

# SUSTAINABLE DEVELOPMENT REPORT 2017

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## > A WORD FROM THE PRESIDENT

Hello everyone,

It's a pleasure to share this 2017 Sustainable Development Report with you. Alouette is a leader in primary aluminium production, and 2017 was a milestone for us, as we celebrated 25 years of operations. I want to thank all of the pioneers who, from the start, had a vision and made it come true in the shape of a cutting-edge aluminium smelter that I am proud to be part of. In the light of the results presented in this report, it is obvious that everyone worked very hard in 2017 to maximize production while meeting the highest standards in the areas of health and safety and the environment. Alouette operates in a highly competitive market, and we have made a name for ourselves thanks to small but constant improvements in terms of costs and excellent practices. Seeing that our company was created with strong support from our host community, our 25th birthday was a chance for us to join with all of our stakeholders and look back on the past quarter century — a springboard to the future and tomorrow's aluminium smelter.

Enjoy the report!

  
Patrice L'Huillier  
President and Chief Executive Officer

## > OUR MISSION

Aluminerie Alouette, as an independent operating company, shall optimize its operations by applying world-class business principles conducive to continuous improvement of its processes and assets. As a company committed to sustainability, Alouette will maintain high safety and environmental standards, in order to be recognized as a responsible employer and corporate citizen.

## > OUR STRATEGY

Aluminerie Alouette is driven every day by a strategy based on five principles guiding us to achieve the level of excellence that contributes to maintaining Alouette among the leading producers of primary aluminium.





## PEOPLE AND CULTURE

For over 25 years, Alouette has nurtured a “family” culture, with a tangible impact on employees’ daily experience. Some team members have retired and new employees have joined the team, changing the face of the company, which is now home to both pioneers and more recent recruits. In 2017, the company celebrated its first quarter of a century by holding a number of activities involving current and retired employees. Numerous projects were also developed internally with employees in all sectors and trades, with a view to modernizing Alouette on an ongoing basis and boosting its international competitiveness, while facilitating the work of all personnel. In short, with a quarter century of history behind it, Alouette and its team are now firmly focused on the future. Year in, year out, the company holds a wide array of training activities (health and safety, task specific, aimed at professionals and managers, etc.) in order to develop its people’s skills and share knowledge and experience. Alouette employees’ know-how, combined with technological tools and numerous projects under way, will most certainly contribute to progress at the Pointe-Noire aluminium smelter. At the same time, the company is committed to remaining an employer of choice for the entire community.



## A SOLID TEAM UNITED BY FIVE VALUES



### HIGHLIGHTS

- Several hundred employees and their families** took part in COBRAL social club activities
- 90% of employees participated in Forum sessions**, an opportunity for dialogue
- Close to 65 retired employees** took part in the first annual brunch in their honour
- New employees received training** in continuous improvement
- Over 20,000 hours of training** were given
- Several new emergency response team members** were trained
- The self-learning system** was optimized
- 173 employees chalked up 25 years of service** with the company
- A mural of the company's five values** illustrates what unites the team
- Summer barbecues were held** to thank employees and subcontractors
- Two Alustar evenings** highlighted the organization's 25th birthday and recognized deserving employees
- Two health and safety leader candidacies** were submitted with the CNESST
- Bronze Award** at the *Salon sur les meilleures pratiques d'affaires* (best business practices trade show)



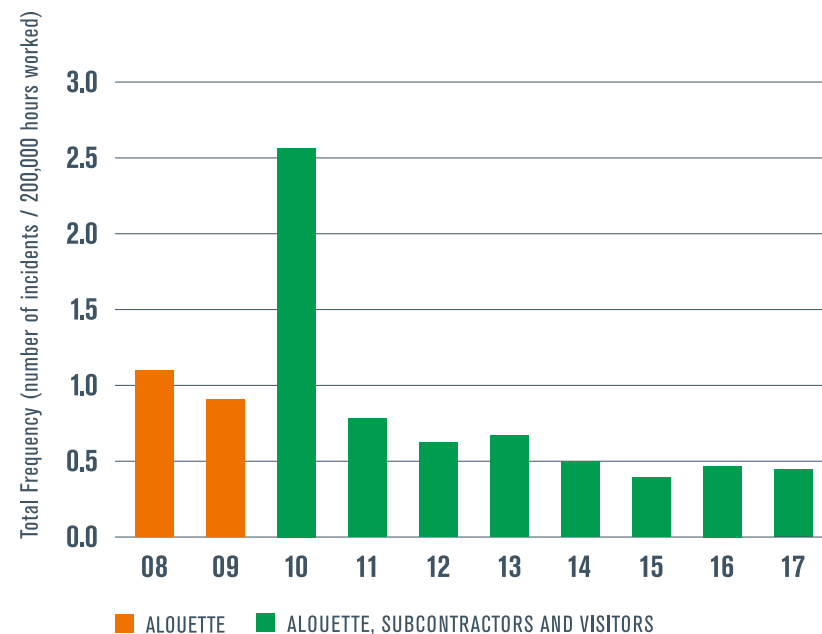


## HEALTH AND SAFETY, ENVIRONMENT

The industrial sector undeniably presents certain risks for both health and safety and the environment. Since its creation, Alouette has striven to reduce risks to a minimum for its employees and citizens who live near its facilities. Every day, hundreds of employees apply best practices in the area of health and safety so they can go home healthy and uninjured. As for our planet, all employees have a positive impact on a daily basis. By closely following rules and procedures, they help maintain a healthy environment for future generations. Once again in 2017, emissions at source and ambient air emissions were kept below current limits and targets. The same applies to runoff water and residual materials, for which improvement opportunities were deployed on an ongoing basis by dedicated monitoring teams.

## A SAFE, HEALTHY WORKPLACE

### Total recordable injury frequency



In 2017, there were five incidents with recordable injuries, the same number as during the previous two years. The total number of injuries was down slightly compared with 2016. Alouette and its employees continued to work together to innovate, eliminate risks at source and achieve zero injuries.



## HIGHLIGHTS

**24 years with no recordable injuries** for the laboratory and warehouse

**1 million hours with no recordable injuries** for the facility as a whole

Member of the **Table de concertation sur la qualité de l'air** (air quality issue table)

Partner of the **Observatoire de veille environnementale de la baie de Sept-Îles** (Sept-Îles Bay environmental monitoring observatory)

Awareness activity conducted by Sept-Rivières regional county municipality's **Écopatrouille** (environmental patrol)

Innovation submitted to **Grands Prix santé et sécurité du travail**

**100% Impact theme days** focusing on health and safety and the environment

**Leadership meetings** with key subcontractors

**95% compliance** with major risk procedures

**Targeted interactions** between all employees and their managers

**Promotion of Time Out**, a tool for analysing risks before performing a task

**Deployment of six golden rules** in the area of health and safety

**New testing and adjustment campaign** for respiratory and hearing protection

Renewal for three years of **Entreprise en santé | Élite certification**

Numerous activities to promote **healthy lifestyles**

**ICI ON RECYCLE** ("We Recycle" program) **Level 3 Gold certification**

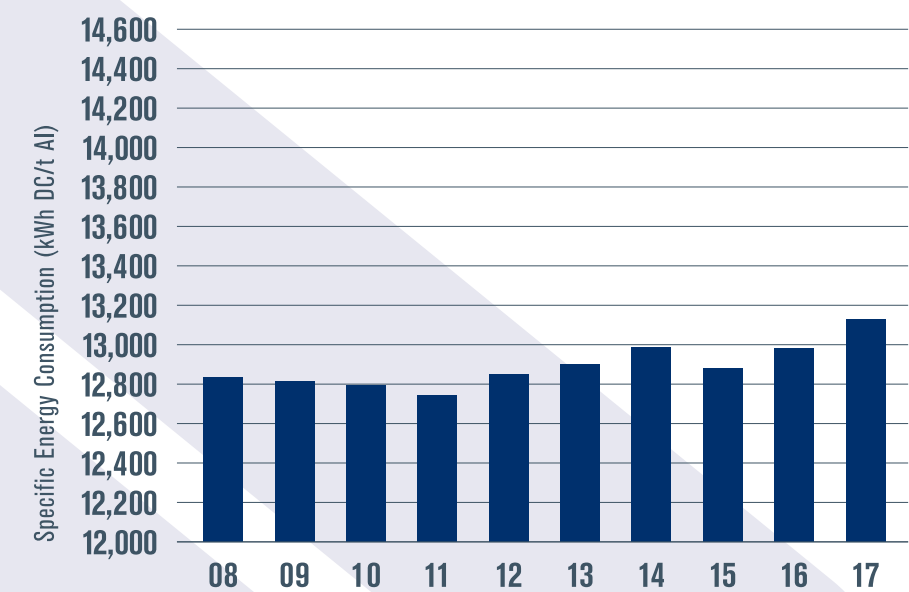
**Close to \$3 million invested** in health and safety and the environment





## Energy consumption

Specific energy consumption in the smelting sector was 13,126 kWh (direct current) per ton of aluminium. Alouette uses energy responsibly.





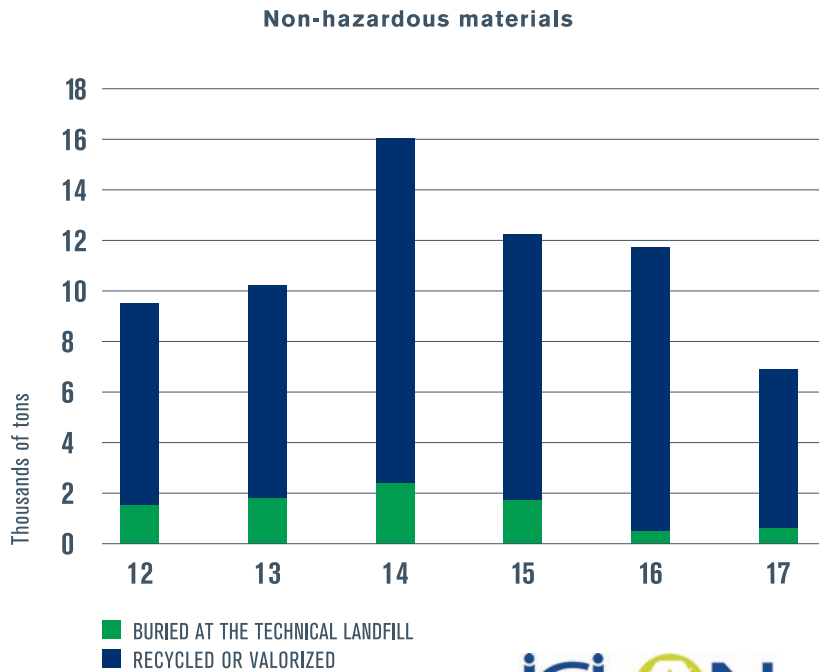
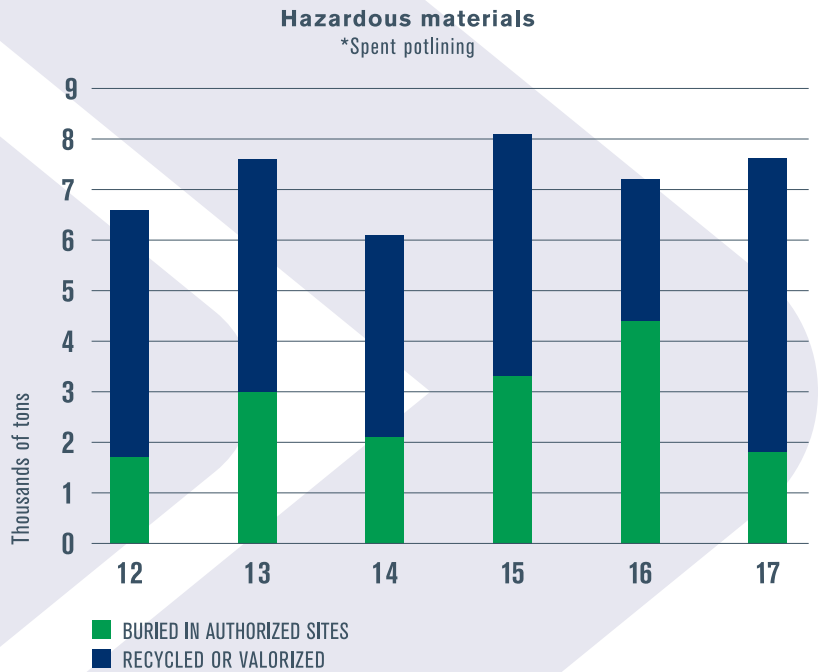
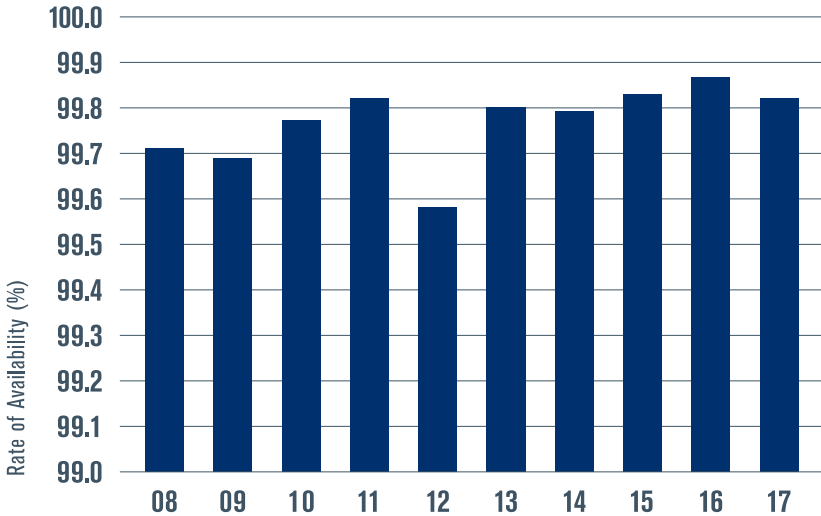


### Scrubber Availability

Alouette operates seven scrubbers to protect the environment. Five gas treatment centres are located in the potrooms and there are two fume treatment centres in the anode baking furnace sector. In 2017, scrubber availability exceeded 99.8%, including planned downtime for maintenance in order to ensure scrubber efficiency. This figure confirms that the scrubbers were carefully and efficiently operated and maintained by employees.

### Residual material recycling and reclaiming

The smelter recycles or reclaims value from over 80% of the residual materials that it generates, other than spent potlining, either directly as part of its own operations or in partnership with various organizations. The company focuses on sound management of hazardous and non-hazardous residual materials at all times, as shown by its Level 3 *ICI ON RECYCLE* (“We Recycle”) certification since 2010 and Gold certification in 2017.

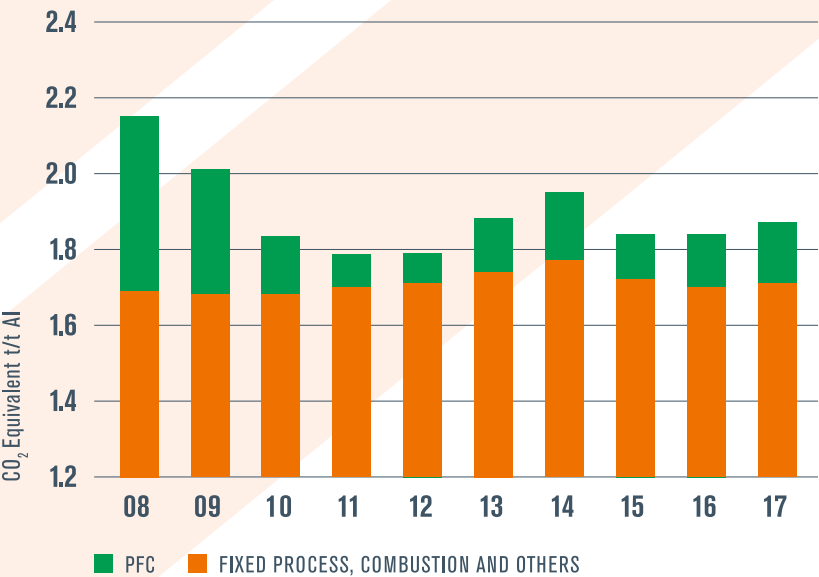




# AIR EMISSIONS

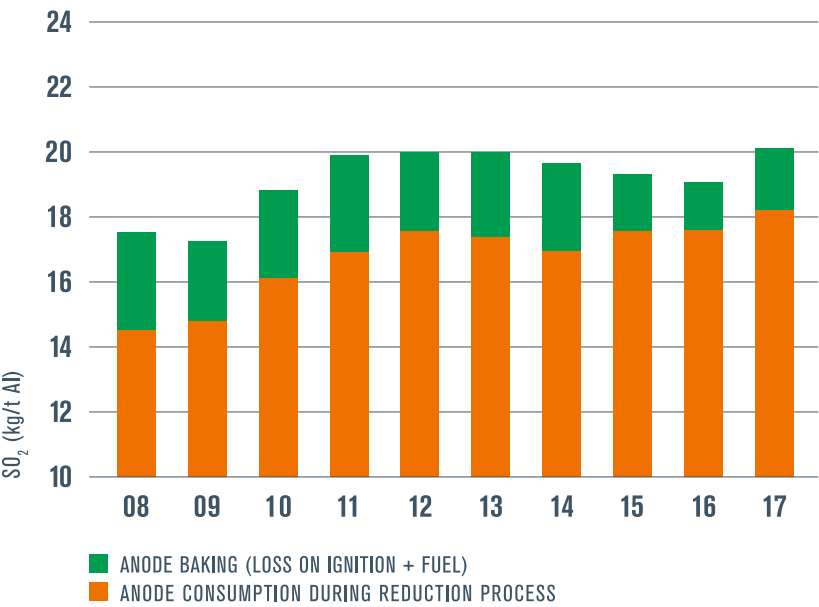
## Greenhouse gas emissions

Greenhouse gas (GHG) emissions amounted to 1.88 tons of CO<sub>2</sub> equivalents per ton of aluminium produced (t CO<sub>2</sub> eq./t Al) in 2017. There was a slight rise in perfluorocarbons (PFCs), explainable by an increase in anode effects due to operating conditions. The company continued its efforts to reduce GHG emissions by deploying a variety of initiatives. As required under Quebec’s carbon market regulation, GHG inventories are verified annually by an external firm.



## Sulphur dioxide

In 2017, sulphur dioxide (SO<sub>2</sub>) emissions were 20.1 kg/t Al. At the end of the year, a breakdown of petroleum coke mixing equipment used to manufacture anodes had an impact on sulphur content. In addition, the sulphur content of raw materials available on the market generally remained higher than normal — a considerable problem for the entire industry.

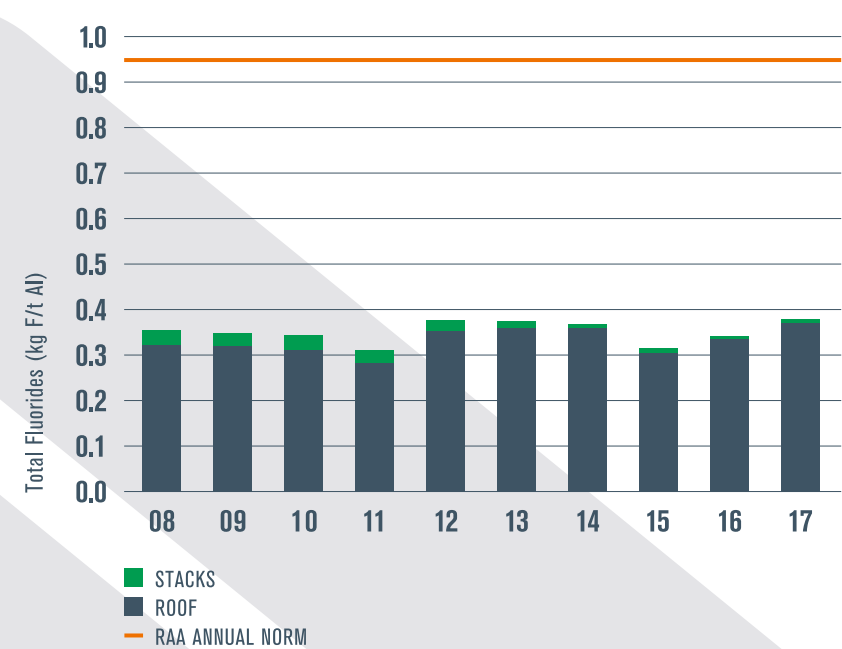


CANADIAN ALUMINIUM IS PRODUCED WITH THE LOWEST CARBON FOOTPRINT IN THE WORLD, THANKS TO RENEWABLE, HYDROELECTRIC ENERGY USED FOR ITS PRODUCTION.



## Total fluorides from reduction process

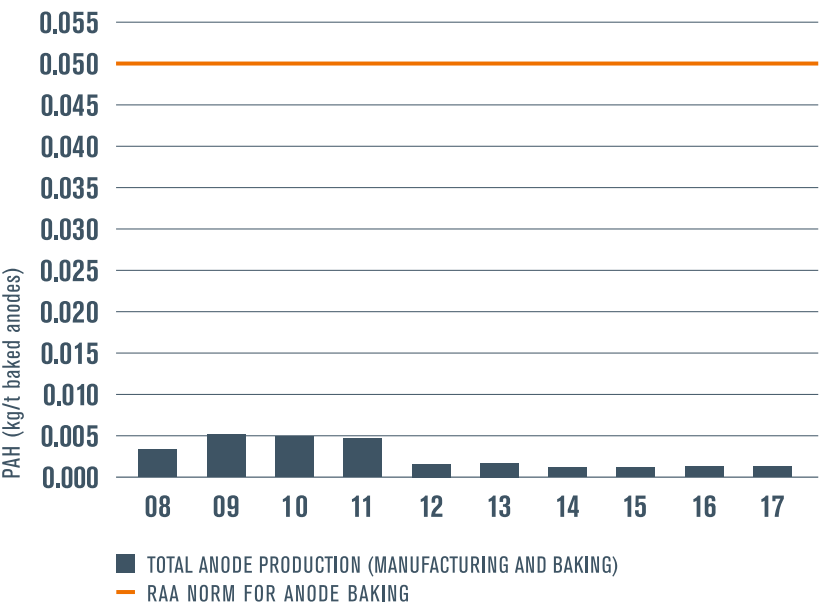
Fluoride emissions in the smelting sector were 0.38 kg/t Al. Among other factors, operational instability has an impact on performance in this area. Thanks to employees' involvement in maintaining best operational practices and efficient scrubber management, fluoride emissions were kept well below the regulatory limit.



\*RAA: Règlement sur l'assainissement de l'atmosphère (The Clean Air Act)

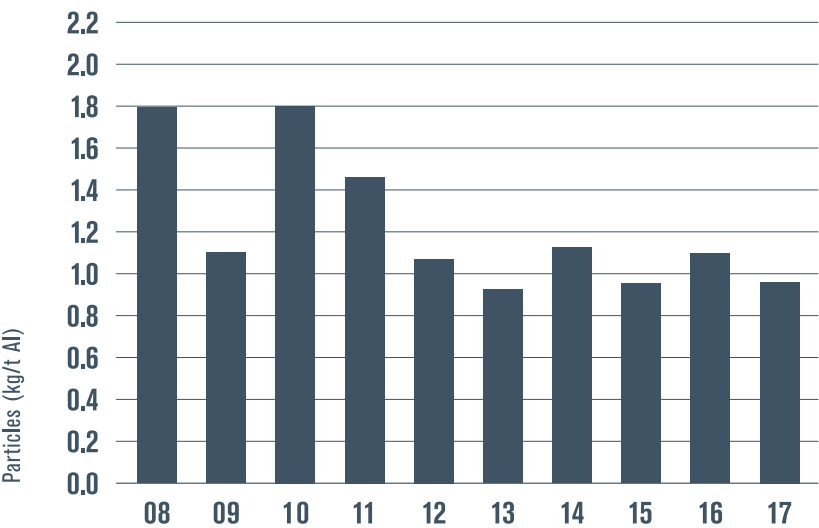
## Polycyclic aromatic hydrocarbons

Emissions of polycyclic aromatic hydrocarbons (PAHs) at the Anode Plant (manufacturing and baking) remained stable, at 0.0013 kg/t of baked anodes, well below Quebec's regulatory limit for anode baking (0.05 kg/t of baked anodes). This shows the quality of Alouette's operations.



## Particles

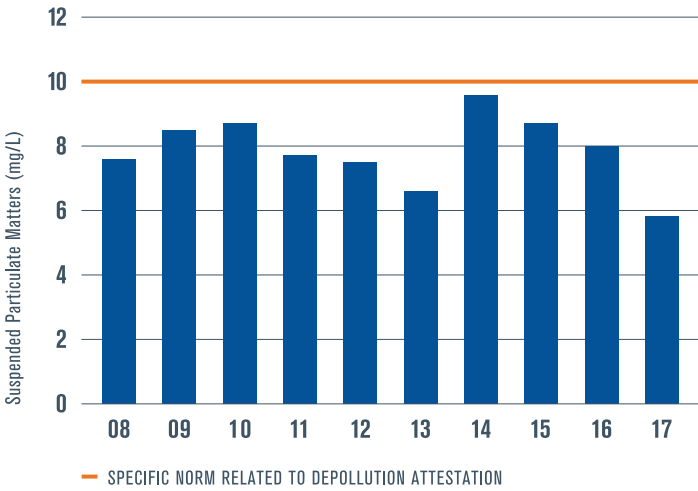
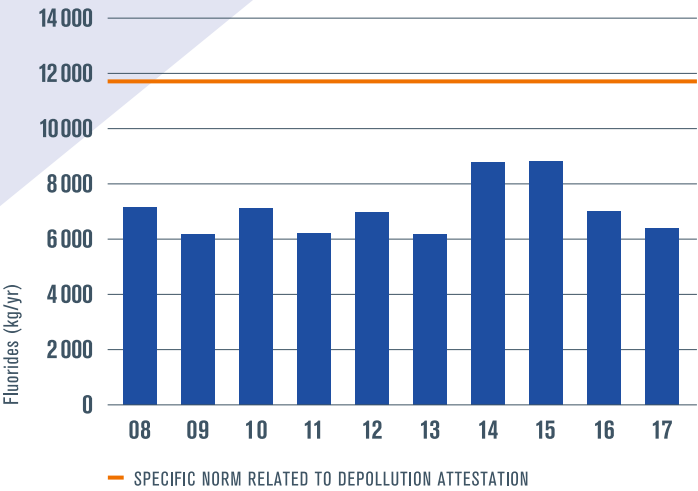
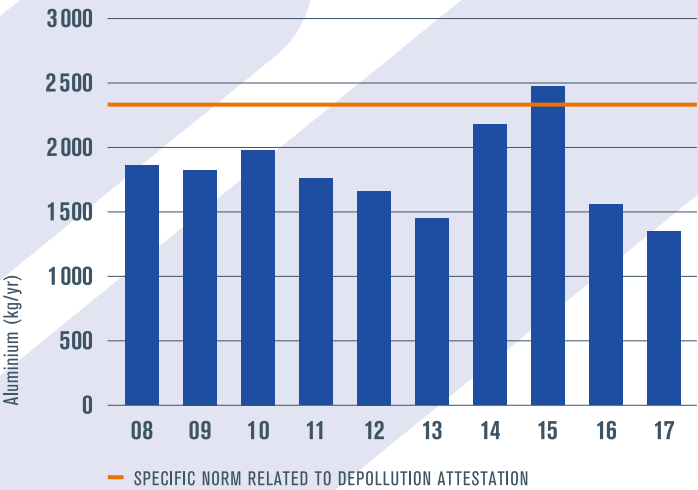
Most particle emissions originate from roof vents, scrubbers and baghouses. Particle emissions were 0.98 kg/t Al in 2017. This low level may be explained by the reliability of Alouette's scrubbing equipment and the efforts devoted by the team assigned to the equipment.






# RUNOFF WATER

The storm drainage outfall is located at the place where water leaves the settling pond. The system gathers rainwater from the site and buildings. The water undergoes continuous sampling at the outfall. The lower figures for 2017 point to careful application of the facilities’ operational strategy.





PROCESS WATER IS NEVER DISCHARGED INTO THE ENVIRONMENT. INSTEAD, INDUSTRIAL WATER IS REUSED IN THE FUME TREATMENT CENTRES. ALOUETTE IS COMMITTED TO THE RESPONSIBLE MANAGEMENT OF THE USE OF POTABLE WATER.

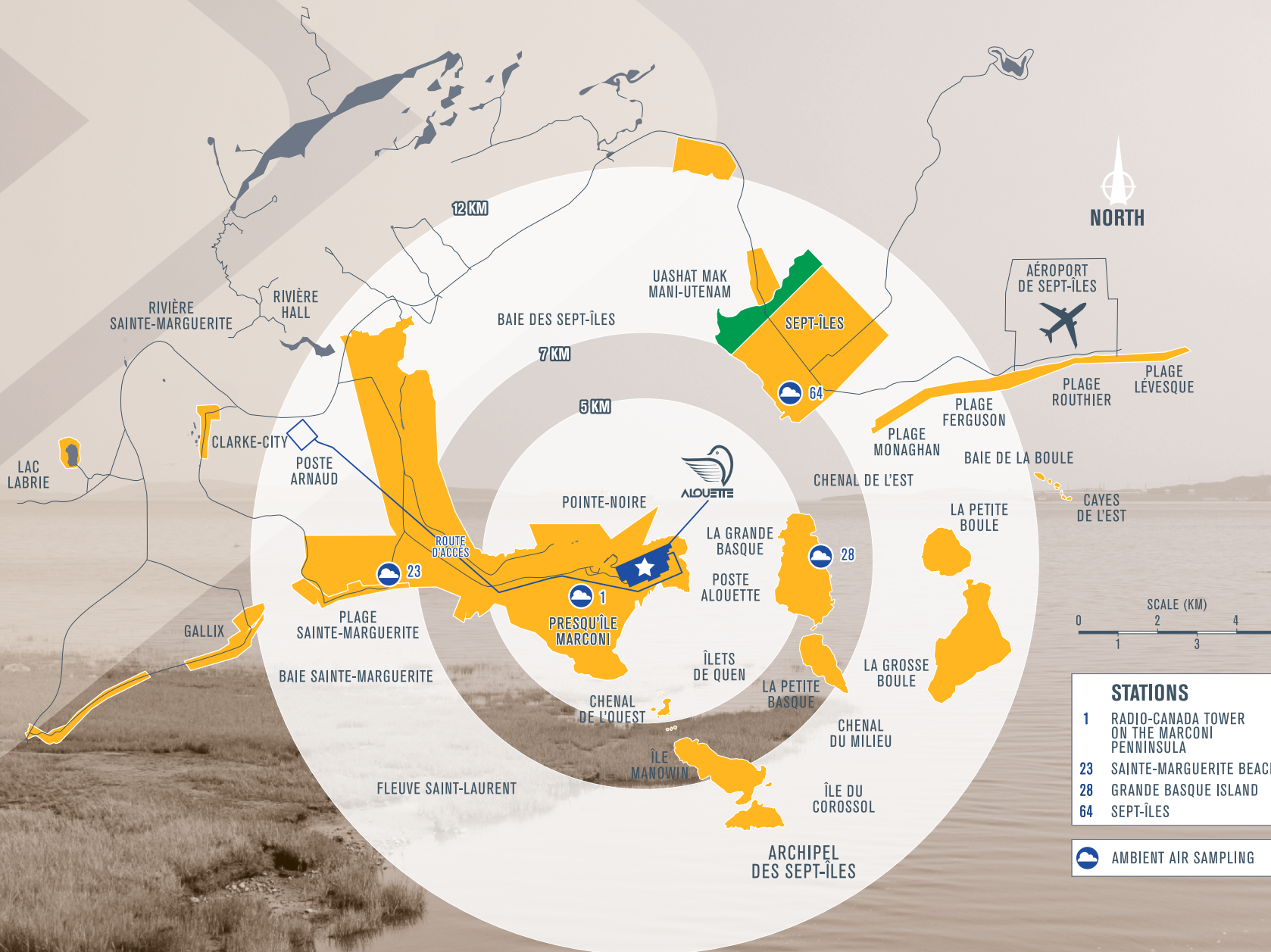
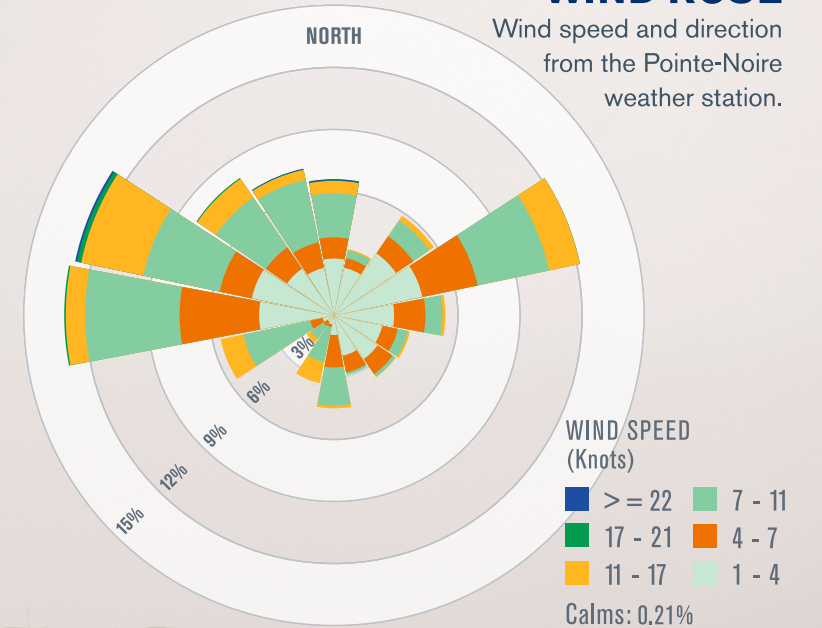


## > AMBIENT AIR

Alouette has four ambient air sampling stations, one of which is located right in Sept-Îles. The company operates all four stations according to Environment and Climate Change Canada's National Air Pollution Surveillance Program guidelines. Measurements taken at the stations include all air emissions, with no distinction between the respective sources of the airborne contaminants detected. The data contribute to better understanding of air quality in general, as well as the potential impact of Alouette's operations. The parameters measured are chosen together with the competent authorities, taking into consideration the main air emissions generated by aluminium smelters.

## WIND ROSE

Wind speed and direction from the Pointe-Noire weather station.

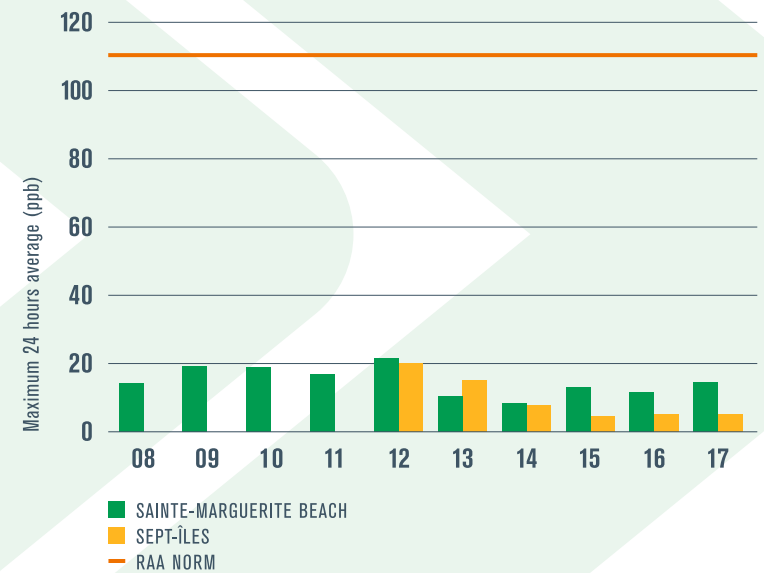


# MAP OF AMBIENT AIR SAMPLING STATIONS



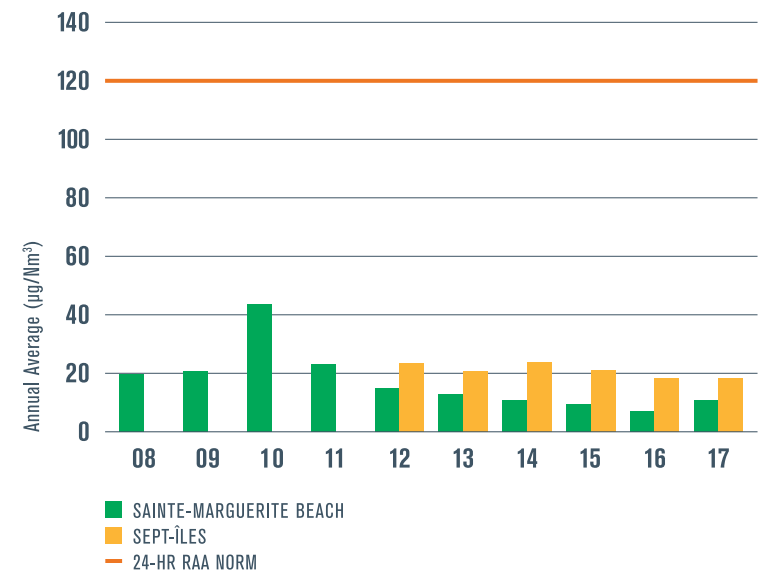
## Sulphur dioxide in ambient air

In 2017, sulphur dioxide (SO<sub>2</sub>) content in ambient air complied with the standard of an average of 110 ppb over a 24-hour sampling time. The maximum of 400 ppb over a four-minute sampling time was never exceeded during the year.



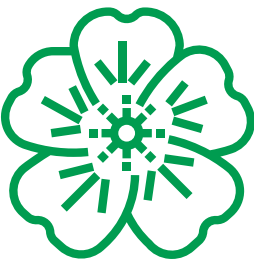
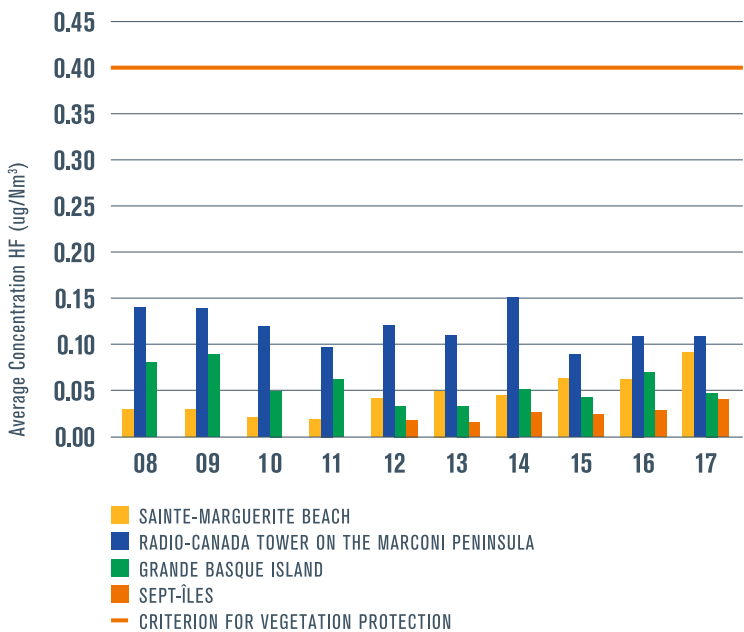
## Total particles in ambient air

The chart below shows the annual average of the different samplings. The 24-hour standard was never exceeded.



## Gaseous fluoride in ambient air

Average gaseous fluoride (hydrogen fluoride) concentrations in ambient air remained below the vegetation protection criterion. Annual assessments of the condition of vegetation in industrial and non-industrial areas are carried out within a radius of 7 km around the smelter, including Grande-Basque Island and Arnaud Avenue in Sept-Îles. In 2017, the assessment once again showed that off-site plant life was unaffected by Alouette's operations.



**BUDDING VEGETATION IS MORE SENSITIVE TO FLUORIDE. ALOUETTE SCHEDULES THE MAINTENANCE OF ITS SCRUBBING FACILITIES OUTSIDE THIS CRITICAL BUDDING PERIOD. THIS MAINTENANCE IS ESSENTIAL FOR KEEPING THE EQUIPMENT IN GOOD WORKING ORDER, WITH A RATE OF AVAILABILITY AND PERFORMANCE (FLUORIDE AND DUST) SURPASSING 99%.**





## OPERATIONAL EXCELLENCE

Producing very high quality primary aluminium with stability and precision, while getting the most out of each smelting pot and maximizing its useful life, is a real challenge. AP40LE technology, implemented a few years ago, has allowed Alouette to achieve record production levels. However, after several hundred hours of operation, certain AP40LE pots encountered problems not detected during modelling and tests. In the course of 2017, there was a premature loss of several pots, despite close monitoring of parameters. A work group made up of Alouette employees, experts and shareholder representatives was assigned the task of assessing various scenarios and determining the best technology for the future generation of smelting pots. At the same time, a number of optimization projects in the mechanical, maintenance, electrical and operations sectors were launched, with a view to identifying all improvement opportunities. Alouette nevertheless remains an aluminium industry leader and helps other organizations through anode sales and power reductions. By the end of 2017, the company cast its 10 millionth ton of aluminium.

### HIGHLIGHTS

**595,685 tons of aluminium**

**Multidisciplinary work group** dedicated to AP40LE technology

**AP40** chosen as Alouette's next-generation smelting pot technology

**New work organization** to reduce process instability

**Temporary power reductions** to help the Hydro-Québec system

**Several thousand tons of anodes sold** to another Quebec aluminium smelter

**Production of the company's 10 millionth ton** of aluminium

Optimization of maintenance procedures in the handling and containment sector

## KNOW-HOW FOR HIGH-PURITY ALUMINIUM PRODUCTION



# >> SHAREHOLDERS, COMMUNITY AND PARTNERS

Located a few dozen kilometres from each other on either side of Highway 138, three communities have something very important in common, namely the Alouette smelter. For Port-Cartier, Sept-Îles and Uashat mak Mani-Utenam, the smelter is much more than just an industrial production facility: it's a partner of choice, a committed and involved corporate citizen and a generator of sustainable wealth. As part of the celebrations surrounding 25 years of Alouette operations, new partnerships were forged with organizations like Sept-Îles' *Vieux-Quai en Fête* family festival and Operation Red Nose. At a symbolic level, the company donated 25 trees to the Sept-Îles community to be planted in a park near the social and recreation centre for a greener community. The company also continued the tradition of opening its doors during the summer to tourists and citizens keen to find out more about the facility. Tours were also held for youngsters as part of their school curriculum. On a number of occasions in 2017, Alouette representatives restated the company's commitment to provide the community with financial and volunteer support. Hundreds of employees were active on an ongoing basis in community, sport, cultural and other organizations. On top of all this, as in previous years, \$525,000 was donated to an array of organizations.



## HIGHLIGHTS

Leading partner in the **39th Orange Alouette Volleyball Tournament**

Support for the **33rd edition of the Innu Nikamu Festival**

**65th Alouette Côte-Nord Invitational Curling Bonspiel**

**Ongoing partnership with *Maison Alouette*** (Sept-Îles community organizations)

**\$195,000** donated with employees to ***Opération Enfant Soleil***

**\$116,254** donated with employees to ***Centraide Duplessis***

**Active support by Alouette and its employees** for *Fondation régionale Hôpital Sept-Îles*

Ongoing support for ***L'Envert de ta cour*** greening program, along with Corporation de protection de l'environnement de Sept-Îles

**Presentation of *Partenaires d'excellence*** awards during a gala evening

**Presentation on the company's history** at local social clubs

**\$25,000** for ***Vieux-Quai en Fête*** (Sept-Îles summer festival)

**Distribution of a history insert** relating 25 years of Alouette history

Summer tours of the facility for close to **750 visitors**

**Renewal of the cultural development agreement**

**Honorary president and major partner** of Operation Red Nose in Sept-Îles

**Host for training** given by The Minerals, Metals and Materials Society



**MORE THAN JUST A  
COMPANY, ALOUETTE  
IS A COMMITTED  
CORPORATE CITIZEN**



## FINANCIAL EXCELLENCE

Alouette operates in a highly competitive market. Competition is global, and all aluminium smelters are determined to come out on top. Combined with the regional premium, aluminium prices were generally higher in 2017 than in 2016. Global aluminium inventories listed on the London Metal Exchange were apparently down, but the balance was fragile. Speculation regarding Chinese production and uncertainty related to U.S. tariffs were major issues. Taking all of this into account, the Sept-Îles smelter is well positioned among its peers, thanks among other things to numerous cost improvement efforts over the past few years. All of the Alouette teams have put their shoulder to the wheel to reduce all types of waste and identify potential avenues for productivity gains. Many of the company's business partners have also contributed to efforts aimed at reducing operating and fixed costs, by participating in calls for tenders and adjusting to market realities. Without a doubt, Alouette has to keep up the pace in order to remain an industry leader and generate benefits for all of its stakeholders. More than ever, the company is interested in natural gas and is committed to a potential transition, in a context in which competitiveness and environmental protection are of the essence.

## HIGHLIGHTS

**\$79 million in goods and services** purchased locally

Deployment of the **Code of Business Ethics and Conduct** and training

**Finalist in *Les Mercuriades*** business competition held by the *Fédération des chambres de commerce du Québec*

**Presentation** on the aluminium market for **local chambers of commerce**

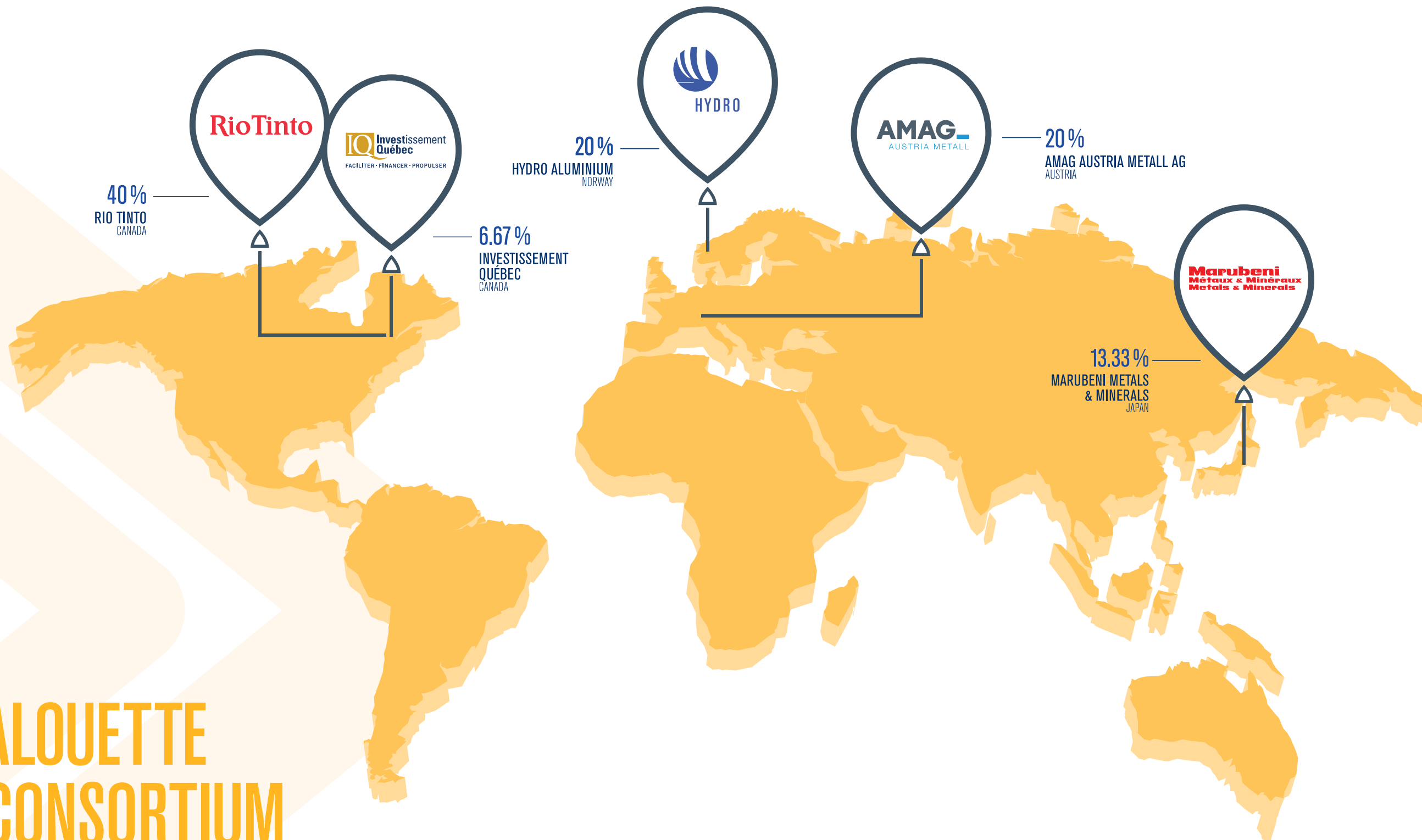
**Tens of millions of dollars invested** to maintain and modernize assets

## SHIFTING ECONOMY: A STIMULATING CHALLENGE FOR ALOUETTE



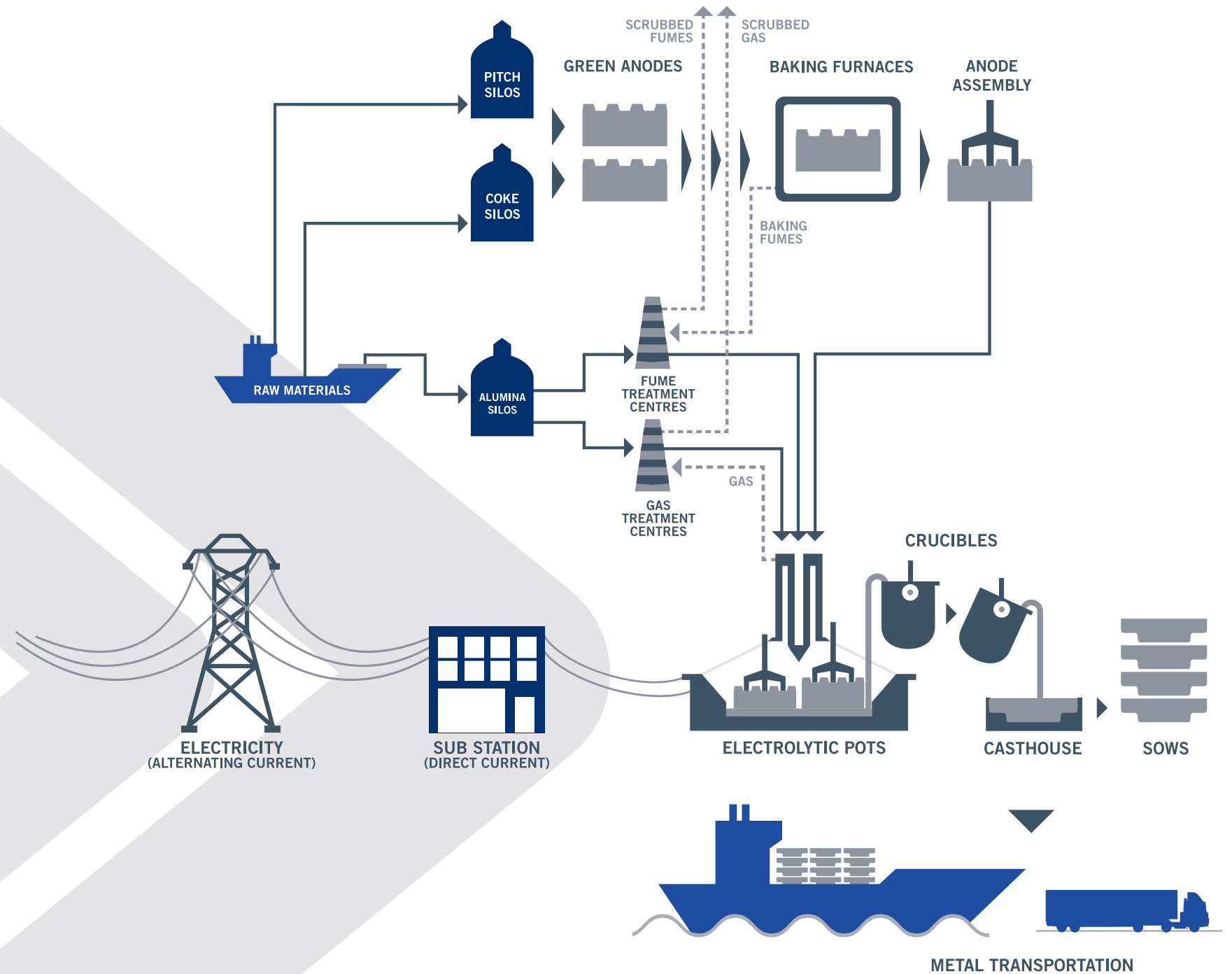


# ALOUETTE CONSORTIUM





# MANUFACTURING PROCESS







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