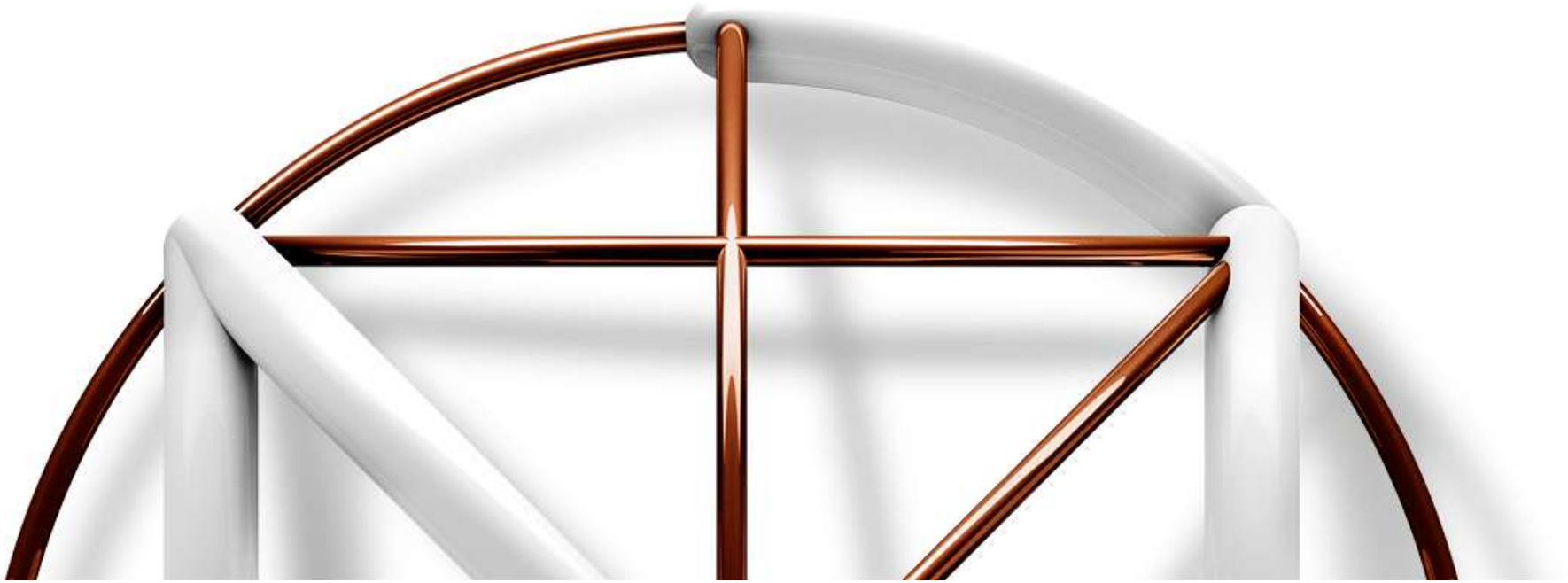
THE
NAVIGATOR
COMPANY



SS802 - LK2BM

Lime Kiln to Biomass

February 10th 2026

Agenda

1. **Introduction**
2. **Site Photos**
3. **Safety Management**
4. **Planning Management**
5. **Innovation and Learning Curve**

1- Introduction

The Navigator group has submitted an application to the Innovation Fund to convert the Lime Kiln 1 in Setúbal Mill, from using Fossile Fuel to use Biomass. This project has begun in May 2023 and started in production in October 2025.

This project has the objective to reduce significantly the emissions of CO2 in the Setúbal Site ~14,2 kton/year. This conversion is in the company's strategy to achieve neutral emissions of scope 1 in 2035.

The success of the decarbonization projects depends very much on the Cost Efficiency Ratio – Incentive requested (or Capex) vs. Reduction of Emissions.

Being an innovation project, it is be very critical the integration of technologies for Biomass Handling, Drying and Burning at the Kiln. The integration with the pulp mill for BoP is key for energy efficiency and overall system efficiency.

The sooner the project can be detailled regarding assumptions, concept and associated data, the more robust it will be.

2- Site Photos

1

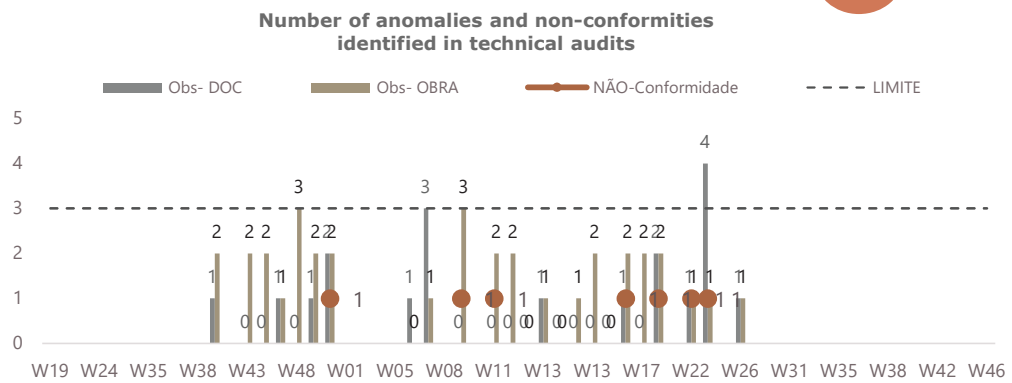
2

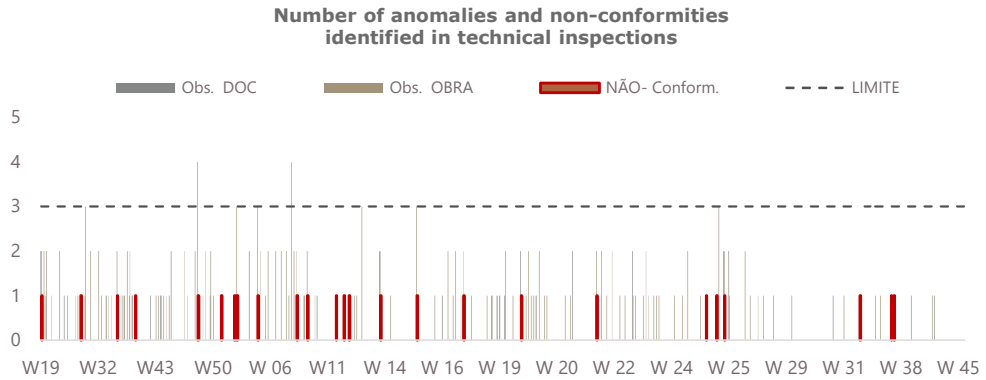
1. **Biomass Handling**
   a) Internal saw dust blowing
   b) External saw dust reception
   c) Saw Dust Storage
   d) Biomass Dryer
   e) Hammer Mill and blowing
2. **Lime Kiln biomass feeding and dosing system**
3. **Biomass Burner**

3

3- Safety Management

Safety KPIs





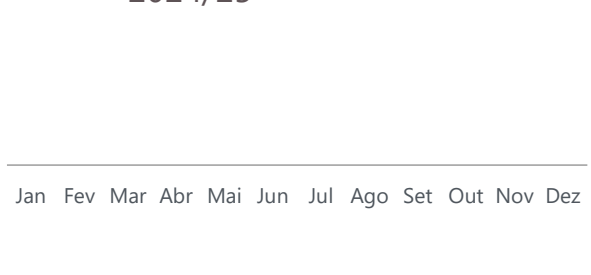
Accident distribution YTD

Type A **Type B** **Type C**

2024/25 2024/25 2024/25

Frequency Index

Severity Index



Days without Accidents 623

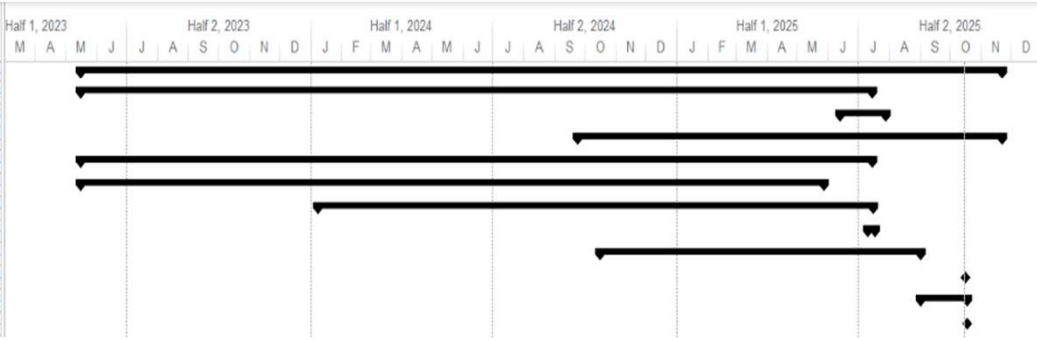
3- Planning Management

Scope of supply

- Handling, Storing, Drying, Grinding, Dosing and Burning system
- Spark Detection + Extinguishing system
- Engineering (Civil + BoP)
- Electrical, Instrumentation and Control Equipment
- Expected reduction in CO2 emissions of 14.292 t/year
- Pneumatic transport line for internal Wood powder
- Civil, Mechanical and E&I&A Erection
- Piping and mechanical equipment
- Licencing permits

General Planning

Tarefa	%	%prazo exec.pa	Actual Start	Actual Finish	Duração	Início	Fim
SS802 - LK2BM - Fornos Biomassa	99%	80%	Tue 16/05/23	NA	663 days	Tue 16/05/23	Fri 21/11/25
CONTRACTUAL MILESTONES	59%	86%	Tue 16/05/23	NA	569 days	Tue 16/05/23	Mon 14/07/25
PLANNED SITE OUTAGES	99%	100%	Thu 12/06/25	NA	31 days	Thu 12/06/25	Mon 28/07/25
MODIFICATION MANAGEMENT	80%	100%	Tue 24/09/24	NA	305 days	Tue 24/09/24	Fri 21/11/25
DETAILED ENGINEERING	100%	100%	Tue 16/05/23	Mon 14/07/25	569 days	Tue 16/05/23	Mon 14/07/25
MARKET INQUIRIES	99%	100%	Tue 16/05/23	NA	535 days	Tue 16/05/23	Tue 27/05/25
EXECUTION WORKS	99%	85%	Mon 08/01/24	NA	401 days	Mon 08/01/24	Tue 15/07/25
TRAINING	100%	100%	Thu 10/07/25	Thu 17/07/25	5 days	Thu 10/07/25	Thu 17/07/25
FINAL ERECTION AND COMISSIONING	99%	85%	Wed 16/10/24	NA	229,5 days	Wed 16/10/24	Mon 01/09/25
FINAL DOCUMENTATION AND SAP	0%	100%	NA	NA	0 days	Thu 16/10/25	Thu 16/10/25
ACCEPTANCES	0%	0%	NA	NA	35 days	Mon 01/09/25	Fri 17/10/25
CONCLUSION PROCESSESS	0%	100%	NA	NA	0 days	Fri 17/10/25	Fri 17/10/25



Project is currently under provisional and final acceptance procedures of different supplies

4- Innovation Learning Curve

Entry into Operation

- Biomass handling and fuel preparation is a new process for the mill, which means training and new operation procedures.
- The integration of the complete installation needs expertise and adequate management.
- The technological solution to burn wood powder and complete the final tunning requires suppliers with specific knowledge.
- It is critical that the biomass operation can be set as smooth as it can, comparing to Natural Gas.
- Natural Gas can still be used as support fuel (at start-ups or during downtimes of the biomass processing installation), in order to achieve the decarbonization goals. Teams must be focused in excellence for the performance of new equipment.
- An efficient Lime Kiln operation requires strickt flame and temperature profile conditions. This means that the fine tunning of the control systems and operation set-points may take some time, to achieve a stable operation.
- Emission control is more difficult with biomass and some lime kiln auxiliary systems may require some redesign to ensure a complete and stable combustion of the biomass and correct air and flue gas flows.

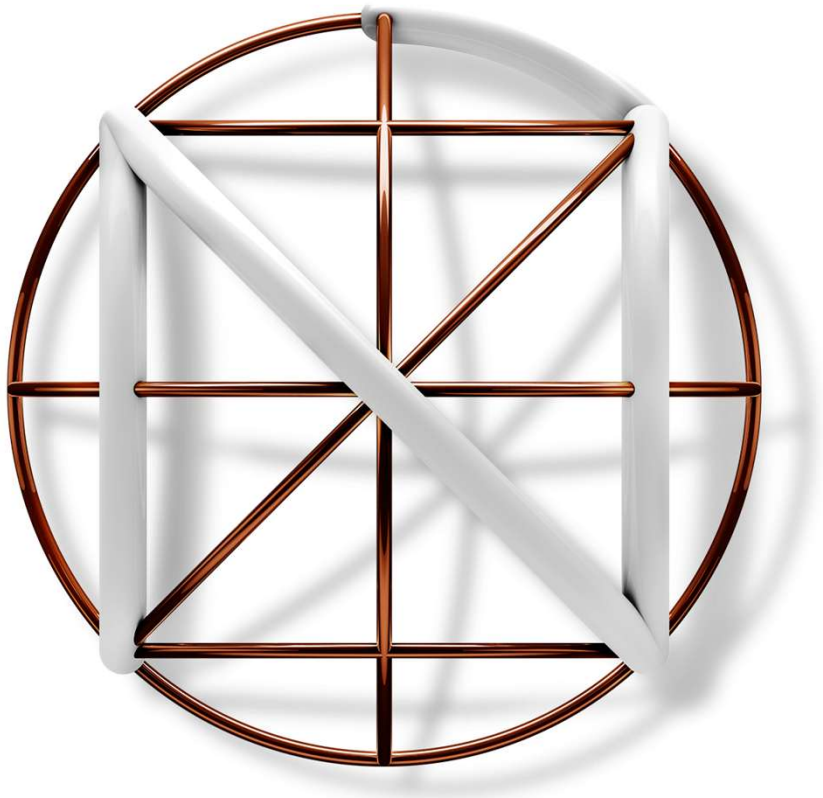
4- Innovation and Learning Curve

Key Success Factors

- Main equipment suppliers can already deliver this option in their product portfolio. Can be deployed multi-sectorial where lime kilns are utilized.
- Integration of pulp mill process saw dust fines is critical for economical viability, as well as market availability for saw dust fines within a reasonable distance from the source.
- The implementation of this project, involved different areas of the organization and people. The engagement and commitment of people and the will to make it work is necessary in every innovation process.
- These types of projects require significative initial investment that are compensated with reduced cost in fuels and reduction of required emission licenses.
- Regulation stability is crucial to provide the required certainty to invest in Decarbonization.

Scalability and next steps

- The Navigator Company it is currently deploying Lime Kiln conversion to Biomass in 2 other mills: i) one as a similar lime kiln conversion; ii) the other as a new green field lime kiln with this technology integrated).
- Regulatory changes can facilitate, make it difficult, or introduce uncertainty to business models for decarbonisation initiatives. As an example, at the installation where this technology is being first delivered (Navigator Pulp Setúbal), it is being reached a ratio of 95% of biogenic CO2 emissions vs total CO2 emissions.



OBRIGADO