

# A SUCCESSFUL TRANSITION

ALOUETTE

2015 SUSTAINABLE  
DEVELOPMENT REPORT

➤ 2015 IN PICTURES: VISIT [ALOUETTE.COM](http://ALOUETTE.COM)



# A WORD FROM THE PRESIDENT

Dear Readers,

The entire team at Aluminerie Alouette is proud of its results for the year 2015, thanks to the efficiency of our procedures and the knowledge and expertise of all our employees and partners. The front-page headline says it all: our technology transition was a success. Increased operational stability had an impact on results across the board, including commendable performance in health and safety while less employees hurt themselves on the job. We intend to continue our efforts in this direction, with the ultimate goal of zero workplace injuries. Environmental performance was also notable, as we significantly reduced our emissions while producing more aluminium than ever before, surpassing the 600,000-ton mark. The economic context in which we operate at any given moment is always a factor. As such, all employees and partners will continue to be called upon to participate in and contribute to numerous changes in the coming years.

In true Aluminerie Alouette tradition, we must continue to build on our excellent results to propel us to new and more ambitious goals. As a team, we know how to remain a leader in the production of primary aluminium.

Enjoy reading!

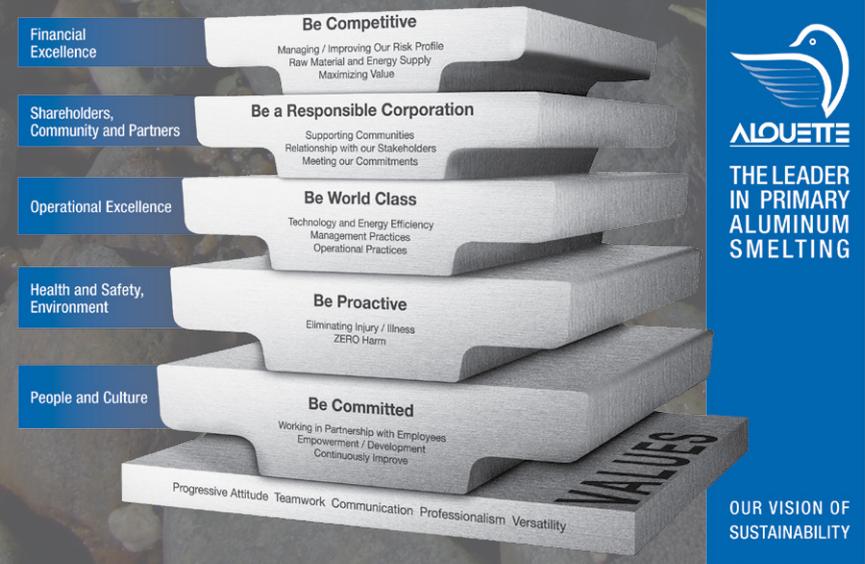
Claude Boulanger  
President and CEO

## OUR MISSION

Aluminerie Alouette, as an independent operating company, shall operate as a low-cost smelter using world-class business principles and continuous optimization of processes and assets. As a sustainable company, Aluminerie Alouette will maintain high standards of health, safety and environment 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

## PEOPLE DETERMINED TO ACCOMPLISH THEMSELVES

### WORKING AS A TEAM

Working day after day with colleagues who share a common objective, who achieve a sense of pride and well-being on the job, and who contribute to the success of our company is all part of belonging to the Aluminerie Alouette extended family. Numerous opportunities to exchange and share with others through work or social activities contribute to better business relations as well as to the culture and vitality of a company which prides itself on five basic values: progressive attitude, team work, communication, professionalism and versatility. Each employee contributes in his or her own way to make our workplace vibrant, motivating and safe. Thousands of training hours

go into developing and improving our skills and competencies in an on-going effort to maximize the expertise of all our human resources. In fact, the know-how of Alouette employees contributes to hundreds of continuous improvement activities each year. With sustainability a continuing objective, cost improvements were an important focus in 2015. Everyone were called upon to contribute their ideas and to participate in their implementation. The results speak volumes. Thanks to their involvement, we've seen improvements in health and safety, environment, production and costs.

### TIME TO SHARE

- Hundreds of employees and their families participated in the **COBRAL Social Club** activities
- **44<sup>th</sup> and 45<sup>th</sup> forums**, sessions of enriching exchange and communication with employees

### MAXIMIZING EXPERTISE

- **500 Improvement Initiatives** achieved by teamwork
- **27 Kaizen Activities** completed
- **Over 32,000 training hours** offered to employees, consultants and subcontractors

### RECOGNITION

- **9 employees celebrated 20 years of service** with Aluminerie Alouette
- **5 employees celebrated 25 years of service** with Aluminerie Alouette
- **2 leaders in Health and Safety** honoured in-house
- **3 employees rewarded** for their work by *The Minerals, Metals & Materials Society*



# HEALTH AND SAFETY, ENVIRONMENT



**30%  
FEWER INJURIES**

## WORKING ATTENTIVELY

All injuries can and must be avoided, and our environmental footprint must be reduced to a minimum: these philosophies guide all employees each and every day. We also ensure that contractors working in partnership with Aluminerie Alouette are prepared to adhere these objectives. As such, executive members from Alouette meet individually with 20 major subcontracting companies to review their health and safety performance. Tri-annual group meetings also continue to provide excellent opportunity for feedback. Compliancy protocols are applied concerning the four major industry risks (vehicle-pedestrian coactivity, lockout, working at heights, and using lifting apparatus), reducing the chances of serious accidents and making it easier to track compliancy rates for procedures in place. In terms of the environment, total emissions – as much from the source as from ambient air – are well below established norms and objectives. However, results for runoff water and residues offer opportunity for improvement and attention.

### NOTABLE ACHIEVEMENT

- New record of 248 days without incident with recordable injury

### CONSCIENTIOUS PRACTICES

- Continuing participation at the *Table de concertation sur la qualité de l'air*
- Avant-garde use of Blue Highway thanks to a partnership renew until 2021
- Audit of residues, awareness campaign by Sept-Riviere's regional EcoPatrol
- Regional participation in the *Grands Prix santé et sécurité du travail*

### EFFECTIVE TOOLS

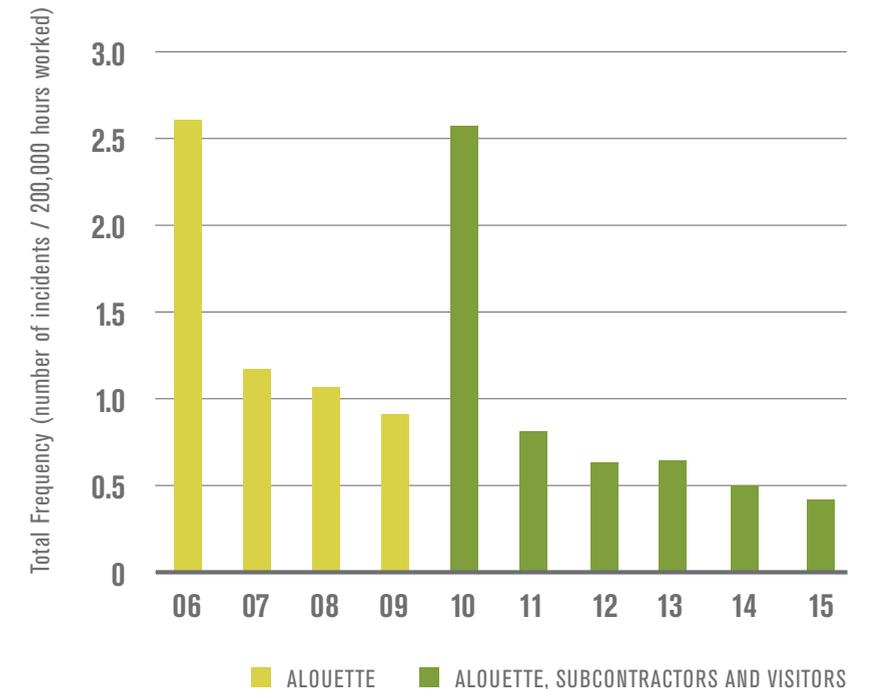
- 12 days IMPACT 100% on various themes in health and safety, environment
- Meetings with 20 main subcontractors
- Protocols to ensure compliancy to major-risk procedures
- InterActions achieved by all employees and management
- Quality partners recognized in health and safety, environment

### WELL-BEING COMES FIRST

- Healthy Enterprise | Elite certification maintained
- Many employees and members of their families participated in conference on financial health
- A training session was held for all employees on the topic of civility and respect
- Multiple activities were organized to promote healthy life habits

## TOTAL RECORDABLE INJURY FREQUENCY

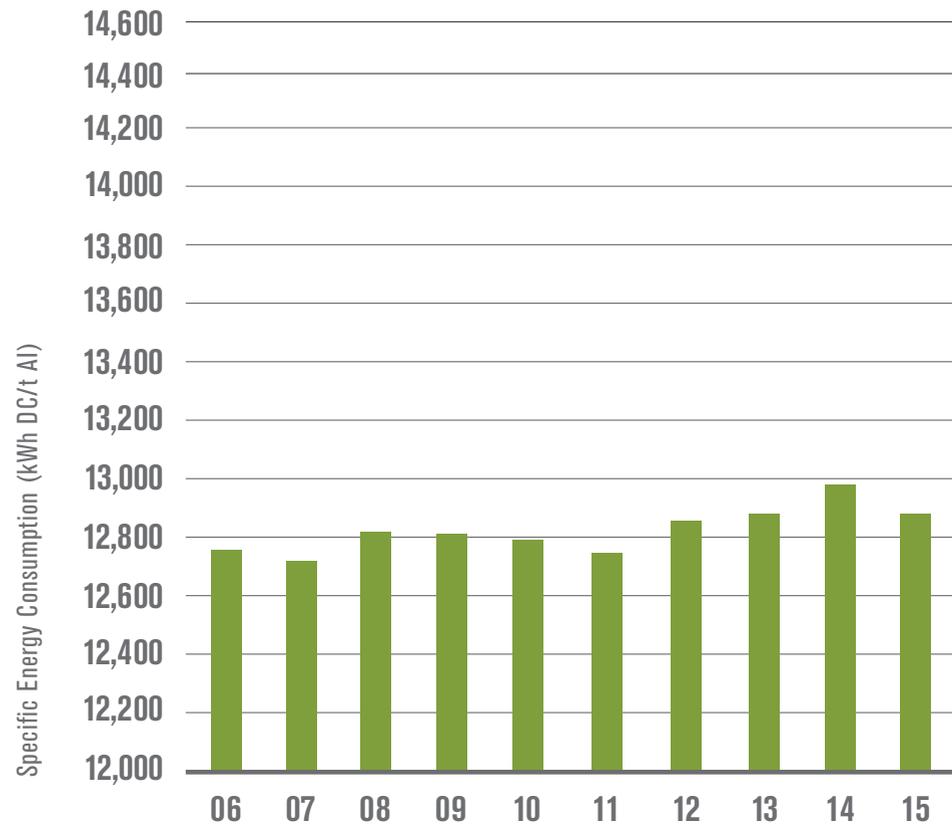
In 2015 there were 5 incidents with recordable injury - 2 fewer than last year. We broke the previous record of 154 consecutive days, at 248 consecutive days without recordable injury. In other words, the number of total injuries was reduced by over 30% compared to 2014, representing a considerable improvement. These results prove that it is indeed possible to aim for an optimal level of compliancy and zero injuries.



# ENERGY EFFICIENCY

## SPECIFIC ENERGY CONSUMPTION

Specific energy consumption during electrolytic process is 12,877 kWh DC/t Al of continuous current. With the technology transition now almost completed, Aluminerie Alouette aims to remain a worldwide benchmark in energy efficiency.



ALOUETTE CONTINUALLY PROMOTES LOW-ENERGY CONSUMPTION IN ITS OPERATIONS. IMPROVEMENTS IN ENERGY EFFICIENCY IS A PRIORITY THAT IS CONSISTENT WITH OUR VISION OF GROWTH AND SUSTAINABLE DEVELOPMENT. THE AP40LE ELECTROLYTIC CELL WAS DEVELOPED WITH THIS VISION IN MIND.



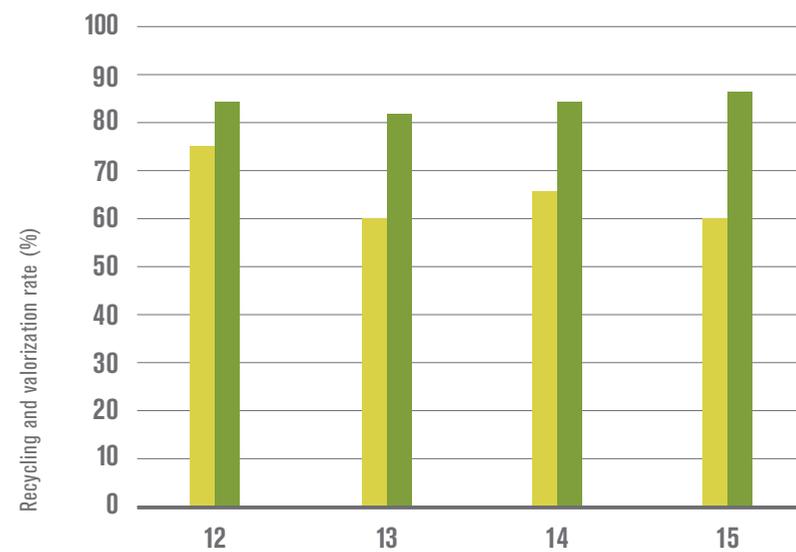
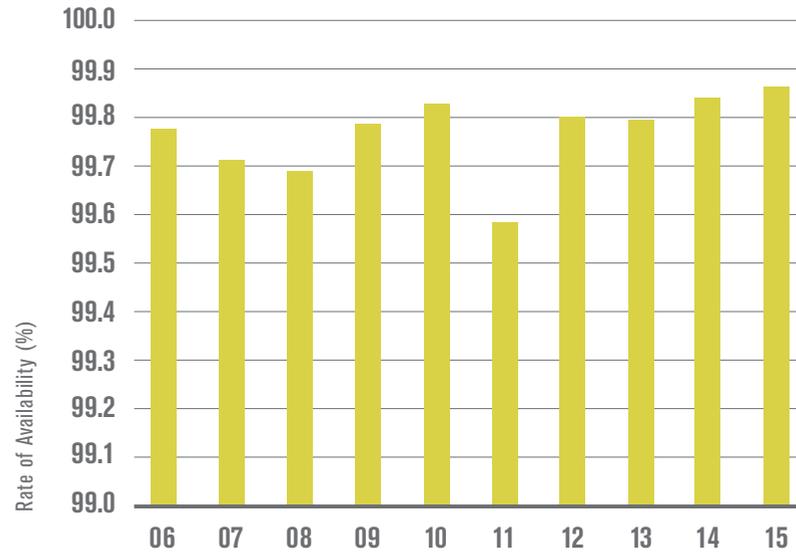
## AVAILABILITY OF SCRUBBERS

Aluminerie Alouette operates 7 scrubbers to protect the environment. 5 gas treatment centres (GTC) are located at electrolytic-process locations, with 2 fume-treatment centres (FTC) at the anode-baking furnaces. In 2015, the availability rate of these scrubbers was greater than 99.8% - the best result since the company's phase-2 expansion. These statistics demonstrate the rigour and efficiency with which this equipment is operated and maintained by employees.

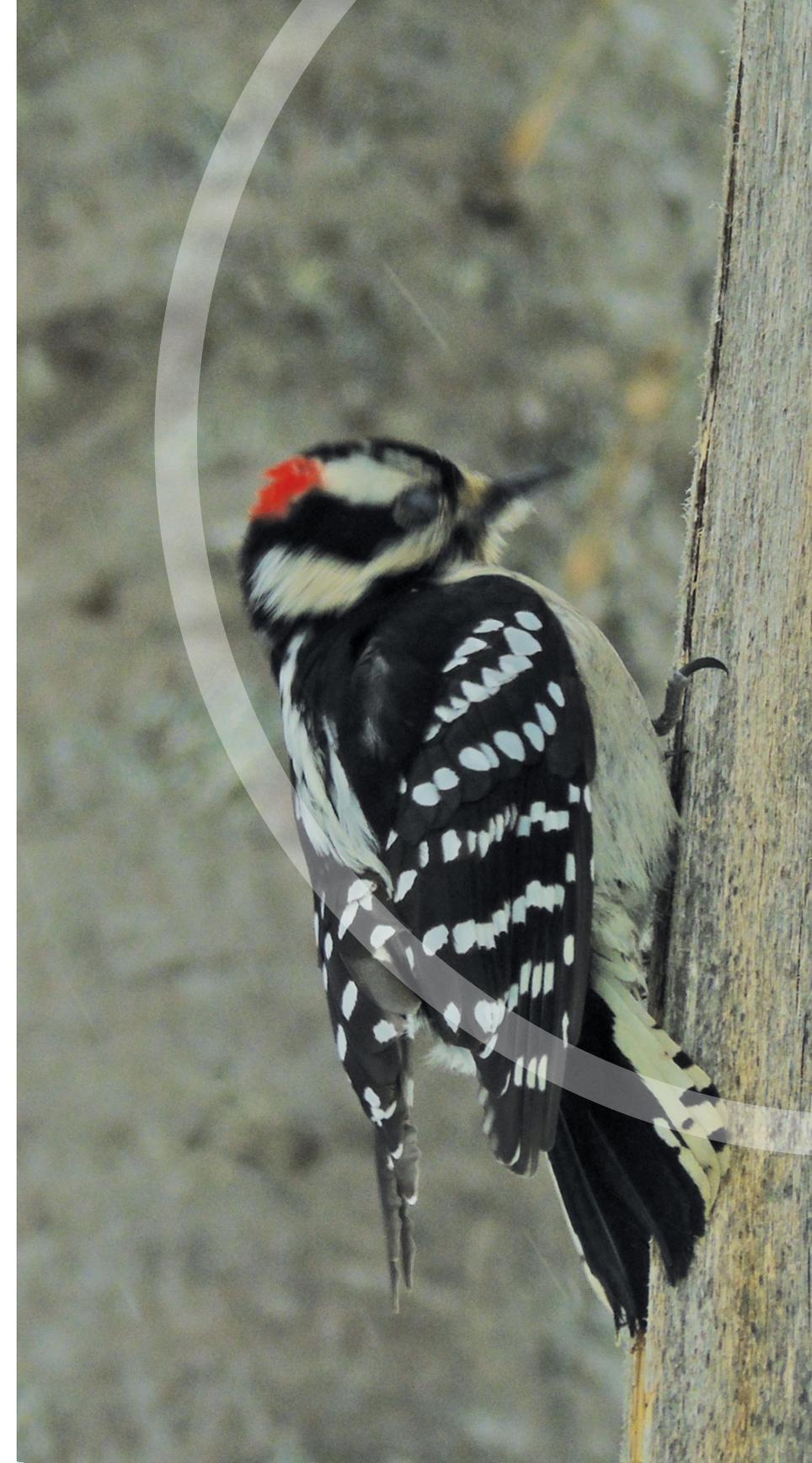
## RECYCLING AND VALORIZATION OF RESIDUAL MATTER



The aluminium plant recycles practically all of its processing by-products. Through careful management of hazardous and non-hazardous waste, Alouette has maintained its ICI ON RECYCLE (We Recycle Here) Level-3 certification since 2010. In 2015, 60% of hazardous waste (excluding SPL - spent potlining) and 86% of non-hazardous materials were recycled or recovered. Leftover waste is disposed of at authorized sites. Many continuing-improvement projects took place during the year aimed at reducing the production and environmental footprint of waste matter, such as improving triage practices and sensitizing employees in how to do better. New triage zones were established with clear and standardized signalling. Managing waste from wood packaging remains a challenge. Aluminerie Alouette collaborates with the authorities concerned in an effort to identify alternatives that would allow the re-use of these materials in the region.



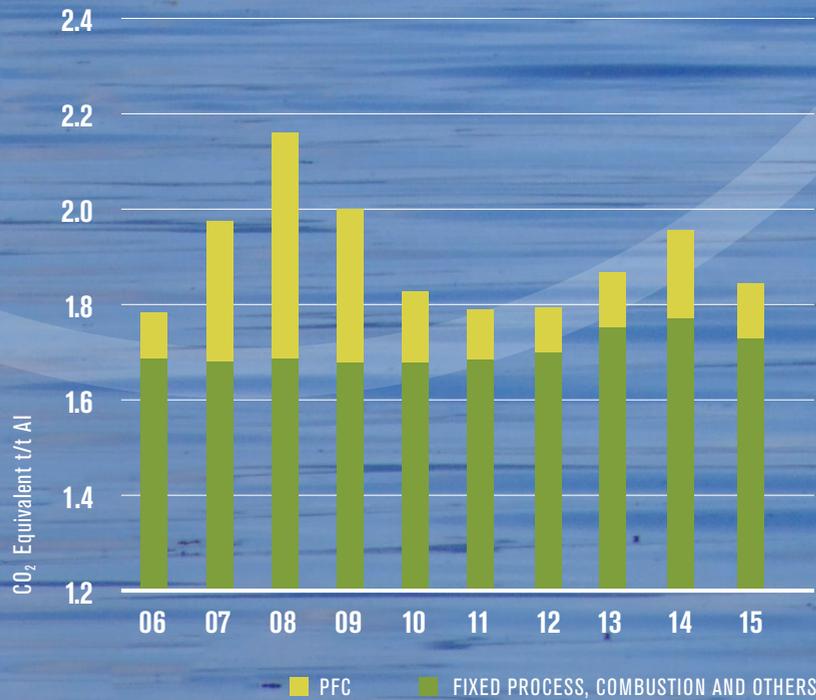
■ HAZARDOUS WASTE EXCLUDING SPENT POTLINING  
 ■ NON-HAZARDOUS MATERIALS



# AIR EMISSIONS

## GREENHOUSE GAS EMISSIONS (GHG)

With the period of technology transition coming to an end in 2015, greenhouse gas emissions decreased and stabilized at 1.85 t eq. CO<sub>2</sub>/t Al. Operating two different pot technologies was a challenge throughout this transitional period, which was successful thanks to procedural improvements and good teamwork. The company makes continuing efforts to reduce greenhouse gas emissions through various initiatives, notably by keeping tight controls on the impact of cooking anodes as well as the consumption of fossil fuels.



CANADIAN ALUMINIUM IS THE GREENEST IN THE WORLD, THANKS TO RENEWABLE, HYDROELECTRIC ENERGY USED FOR ITS PRODUCTION.

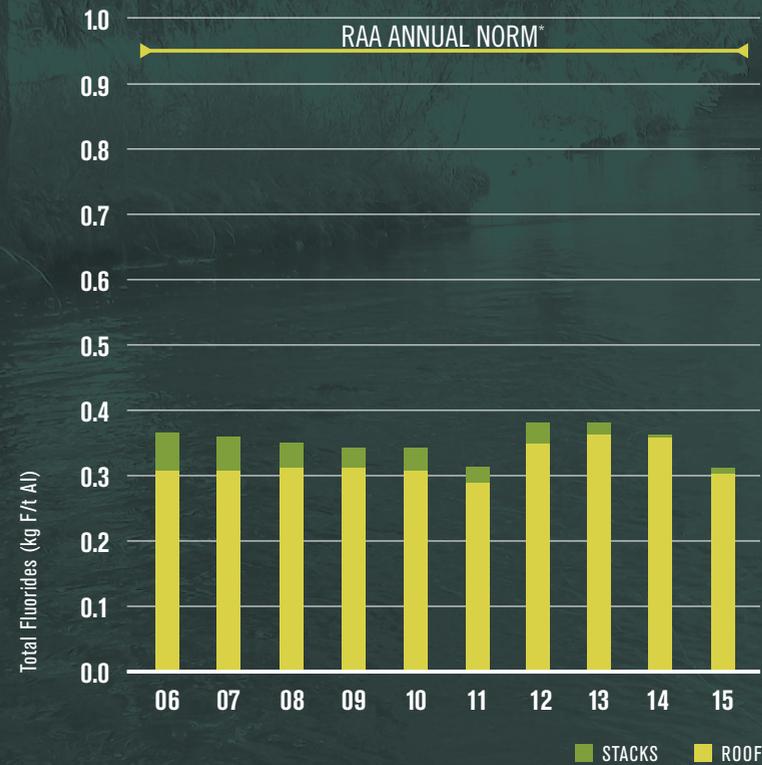
## SULPHUR DIOXIDE (SO<sub>2</sub>)

Coke-mixing installations were used throughout 2015. Optimizing anode-baking methods and decreasing carbon consumption also helped keep sulphur dioxide emissions at 19.3 kg/t Al, in spite of an overall higher rate of sulphur in raw materials available on the market - a major and ongoing challenge in the industry.



## TOTAL FLUORIDES FROM REDUCTION PROCESS

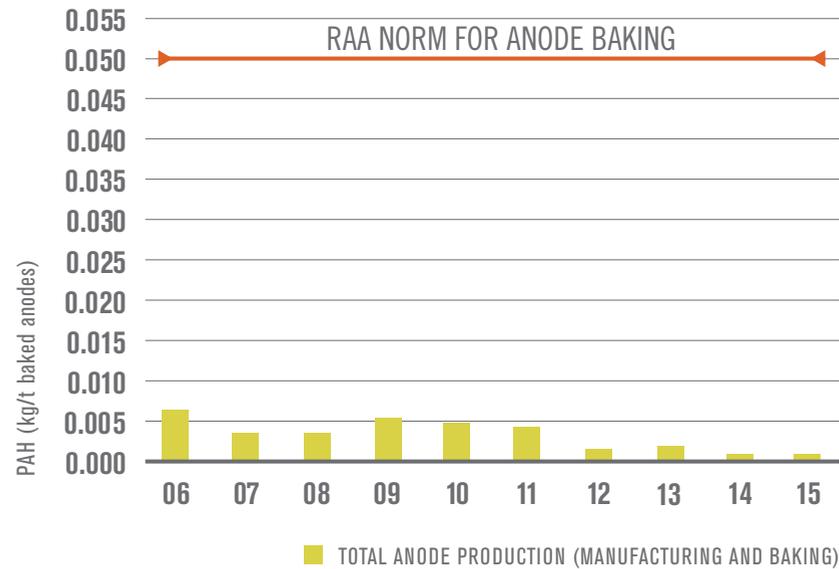
Fluoride emissions in the Reduction area were 0.31 kg F/t Al. Employee's dedication to efficiently managing scrubbers and applying best-practice operations resulted in matching the outstanding performance seen in 2011. This is particularly remarkable since the number of start-ups was much higher than in 2011. The level of total fluoride emissions during the electrolytic process ultimately decreased by 19% compared to the previous year, while production increased by 4%.



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

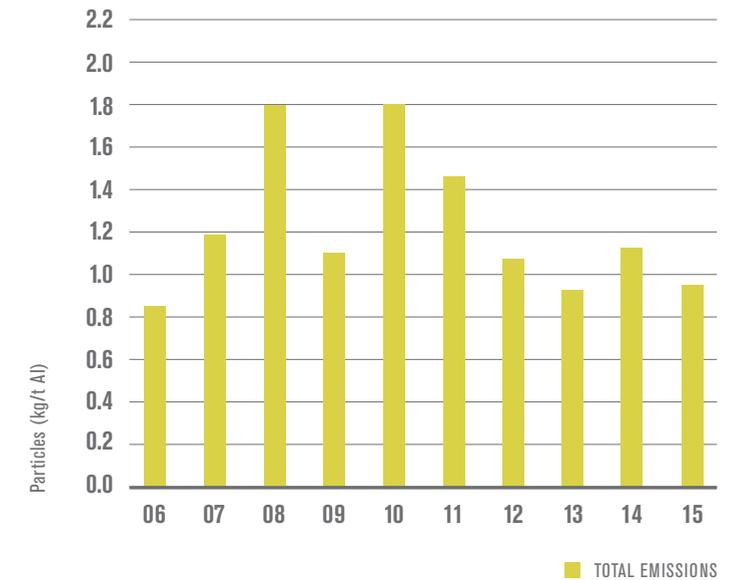
## POLYCYCLIC AROMATIC HYDROCARBONS (PAH)

2015's quality operations were demonstrated by the low level of PAH emissions at the anode production and baking plant: 0.0011 kg/t of baked anodes, well below the Quebec regulations of 0.05 kg/t of baked anodes.



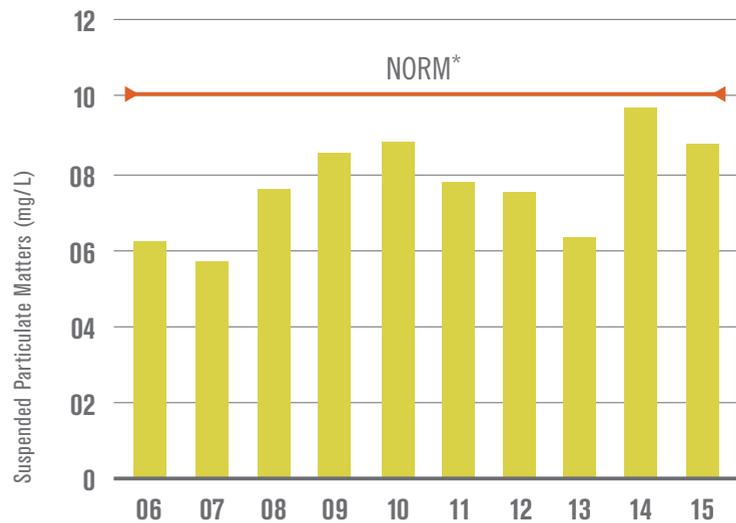
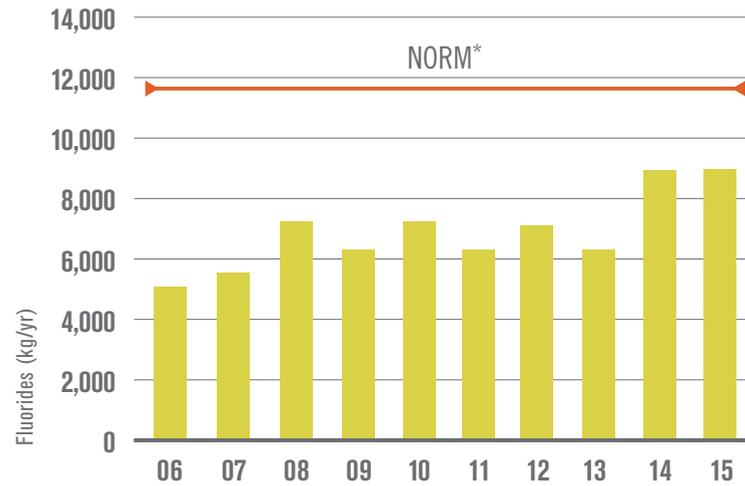
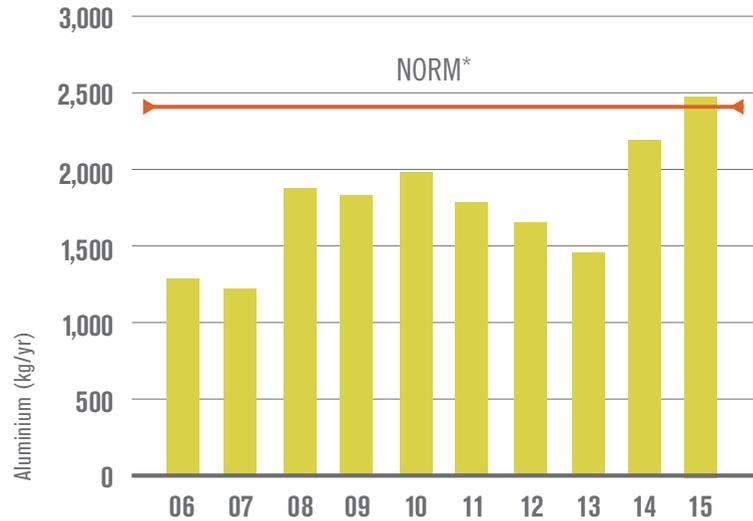
## PARTICLES

Particle emissions come mainly from roof vents, scrubber outlets and dust collectors, with 2015 emissions measured at 0.95 kg/t Al. Reliable scrubbing equipment and the dedicated team maintaining it help to keep the rate of particle emissions low. Even with the current program of replacing pots, particle emissions have remained low for several years, in fact notably lower than in the last program of 2010.



# RUNOFF WATER

Rainwater from the roof and surrounding facilities is collected by a drainage system and routed to the sedimentation basin. This water is sampled on an ongoing basis. A leakage problem was detected this year and rapidly corrected, with results from the latter months of 2015 showing an improvement. Nevertheless an analysis is on going in order to improve the efficiency of the sedimentation basin. Processed water is never discharged into the environment.

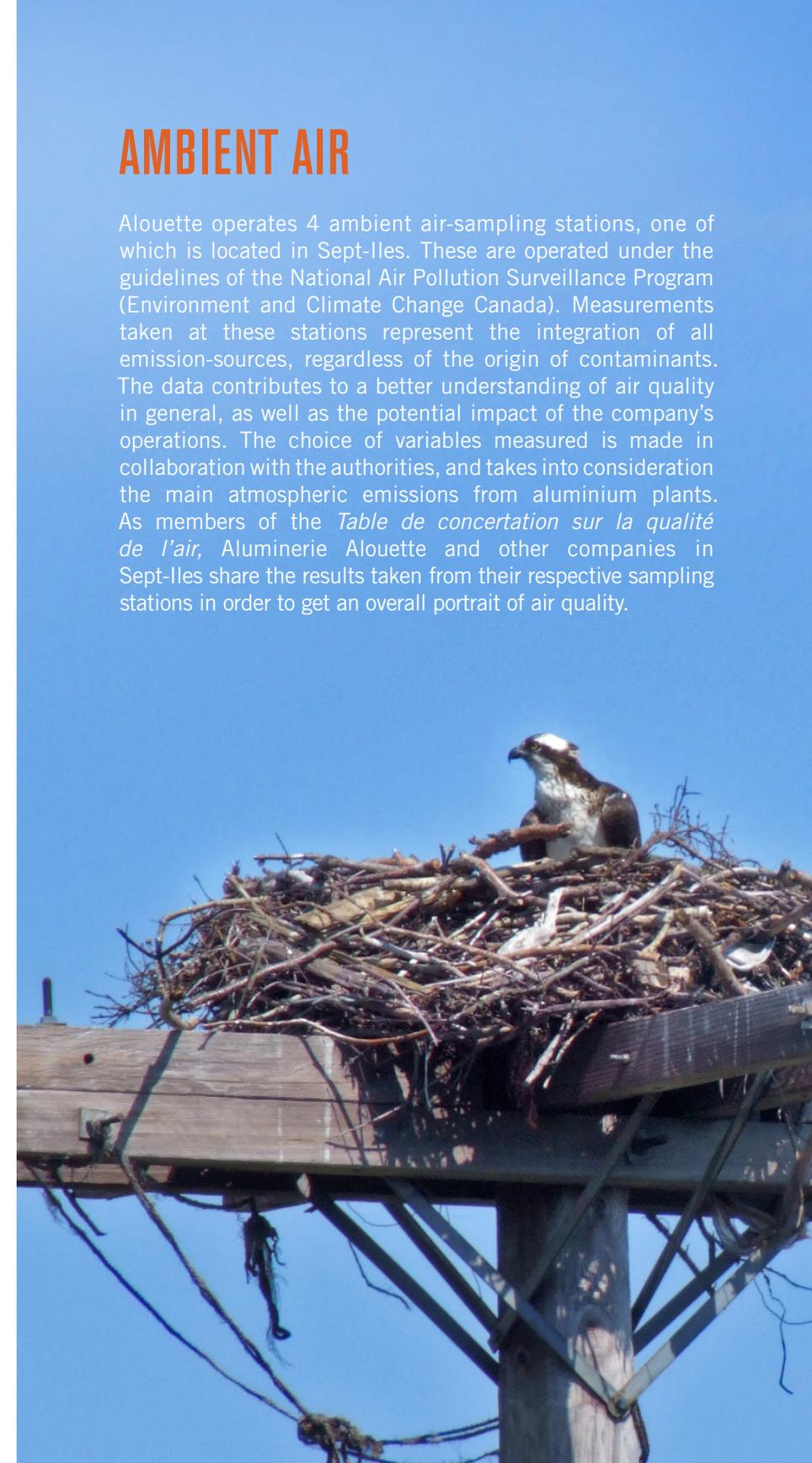


**+**  
**PROCESS WATER IS NEVER DISCHARGED INTO THE ENVIRONMENT. INSTEAD, INDUSTRIAL WATER IS REUSED IN FUME TREATMENT CENTRES. ALOUETTE IS COMMITTED TO THE RESPONSIBLE MANAGEMENT OF THE USE OF POTABLE WATER.**

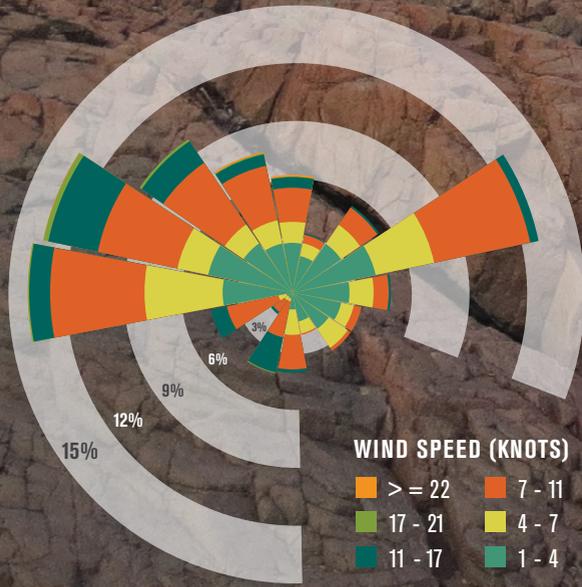
\*Specific norm related to depollution attestation

# AMBIENT AIR

Alouette operates 4 ambient air-sampling stations, one of which is located in Sept-Iles. These are operated under the guidelines of the National Air Pollution Surveillance Program (Environment and Climate Change Canada). Measurements taken at these stations represent the integration of all emission-sources, regardless of the origin of contaminants. The data contributes to a better understanding of air quality in general, as well as the potential impact of the company's operations. The choice of variables measured is made in collaboration with the authorities, and takes into consideration the main atmospheric emissions from aluminium plants. As members of the *Table de concertation sur la qualité de l'air*, Aluminerie Alouette and other companies in Sept-Iles share the results taken from their respective sampling stations in order to get an overall portrait of air quality.

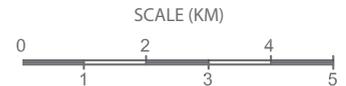
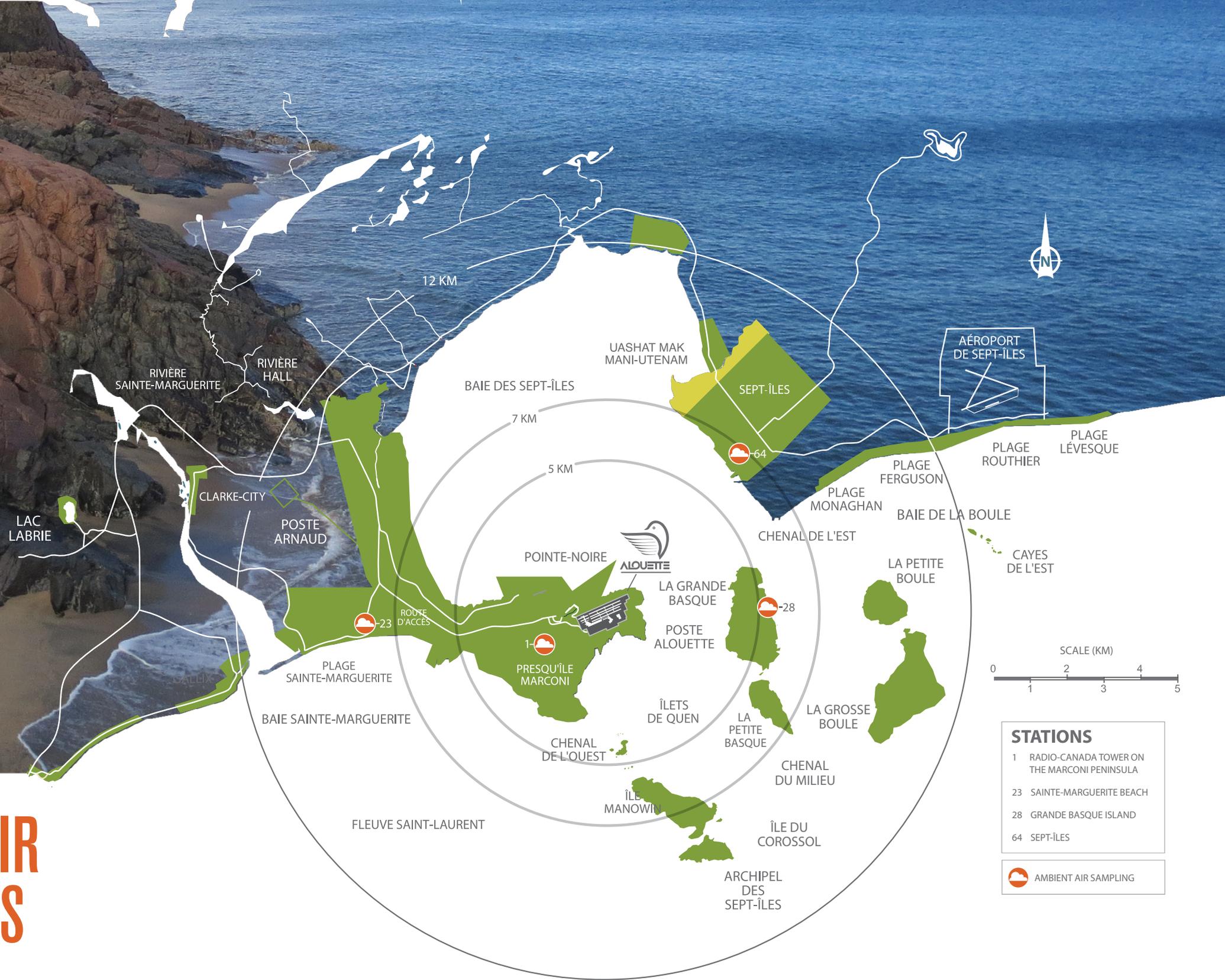


NORTH



### WIND ROSE

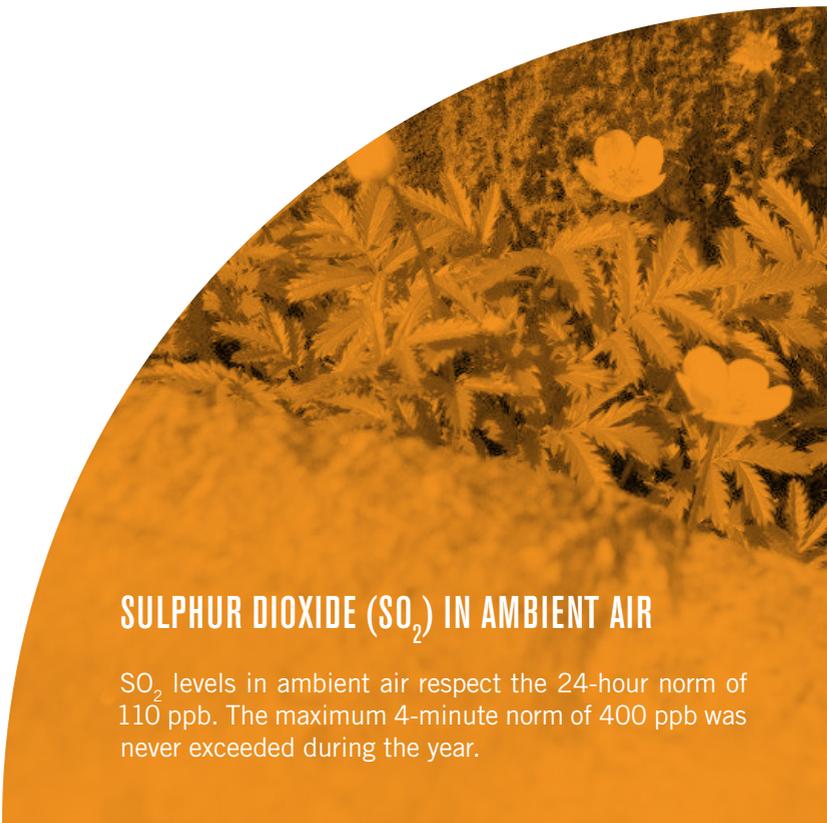
Wind speed and direction from the Pointe-Noire weather station.



STATIONS	
1	RADIO-CANADA TOWER ON THE MARCONI PENINSULA
23	SAINTE-MARGUERITE BEACH
28	GRANDE BASQUE ISLAND
64	SEPT-ÎLES

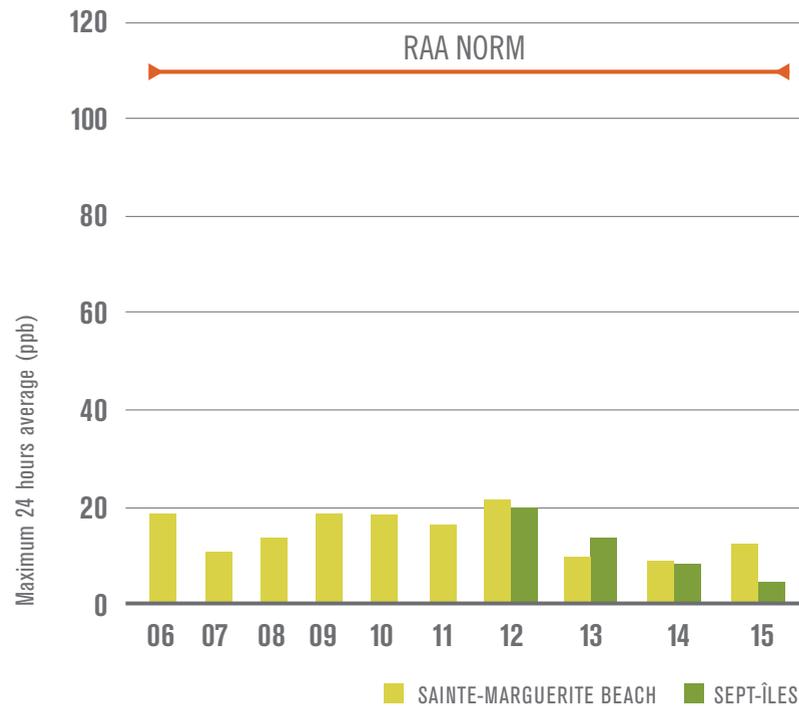
AMBIENT AIR SAMPLING

# MAP OF AMBIENT AIR SAMPLING STATIONS



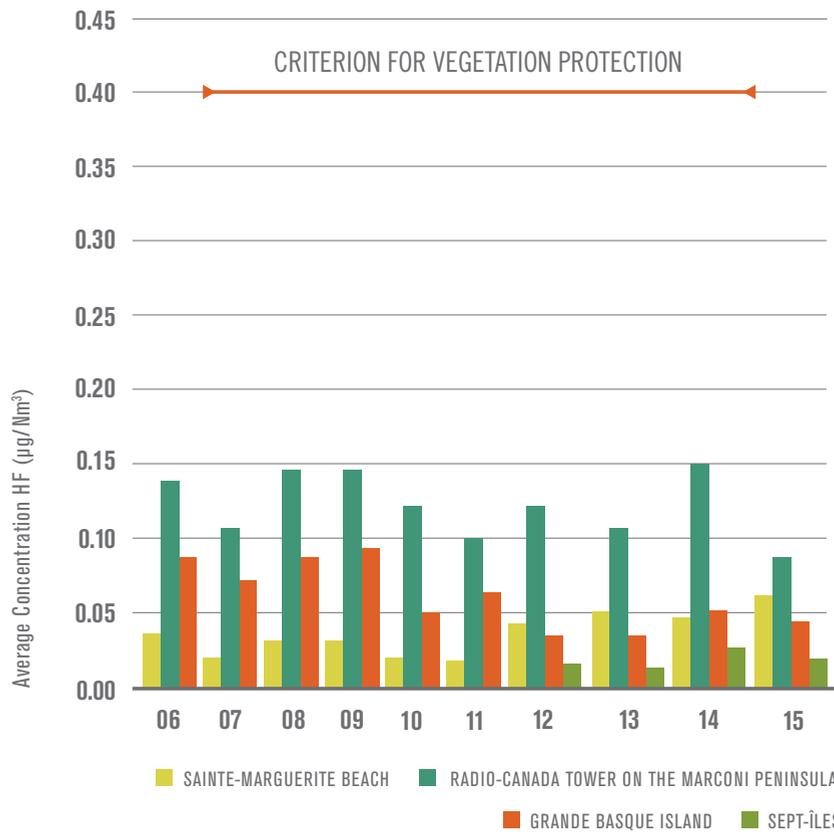
## SULPHUR DIOXIDE (SO<sub>2</sub>) IN AMBIENT AIR

SO<sub>2</sub> levels in ambient air respect the 24-hour norm of 110 ppb. The maximum 4-minute norm of 400 ppb was never exceeded during the year.



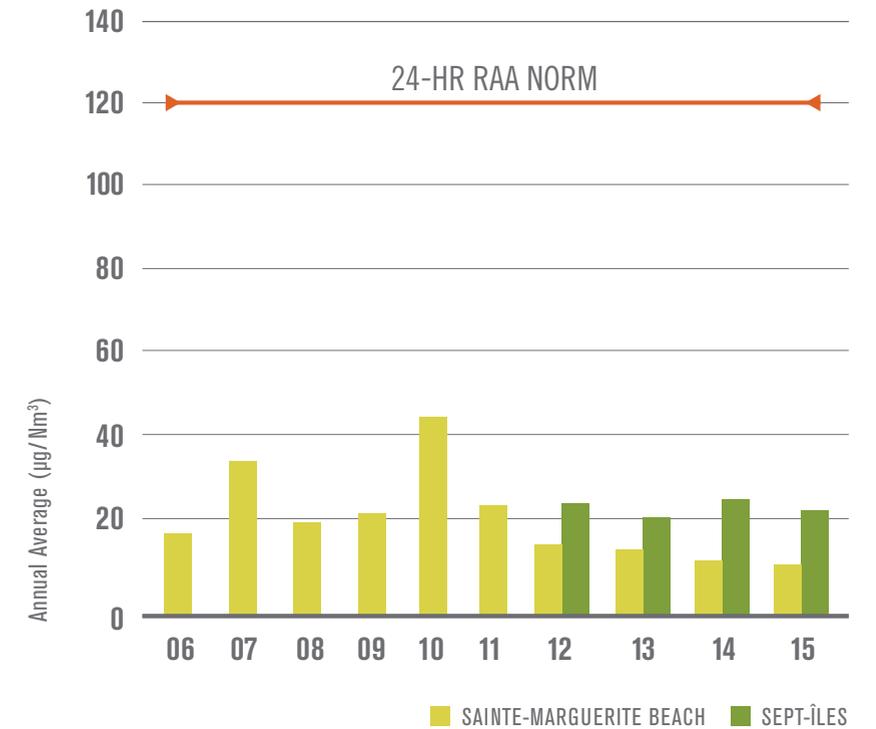
## GASEOUS FLUORIDE IN AMBIENT AIR

Average concentrations of gaseous fluoride (HF) in ambient air remained below critical levels for protecting vegetation. The condition of vegetation in both industrial and non-industrial zones is evaluated every year within a 7-km radius of the plant, including Grande Basque Island and Arnaud Avenue in Sept-Îles. Results indicate that Alouette operations continue to have no significant impact on vegetation on or outside the site.



## TOTAL PARTICLES IN AMBIENT AIR

The chart represents the annual average of various samples taken. The 24-hour norm was never exceeded.



**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



OVER  
600,000 TONS  
OF ALUMINIUM  
PRODUCED

## WORKING CONSCIENTIOUSLY

After a period of time marked by significant technological transition, the focus of 2015 was stable operations thanks to the perseverance of the entire team - as much on the operations side as maintenance and support employees. Maintaining stable operations throughout the entire year was an indication of the potential of this organization and of the AP40LE electrolytic-cell technology currently used. Aluminium production reached a new level, surpassing the 23,000-ton mark from the previous year. This level of production was achieved with high-quality metal as well as improved results in health and safety, environment. The positive effects of our improvement initiatives were most notable in the optimization of operations at the Reduction area and Casthouse. Other strategies – such as the completion of a carbon-reject project and the implementation of MIREA anode-inspection equipment - will help reduce rejects from anode production, resulting in substantial economic and environmental benefits.

### RECORD-BREAKING PRODUCTION

- 604,770 tons of solid aluminium allocated

### CHALLENGES MET

- 122 pots started using AP40LE technology
- Continuing to replace hexapods for AP40LE pots
- Black Belt Projects to re-organize operations in different sectors
- Multiple power reductions in support to Hydro Quebec

# SHAREHOLDERS, COMMUNITY AND PARTNERS



## AN ACTIVE AND SUSTAINED PRESENCE

### A VISION OF RESPONSIBILITY

Living up to the promise of responsible corporate citizenship as inscribed in the business strategy implies not only meeting our commitments to other organizations, but also supporting the communities in which we thrive: Port-Cartier, Sept-Iles and Uashat mak Mani-Utenam. It means contributing financially to various organizations and events. It means employees actively participate and volunteer their time. It also means being transparent and open, giving the public many opportunities to tour the smelter and see for themselves what goes on at the largest industrial employer in Sept-Iles. The trusted relationship with population, socioeconomic representatives and environmental stakeholders is an essential element for maintaining the Alouette's social licence to operate.

#### A COMMITTED CORPORATE CITIZEN

- Presidency of Honour at the **37<sup>th</sup> Orange Alouette North Shore Invitation Curling Tournament**
- **63<sup>rd</sup> Alouette Côte-Nord Invitational Curling Tournament**
- **Renewed Partnership** with Maison Alouette (community organization from Sept-Iles)
- Participation at the *Salon sur les meilleures pratiques d'affaires*
- **\$250,000** raised with employees for **Opération Enfant Soleil**
- **\$188,260** raised with employees for **Duplessis United Way**
- **Over 250 people** attending **Alouette University Building open house**
- **Unveiling of a major artwork** at **Alouette University Building**
- **Numbers of employees actively involved** in the community

#### AN ACCESSIBLE ORGANIZATION

- **Over 700 visitors** discovered our company during the summer season
- **Lunch Conferences** at local Chambers of Commerce about current challenges we face





# FINANCIAL EXCELLENCE



## CREATE VALUE, MAXIMIZE BENEFITS

## OPERATE EFFECTIVELY

The economic context in which aluminium producers operate is rife with challenges, while the commodity price remains low. Most companies try by various means to reinvent themselves and improve costs, and Aluminerie Alouette is no exception in recognizing the importance of staying competitive. Increased production, numerous successful initiatives, and the precious collaboration of our employees and partners all contributed to meeting our cost-cutting goals. The Plan (60/60)+, which will help Alouette to reach its full potential, began in 2015 and continues to yield more savings, thanks to the constant attention and mobilization shown by all employees. A new agreement on risk-sharing electricity rates comes into effect in 2017 and should also help the company stay competitive. Access to a new 70-MW block of energy will pave the way to increased production for existing installations. All of this adds up to an optimistic future, with investments in capital expenditures demonstrating our long-term vision of sustainability. If natural gas becomes available in the region, Aluminerie Alouette still wants to be supplied, to replace heavy fuel oil used at its anode baking furnaces. This project would result in savings and a reduction of greenhouse gas emissions.

### ACTIONS BECAME RESULTS

- **Plan (60/60)+** to help Aluminerie Alouette reach its full potential
- **New electricity rate** for phases 1 and 2 in effect until year 2029
- **Over 3000 anodes sold** to other smelters
- Production henceforth dedicated to **aluminium sows**

### SUSTAINABLE VISION

- Launch of **new 161 kV electric line**
- **Over \$28 million** invested in new **transformer-rectifier**
- **Major investments** in asset management



# ALOUETTE CONSORTIUM



40%  
RIO TINTO  
CANADA



20%  
HYDRO ALUMINIUM  
NORWAY



13,33%  
MARUBENI METALS & MINERALS  
JAPAN

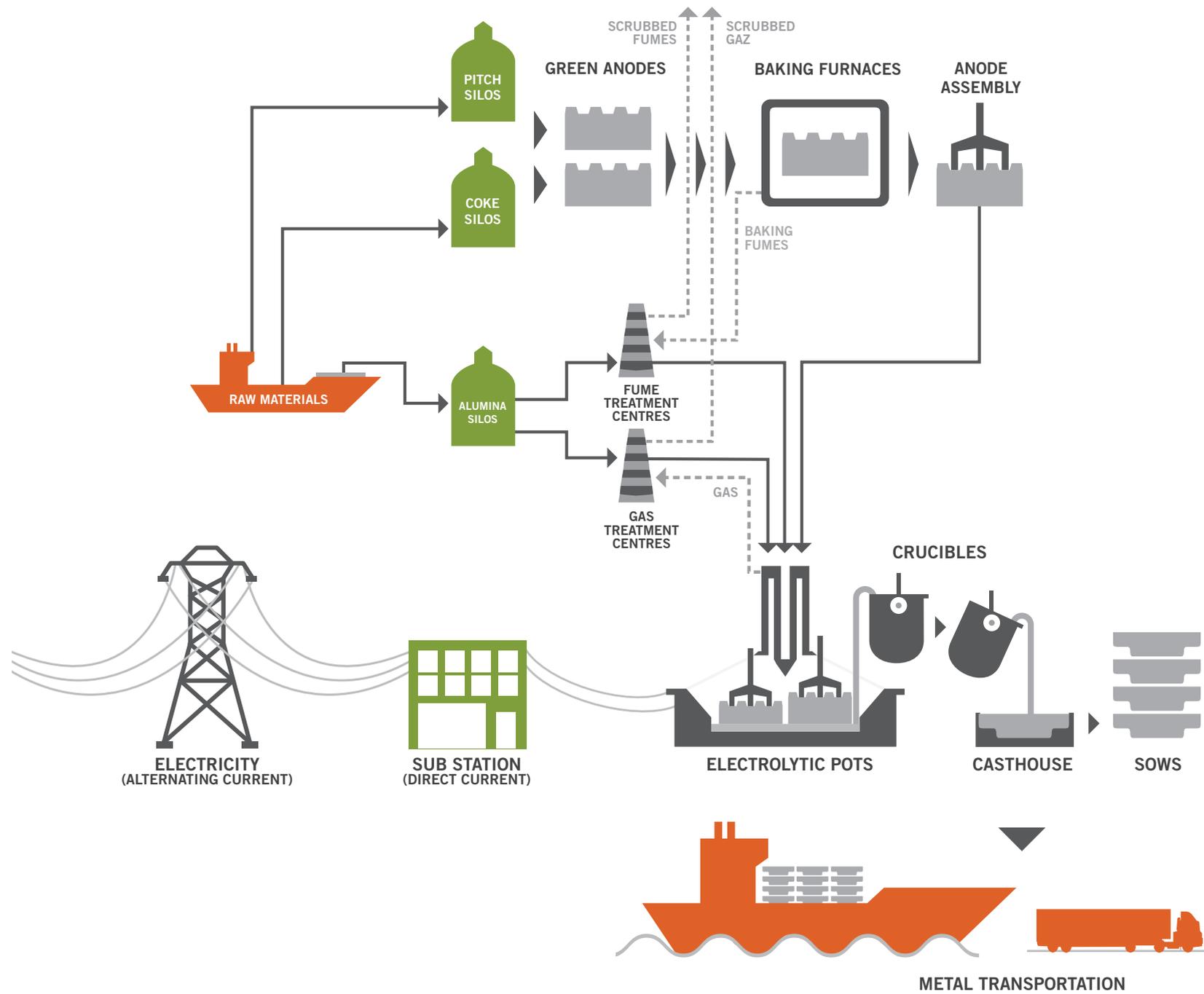


6,67%  
INVESTISSEMENT QUÉBEC  
CANADA



20%  
AMAG AUSTRIA METALL AG  
AUSTRIA

# MANUFACTURING PROCESS





# ALOUETTE

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