Mytilineos "Bauxite to Aluminium" Production, an Example of Competitiveness Longevity

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Abstract

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Greenfield aluminium smelters require a huge construction investment capital. Ensuring competitive energy and alumina costs, over a reasonable period of time, is also a prerequisite condition for such a smelter project, but even in this case the project payback period is long. During this time, the initial situation often changes dramatically. New market, environmental, geopolitical, social, or technological conditions, may affect the viability of the smelter and lead to an early closure. However, some old smelters are demonstrating that competitiveness longevity is possible.

Mytilineos' integrated "bauxite to aluminium" production, is such an interesting case. It has preserved its competitiveness over more than 5 decades and is facing with optimism the current challenges of the European aluminium industry. This keynote is intended to explain the achievement of such competitiveness longevity, by describing how:

- Successive operational improvements, environmental solutions, product developments, production capacity creeping and technology updates, were made over the decades without any major structural replacement such as the replacement of the busbars in the potlines.
- The alumina production equipment and processes have been progressively updated.
- The overall competitiveness of the chain "bauxite to aluminium" has been enhanced through continuous improvement (C.I.) actions and successive cost cutting projects.
- The energy and CO_2 footprint issues are being addressed by Mytilineos.

Three people related factors have been crucial in this long journey:

- The engagement of the whole workforce in C.I. processes.
- The technological awareness of the management and its capability of developing tailored projects allowing to introduce production capacity creeping and technology updates, at a minimum investment cost.
- The buildup of the shareholders' trust to the capacity of the organization and its commitment, to systematically deliver the operational and project objectives.

Keywords: Mytilineos, Aluminium of Greece, Bauxite to aluminium, Smelter life duration, Competitiveness of aluminium smelters.

1. Aluminium of Greece (AOG) Today

AOG, the bauxite to aluminium production activity, is managed by the Mytilineos' Metallurgy Business Unit (BU), one of the four top performing Mytilineos' BUs:

- Metallurgy BU:
  - Vertically integrated aluminium producer, from mine to port, with on-site combined heat and power (CHP) power plant.
  - Growing presence in recycled aluminium.
- Power & Gas BU:
  - Leading independent power producer and supplier in Greece in a growing phase.

  - High quality thermal and renewable energy sources (RES) generation capacity aiming at exceeding 2.3 GW.
  - Largest domestic private natural gas importer, consumer and exporter.
- RSD BU (Renewables & Storage Development):
  - Among the most competitive Solar photovoltaic (PV) developers and constructors in the world.
  - Reliable solutions across the lifecycle of solar projects.
  - Solar Build-Operate-Transfer (BOT) platform.
- SES BU (Sustainable Engineering Solutions):
  - Dynamic development of Sustainability Projects.
  - Implementation of new technologies on energy projects.
  - Unique know-how, strong execution track-record in power & infrastructure projects.
  - Energy turn-key thermal projects.

The existence of internal highly experienced resources and exceptional project implementation capabilities, within the wide range of the Mytilineos' activities, is valuable to AOG in two ways.

- On the one hand, there is a creative energy strategy transformed into high-efficiency power plants, renewables development, sustainability projects and effective gas trading.
- On the other hand, there are central company functions providing effective support, including proven risk-hedging performance and strong legal and regulatory expertise.

The internal synergies and AOG's support, have been enhanced since 2017, when MYTILINEOS merged its major subsidiaries, including AOG, into a new single business entity.

1.1 AOG's Assets and Operations

AOG's assets include:

- The Delphi-Distomon bauxite mines.
- The AOG alumina refinery & smelting plant.
- The CHP power plant, adjacent to the alumina refinery & smelting plant.
- The EPALME secondary aluminium production facility located at Inofyta, 70 km away from the AOG plant.
- Aspra Spitia the "home city" of AOG employees, a residential community of around 3,000 people, located in an area of 61 hectares at the Antikyra Cove, 6 km away from the AOG plant.

The main AOG's operations and volumes, are:

- Bauxite mining – Delphi Distomon:
  - Bauxite production of 0.6 million t/y.
- Alumina refining and smelting – AOG plant:
  - Alumina production of 865 kt/y of which 150-200 kt/y non-calcined.
  - Exports of alumina representing around 60 % of the total production.
  - Primary aluminium production of 185 kt/y and 15 kt/y remelting aluminium production from post-production scrap, billets representing 62 % of the total.
  - Exports of aluminium products representing around 60 % of the total production.
  - On-site port facilities providing for vessels up to 45 kt.
- Recycling - EPALME:
  - Production of 50 kt/y of billets, using post-consumer scrap and molten primary aluminium from the AOG plant.

AOG's story and its today's situation and performance, demonstrate that competitiveness longevity can be achieved by sustainably combining investment capability, managerial technical awareness and skills and a shared company culture promoting C.I. as part of every employee's job.

AOG's story also shows that in extraordinary circumstances threatening the survival of a smelter, courageous business decisions implying costs and risks may be required to provide opportunities for addressing the issues. Again, such business decisions rely on the confidence of the shareholders that the smelter will not only survive the crisis, but will also do what is needed to ensure its competitiveness.

7. References

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