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ACTIVITY REPORT

**ENIM**

**PUSHING BACK  
THE BOUNDARIES  
OF TECHNOLOGY**



**SINCE 1856,**

the solutions imagined and then developed by the men and women of CNIM have been paving the way for a world that is cleaner, uses less energy, takes better care of the environment, and is safer.

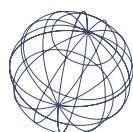
CNIM clients in the public and private sectors, from France and across the world, turn to the Group for the design, development and operation of infrastructure and equipment to be used for the energy transition, defense and security. They know that CNIM's 2,500 employees will work together to push back the boundaries of technology and channel their creative energy to come up with reliable and sustainable solutions.

The wide range of skills and expertise of the Group's workforce is fully expressed in business areas directly addressing the long-term challenges our world faces today. These skills and expertise also constitute the brand of a medium-sized enterprise with a family shareholder base that is fully committed to growing and to creating jobs – a Group with a limitless capacity for innovation.

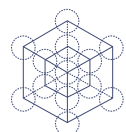


in 2030  
technologies without  
borders

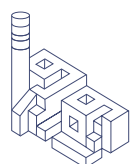
The acceleration and convergence of technologies are creating major opportunities for us to better serve our clients. We know that now is the time to prepare for the future, and are already anticipating how our businesses will evolve.



**01** IN 2030, TECHNOLOGIES  
WITHOUT BORDERS



**13** READY FOR  
NEW ADVENTURES  
IN TECHNOLOGY



**25** 2016, LAYING  
THE GROUNDWORK  
FOR THE FUTURE

# ARE YOU RESOURCEFUL?

IN 2030  
CNIM IS HIRING WASTE  
RESOURCE EXPERTS

In 2030, managing and sustainably recovering waste will be cornerstones of the circular economy. Waste will be an all-important resource, and we will need people to help identify, recover and recycle it in optimal and safe ways. A European leader in designing, building and operating waste-to-energy facilities, CNIM is exploring new approaches to waste sorting, treatment and recycling.

**CNIM**

**The World Bank estimates that urban waste volumes could rise by 70% between now and 2025<sup>(1)</sup>.** Waste will also become more diverse and complex over this period. The harmful impacts of this increase for our environment and health are well-known. **At the same time, the growing scarcity of available natural resources** will force us to find alternative solutions, **making urban waste a precious resource** if it is processed and recycled extensively and intelligently. Energy from waste is now the second source of renewable energy in France, and many more initiatives are on the way in this field. In the UK, one large grocery chain is powering its delivery trucks with food waste that it turns into biofuel. Its trucks have a range of up to 500 miles, or 800 kilometers, and emit 70% less carbon dioxide<sup>(2)</sup>.

**To manage these new resources properly** and fully tap their potential, **we will have to look at them as a whole** – from product design and manufacturing processes through to the collection of different types of waste and their final recycling, not to mention the identification and reuse of previously buried waste. We will need to rely on new optical and chemical sorting techniques that can separate fine particulates, and **on new industries focused on processing and extracting value** from categories of waste that have until now been recycled very little, if at all. Lastly, it will be necessary to seek out new end-markets for different types of waste, processed or not, either finding ways for them to be used for production in industry or marketed directly to end consumers.

**Experts in “rudology”<sup>(3)</sup> will fully comprehend this new value chain.** They will make sure that resources created from waste will be greater in number, more available, more accessible and of better quality.

(1) Source: “What a Waste” report – March 2012.  
(2) <https://m.usbeketrica.com/article/demain-fera-t-on-pousser-ses-menus-personnalisés>.  
(3) Rudology is the study of waste materials and their recycling or reuse.



# INDUSTRY IS MOVING FORWARD, AND YOU CAN PLAY A PART

IN 2030  
CNIM IS HIRING  
INDUSTRIAL  
RESCALING EXPERTS

CNIM

In 2030, the industrial landscape will look very different. To comply with new environmental, economic and societal requirements, factories will be more energy efficient, cleaner, and more versatile. Production equipment and processes will be mostly digitized, and they will adjust to demand in real time. CNIM teams are already partnering with industrial firms to provide equipment and advice for complex turnkey solutions.

**Industrial firms are striving to adapt to a number of changes at the same time.** Their clients want increasingly customized products, often produced in short runs. And societal demands are dictating where production sites are located and how they are operated.

**The energy and environmental transition is under way.** In an increasingly urbanized world, reducing greenhouse gas emissions and preventing major environmental and health risks will be every bit as important as using renewable energies. Beyond meeting regulatory requirements, **firms will be maintaining their industrial performance and competitiveness through innovative energy storage, management and recovery solutions.** Factories will be part of a connected world where pieces of equipment are constantly communicating at each level of the chain and can be remotely controlled. Sensors will be used in production, maintenance and safety to measure a variety of parameters and provide information that can be processed and acted upon very quickly.

Meanwhile, **client demands will determine the responses provided,** and the latter will have to be constantly adapted. **Production units will change scale and atomize.** Microproduction runs, started up on demand, will rely on 3D printing technology, paving the way for products that are increasingly diverse and customized. **Factories will be reconfigured** and incorporate new design and manufacturing techniques. They will be more flexible, capable of adapting to demand in real time. **New mobile, modular facilities will make it possible to stay in step** with markets and change format as needed.

As industrial process specialists, **rescaling experts will advise clients on how to best adapt their systems or production equipment to new requirements** and to changes in the urban and regulatory environment. It will be their job to help industry remain proactive and efficient.



# OUR URBAN CENTERS NEED YOU

IN 2030

CNIM IS HIRING

CIRCULAR ECOLOGY SPECIALISTS



In 2030, nearly two-thirds of the world's population will live in and around cities. Waste and other residue of human activity will be turned into new resources in densely-populated areas. Energy from IT equipment will be recovered in the form of heat, and household waste will be recycled in different ways. With its complementary expertise in treating waste and improving energy efficiency, CNIM is already positioned to tackle this challenge.

**CNIM**

With 66% of the world's population expected to be living in and around cities by 2050<sup>(1)</sup>, the issue of quality of life in urban areas will become increasingly urgent going forward. People will produce more waste, and fewer natural resources will be available, forcing billions of urban dwellers to make sure they have enough energy, **which will be a scarce and expensive resource**, while also taking advantage of the overabundant waste produced.

Energy production and consumption will be coordinated everywhere in an effort to minimize energy use and maximize waste recovery. **Industry will no longer let heat from facilities be released into the atmosphere.** Thermally insulated buildings will be able to use the heat provided at no charge by the sun or household appliances or wastewater to keep hot water and heating needs in check. Heat released from corporate and government IT servers will be used directly for residential heating through next generation heaters. Rainwater will be used in lavatories. **Organic waste will be transformed on-site into biogas** or compost for use as fertilizer on urban farms. Biogas will be directly injected into natural gas networks or to generate electricity. In other words, every bit of waste and residual heat will be reused and returned to the grid – a grid designed and managed as a coherent, **interconnected system in which resources are identified**, analyzed and stored for use as needs arise.

**Circular ecology specialists will be “conductors of the energy recovery orchestra”**, monitoring all flows, from collection at source and reuse (recovery of materials and energy) up until reintegration into the virtuous circular economy loop. Their job will be to make urban development more sustainable.

(1) Source: World Urbanization Prospects, The 2014 Revision. United Nations. New York, 2015.



# CHANNEL YOUR ENERGY

IN 2030  
CNIM IS HIRING  
MICRO-ENERGY  
ARCHITECTS

In 2030, the energy available for use will come from a variety of sources and geographic locations. The process of recovering and redistributing energy from different production sites will be refined and made more secure by using networks of wireless sensors and complex management solutions. With its expertise in renewable energies, smart energy management and cybersecurity, CNIM is already working on solutions to these challenges.

**CNIM**

**Biomass, hydropower, geothermal, wind, solar, marine and nuclear energy**, fossil fuels: renewable or not, the energies available to us are evolving as quickly as the related technologies. Different types of energy can be complementary and used together in various combinations to meet the energy needs of communities. For instance, late in 2016, Denmark was able to source all of the electricity needed over an entire day from wind turbines<sup>(1)</sup>.

The global energy generation market is no longer the preserve of major industrial groups that manage large power grids. Here and there, **across the globe, smart grids are connecting a multitude of small renewable energy sources** scattered across regions, including wind and tidal turbines, solar panels and heat pumps. At the same time, steady progress is being made in energy storage, notably via thermal solutions, reducing the gap between production and consumption. **Digital technologies will be making these microgrids smarter and more efficient.** They will manage the variability of some types of energy, such as wind and solar power, as well as differences in production densities between sources. **To collect energy flows** and redistribute them appropriately, **ultra-precise wireless sensors will be used to measure electricity consumption** and greenhouse gas emissions. Secure data gathered in real time will then be integrated and analyzed within advanced management systems capable of making choices that will make facilities more efficient.

Tasked with designing the smart grids of the future, **micro-energy architects will know how to reconcile the fluctuating capacities of renewable energy sources** with the needs of consumers who will also be producing energy. In other words, they will help make energy management more responsible.

(1) <https://energeek.com/2016/12/27/danemark-a-tourne-a-100-denergie-renouvelable-a-veille-de-noel/>

# GO WHERE THE URGENT NEEDS ARE

IN 2030

CNIM IS HIRING

EMERGENCY TEAM

PROJECTION SPECIALISTS



In 2030, we will be seeing more environmental and geostrategic emergencies, often arising without warning. States, as well as public and private institutions, will need to have comprehensive logistics resources ready for dispatch to disaster sites. Energy will be self-produced at base camps, and water will be treated at purification stations. With its bridging systems and amphibious crafts, CNIM is already delivering projection equipment and specific expertise in autonomous equipment.

**CNIM**

**Climate and geopolitical risks require new solutions** that can be rolled out very quickly in emergency situations. Responding with maximum efficiency to hurricanes, sudden rises in water levels, famine and armed conflict will require logistics systems that are well-organized. Whether in a civilian or military setting, the challenges will be the same: **intervention teams and specialized materials must be projected to disaster sites thousands of kilometers away in a timely manner.** These forces will then need facilities to make them perfectly autonomous on-site.

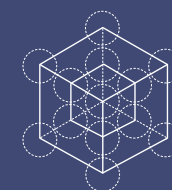
Provisions, emergency equipment and field hospitals will have to be sent by special vehicles that can be mission-ready within a few hours. Amphibious landing craft will facilitate the rapid unloading of technical and human resources. Ultra-resistant motorized floating bridges will make it possible for heavy vehicles to cross wet gaps to accelerate rescues in areas that can no longer be accessed through other means. **Mobile base camps** producing their own energy **will be unloaded and installed at strategic locations.** Wind turbines and solar thermal and photovoltaic panels will make them electricity-independent, while the regular treatment of wastewater and waste will power their heating circuits.

**The coordinated deployment** of mobile water treatment units, capable of treating viruses and bacteria, will make it possible to provide potable water in the remotest locations. **Mobile incinerators**, mounted on trailers, **will be brought in to quickly remove excess waste and limit the risk of epidemic.** When responding to civilian or military emergencies, **emergency team projection specialists will plan missions to isolated locations** to set up the necessary base camps and autonomous logistics systems. They will ensure that all resources deployed are optimally coordinated.





G O A L



Ready  
for new adventures  
in technology

Since 1856, the Group has been exploring new geographic and technological frontiers with the same pioneering spirit. This never-ending quest for innovation is what drives our growth and earns us the trust of our clients.



# “We’ve never been

## intimated by major industrial challenges.

# ”



**CNIM has a very broad scope, with operations and expertise in a variety of fields. How would you describe the Group in a few words?**

**Nicolas Dmitrieff.** Summing up CNIM is not an easy task, given that we’ve been around for 160 years. An outsider could see the Group as a conglomerate with different businesses that have no clear ties between them. But the truth is that our business portfolio is extremely coherent. This becomes clear if we look back at the Group’s history. CNIM was founded as the result of a decree issued by Napoleon III, under the Second Empire, between the industrial revolutions. Its workshops in La Seyne-sur-Mer filled orders from the State to build first armored frigates, then submarines and tanks. Three fundamental skills were mastered during the shipyard days: thermal engineering, mechanical engineering and industrial contracting. These three areas of expertise are still the Group’s

MANUFACTURE OF RADIAL PLATES FOR THE ITER PROJECT AT LA SEYNE-SUR-MER.



DNA, the core areas around which it constantly reinvents itself. There’s also a fine tradition of audacity at CNIM, reflecting the fact that while our relatively small size forces us to be savvy and resourceful, we’re also capable of taking very big steps. In several of our businesses, we either partner with or compete head-on against very large corporations to win major contracts, notably outside France. In more than a century and a half, we’ve never been intimidated by major industrial challenges.

**“Some very big orders were booked in 2016. We also continued to expand our business portfolio and now have a number of new products and projects under development.”**

**How do you explain the Group’s solidity over such a long period?**

**N.D.:** CNIM is a family-owned firm with a history that spans several generations. It has a stable and committed shareholder base, which benefits both its employees and clients. We make decisions quickly: there is genuine proximity between management and employees. From a legal standpoint, CNIM is a public limited liability company (*société anonyme*), but in reality we are anything but anonymous: the company is represented by a Chairman, a family, a Management Committee and every one of its employees. This representation guarantees solidity, staying power and stability. We will never use a scorched earth

policy – it would not be in our interest to do so. All of our efforts are geared to supporting, perpetuating and building the Group. And our teams have total confidence in us.

**Let’s talk about the past year: How were the Group’s 2016 results?**

**N.D.:** The results were in line with the business plan we’ve been sticking to for several years. We met our profitability targets. Stripping out Babcock Wanson, the subsidiary we recently sold, revenues decreased slightly, as anticipated: we are currently in the process of rebuilding our order book. It should also be noted that some very big orders were booked in 2016, totaling €800 million, well above the 2015 level. At the same time, we continued to expand our business portfolio and now have under development a number of products and projects that will require further investments: operation of the Llo solar energy power plant (SUNCNIM, *see p. 28*), treatment of flue gas emissions from ships and bottom ash (LAB, *see p. 32*), instrumentation and cybersecurity (Bertin).

**So, results were in line with your forecasts... What were the main highlights?**

**N.D.:** There were several key highlights, at different levels. In terms of business, we landed two large contracts for turnkey waste-to-energy plants in the UK, in Kemsley, North Wales. In France, CNIM developed a third of the plants of this type between 1970 and 1990, and there are currently few opportunities to build new ones. However, plant renovation contracts, which the market has been

# 70

radial plates are made by the CNIM-SIMIC consortium for the ITER reactor.

# 3,000

square meters of space for the manufacturing floor built specifically for this project at the CNIM site in La Seyne-sur-Mer.





**“The CNIM Group has traditionally maintained high levels of liquidity with a positive net cash position and a significant line of credit as a backup.”**

This tradition, in place for more than 30 years, was unchanged as of December 31, 2016, when the Group had gross cash of €183.7 million and an available, undrawn medium-term borrowing facility of €120 million. In other words, the Group has the resources it needs to plan its future development serenely.

**CHRISTOPHE FAVRELLE,**  
Chief Financial Officer

# 139

patent families.

anticipating for some time, are starting to appear – this is a trend that will continue in the coming years. CNIM notably landed two new contracts in Thiverval-Grignon, in the Yvelines department, and in Saint-Saulve, in the Nord department. Another highlight of 2016 was the return to our historical headquarters after more than two and

**“Our areas of focus are aligned with our clients’ key sovereignty issues.”**

a half years of renovation work. Our Paris-based teams had been working at two separate sites but are now back in the same building. This beautiful site was originally a private mansion, and we redesigned it to create a friendly environment that represents the CNIM spirit to all those who enter the building, be they employees or clients. Since our 2,500 staff are spread out across numerous sites throughout France and abroad, we want to make this the Group’s flagship, a place where they want to come to see one another and work together. The last highlight of 2016 I would mention is the sale of our subsidiary Babcock Wanson, which makes industrial boilers.

**On that subject, why did you sell a subsidiary that is expanding?**

**N.D.:** That wasn’t always the case: in 2007, the company was in trouble. We were able to turn it around starting in 2010. By 2015, it was in a good shape: with a solid product-service strategy and a strong management team, it needed more funding to become the European leader in its

market. It also had a unique position within the Group, offering relatively few synergies with our other businesses. I wanted it to have the resources it needed to continue to expand. We had to make trade-offs, choose our investments, select the businesses around which we wanted to continue to develop CNIM. Babcock Wanson was not a priority, but putting it on standby wasn’t an option either. I had seen the danger of this type of attitude firsthand: when I took over the reins at CNIM in 2009, our Transport Division was going through a rough patch since it lacked the resources it needed to grow. We had to sell it under difficult terms that did not guarantee its continuity. I learned many things from that experience, and did not want Babcock Wanson to go down that same path. We thus worked with its executives to select, among several suitors, the one that would be best for the company’s future growth. I would point out that we did not sell to the highest bidder, but rather to the one that had a bona fide plan for Babcock Wanson.



CNIM is an international firm with a  
**2,500**  
strong workforce  
throughout the world.







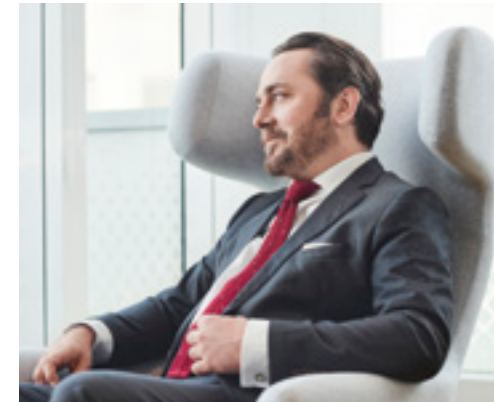
# 24 WASTE

## TREATMENT AND BIOMASS PLANTS DELIVERED BY CNIM SINCE 2012\*

Energy recovery facility  
in Oxford (United Kingdom).  
Completed by CNIM  
in November 2014.



\* Number of turnkey waste-to-energy or biomass plants and materials recovery facilities (sorting and composting) delivered by CNIM or under construction during the period. Interventions on existing units and the construction of flue gas treatment facilities by subsidiary LAB are not included here.



**In other words, the decision reflected your personal approach, not just financial factors?**

**N.D.:** That's exactly right. I make sure my decisions will not have any negative long-term consequences for the Group or its subsidiaries, and I am free to take them with the approval of the Supervisory Board. When I took over the helm at CNIM, I fought to regain control of the shareholder base. Today, it is majority-owned by our family. This gives us the freedom to make our own decisions. The industrial sector requires long-term investments that only produce their full effect after several years: one must know how to be patient. Many executives today find themselves in a tough situation because they focus on short-term thinking and immediate results. Being family-owned, CNIM can develop projects with staying power.

**After selling that business in 2016, is the plan to grow through acquisitions, or purely organically in 2017?**

**N.D.:** It will be a mix of both. We always look at acquisitions that could help us build our core businesses by adding new expertise or filling in or expanding our offering in technology or geographical terms. But CNIM is not after size or volumes at any cost. We want to see our revenues increase on the back of organic growth combined with synergies unleashed with new entities. In a word, CNIM's aim is for enhanced solidity and credibility.

**How do you plan to secure the Group's growth going forward?**

**N.D.:** Our areas of focus are aligned with our clients' key sovereignty issues, whether they relate to the energy transition, the security of States and individuals, or high technologies. All of our key product and service offerings tie in with these core themes. When it comes to the security of States and individuals, we will continue to focus on organic growth driven by our flagship products in the fields of land and maritime projection systems as

**“The energy transition is creating a range of opportunities.”**



**“The often audacious solutions CNIM proposes to its clients are backed by innovation and industrial soundness.”**

**CNIM has real expertise in research and development, combined with top-quality industrial capabilities. The ability to integrate all this multidisciplinary expertise allows the Group to take a pragmatic approach to innovation, whether it is executing projects for clients or developing its own products.**

**PHILIPPE DEMIGNÉ,**  
Chief Executive CNIM Innovation & Systems

well as detection and surveillance equipment. As for the energy transition, our aim is to continue to expand our offering and structure it in such a way as to considerably grow our revenues outside Europe over the coming years. This international expansion will create an even more solid springboard for our growth. The world is more complex than ever, and subject to cycles. Our diversified business mix has allowed us to withstand swings since our activities are countercyclical. Our job now is to achieve the same diversification in geographic terms, so that CNIM can continue to weather cyclical downturns. The Group is also working constantly to develop businesses that generate recurring revenue: operation, maintenance and services in energy industries and the sale of defense and security equipment produced in small and medium runs. Here again, the focus is on countercyclical businesses, since recurring revenue creates a balance and complements the large contracts we win.

**Running a company requires making investment choices, notably in terms of technology. What choices are you making?**

**N.D.:** Our thermal and mechanical technologies and expertise are proven. Our goal now is to find new applications for them in different areas in order to expand our offering and build on it in a more comprehensive, integrated way. This will allow us to extract more value from our existing expertise, whether in waste treatment, a field in which we are leaders, or in areas such as biomass, solar, flue gas treatment or emissions control.

The energy market is evolving fast. Some



# preparing



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Waste-to-energy plants built by CNIM across the world, i.e.:

285

lines.

fundamental trends are taking shape: decentralization - with the construction of smaller energy generation units – as well as decarbonization, reduced energy intensity, heat recovery, digitization of systems used, etc. The energy transition is creating a range of opportunities. For instance, CNIM is developing a new concept in maintenance vessels for offshore wind farms, WindKeeper®. We are working to design a vessel that is smaller and more efficient but able to withstand rough seas. We are also on the cutting edge of ash metal recovery plants, with progress in this area concen-

**“CNIM is deploying its hubs in four areas: the United States, the Middle East, Southeast Asia and China.”**

trated primarily in the North American market. I would also mention our expertise in Energy Management Systems, through our subsidiary Bertin Technologies.

**Can you explain the role of integrated business models (Build, Own, Operate) in the environmental and energy industries?**

**N.D.:** We use these models with the aim of building our services and operations businesses. CNIM built the first waste-to-energy facilities in France, but let others operate them. In other words, we handled the phase that involves the most risk. Indeed, building a waste processing plant is a complex process. Our ability to deliver these turnkey facilities gave us credibility to operate them. So we were able to reach agreements with developers to manage the projects jointly, starting with

the construction phase, to maximize our contribution every step of the way. The next move for CNIM is to continue to expand its presence across the entire value chain, from facility design through to operation. Because our expertise in construction and operation is complementary, we can meet all of our clients' needs. We notably offer services relating to maintenance and the refurbishment of thermal power equipment, increasingly with a digital component, particularly for remote energy performance monitoring. In Europe, we continue to respond to requests for proposals in partnership with the major developers unless the end client specifies otherwise. But we have no reason to take this approach on international markets.



**“As Europe’s leading builder of turnkey waste-to-energy plants, CNIM has a deep understanding of the technologies underlying the processes involved.”**

**As a provider of turnkey facilities, the Group interacts with all stakeholders’ projects and guarantees the energy performances of its plants. The control it has over projects gives it the credibility to offer a range of tailored operations and refurbishment services.**

**STANISLAS ANCEL,**  
Chief Executive CNIM Environment & Energy



WASTE-TO-ENERGY PLANT IN TURIN, ITALY, BUILT BY CNIM.



**“International expansion will create new challenges for the CNIM Group.”**

In particular, efforts to manage the risks resulting from moves into new geographic areas as well as the increasing complexity of our projects are central to our activities and an integral part of our decision-making process. Risk management enhances the Group’s performances.

**ÉRIC CHADÉNIER,**  
Group General Counsel, Corporate Purchasing & CSR

Depending on the location and who we are dealing with, our partnerships can take on very different forms.

**We have spoken a great deal about energy and the environment. How do you see your offering evolving in other businesses?**

**N.D.:** In defense and security, we are working on sensor-based detection and protection systems. CNIM offers a range of CBRN<sup>(1)</sup> risk detection equipment solutions for military and civilian uses, as well as special craft with high-potential

equipment for independent amphibious missions, including the L CAT® (see p. 37), a catamaran with a mobile platform. We are also very active in mechanics, working on such major research programs as ITER (see p. 34), the global research project aiming to develop a nuclear fusion reactor. The stakes are very high: ITER aims to make it possible to produce green nuclear energy for generations to come. We are currently building and assembling major components at the ITER site in Cadarache. CNIM is one of the key industrial players in this international program bringing together China, the European Union, India, Japan, Korea, Russia and the United States.

(1) CBRN: chemical, biological, radiological and nuclear.

# for the future



**You spoke earlier about the need for geographic diversification. Do you have priorities when it comes to international expansion?**

**N.D.:** Yes, our focus will be primarily on the Middle East, Asia and the United States. We already have strong positions in France and Europe. Our aim is to continue to support our businesses there while also developing value-added services in the environmental and energy sectors. Our Asian activities will be ramped up gradually, but things could take

**"CNIM's engineering culture is excellent in terms of expertise: it allows us to master all the technical aspects of every project."**

off quite quickly in the Middle East: five years from now, we could be generating a large share of our revenues there. This region is likely to become our second largest market soon.

**What will you be doing to make this international expansion successful?**

**N.D.:** CNIM wants to go from being an exporter to an international group by setting up hubs, under its own name, which will promote all of the Group's products and services in each major geographic area. But CNIM is a French company, a European one: our central design offices and key expertise will still be based in France. In countries where we build and develop waste-to-energy facilities, we partner with local companies for everything that can be done on-site, thus preserving the existing ecosystem. The hubs CNIM is deploying outside the euro area are concentrated in four areas: the United States, the Middle East, Southeast Asia and China (Gaoming). Our operations in the United States focus on fly ash treatment and defense-related instrumentation systems, nuclear and life sciences. Our

Middle East hub set up an Abu Dhabi office in 2016. It is tasked with promoting our environmental, defense and security products and services (Bertin contract for gas detection systems, for instance) and energy transition offering (solar, thermal and petrochemical optimization). Our Southeast Asian activities are grouped together in Singapore to support our defense offering and the distribution of NRBC products for Bertin Technologies. We are also working on waste-to-energy and biomass facilities in the area.

**These changes must require specific kinds of support for the Group's human resources?**

**N.D.:** Human resources are indeed a key issue for the Group, and we've been encouraging our employees' growth for several years now. For sector-related and historical reasons, CNIM has traditionally had an engineering culture, and our most senior employees have a very strong sense of belonging. When the French shipbuilding sector was in deep trouble in the early 1980s, the State wanted to combine these activities within a single publicly-owned entity, NORMED (Chantiers du Nord et de la Méditerranée). CNIM was almost merged into it, but my father, who in the meantime had begun to develop the land-based activities, fought to keep it alive. Just 10% of CNIM staff at the time followed him down this entrepreneurial path. This was when CNIM acquired its true spirit, based on its pride in having reinvented itself. Those who were here at the time are naturally very committed and involved. But this spirit needs to become part of an institutional culture, as CNIM is expanding, hiring new people and bringing on board new talent, notably managers who did not witness this turning point. This is why the Group Human Resources Department worked extensively to bring to life the culture of CNIM – a company that is incarnate, audacious – a company that

TRAINING EXERCISE BY THE FRENCH ARMY INVOLVING THE CONSTRUCTION OF 160 METERS OF MOTORIZED FLOATING BRIDGE (PFM) ON THE RHÔNE.



**"At CNIM, continuous education is a core part of our strategy insofar as employees are the ones driving the Group's transformation on a day-to-day basis."**

The Group has a program for employee support and training, conducted with individuals or groups and based on a participatory approach, to help CNIM tackle the challenges that lie ahead: international expansion, development of and steady improvements to our products and services and further innovation. Its goal: to develop a culture of collective intelligence.

FRANÇOIS DARPAS,  
Human Resources, Information Systems  
and Communication Director



videoconferencing systems for a very long time, with a high level of security; working in different industries, including defense, we pay very close attention to IT security. But we have to find the right balance between extreme data security and ease of access for users. People could seek ways to go around a system if it's too restrictive, essentially making it ineffective. This subject is more complex for our Group than others since our defense businesses require a high degree of confidentiality. For instance, access to some areas in our La Seyne-sur-Mer site is restricted; USB keys are not allowed. So our policies must be adapted to the activities of our subsidiaries and the sensitivity of the data they handle. With our major projects for example, all trade information is exchanged with a high level of security to make sure it is protected.

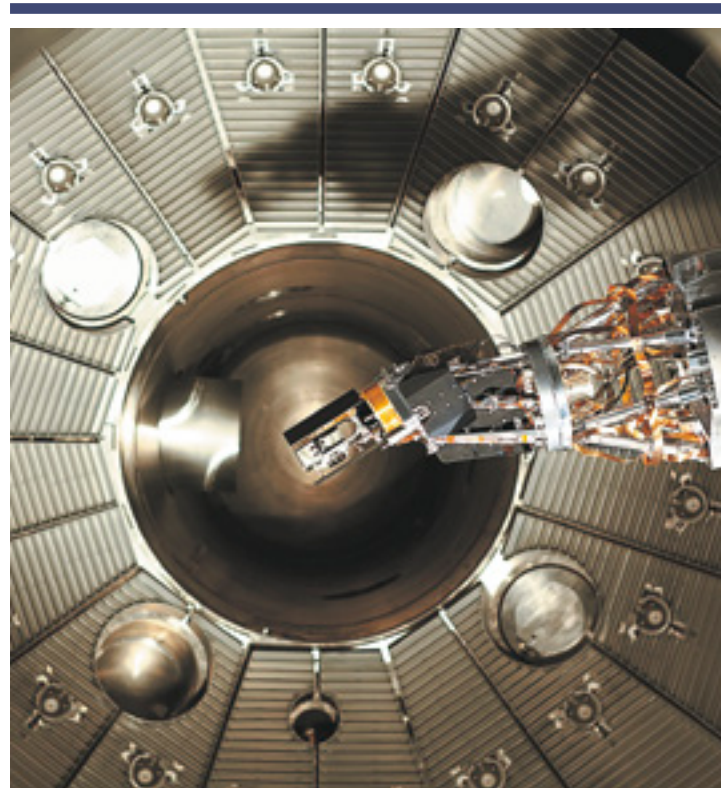
**How is CNIM preparing for the future?**

**N.D.:** CNIM has a long industrial and technological history that is embedded in its corporate culture and embodied by generations of engineers and technicians. Long time horizons are important at CNIM, contrary to the short-term thinking many engage in today. When I took over the reins in 2009, with the backing of the Supervisory and Management Boards, I reorganized, streamlined and stabilized the Group. I worked to make our businesses easier to understand, to clarify their product and service offerings, and to rethink our strategy. International expansion will be our next big challenge. Our totally revamped websites takes all of these changes into account. Our new head office also reflects these changes: it is more open and dynamic, featuring several meeting rooms with videoconferencing equipment, to symbolize our relations with the outside world. The transformative work we have been doing for several years now is increasingly tangible, and we will soon begin to feel its full impact.

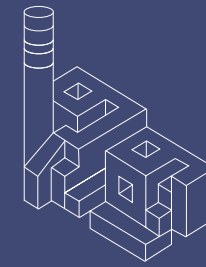
**30**  
minutes is all it takes to build

**100**  
meters of motorized floating bridge.

EQUIPMENT FOR THE MEGAJOULE LASER PROGRAM MADE BY CNIM AND BERTIN TECHNOLOGIES.







# 2016

Laying the groundwork  
for the future

New projects, new technologies, new skills...  
our experts are responding to the constantly evolving  
demands of our clients.





# OUR EXPERTS

FULLY UNDERSTAND CURRENT TECHNOLOGIES AND THE CHALLENGES THAT LIE AHEAD

"Our R&D quickly materializes into reliable, high-performance products, and two-thirds of the patents we file every year are used right away. Our experimentation methods allow us to test solutions directly at client sites."

**Frank Tabaries**  
Director of LAB Service



**"The digital transformation is significantly changing the way users work. Success with digital services and applications requires a user-centric approach to technologies, one that makes it easier for people to accept new ways of working and also the development of new tasks that benefit their companies."**

**Sandrine Coletti**  
User Experience Manager, Bertin Ergonomie

**"CNIM's expertise in the construction of turnkey plants lies in its technological mastery of processes and its ability to manage, within deadlines and from both a technical and a contractual standpoint, the thousands of interactions required with project stakeholders. The proof is that the 15 plants completed over the past five years deliver excellent performances on a daily basis."**

**Claude Boutin**  
Director, CNIM EPC Contracts BU

"In the face of ever more widespread and sophisticated attacks, cybersecurity requires having several lines of defense. When it cannot prevent a threat from materializing, it has to be able to isolate and then neutralize the threat."

**David Boucher**  
VP Product Security Solutions, Bertin IT

**"Aside from all the regulations that are forcing industry to tackle the energy and environmental challenges we face today, going forward, industrial performance will also be driven by a hybrid approach to energy, products and processes."**

**Pascale Compain**  
Sales engineer, Innovative Processes,  
Bertin Technologies



"We're always ready to capitalize on the fourth dimension by using time as a driver for finding future solutions. Sometimes we're able to formulate technical responses by anticipating how they will come to fruition."

**Éric Huet**  
Head of Engineering, Big Science,  
CNIM Industrial Systems



**"LAB uses a proven mix of technology and process to recover and recycle high quantities of non-ferrous metals from landfilled fresh incinerator bottom ash. We create value for our partners and clients by driving a financially profitable and environmentally green program to extract value from an otherwise lost source."**

**Brent DuBois**  
President & CEO of LAB USA



# Raising funds for the Llo plant

SOLAR POWER PLANT

<b>Llo plant</b>	Eco-friendly and fully recyclable
	95,200 mechanically operated mirrors
	9 MWe of capacity
	Enough power to supply 6,000 households

**SUNCNIM**, the joint venture set up in 2015 by **CNIM** and **Bpifrance's "Société de projets industriels"**, has raised €60 million to finance<sup>(1)</sup> **eLlo**, the project company created to build and operate the Llo solar power plant in the Pyrénées-Orientales, the first Fresnel solar thermodynamic power plant in the world with energy storage capacity.

CNIM has been involved in solar thermodynamic power since the early 1980s. Its R&D strategy was recognized in 2010 with the design and manufacture of a prototype at its La Seyne-sur-Mer site (in the Var). The concept was validated by Ademe<sup>(2)</sup> in 2012. That same year, CNIM was awarded a contract by the Energy Regulation Board (Commission de régulation de l'énergie – CRE), which had called for tenders for the installation of a solar power plant.

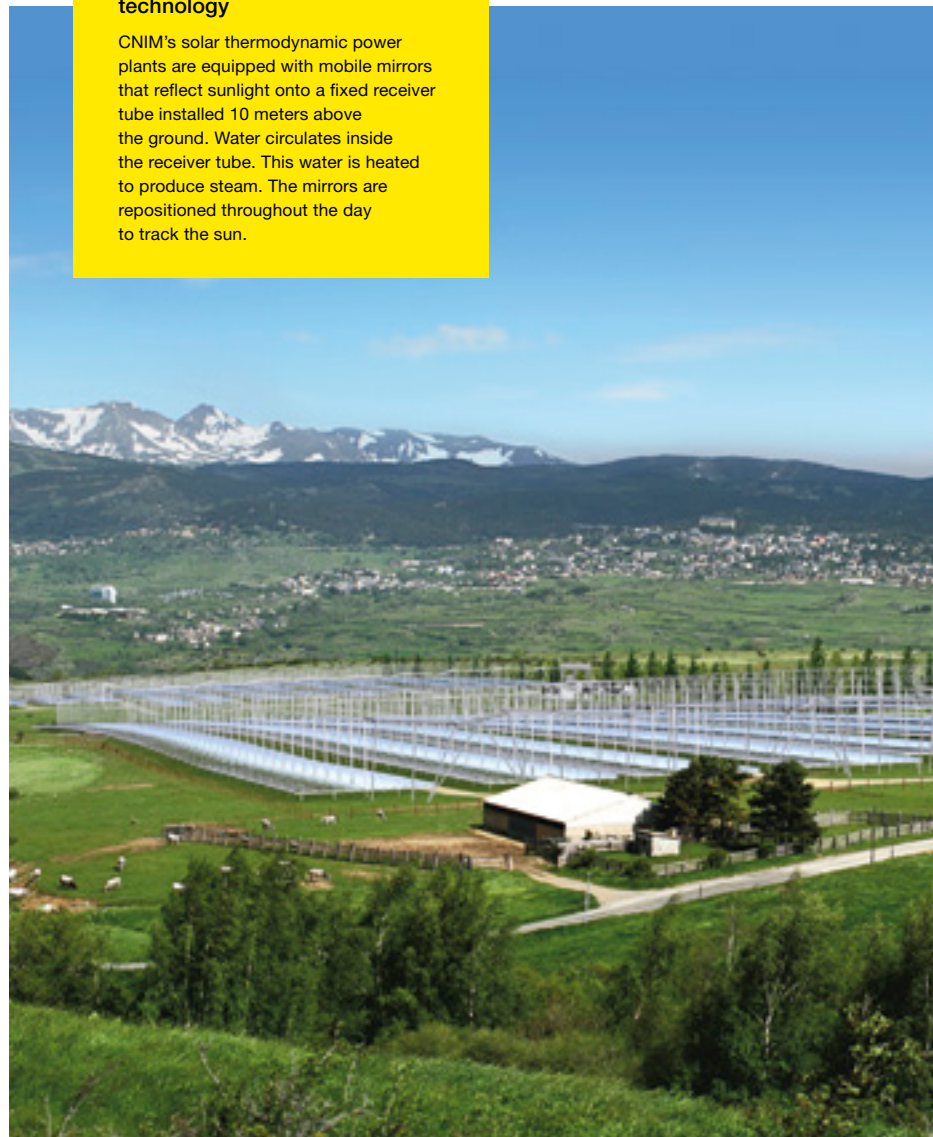
Eco-friendly and 100% recyclable, the plant will employ SUNCNIM's "Fresnel mirrors" technology: 95,200 mechanically trainable mirrors will feed solar rays to a receptor, the solar boiler. The thermal energy thus recovered will be stored or converted into electricity via a steam generation process. With generation capacity of 9 MWe, the plant will provide electricity for more than 6,000 households.

SUNCNIM was involved in every aspect of the project's development: the search for a site, financing, impact assessments, permit applications, etc. The Llo plant is a good illustration of the Group's ability to position itself at every level of the value chain in a project and to use technology to meet its clients' energy generation needs.

(1) The banking pool included Caisse d'Épargne CEPAC, arranger of project financing, Bpifrance Financement, Caisse d'Épargne et de Prévoyance du Languedoc-Roussillon, Crédit Coopératif, Crédit du Nord and Crédit Mutuel Arkéa.  
(2) Ademe: Agence de l'environnement et de la maîtrise de l'énergie (French Environment and Energy Management Agency).

## "Fresnel mirrors" technology

CNIM's solar thermodynamic power plants are equipped with mobile mirrors that reflect sunlight onto a fixed receiver tube installed 10 meters above the ground. Water circulates inside the receiver tube. This water is heated to produce steam. The mirrors are repositioned throughout the day to track the sun.



# 9

**energy accumulators providing four hours of full-charge storage capacity.**

MICRO-ENERGY

## Two studies to optimize energy microgrids

In partnership with the Grenoble Chamber of Commerce and Industry, **Schneider Electric** is undertaking a "Future Investment Project" dedicated to the theme of the "Smart Grid Campus". The project aims to produce an energy microgrid at the level of the Institut des métiers et des techniques (IMT) de Grenoble integrating renewable energies and energy savings, with the dual aim of local energy consumption of self-produced electricity and renewable energy generation. The renewable energy sources considered are solar photovoltaic, installed on different buildings on the campus, and a cogeneration plant (power and heat). A battery storage system will be used to save excess energy produced for use when demand peaks or renewable energy output is low.

Bertin Technologies conducted a parametric study using its EMS (Energy Management System) software tool to assess the impact of photovoltaic power and battery capacity on self-consumption and self-production rates on the microgrid. It then carried out a preliminary study to define the different energy systems integrated: surface area and location of photovoltaic collectors, definition of cogeneration and connections to energy networks.



THERMAL POWER

## Emergency intervention at the Clichy plant

The thermal plant powering the heating network of Clichy-la-Garenne (Hauts-de-Seine, France) operates at full capacity when heating needs are highest in winter. With a distribution network 20 km long (12.5 miles), it supplies more than 20,000 homes. Operated by CEVE (Clichy Énergie Verte, Idex-Coriance partnership), it is powered by two natural gas boilers that produce 52 metric tons of superheated steam an hour, and has a fairly recent biomass boiler producing 8 metric tons an hour. Late in 2016, CNIM Babcock Services intervened quickly when the operator detected a leak in the tubes of one of the gas boilers, requiring the full replacement of the superheater. It then used an endoscope to examine the lower water collectors after clogs were identified in the superheater. A tube inspection plan was also created for the other gas boiler to prevent potential losses of thickness. This more comprehensive plan for monitoring the condition of the generators and making them more reliable will continue in 2017, with a project involving the installation of a steam distribution manifold to better regulate the power delivered to the grid. This partnership with CEVE is a testament to CNIM Babcock Services' ability to intervene in district heating networks and offer diagnostic services on the basis of which its teams make recommendations that allow clients to better anticipate work that needs to be performed.



## ENERGY EFFICIENCY

# Searching for the ultimate thermal cycle

After steadily improving its technologies, CNIM, a pioneer in energy efficiency, is able to guarantee highly advanced thermal cycles (steam pressure and temperature) that make facilities much more efficient. However, there is a steam temperature and pressure threshold beyond which corrosion phenomena intensify at the heat transfer surface of the boiler. CNIM was the first company in Europe to introduce protections against corrosion using chrome- and nickel-based alloys. The Group is forging ahead with research in this area, in close cooperation with the suppliers of these materials. This quest to optimize energy efficiency is a driver of innovation for CNIM. One example comes from its subsidiary LAB, a flue-gas treatment specialist, which has developed a dry flue-gas treatment system that maximizes energy recovery.

## NO ENERGY EFFICIENCY WITHOUT ENVIRONMENTAL PERFORMANCE

Improving energy efficiency and plant availability also requires optimal systems for cleaning the heat transfer surfaces of the boiler. The most common boiler cleaning system uses steam soot blowers. During cleaning, steam is not available for use by the turbine to generate electricity. CNIM is working on a dry system that uses less energy and does not interfere with the energy

production cycle. Lastly, SNCR DeNOx, a patented CNIM process for reducing nitrogen oxides (NOx), involves injecting urea in a solid form into the combustion chamber during combustion. This innovation boosts the facility's performance and brings emissions down well below regulatory limits. CNIM is working to develop this solution further. It will be implemented in the near future, with controls that incorporate operational data to optimize reagent consumption while reducing primary NOx production.

**No. 1** in Europe for low-corrosion solutions using chrome- and nickel-based alloys.



## WASTE RECOVERY

## Two turnkey waste-to-energy construction contracts for Wheelabrator in the UK

In 2016, CNIM secured two energy-from-waste facility construction contracts in rapid succession partnering with Wheelabrator Technologies bringing the CNIM Group's United Kingdom portfolio total up to 25 facilities. The two new facilities are located at Kemsley in Kent and the Deeside Industrial Park in Flintshire (North Wales).

The Wheelabrator Kemsley Generating Station is a combined heat and power facility which will generate sustainable electricity to power UK homes and businesses. Wheelabrator Kemsley will also provide 180 GWh of valuable steam heat to the adjacent Kemsley Paper Mill, owned and operated by DS Smith. The facility will be capable of processing 550,000 tonnes per annum of municipal solid waste with a generating capacity up to 49.9 MW (gross) of low carbon electricity. It is the largest recent undertaking of CNIM in the United Kingdom in terms of processing capacity.

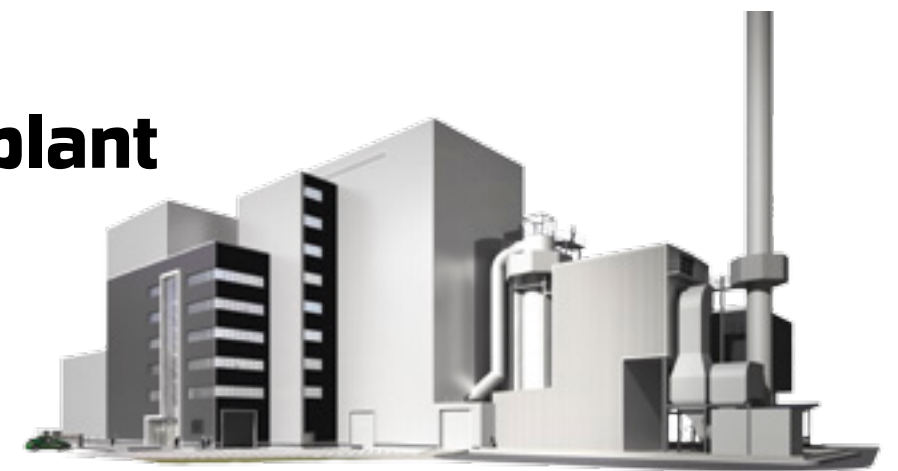
With the capability to process 200,000 tonnes per annum of municipal solid waste, the Wheelabrator Parc Adfer facility located in Flintshire will have the generating capacity of around 19 MW (gross) of sustainable electricity to meet the needs of over 30,000 UK homes and businesses. The facility will also be capable of providing valuable steam or heat to local industry and housing. The Wheelabrator Parc Adfer energy recovery facility will be built on a former steelworks site at the Deeside Industrial Park. It has been named Parc Adfer to reflect how it will help North Wales recover energy from its non-recyclable waste (Adfer meaning to 'recover' or 'restore' in Welsh).



## WASTE RECOVERY

## The Thiverval-Grignon waste-to-energy plant gets a makeover

Sidompe, the joint syndicate for household waste disposal and energy production, processes the waste produced by residents of 116 towns and villages spread across eight communities in Western Paris, representing more than 460,000 people. In 2016, CNIM won Sidompe's call for tenders for the design, production, operation, maintenance and energy optimization of the waste-to-energy plant in Thiverval-Grignon (in the Yvelines). Sidompe thus reaffirmed its trust in CNIM, which has been running the plant since 2008. Aimed at improving energy efficiency and flue gas treatment, the work involves replacing the first two units with a new unit, modernizing line 3, replacing the turbo generator, and upgrading the existing flue gas treatment system with the patented VapoLAB™ processes using quicklime and SNCR/TerminOXLAB™ developed by CNIM subsidiary LAB. In addition, switching from wet to dry flue gas treatment will eliminate stack plumes. From this standpoint, one important part of the project is to optimize the architecture of the existing facility, part of which was built in 1974, and to create an educational tour circuit for the general public.



**Thiverval-Grignon** Processing the waste of more than 460,000 residents  
17 MWe of capacity  
15,000 households getting power from the plant

**CNIM will be working in a cramped space in full operation,** and against tight deadlines because the turbo alternator needs to be operational before a certain date to comply with the new electricity supply contract. Once the work is complete, the plant will be able to produce 17 MWe in all. It will supply electricity to 15,000 households (compared with 6,000 currently) and be operated by CNIM for ten years.



## BIOMASS

## 3

## processes for the largest biomass plant in Europe

LAB, a CNIM Group subsidiary, offers solutions allowing its clients to boost the energy efficiency of their plants while reducing their environmental footprint. In 2016, LAB made further inroads into Northern Europe by winning a new contract for the design, engineering, supply, construction and commissioning of flue gas treatment and flue gas condensation plants for Hofer's Energiproduktion BIO4 facility in Denmark, the largest biomass plant in Europe equipped with a LAB flue gas treatment system. BIO4 is being developed as part of the conversion of the Amagervaerket combined heat and power plant in Copenhagen. It will replace a coal-fired line of the plant with a new one with capacity to treat 1.2 million metric tons of woodchips a year and to produce 415 MW of district heat and 150 MW of electricity. Designed for a nominal flow of 825,000 Nm<sup>3</sup>/h, the flue gas treatment and flue

gas condensation plants incorporate the following LAB processes:

- SecoLAB™ dry flue gas treatment with recirculation;
- a direct to district heating condensation unit combined with humidification of combustion air. It will be the largest flue gas condensing plant in Europe;
- efficient condensate water treatment for boiler feed water production. LAB will begin work on the plant in September 2017, and it is scheduled to be commissioned in 2018. This new facility will give LAB another reference in Denmark, particularly in the Copenhagen area. The company already has a waste recovery center in Amager Bakke, where two lines equipped with LAB flue gas treatment systems are being commissioned. It is located less than 500 meters from the Hofer CHP plant.



## RECOVERY OF METALS

## LAB is extracting value from bottom ash in Roosevelt

In Roosevelt, in the state of Washington, CNIM subsidiary LAB runs, under a BOO (Build-Own-Operate) contract, a facility that extracts and recovers the metals present in flue gas cleaning residues. The plant has been in service since March 2016 and can treat up to

180,000 metric tons of bottom ash a year. A cornerstone of the circular economy, waste incineration is a source of energy, but it also generates residues, and recycling them is a top priority for operators. As a waste treatment specialist, LAB offers a comprehensive range of solutions for stabilizing and solidifying the residues resulting from combustion gas treatment and for recovering the metals present in incinerator bottom ash. To treat bottom ash at the Roosevelt facility, LAB uses its patented RecuLAB™ NF process, the leading recycling process for recovering ferrous and non-ferrous metals. It involves dry-treating the bottom ash once it has

matured, in contrast to the RecuLAB™ AU process, which involves recycling wet bottom ash to extract precious metals from it. The contract was signed in April 2015. One year later, LAB brought the plant into service and will operate it for ten years. Metals extracted are sold on the local market or exported to Europe. It has been forecast that 4,290 metric tons of ferrous metals will be recovered every year, along with 4,620 metric tons of non-ferrous metals, with discharge volumes being reduced by 6%. The system has already contributed to the production of 15 km of recycled asphalt.

## ON-BOARD SYSTEMS

## More accurate weather and climate forecasting

Having won an initial contract from Airbus Defence and Space late in 2015 relating to the study and production of a fiber optic system, Bertin Technologies was awarded a new contract in 2016 for the study and production of a laser diode system for weather and climate forecasting. Both systems will be mounted on a satellite in the IASI-NG (Infrared Atmospheric Sounding Interferometer – New Generation) atmospheric sounding system that Airbus Defence and Space will supply to Centre national d'études spatiales (CNES) as part of Metop-SG, the European program for forecasting the weather and monitoring the climate between 2020 and the mid-2040s.



IASI-NG	
	2 on-board systems
	25 components measured

In addition to acquiring temperature and humidity data, the IASI-NG measures more than 25 other atmospheric components with a high degree of accuracy and provides the ultra-detailed data that are necessary for weather forecasting and monitoring pollution and the climate.

## ERGONOMICS

## Helping La Poste transform its offering

Bertin Ergonomie has been selected by La Poste to join "Vivier Innovation", a pool of preferred partners chosen to work on innovative projects. Within this framework, Bertin Ergonomie is assisting La Poste in the digital conversion of its services and the diversification of its offering. Bertin's ergonomists provided a number of services in 2016:

- assisting La Poste in implementing a solution allowing retailers to boost their sales and gain a foothold in online retailing;
- formalizing an interface and style guide for local services offered by La Poste through its mail distribution service;
- designing and assessing a parcel-tracking site for businesses.

This approach, focused on ergonomics and uses, incorporates as much client experience data as possible, notably relating to buy-in to the services offered among targeted users.

## SPACE

## Delivery of 150<sup>th</sup> booster casing for Ariane

Late in 2016, CNIM received an order for the very first nozzle casings for the boosters of the Ariane 6. A continuation of the work the Group did for Ariane 5 and Vega, this contract is proof of the client's satisfaction with the quality of the products CNIM has delivered. Indeed, CNIM has been making the lateral booster nozzle structures for the Ariane 5 launcher since 2004. The 150<sup>th</sup> booster casing was produced by its workshops in December 2016. CNIM is also continuing to work alongside Airbus Safran Launchers to qualify an innovative technology that can reduce production cycles and costs for these high value-added parts.



## RESEARCH REACTOR

## The nuclear industry of the future

The experimental Jules Horowitz Reactor (JHR) is a nuclear research reactor being built at the Atomic Energy Commission (Commissariat à l'énergie atomique – CEA) site in Cadarache. Research will primarily focus on applications for nuclear power plants and nuclear medicine. As the owner, operator and contracting authority, the CEA has built up an international consortium including EDF, Areva TA, the European Commission and research organizations in the Czech Republic, Spain, Finland, India, Israel, Sweden and England. Late in 2014, Areva TA awarded CNIM a contract to manufacture large components for the cell block forming the core of the JHR. This manufacturing contract will call on CNIM's skills and expertise in the fields of electron beam welding and machining of large-scale components, as well as its high-precision capabilities. In 2015, machining work on the component designs and the initial aluminum and stainless steel welding were carried out at La Seyne-sur-Mer. Manufacturing continued in 2016, conforming to the quality



standards for this type of equipment. The JHR will be made available to the nuclear energy industry, safety authorities and researchers. The studies conducted will be vital to the safety and competitiveness of plants. The reactor will also produce radioelements for nuclear medicine, meeting 25% of the European Union's annual needs on average.

## NUCLEAR FUSION

## Reproducing the energy of the sun here on earth with ITER

Through its participation in the ITER project since 2009, CNIM has been fulfilling its mission of supporting the energy transition. The contracts it has won in recent months are further confirmation of the Group's strategic decision to position itself as a long-term supplier for this program.

- ITER awarded CNIM a contract for Mechanical Handling Equipment (MHE) for In-Vessel Assembly. This involves studying, producing and approving the resources that will be used during the ITER project for the assembly of the reactor's internal components.
- Fusion for Energy (F4E) selected the CNIM-Bertin partnership to supply the In-Vessel Viewing System (IVVS), a remotely operated metrology and visual inspection system that can operate in the vacuum chamber of the reactor between two plasmas.

- F4E selected CNIM to make the poloidal field coils that will help maintain the shape and stability of the plasma by creating a sort of "magnetic cage".
- CNIM will make the port plug structures, extremely heavy structures that will house the control instruments for the ITER machine.
- The purpose-built tools contract is for the design, supply and on-site installation of equipment for the assembly of the ITER tokamak.
- Lastly, CNIM secured a contract for the design and supply of three giant pre-compression rings (PCR) to support the toroidal coils around the vacuum chamber, the purpose of which is to absorb the phenomenal mechanical stress placed on the coils.

### The international ITER program

Based in Cadarache (Bouches-du-Rhône), the program aims to deliver nuclear fusion on a commercial scale, offering limitless, safe and environmentally responsible energy.



PRODUCTION OF POLYURETHANE MEMBRANE AT THE LA SEYNE-SUR-MER SITE.

## NUCLEAR SAFETY

## CHERNOBYL: a polyurethane membrane to make the new arch leak-tight

**Exceptional size**, significant expansion capacity, ability to withstand wind speeds of up to 300 km/h, an innovative system to block the spread of any tears caused by extreme conditions... these are the characteristics of the membrane used to guarantee the leak-tightness of the new arch protecting Reactor 4 at Chernobyl, which was damaged in 1986. Novarka, the consortium formed by VINCI Construction Grands Projets and Bouygues Travaux Publics tasked with building the new safe confinement, asked CNIM to design and produce a membrane 1.5 meter wide and 2 km long to protect the atmosphere from any new release of radioactivity.

The first order of business was to subject the different materials to a battery of tests – distortion, elongation, tear

resistance – and to adjust the design to meet all requirements. After completing the qualification tests, CNIM moved on to the technical challenge of mass production, setting up an entirely automated workshop at its La Seyne-sur-Mer facility. The Group only had a few weeks to produce the 2,000 meters of membrane meeting the quality standards of the project in terms of thickness, quality of material, surface appearance, etc. CNIM's ability to deliver was a further demonstration of the expertise of its teams and the excellence of its industrial facilities, which can accommodate large-scale projects. Novarka confirmed its confidence in CNIM by entrusting it to provide a safe handling system and maintenance carriage for the main deck of the arch, which will be used for the future dismantlement of the reactor.

**2,000**  
meters of membrane produced  
in just a few weeks.

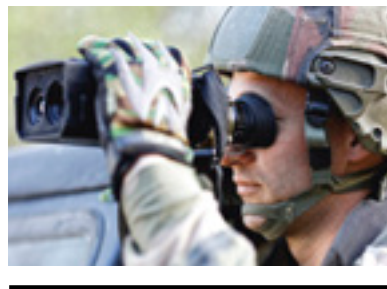


## OPTRONICS

## When darkness becomes an ally for armed forces

Bertin Technologies is a key provider of optronic surveillance systems to public and private clients.

Its instrument portfolio combines the use of high-tech sensors with image processing modules. This expertise has allowed it to develop innovative surveillance and identification devices for use by day or night. In 2016, Bertin Technologies launched FusionSight®, a handheld monocular producing low-light digital and thermal images that can be used separately or fused. Particularly suited to the needs of infantry commanders and special forces, this



**FusionSight®** When visibility is poor and light is low, FusionSight® offers invaluable visual support.

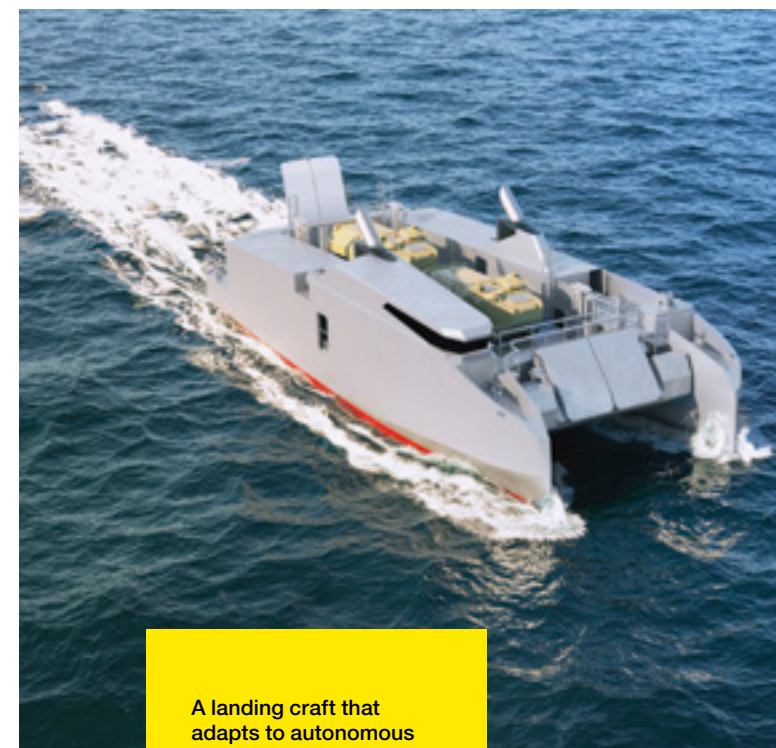
reliable, lightweight equipment is effective in the field during operations, when facing hidden or camouflaged enemies. With an ergonomic design that meets users' needs, FusionSight® can record images and stream them "live" to a remote screen.

## MARITIME PROJECTION OF FORCE

## A more autonomous L-CAT®

**L-CAT®** A new shore-to-shore L-CAT® model boosts CNIM's leadership in amphibious operations.

During the 2016 Euronaval exhibit, the annual world meeting for the naval technologies of the future, CNIM unveiled the new version of its L-CAT® Landing Catamaran. Following the L-CAT® ship-to-shore version, the new model is 100% shore-to-shore. It addresses the needs of Navies that want greater intervention and landing capacities over long distances without using the ship-to-shore model. The L-CAT® shore-to-shore has its own means of communication, detection and self-defense, which increases its operational autonomy. Going beyond amphibious operations, the L-CAT® shore-to-shore is perfectly suited to current maritime security needs, as well as to civil assistance requirements such as the evacuation of populations or citizens in disaster-stricken areas. It has a cargo capacity of 100 metric tons, compared with 80 for the L-CAT® ship-to-shore operated from a projection and command ship (BPC). Hydrodynamic optimizations have made it possible to improve its behavior at sea when it is forced to ride waves, accelerate or maneuver. As a result, it can travel 800 nautical miles up to sea state 5. Its fuel consumption is optimized, and the switch to a single propulsion line per hull significantly reduces operating and maintenance costs.



### A landing craft that adapts to autonomous amphibious operations

The new 100% shore-to-shore version of the L-CAT® Landing Catamaran was unveiled during the 2016 Euronaval Exhibition.

## CYBERSECURITY

## A solution for managing chatting on vessels

**Protecting sensitive information systems and critical infrastructure has become a major challenge for organizations.**

As a cybersecurity expert, Bertin IT offers solutions ranging from the prevention of cyberthreats to the deep defense of the information systems of operators of vital

importance. In 2016, Bertin IT unveiled a software solution that makes it possible to exchange information with different levels of confidentiality from a single workstation through instant messaging. This alternative to the physical separation of networks – which requires one workstation per data class – improves

operational efficiency while reducing the number of computer workstations at navy buildings. The solution is based on the EAL 5+-certified and France Cybersecurity-labelled security hypervisor.

CBRN RISKS<sup>(1)</sup>

## AlphaGUARD, an all-terrain portable laboratory for measuring radon gas

Bertin Technologies, a CNIM subsidiary, has launched a new version of AlphaGUARD, its device for measuring radon gas, developed using the expertise of staff from Saphymo, integrated in 2016. This handheld device, the benchmark for many international scientists and experts, was redesigned to make instantaneous or continuous measurements of radon gas activity, identified as the second leading cause of lung cancer after smoking. Above and beyond use in labs and on industrial sites, AlphaGUARD is increasingly used for activities that serve the general interest, for instance the prevention of radon risk in homes. Radon detection is now included in homebuilding requirements in Europe and the United States, and under new international regulations, most countries are required to implement action plans for this gas. AlphaGUARD's robustness allows it to ensure accurate measurements and reliability in the soil, air and water to effectively address this major public health issue.



The new AlphaGUARD features better ergonomics, high responsiveness, and embedded digital display and additional measurement modes and analytics functionalities. Its wide range of accessories is used for radon mitigation in buildings, industrial stack monitoring, uranium and rare earth mining, waterworks, seismic surveillance, radioactive waste management, etc.

(1) CBRN : chemical, biological, radiological and nuclear.



## CORPORATE AND SOCIAL RESPONSIBILITY

## Gaïa-Index ranking illustrates the rapid advances in CNIM's CSR performance

For the second year in a row, CNIM ranked among the top 70 companies monitored by Gaïa-Index, the Ethifinance subsidiary that analyzes and scores the CSR performance of European SMEs and mid-sized companies. The Gaïa-Index gave CNIM a score of 86/100 for its CSR policy in 2016. For CNIM, this score is a testament to the commitment of our management and staff to the sustainable development of the Group's activities. More than 500 small- and mid-cap companies were assessed by Gaïa-Index during the year. The data collected is used to score the transparency and performance level of the companies. The top 70 make up the Gaïa-Index.



## PHARMACEUTICAL

## Stepping up the fight against autoimmune and inflammatory diseases

Bertin Pharma is enabling the development of a repositioned drug<sup>(1)</sup> derived from biotechnologies by using Interleukin 2 to combat autoimmune and inflammatory diseases such as juvenile diabetes and lupus. From taking charge of the formulation through to analysis, the manufacture of clinical batches and ending up with stable pilot batches, Bertin Pharma has, on behalf of the French biotech company Iltoo Pharma, drawn on a broad range of human and technical skills. This cooperation arrangement, which began in 2013, has allowed Iltoo Pharma to forge ahead with the development of one of its flagship drugs.

(1) Repositioning involves finding a new therapeutic indication for a drug already on the market and known for a specific type of treatment. Advantages include shorter development lead times, reduced development costs, and higher success rates.

## TRAINING

## Promoting the development of skills

It is a point of honor for the CNIM Group to develop its own training modules with assistance from its employees, while also supporting them in terms of teaching methods. Trainers are employees who master a skill and/or have specific expertise, and who volunteer to share these with their colleagues. The use of experts from within the Group to teach modules on operational safety, nuclear power or production software helps build the skills of the workforce. Nearly 100 in-house trainers have completed the course on "Taking and leading in-house training courses". The course allows them to wear a trainer's hat more comfortably,

particularly in terms of teaching skills and the oversight of interns. In 2016, 16% of the CNIM SA training plan was delivered via in-house training. The Group has over 160 in-house trainers working to develop new modules for specialist technical and cross-functional training.

**160**  
in-house trainers are working to develop new training modules.

## HEALTH AND SAFETY

## A 0.088 accident rate in the UK

Over the past five years, CNIM has completed a number of projects in the UK (three waste-to-energy facilities for Veolia, two for Suez, one for FCC, two for Viridor and one for MVV Energie). During this time, the Group developed a health and safety culture, establishing a very robust management system in strict compliance with established procedures and regulations. Implementation of these measures at each site is overseen by a dedicated safety team, which ensures that all adhere to the measures and comply with the company's safety rules. To further strengthen its health and safety culture, CNIM SA regularly organizes on-site internal or external audits, and is taking all the necessary steps to earn OHSAS 18001 certification in 2017. In compliance with UK regulation CDM 2015 (Construction, Design and Management),



CNIM also set up a dedicated, independent team allowing it to act as Principal Design as defined in this regulation. Statistics prove that the system CNIM set up in the UK works: over the course of 10 million hours SA worked, CNIM's RIDDOR<sup>(1)</sup> accident rate was 0.088, well below the UK average of 0.4.

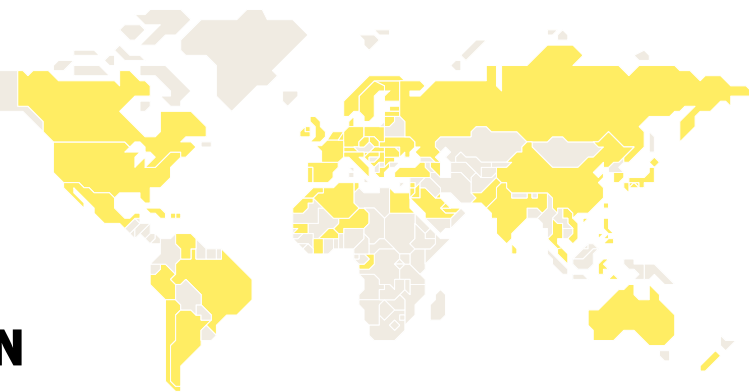
(1) Reporting of Injuries, Diseases and Dangerous Occurrences Regulation.



KEY FIGURES

# GEOGRAPHIC FOOTPRINT & PERFORMANCES

**2,515**  
employees<sup>(1)</sup>



## THREE PRODUCTION SITES

- La Seyne-sur-Mer (France)
- Casablanca (Morocco)
- Gaoming (China)

**69%**

of the water consumed by the Group is recycled water.

**594,077**

MWh of electricity was generated at sites operated by the CNIM Group, along with **321,368 MWh of heat.**

**€1.7**

million was invested in security in 2016.

**87%**

of employees are satisfied based on the internal satisfaction survey conducted in 2016.

(1) Data restated following the sale of Babcock Wanson.

KEY FIGURES

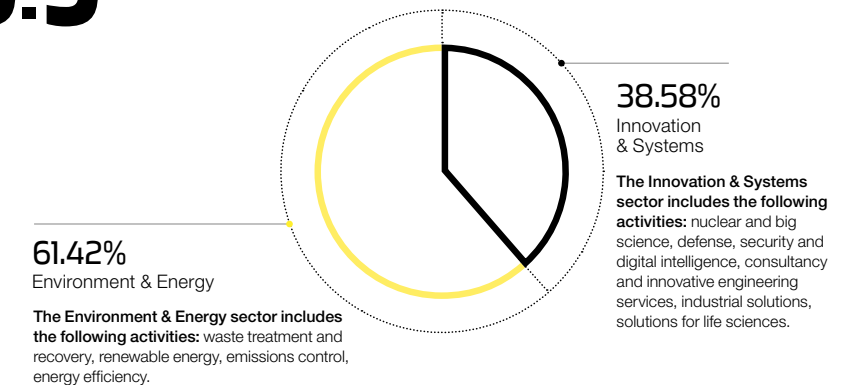
# RESULTS & OUTLOOK

CONSOLIDATED REVENUES

**€539.9**  
million

OF WHICH:  
**54.6%**  
from exports

BREAKDOWN OF 2016 GROUP REVENUES BY SECTOR



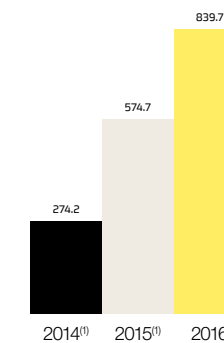
RECURRING OPERATING INCOME  
in million euros

**22.2**

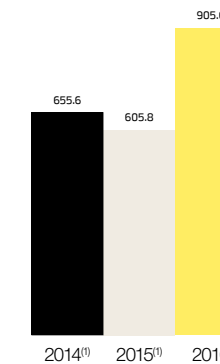
NET INCOME ATTRIBUTABLE TO OWNERS OF THE PARENT COMPANY  
in million euros

**49.7**

ORDER INTAKE  
in million euros



ORDER BACKLOG  
in million euros



(1) Data restated following the sale of Babcock Wanson.



# ENVIRONMENT & ENERGY

The main issues facing CNIM's clients are resource optimization, the energy transition and reducing the environmental impact of human activities. CNIM helps them address these challenges by proposing a range of innovative, tailored solutions dedicated to waste treatment, emissions control, renewable energy and the energy efficiency of industrial facilities – all with a focus on maximizing sustainability and security.

As an international specialist in the treatment and energy recovery of waste, CNIM provides services to local authorities, public service contractors and waste treatment operators. Its teams design, build and operate turnkey plants for the treatment of biomass, household waste, and non hazardous commercial and industrial waste. CNIM also treats infectious medical waste, sludge from water treatment plants, green algae. As a developer, CNIM works with its clients at every stage of their projects, whether they are seeking recommendations about the type of facility best suited to their needs or about a particular type of equipment. Services include the definition of their legal, fiscal and technological needs, the search for financial and technical partners, environmental impact assessments, construction permit applications, coordination with public authorities, civil society, etc. When operating waste recovery and biomass facilities built by the company or other providers, CNIM leverages a variety of technologies to cut operating costs. It can work with any type of energy recovery or flue gas treatment system. This business has been expanded to other areas, including waste sorting and recycling, organic resource recovery and renewable energies.

Waste of  
**100**  
million people recycled  
by CNIM.

## OUR CLIENTS

LOCAL AUTHORITIES, OPERATORS, PUBLIC SERVICE CONTRACTORS, PRIVATE INVESTORS	AND PUBLIC OR PRIVATE SERVICE COMPANIES (AGRI-FOOD, CHEMICALS, PETROCHEMICALS,	PAPER AND PHARMACEUTICAL INDUSTRIES).
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capacity. Thermal energy is produced with a technology developed by CNIM that uses Fresnel mirrors to generate steam at a more competitive price than fossil fuels in many sunny countries, steam that can be used directly in industrial processes such as enhanced oil recovery (EOR). For power generation, SUNCNIM designs and builds photovoltaic plants with battery storage, making it easier to integrate this intermittent energy source into the grid. SUNCNIM's offering is based on the Energy Management System (EMS) developed by subsidiary Bertin Technologies, the provision of performance guarantees in line with the project's financing requirements, and the experience acquired in building turnkey energy generation facilities. CNIM offers energy generators and consumers innovative energy storage, management and recovery solutions to optimize their performances and keep them competitive: high-capacity absorption chillers and integrated energy recovery systems with heat pumps, as well as optimization software supplied by Bertin Technologies.

CNIM also offers a wide range of services for the optimization, maintenance, refurbishment and standards compliance of waste-to-energy plants along with profitability and environmental performance guarantees. Its LAB subsidiary has a range of patented processes and flue gas cleaning services for emissions from waste-to-energy facilities, thermal power plants, industry and ships. LAB is also involved in the recovery of precious metals from waste incineration bottom ash. Its solutions are designed to preserve air quality and reduce final waste volumes.

CNIM Babcock Services is France's largest company active in the modernization and standards compliance of thermal power equipment. It supports industrial companies around the world for all types of boilers, regardless of the fuel used. Its expertise covers the entire sector – from design through to manufacturing, preventive and corrective maintenance, refurbishment, fuel switching, consulting, energy and environmental optimization, spare parts and turnkey boiler houses.

SUNCNIM, a subsidiary created in 2015 in partnership with EpiFrance, designs, builds and operates turnkey solar power plants that produce thermal energy and electricity with storage

**65,504**  
metric tons of waste incineration bottom ash  
fully reused in road engineering processes.

## KEY EVENTS OF 2016

In 2016, the construction business completed projects in Leeds and Wilton in the UK as well as the biomass facility at Estrées-Mons in France.

CNIM booked new orders for turnkey energy recovery facilities for Wheelabrator in Kemsley and Parc Adfer in the UK. In France, Sidompe selected CNIM's bid late in 2016 for the design, construction,

operation, maintenance and energy optimization of the waste-to-energy plant in Thiverval-Grignon (Yvelines).

Also in 2016, SUNCNIM finalized the financing of the joint project company, eLlo, that was set up to build and operate the concentrated solar power plant at Llo in the Pyrénées-Orientales (France).

CNIM Babcock Services and LAB Service refurbished the steam generation plant in Bercy (Paris, France) operated by CPCU. This contract, one of the largest environmental upgrades in France in recent years, involved converting the boilers that supply heat to the Parisian district heating and hot water networks to run on gas and liquid biofuel.



# INNOVATION & SYSTEMS

CNIM's products cover the entire lifecycle of high value-added equipment and systems (design, production, installation, commissioning and maintenance) in the fields of defense, nuclear power and general industry. The Innovation & Systems sector includes the Industrial Systems Division of CNIM and the Bertin subsidiaries, the skills and resources of which are used synergistically.

As a partner to the major defense and security organizations since it was founded in 1856, CNIM contributes to the protection of nations and individuals. The Group offers efficient, lasting solutions in the areas of nuclear deterrence, land and maritime armed force projection and security. To protect forces, corporations and citizens, Bertin offers a full range of optical surveillance and detection solutions and CBRN risk detection<sup>(1)</sup>. Its Bertin IT subsidiary, specializing in information technologies, provides software that can neutralize USB threats, secure information system interconnections and protect sensitive data within multi-domain workstations. Bertin IT also has expertise in advanced data analysis, with multi-source and multi-format (text, image, audio) analysis solutions for use in cybersecurity and cyberintelligence.

CNIM is a major player in the nuclear industry. It develops and produces equipment and systems for nuclear facilities, covering the entire fuel lifecycle. Its expertise in large scientific instruments,

## 56

years of serving France's Strategic Ocean Force.



acquired on major projects such as the Megajoule laser program and ITER reactor, allows it to meet the most demanding specifications for the design, production, installation and maintenance of complex instrumentation and mechanical systems.

In so doing, it leverages its exceptional capacity for innovation and multidisciplinary engineering skills, as well as its flexible industrial facilities that are competitive and of the highest quality.

Bertin also offers technology consulting and research services for many sectors: energy, environment, defense, aeronautics, space, healthcare, life sciences, etc.

(1) CBRN: chemical, biological, radiological and nuclear.

### OUR CLIENTS

MAJOR FRENCH AND INTERNATIONAL DEFENSE AND SECURITY FIRMS AND THE MARITIME, SPACE, ENERGY, ENVIRONMENT AND LIFE SCIENCES INDUSTRIES.

### KEY EVENTS OF 2016

**CNIM delivered two L-CAT® amphibious vessels to the Egyptian Navy.**

**Novarka**, the joint venture formed by VINCI and Bouygues that is building the Chernobyl arch, entrusted to CNIM several contracts that are currently in progress:

- waterproof membrane between the arch and the sarcophagus;
- a garage transfer system mounted on the main bridge of the arch;
- a maintenance trolley on the main bridge of the arch.

**The contract to manufacture radial plates for the ITER reactor** is proceeding apace. CNIM also landed new contracts for various parts of the ITER reactor in 2016.

**Bertin's Systems and Instrumentation Business Unit** brought three new pieces of equipment to the market in 2016:

- FusionSight®, a portable monocular particularly suited to the needs of infantry commanders and special forces;
- AlphaGUARD, the new-generation radon

gas measurement solution;

- InCellis, a new digital microscope designed to generate high-quality images and to facilitate cell observation.



# GOVERNANCE

Supervisory Board, Management Board and Management Committee



## MANAGEMENT BOARD

Nicolas DMITRIEFF  
Chairman  
Stanislas ANCEL  
Philippe DEMIGNÉ  
Christophe FAVRELLE

## ADVISORS TO THE CHAIRMAN

Mohamed Ayachi AJROUDI  
Chairman of CNIM Saudi  
and CNIM Middle East  
Stefano COSTA

## MANAGEMENT COMMITTEE

Nicolas DMITRIEFF  
Stanislas ANCEL  
Philippe DEMIGNÉ  
Christophe FAVRELLE  
Éric CHADENIER  
François DARPAS

## Group Functional Departments

**Chief Financial Officer**  
Christophe FAVRELLE

## SUPERVISORY BOARD

Christiane DMITRIEFF  
Chairman  
François CANELLAS  
Deputy Chairman  
Sophie DMITRIEFF  
Member  
Lucile DMITRIEFF  
Member  
Société FREL  
represented by Agnès HERLICQ  
André HERLICQ  
Member  
Stéphane HERLICQ  
Member  
Johannes MARTIN  
Member  
Société MARTIN  
represented by Ulrich MARTIN  
Sigrid DUHAMEL  
Independent Member  
Louis-Roch BURGARD  
Independent Member

**Group General Counsel,  
Corporate Purchasing & CSR**  
Éric CHADENIER

Alain SONNETTE  
representing employee shareholders  
François HERLICQ  
Honorary Member  
Éric CHADENIER  
Secretary

## AUDIT COMMITTEE

François CANELLAS  
Chairman  
Christiane DMITRIEFF  
Member  
Sophie DMITRIEFF  
Member  
Lucile DMITRIEFF  
Member  
Société FREL  
represented by Agnès HERLICQ  
Sigrid DUHAMEL  
Member  
Louis-Roch BURGARD  
Member

## STRATEGIC COMMITTEE

Louis-Roch BURGARD  
Chairman  
Members  
Christiane DMITRIEFF  
Sophie DMITRIEFF  
Lucile DMITRIEFF  
Stéphane HERLICQ  
André HERLICQ  
Sigrid DUHAMEL  
François CANELLAS  
Johannes MARTIN

**Human Resources,  
Information Systems and  
Communications Director**  
François DARPAS

# DEPARTMENTS BY MAJOR PRODUCT AND SERVICE LINES

## ENVIRONMENT & ENERGY

**Chief Executive**  
Stanislas ANCEL

**Deputy Chief Executive**  
Klaus Guenther ZINK

**Assistant Chief Executives**  
Claude BOUTIN  
Thomas FEILENREITER  
Didier FONTAINE

## • DIVISIONS

**CNIM Waste and Energy  
Management Solutions (CNIM WEMS)**  
Thomas FEILENREITER  
Director

## CNIM EPC Contracts

Claude BOUTIN  
Director

## SUNCNIM

Stanislas ANCEL  
Chairman

Sylvain LEGRAND  
Chief Executive

## LAB

Thomas FEILENREITER  
Chairman of the Board of Directors

Denis BAUER  
Chief Executive

## CNIM Babcock Services

Hubert DUMAS  
Director

## INNOVATION & SYSTEMS

**Chief Executive**  
Philippe DEMIGNÉ

## • INDUSTRIAL SYSTEMS DIVISION (CNIM Industrial Systems Business Unit and Morocco, China and Singapore subsidiaries)

Philippe LAZARE  
Chief Executive and Site Manager,  
La Seyne-sur-Mer

## CNIM Industrial Systems Business Unit

**Defense, Space and Maritime  
Business Line**  
Matthias BAYART, Director

**Nuclear and Big Science  
Business Line**

Ludovic VANDENDRIESCHE, Director

**Thermal Systems Business Line**  
François-Xavier CATELAN, Director

**Industrial Manufacturing Business Line**  
Daniel ROSSI, Director

## • BERTIN DIVISION

Bertin Technologies  
Philippe DEMIGNÉ, Chairman

## Consulting and Engineering Business Unit

**Energy and Environment**  
Germain GOURANTON, Director

**Modelling & Scientific Computing**  
François LABORDE, Director

**Ergonomics & Human Factor**  
Dominique SOLER, Director

## Pharma & Biotechs Business Unit

Xavier MORGE, Director

## Systems & Instrumentation Business Unit

Bruno VALLAYER  
Jean ROCH  
Directors

## Information Technologies Business Unit

Béatrice BACCONNET, Director



## Main locations in France

### La Seyne-sur-Mer

Waste-To-Energy plants; complex mechanical systems and equipment for defense, nuclear power, research and industry; biomass boilers; concentrated solar power plants  
Zone portuaire de Brégaillon – CS 60208  
83507 La Seyne-sur-Mer Cedex  
Tel.: +33 (0)4 94 10 30 00

### Saint-Aubin

Household waste-to-energy plants  
25, route de l'Orme  
Parc des Algorithmes, Bât. Esope  
91190 Saint-Aubin  
Tel.: +33 (0)1 34 49 14 00

### CNIM Babcock Services

#### La Plaine-Saint-Denis

Refurbishment and after-sales service for thermal power equipment and waste-to-energy plants; boiler house installation  
9, rue Francis-de-Pressensé  
93210 La Plaine-Saint-Denis  
Tel.: +33 (0)1 49 37 31 31  
Fax: +33 (0)1 43 52 04 03  
babcock@cnim.com

### Northern cluster

Paris / Ile de France: Villepinte (93)  
Central / Western France: Saint-Herblain (44)  
Eastern France: Illzach (68)  
Northern France: Wattrelos (59)

### Southern Cluster

Rhône-Alpes region: Chassieu (69)  
South-East France: Gardanne (13)  
South-West France: Le Barp (33)

### CNIM Industrial Systems office

Nuclear (upstream and downstream)  
Agence de Cadarache  
c/o Technoplus Industries  
ZAC Le Castellet  
6, rue Jules-Horowitz  
13115 Saint-Paul-lez-Durance  
Tel.: +33 (0)4 94 10 33 27  
Fax: +33 (0)4 94 11 15 91  
vincent.gautier@cnim.com

## Main subsidiaries in France

### LAB Lyon

Flue gas treatment systems  
Le Sunway  
259, avenue Jean-Jaurès  
69007 Lyon  
Tel.: +33 (0)4 26 23 36 00  
Fax: +33 (0)4 26 23 37 70  
lab@lab.fr

### SUNCNIM

Development and turnkey construction of concentrated solar power plants and solar steam generators  
Zone portuaire de Brégaillon – CS 60208  
83507 La Seyne-sur-Mer Cedex  
Tel.: +33 (0)4 94 10 30 00  
Fax: +33 (0)4 94 11 15 98  
contact@suncnim.com

### Bertin Technologies

#### MONTIGNY-LE-BRETONNEUX

Headquarters  
Technical consultancy and expertise, development and manufacturing of innovative systems and instruments for life sciences, nuclear and defense  
Parc d'activités du Pas-du-Lac  
10 bis, avenue Ampère  
78180 Montigny-le-Bretonneux  
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#### AIX-EN-PROVENCE

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155, rue Louis-Armand  
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contact@bertin.fr

#### BIÈVRES

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91570 Bièvres  
Tel.: +33 (0)1 39 30 60 00  
contact@bertin.fr

#### MONTBONNOT

100, allée Saint-Exupéry – Bâtiment B  
38330 Montbonnot  
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#### SAINT-AUBIN

25, route de l'Orme  
Parc des Algorithmes, Bât. Esope  
91190 Saint-Aubin  
Tel.: +33 (0)1 39 30 60 00  
contact@bertin.fr

#### TARNOS

Espace technologique Jean-Bertin  
19, rue Hélène-Boucher  
40220 Tarnos  
Tel.: +33 (0)5 59 64 86 48  
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#### THIRON-GARDAIS

ZI La Chalopinière  
28480 Thiron-Gardais  
Tel.: +33 (0)2 37 49 50 51  
contact@bertin.fr

#### TOULOUSE

3, rue du Professeur Pierre-Vellas  
Europarc – Bâtiment 9  
31300 Toulouse  
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### Bertin IT

#### MONTIGNY-LE-BRETONNEUX

Headquarters  
Publisher of cutting-edge software solutions dedicated to Cyber Security, Cyber Intelligence, Strategic Intelligence (AMI Software) and Speech Processing (Vecsys)  
Parc d'activités du Pas-du-Lac  
10 bis, avenue Ampère  
78180 Montigny-le-Bretonneux  
Tel.: +33 (0)1 39 30 60 00  
contact@bertin-it.com

#### MONTPELLIER (R&D)

Bât. Archimède  
396, rue du Mas de Verchant  
Parc Eurêka  
34000 Montpellier  
Tel.: +33 (0)4 99 13 09 00  
Fax: +33 (0)4 99 13 09 01  
contact@bertin-it.com

### Vecsys

#### MONTIGNY-LE-BRETONNEUX

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10 bis, avenue Ampère  
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Tel.: +33 (0)1 69 29 87 87  
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contact@bertin-it.com

### Bertin Pharma

#### MONTIGNY-LE-BRETONNEUX

Headquarters  
Translational medicine / ADME & DMPK / Analysis / Biosecurity / Biodecontamination / Pharmaceutical development / MA dossiers and out-licensing / Laboratory reagents and bioanalysis tools  
Parc d'activités du Pas-du-Lac  
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#### ARTIGUES-PRÈS-BORDEAUX

Pharmaceutical development / MA dossiers and out-licensing  
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33370 Artigues-près-Bordeaux  
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#### MARTILLAC

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Fax: +33 (0)5 57 96 09 45  
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#### ORLÉANS

ADME / Bioanalysis  
10, avenue Claude-Guillemain  
45071 Orléans Cedex  
Tel.: +33 (0)2 38 76 20 60  
Fax: +33 (0)2 38 76 20 59  
info@bertinpharma.com

## Main subsidiaries worldwide

### ENVIRONMENT & ENERGY

#### GERMANY

##### LAB GmbH

Flue gas and ash treatment systems  
Bludenzer Strasse 6  
70469 Stuttgart  
Tel.: +49 (0) 711/222 49 35 - 0  
Fax: +49 (0) 711/222 49 35 - 99  
labgmbh@labgmbh.com

#### SAUDI ARABIA

##### CNIM Saudi

Household waste-to-energy plants  
BP 1522  
Jeddah 21482  
Tel.: +966 12 66 74 393  
Fax: +966 12 66 77 870  
contact@cnim.com

#### AZERBAIJAN

##### CNIM AZ

Waste-to-energy plant operation  
19, Rasul Rza Str.,  
Apts. 8, 9, 10, Sabail District  
Baku City, AZ 1095  
Tel.: +994 12 310 05 05  
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#### BAHREÏN

##### Bahrain Waste Services Ltd/ CNIM Bahrain Ltd

Household waste-to-energy plants  
Bab-Al-Bahrain Building  
150 Government Avenue  
Manama 315  
contact@cnim.com

#### UNITED ARAB EMIRATES

##### CNIM MIDDLE EAST

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#### UNITED STATES

##### LAB USA

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Office : +1 920 544 97 10  
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#### UNITED KINGDOM

##### CNIM UK

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anne-sophie.legohebel@cnim.com

#### MES.E (MES Environmental Ltd)

Household waste-to-energy plants  
Crown Street – Wolverhampton  
West Midlands, WV1 1QB  
Tel.: +44 190 235 28 64  
Fax: +44 190 235 20 52

#### Dudley Waste Services Ltd

#### Hanford Waste Services Ltd

#### Wolverhampton Waste Services Ltd

Household waste-to-energy plants operation  
Crown Street  
Wolverhampton  
West Midlands, WV1 1QB  
Tel.: +44 190 235 28 64  
Fax: +44 190 245 10 69

#### RUSSIA

##### CNIM Moscow

CNIM's representative office in Moscow  
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info@cnimrus.ru

## INNOVATION & SYSTEMS

### GERMANY

#### Saphymo GmbH

Systems and instrumentation for the life sciences, nuclear power and defense  
Heerstrasse 149  
D-60488 Frankfurt am Main  
Tel.: +49 (0) 69-975 51 40  
Fax: +49 (0) 69-76 53 27  
sales@saphymo.de  
Fax: +994 12 310 05 08

#### Bertin IT (Germany office)

Heerstrasse 149  
D-60488 Frankfurt am Main,  
Germany  
Tel.: +49/ 171 998 1227  
contact@bertin-it.com

#### CANADA

##### CNIM Canada Inc.

Escalators and moving walkways (installation and maintenance)  
5530, rue St-Patrick, Unité 1108-7  
Montréal, Qc H4E 1A8  
Tel.: +1 514 375 0749  
alain.bouthillier@cnim.com

#### CHINA

##### CTE

Complex mechanical systems and equipment for defense, nuclear power, research and industry  
Sane Road, Cangjiang Industrial Park,  
Gaoming District, Foshan City Guangdong,  
China (PC 528500)  
Tel.: +86 (0) 757 886 200 88  
Fax: +86 (0) 757 886 203 03  
daniel.manso@cnim.com

#### UNITED STATES

##### Bertin Corp.

Systems and instrumentation for the life sciences, nuclear power and defense  
155 Gibbs Street, No. 533  
Rockville MD 20850, USA  
Tel.: +1 301 339 81 03  
info@bertin-corp.com

#### ITALY

##### Saphymo Italia

Systems and instrumentation for the nuclear industry  
Vico Chiuso Paggi 4/11  
16126 Genova  
Tel.: +39 010 2512978  
Fax: +39 010 2512114  
mail@saphymoitalia.com

#### MOROCCO

##### AMI Software (Bertin IT)

Office  
40, rue des Hôpitaux  
Casablanca  
Tél.: +212 522 26 28 02  
contact@amisw.com

#### CNIM Babcock Maroc

Manufacturing and services for industrial boilers and pressure vessels. Industrial sub-contracting for welded assemblies  
Route Côtière III  
Km 12400 – 28 632  
Aïn-Harrouda Mohammedia  
Tel.: +212 522 67 01 60  
Fax: +212 522 670 198  
contact@cnim.ma

#### UNITED KINGDOM

##### AMI Software (Bertin IT)

St Johns Innovation Centre  
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Tel.: +44 122 342 14 51  
Fax: +44 122 342 08 24  
contact@amisw.com

#### SINGAPORE

##### CNIM Singapore Private Limited

Escalators and moving walkways (installation and maintenance)  
Systems and instrumentation for the life sciences, nuclear power and defense  
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Constructions Industrielles de la Méditerranée

**CNIM**

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*Société anonyme* with a Management Board  
and a Supervisory Board,  
with share capital of €6,056,220

Paris Trade and Companies Register B662 043 595  
SIRET 662 043 595 00138