing temperature of the river habitat in the context of climate change.

Faced with these challenges, I would like to highlight the resilience of the CNR model. In summer 2022, we were able to meet the various needs for water despite our hydroelectricity production being down by 25%!

◆ We mentioned the question of conflicts of use, both now and in the future. This is particularly evident in the agricultural sector, which requires a lot of water, with projects for mega-basins, as we have seen. What role does CNR play in adapting farming practices to the increasing scarcity of water?

L.B-B.: Farmland irrigation is one of our three long-standing missions, reflected in the 400 water cranes along the length of the river. We have reviewed this and are innovating in the framework of our general interest missions, in order to provide farmers with greater support in transitioning to more sustainable farming. The farming sector represents half of the water withdrawn in the basin.

CNR has already committed €27 million for 2023-2027 in order to increase the efficiency of the irrigation networks, reinforce farming resilience to climate change and optimise interaction between agriculture and energy. In concrete terms, this is reflected in projects to support 138 farmers in the Rhône Valley, initiatives like the renovation of an irrigation network 70% in the Chomérac plain (Ardèche) and the development of agrivoltaics, with a "Parcelles du futur" (allotments of the future) demonstrator in Lyon. Like our other activities, we are carrying out this work in partnership, with the chambers of agriculture and with a university research and innovation department, in order to reconcile energy and food sovereignty.

◆ In addition to these efforts to use and adapt the Rhône in the framework of the energy transition, you have also committed to renaturing the river and its banks. How much of this project forms part of the process to apply the provisions of the Water Framework Directive?

L.B-B.: In terms of protecting biodiversity, our policy is based on more than 20 years of hydrological and ecological restoration projects and scientific work. We take part in a number of bodies, such as the River Basin Committee, along with other players, to maintain a vital balance between the environment and other uses of water. CNR has carried out the largest river rehabilitation programme in Europe, recreating wetlands along 120 km of the Rhône, dismantling 19th century structures for better connectivity between the Rhône and its secondary branches and building fish passages.

Even before the obligations imposed by the Water Framework Directive, we had increased the flows reserved for river annexes. And we remain committed to nature, whether in terms of aquatic habitats, along the river banks or in the forests contained in our estate. During the parliamentary discussions on the Rhône Development Bill in 2022, the question was raised whether to add a biodiversity mission to the specifications for the concession. Our response was that biodiversity is cross-functional and fully integrated into our existing missions.

◆ The European EESC, a body made up of MEPs and members of civil society, has called for a Blue Deal to develop the “blue economy” and support transformations under the Green Deal by provisions taking the rising pressure on water resources into account.

What perspectives would this open up for operators of major European inland waterways? What considerations regarding major river basins should be taken into account for the implementation of such legislation? Is the Blue Deal the next challenge for you and do we need to mobilise Europe very quickly, given the implications and expectations for citizens and for the planet?

L.B-B.: The call for a Blue deal seems a good idea to me in order to put in place a specific, global and coordinated strategy for water at the level of the European Union. The proposals it contains must be highlighted in the run-up to the June elections, then included in the roadmap for the next European Parliament.

River basins will play a major role: as reserves of accessible surface water, they provide various services but are vulnerable to an increasing demand for water. The Rhône river basin, for example, is home to 11.5 million people and water withdrawals are expected to rise from 15% of the flow volume in summer to 30–40% certain years after 2055.

A new European governance framework to address all the issues concerning the quality and quantity of water resources and coordinate cooperation between Member States on cross-border river basins would be a significant step forward. Companies also need to pull their weight, of course, in terms of reducing both their water consumption and their carbon footprint.

CNR can offer its experience as a multi-use river operator and also include its innovative initiatives in a new European strategy for water.