

# Overseas industries and their transitions

## Introduction

Hervé Mariton.

## General views

### Overseas industries: Constrained, but resilient

#### Panorama of overseas industries

**Aurélien Guillou & Bruno Terrien.**

Despite the fact that the demography of industrial companies is less dynamic than at a national level (with fewer company start-ups and a higher proportion of business failures), industrial employment has held up well over the last ten years in the French overseas territories. The sectors employing the most people are food industry, energy and water supply, sewerage waste management and remediation activities, and metallurgy. Value added has grown at the same pace as in mainland France, but mainly due to a favorable sectoral composition effect. For a particular sector, the growth rate of value added is often lower in French overseas territories. The equipment delay partly explains this differential, which could be reduced in the near future thanks to the dynamism of bank financing for industrial sector.

### Focus on the industrial development of La Réunion: Past, present, and futures

**Jean-François Hoarau.**

The structure of Réunion island's industry results from the long-standing collision between the colonial model of the plantation economy, based on the supremacy of the sugarcane-sugar-rum sector, and the modern one of "departmentalization", characterized by public aids, the increase in the purchasing power of the local population, and the strategy of import-substitution. In spite of a tropical insular context marked by several strong impediments, the actual industrial model of La Réunion has been a relative success for local markets, and has managed to reduce significantly the dependence to imports. Its future is promising with major perspectives to investigate, such as securing its competitiveness, promoting its internationalization or building the food and energy sovereignty in the framework of a necessarily more circular model.

### Decarbonation, an opportunity for overseas France

**Matthieu Bergot.**

Decarbonation is a considerable challenge, and it is even more so for the French overseas territories, which face the challenges of the continent as well as those of their insular (or quasi-insular, like French

Guiana) situation. Are the overseas territories ready to face the shock of decarbonization, which is much more than a transition, but in fact a real transformation? This is doubtful. Unless new principles are established to underpin the future, which will turn this decarbonization from a dizzying and insurmountable obstacle into an opportunity.

### Adapting standards overseas: The construction industry still has its back to the wall

**Stéphane Brossard.**

Overseas territories have specific climatic and geographical features that building standards and regulations, thought out from metropolitan France, don't take sufficiently into account, which a Senate report highlighted back in June 2017. It called for the development and dissemination of expertise on construction methods adapted to the overseas territories, facilitating certification and the supply of materials, decentralizing the production of standards for the overseas territories, facilitating innovation by reforming national validation procedures, and owing regulations penalizing the otherwise necessary creation of housing. Progress is being made, but needs to be amplified and integrated into future overseas housing plans.

## Industry examples

### Labelling New Caledonia's nickel to make it more competitive and sustainable?

**Hugo Lapeyronie.**

The recent proposal by the New Caledonian government to create a "green-and-ethical nickel" label raises questions about the opportunities for reconciling competitiveness and sustainability objectives for this industry.

In this article, we will first review the role of nickel in the energy transition before presenting the context of its production in New Caledonia in order to clarify the stakes of such a label, and also provide information for its implementation.

### An ambitious energy transition in New Caledonia, the viewpoint of an energy specialist

**Stefan Sontheimer.**

For anyone interested in the imperatives of decarbonization and stabilizing the cost of electricity for an industry; For anyone interested in the mineral resources needed for the energy transition; and for anyone interested in structuring and innovative projects for our future: The energy transition in New Caledonia is essential and urgent.

Since 2016, this South Pacific territory has marked a turning point in its energy policy, demonstrating its desire to join the ambitions of the Paris Agreement.

The nickel mining industry, the leading local economic activity and a strategic national issue, accounts for over 75% of the island's total electricity consumption, and weighs heavily in its carbon footprint.

Let's see how, by involving all the players concerned, from the Caledonian government to the French state, from the metallurgists to the energy players, and finally from the decision-makers to the citizens, it is possible to meet the great challenge of our time.

#### **The SLN company in New Caledonia aims to produce less carbon-intensive nickel**

**Nathalie Bakhache & Charles Dubois.**

Société Le Nickel (SLN) is one of the world's leading producers of ferronickel, indispensable for the manufacture of stainless steels, batteries and permanent magnets, all of which are necessary for the energy transition. Nickel is recognized as a critical raw material by the European Commission. Nickel mining and production are also essential to New Caledonia, providing around 10,000 direct, indirect and induced jobs. In the face of global competition, New Caledonia has to meet two challenges: The price of electricity, and access to resources, which presupposes the acceptability of the operation to the various stakeholders, which in turn implies a reduction in its carbon footprint, both through energy savings and new sources of low-carbon energy to power it. In return, the investment required implies long-term visibility on access to the resource.

#### **Generating and storing electricity to decarbonize island systems**

**Thierry Déau.**

In French overseas regions, the development of the electrical network faces significant constraints, including geographical isolation and strong population growth. The deployment of the Energy Transfer Pumping Station (ETPS) in Martinique, as presented in this article, illustrates how these specific contexts enable the economic and impactful implementation of energy infrastructures, even on a small scale. This hybrid infrastructure, combining mature technology with innovative means, will contribute from 2024 onwards to addressing the numerous challenges of territorial development in Martinique, such as achieving energy independence, ensuring network stability and decarbonization, as well as fostering local agricultural economy and fire safety.

#### **Réunion island's sugar mills at the heart of the ecological transition**

**Éric de Bollivier.**

Réunion island's cane-sugar-rum-energy sector is at the heart of the development of an economic whole linked to agriculture, industry, energy, the environment,

and tourism. With more than 200 years of history behind it, the sector has always been able to innovate, and is today a true model of the circular economy, working in synergy with other sectors.

A world pioneer in the production of energy from sugar cane, the sugar industry has been the source of many innovations. Today, bagasse – the fibrous residue obtained after sugar extraction – is the island's leading source of renewable energy. Since 2019, molasses has also been used to make ethanol fuel, which powers the combustion turbine operating in the south of the island.

At the heart of the challenges of ecological transition, the sugar industry is pursuing its research to increase the corresponding sector's share of renewable energy production. Future technical advances will also have to guarantee the quality of the sugar and co-products that are essential to the other sectors, and thus enable the industry to maintain its essential role in achieving the region's objectives in terms of ecological transition.

#### **The production of agricultural rum in Martinique: Zero waste and carbon neutrality as a goal**

**Emmanuel Bécheau, Fanny Pougeoise & Leïla Pueyo.**

The Fonds-Préville Distillery in Martinique has become one of the best known and most productive distilleries in its sector: agricultural rum. After ten years of developing and modernizing the production tools, the distillery had to face a progressive increase in its waste, now called "co-products". As a result of on-site studies, either in-house or with research organizations, such as INRAE, all the distillery's co-products are nowadays reused. One part is used in the industrial process (bagasse); another part is used for irrigation (vinasse), and the last part is used to improve the sugarcane fields (compost). The environmental aspect is one of the distillery's main concerns, and it is constantly seeking to be more virtuous. The carbon assessment that was carried out by the distillery in April 2023 will be providing new ways to perfect its ecological convictions.

#### **Decarbonization, history, and prospects of SWAC (Sea Water Air Conditioning)**

**Richard H. Bayley & Franck Lucas.**

Following a conversation on the island of Tetiaora between Richard H. Bailey and Marlon Brando, seawater air conditioning was tested on the island of Bora Bora, proving necessary for the island's tourism development, and economically viable in view of local electricity prices, while drastically reducing carbon emissions compared with conventional air conditioning processes (direct expansion systems or centralized chillers). The return on investment for this experiment is estimated at between five and seven years. The process could be extended to other cases. It is of particular interest in a context where the International Energy Agency estimates that global electricity consumption linked to air-conditioning will triple by 2050, and the search for efficiency is a high priority.

## Flexibility of the transformation tool, an imperative for a successful industrial project in Polynesia **Bruno Bellanger.**

French Polynesia, an autonomous French territory of 300,000 inhabitants isolated in the middle of the Pacific Ocean, must succeed, in the near future, both challenges of reducing its dependence on imports and of creating the jobs that will finance its social policy. To do this, producers must equip themselves with processing equipments that will allow them to produce a greater part of their consumption without weighing on purchasing power. This challenge involves that producers equip themselves with tools that will allow them to remain profitable while offering prices equivalent to those of competing imported products. To meet this challenge, finding processing tools capable of producing a wide range of products is the key for success; the size and production capacity of the classic tools usually offered by manufacturers remaining oversized in relation to the needs of the Polynesian market. The flexibility of the processing tool will then be the key to the success of their project.

## *France-Antilles, from a reality in crisis to the digital industrial revolution in overseas France*

**Claude Perrier & Nicolas François.**

2023, the print media has been affected by an international crisis. This phenomenon, which impacts traditional newspapers but also printed magazines, is the result of a number of complex, multidimensional factors. It's a fact: Without a strategic leap by press groups, the paper format will tend to disappear, particularly overseas.

Following an unequivocal study, Claude Perrier, Managing Director of Antilles Guyane Press Group, embarked on the adventure of 100% digital printing, of green industry, and the revival of the paper press in the West Indies Islands. A positive result with international influence from the very first year, by winning the Prize for technical innovation of the press in 2022.

## The decarbonization of the Guyanese port area from the recovery of sargassum

**Philippe Lemoine.**

The Grand Port Maritime of Guyane (GPM Guyane), a public company, was created in 2013 to manage the port facilities of Dégrad des Cannes in the municipality of Rémire Montjoly, and Pariaçabó in the municipality of Kourou.

The objective of GPM Guyane is to support the economic development of Guyane by facilitating imports and exports, and to make its port facilities available to any industrial activity requiring trade by sea, in a global context of energetic and ecological transition.

Based on the observation of a need for fertilizers for Guyanese agriculture and the need to decarbonize the port platform, GPM Guyane has launched research on the possibility of harvesting sargassum offshore, before it goes aground on the coasts of the Caribbean arc, to extract both fertilizer and energy.

These transformations require the production of green electrons from sargassum methanization, photovoltaic solar panels, and osmotic energy.

## National or global contributions from French overseas territories

### Guiana's space industry faces the challenges of the energy transition

**Philippe Baptiste, Jean-Marc Astorg, Marie-Anne Clair, Laurence Monnoyer-Smith & Pascal Noir.**

The Guiana Space Center (CSG) in Kourou, French Guiana, has been at the heart of the French and European space adventure since its inception in the 1970s. The CSG has been the launch pad for Ariane rockets since 1979, as well as for the smaller Vega launcher since 2012. Ariane 6, the latest launcher to emerge from the sector, will soon replace Ariane 5, which has enabled Arianespace to be the world leader in the launch services market for over twenty years. Against a backdrop of fierce competition from SpaceX, CSG is embarking on an in-depth modernization phase, to both reduce launch costs and achieve its energy transition. This article reviews the major milestones in the development of the CSG and European launchers, presents the challenges of the site's energy transition, and then describes a few concrete projects currently in the implementation phase (new electrical distribution loop, photovoltaic power plants, biomass power plants and green hydrogen production unit).

### Innovation and the acceleration of start-ups in overseas France, a real lever for economic and social development

**ZEBOX Caraïbes.**

Despite specific obstacles, the development of the start-up ecosystem in the French overseas territories appears dynamic and promising, so much so that it can be seen as a real lever for wealth creation in these territories. In line with the actions undertaken by public authorities and associations, major groups have a role to play in supporting local entrepreneurs in their projects, and in helping to structure an environment that is favorable to innovation. ZEBOX, the international network of start-up incubators run by the CMA CGM Group, a global player in transport and logistics solutions, has included premises in Guadeloupe since 2022, currently hosting around ten start-ups in various strategic fields. In a complementary move, the Phare, the CMA CGM Foundation's social incubator, has also extended its action to the West Indies.

### French diversity in video games, the soft power of overseas France

**Giovanni Celeste.**

The video game industry is an opportunity for France's overseas departments and regions. However, it remains little-known by the general public in France, and suffers from a lack of awareness on the part of institutional

players. The aim of this article is to provide a new perspective on the video game industry, in a global context where we need to take up these issues in order to enhance our heritage and respond to socio-economic challenges, but also in the context of a crisis that is forcing us to rethink our approach to environmental issues.

### **Overseas entrepreneurship and business-making: The quest for meaning**

**Jérôme Isautier.**

Through a brief economic history of Réunion island and the Isautier Group, this article explores the driving forces and prospects of overseas entrepreneurship. The specific situation of these French and European islands, both geographically and administratively, determines their constraints and opportunities, and necessarily their potential for economic and human development. Whether viewed from Paris or Saint-Denis, perceptions, motivations, and expectations regarding the relationship between the “mother country” and its overseas department are bound to differ. It’s reasonable to assume that each side is striving for the best for itself. The question arises as to the convergence of interests and the role of entrepreneurs in these

macro-economic considerations. Echoing society’s questions of the moment, what if the subject could be summed up as a “quest for common sense”?

### **Miscellany**

#### **Breaking the addiction to fossil fuels: A necessity, but what a challenge!**

**Gérard Bonhomme.**

Achieving carbon neutrality by 2050 will require a drastic reduction in our consumption of fossil fuels, which today represent our main source of energy. The electrification of new uses, combined with the deployment of low-carbon electricity sources, as well as the reduction of consumption through gains in energy efficiency and the implementation of sobriety measures are the levers envisaged in the various scenarios. But given the enormity of the challenge and its global dimensions, and the essential role of energy in the economy, an objective and lucid examination of the constraints and physical limits is essential. In this article, we explain why renewable sources alone will not suffice, and why recourse to nuclear power is absolutely essential.

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