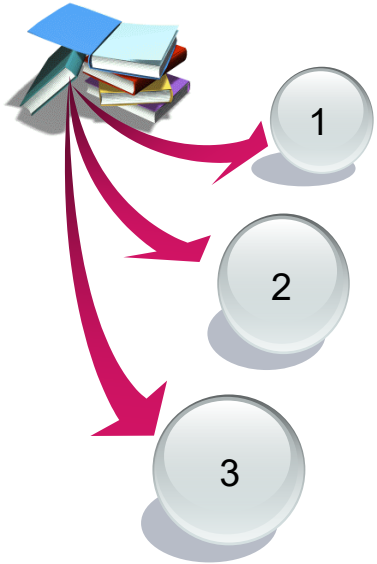
LONG SON CEMENT

Dissemination Workshop

CAPACITY BUILDING AND EXPERIENCES OF DEMONSTRATION ENERGY AUDITS

Hanoi, April 21st, 2026



1. **Company's introduction**
2. **Results of DEPP3 project implementation in Long Son and benefits of participating in the VAS program**
3. **Recommendations**

I. COMPANY'S INTRODUCTION



LONG SON CEMENT – JAPANESE TECHNOLOGY

A Reliable Choice for Every Construction Project, Built to Last Over Time

JAPANESE TECHNOLOGY –
Building Every Structure
Capacity: 10.5 million tons per year

2014 - 2016
2015: Construction of Long Son cement plant
08/10/2016: Commissioning and operation of production line 1
01/11/2016: First shipment exported to the market

2017 - 2018
2017: Taking over the battery production plant
16/08/2017: Commissioning and operation of production line 2
18/01/2018: First export shipment from Ninh Thuy factory
27/02/2018: First export shipment from Long An factory

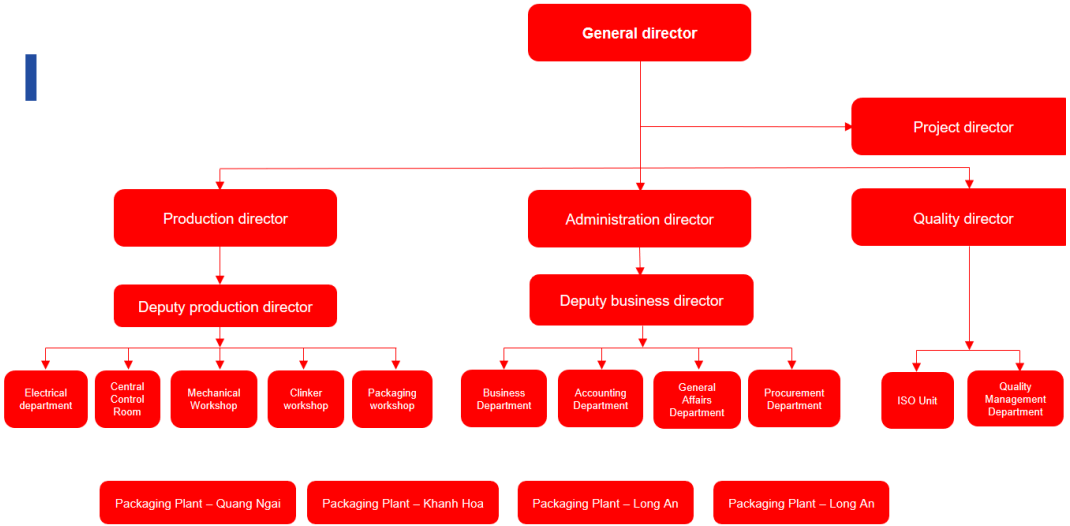
2018 - 2019
Construction of the grinding factory and Nghi Son port
Started construction of production line 3
Commissioning and operation of the plastic packaging plant in Quang Ngai

2019 - 2021
2020: Started solar power production and trading.
Commissioning and operation of production line 3, Nghi Son deep-water port & Soc Trang general port

2022 - 2023
Commissioning and operation of production line 4

I. COMPANY'S INTRODUCTION

Organizational structure of Long Son Cement Plant



Công ty Xi măng Long Sơn luôn xác định, một trong những yếu tố quan trọng quyết định đến chất lượng cũng như điều hành sản xuất là nguồn nhân lực. Ngay từ những ngày đầu thành lập, Công ty đã xây dựng lực lượng chuyên gia và cán bộ kỹ thuật viên trình độ cao, đủ năng lực và giàu kinh nghiệm trong quản lý, điều hành công tác sản xuất, kiểm định chất lượng sản phẩm trong lĩnh vực xi măng. Hiện tại, Xi măng Long Sơn có trên 1300 kỹ sư, cán bộ công nhân viên lành nghề, năng động và nhiệt huyết hết mình trong công việc. Với trình độ năng lực hiện có của công ty, Chúng tôi luôn có kế hoạch đào tạo nguồn nhân lực kịp đáp ứng nhu cầu, nắm vững và vận hành những thiết bị mới, hiện đại nhất, đảm bảo theo kịp những tiến bộ của Khoa học kỹ thuật hiện nay.

System of factories



I. COMPANY'S INTRODUCTION

LONG SON CEMENT COMPANY
IN BIM SON – THANH HOA
CAPACITY 10.5 MILLION TONS/ YEAR

HIGH-QUALITY CEMENT RAW MATERIAL ZONE

The raw materials for cement production are directly sourced from the Bim Son – Thanh Hoa limestone deposit, characterized by very low contents of deleterious components such as MgO and alkalis. In addition, Bim Son quarry is located within the Dong Giao limestone formation, extending from Tam Diep (Ninh Binh) to Nga Son (Thanh Hoa), which provides an abundant and stable supply of raw materials for cement manufacturing.



I. COMPANY'S INTRODUCTION

LONG SON CEMENT

Thermo SCIENTIFIC · SIEMENS · IKN ENGINEERING THE FUTURE · LOESCHE INNOVATIVE ENGINEERING · Schneider Electric · ABB · DB SCHENKER · AUMUND · MATEST MATERIAL TESTING EQUIPMENT

The production line and equipment are supplied by world-renowned manufacturers.











I. COMPANY'S INTRODUCTION

LONG SON CEMENT



Import – export
Some typical customers

CEMEX · Shun Shing Group · GLENCORE · CNBM · C&D · BULKCOR · WH · ITG · ITOCHU · GLOBAL GROUP · INTERNATIONAL MATERIALS · JINSUNG

Some loyal international customers of Long Son Cement

Với chất lượng vượt trội, sản phẩm của Xi măng Long Sơn đã và đang ngày càng nhận được sự tin tưởng của các đối tác, bạn hàng trong và ngoài nước. Điều này thể hiện qua các hợp đồng đã ký kết trên thị trường thế giới như: Nhật Bản, Philippines, Singapore, Đài Loan, Australia, Bangladesh, Châu Phi và khu vực Bắc Mỹ ...

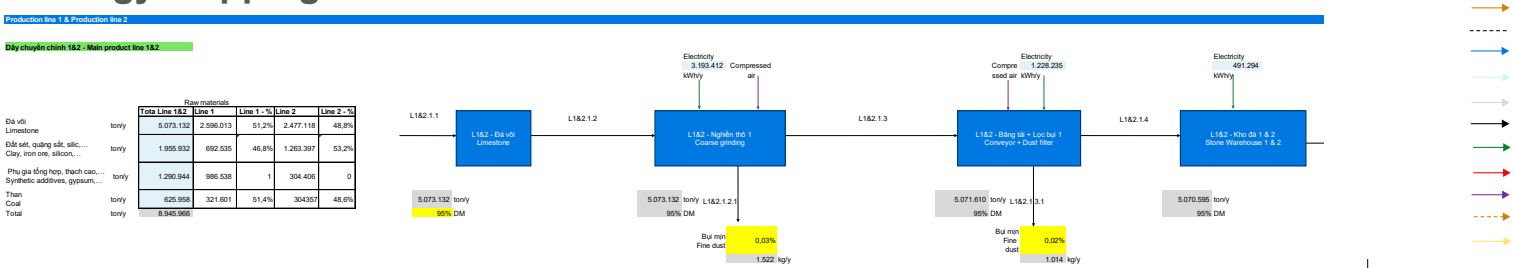
Việc liên tục xuất khẩu sản phẩm sang thị trường các nước trong khu vực cũng như trên thế giới đã một lần nữa khẳng định chất lượng sản phẩm của Xi măng Long Sơn đã đáp ứng được những đòi hỏi khắt khe của khách hàng quốc tế.

Công ty Xi măng Long Sơn sẽ không ngừng nỗ lực phát triển trong nước và vươn ra thị trường Quốc tế, hứa hẹn một tương lai không xa thương hiệu Xi măng Long Sơn dẫn đầu cả nước về khả năng cung ứng trong nước và xuất khẩu quốc tế.

JAPANESE TECHNOLOGY –
Building Every Structure
Capacity: 10.5 million tons per year

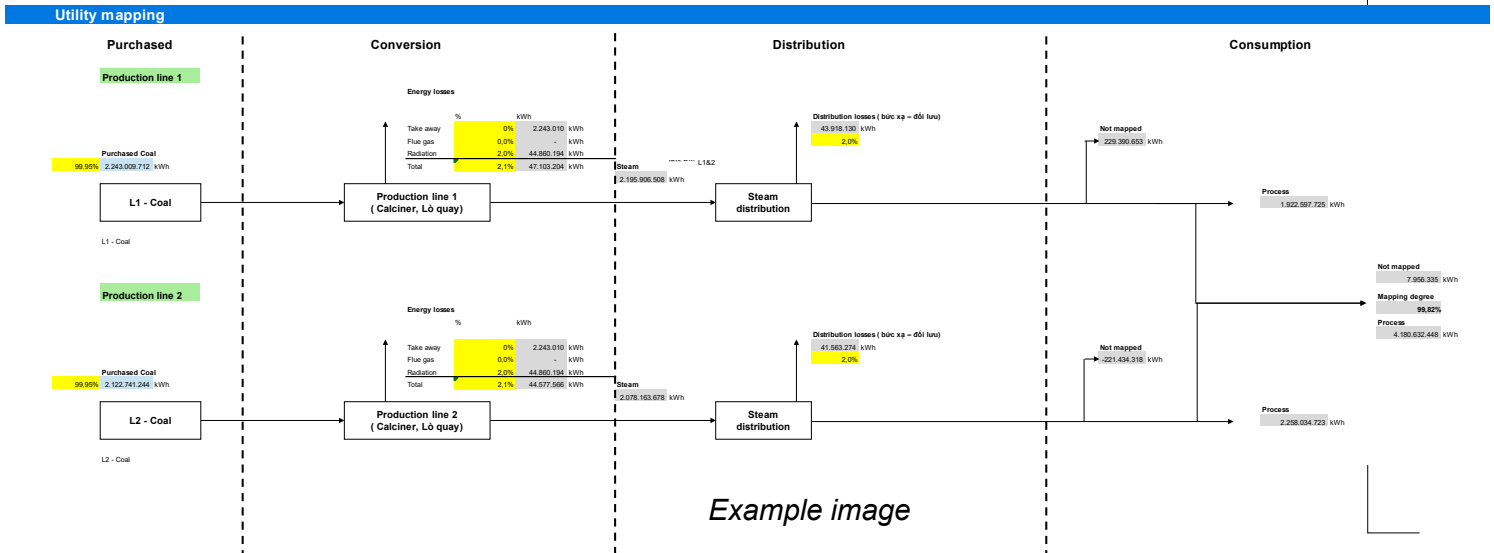
II. RESULTS OF DEPP3 PROJECT IMPLEMENTATION

Energy mapping



Legend:

- Steam
- Trục cơ khí/Mechanical shaft
- Water
- Cooling Water
- Dầu DO/DO oil
- Product
- Electricity
- Hot air
- Compressed air
- Khí thải/ Exhaust gas
- Fresh air



Example image

II. RESULTS OF DEPP3 PROJECT IMPLEMENTATION

The DEPP3 project team together with Long Son Cement has completed:
The energy audit report and proposal of 12 energy efficiency solutions, including 02 solution groups

ENERGY EFFICIENCY MEASURES

1. **Level B List**
2. **Level A List**

II. RESULTS OF DEPP3 PROJECT IMPLEMENTATION

LONG SON CEMENT

Level B List

No.	Energy efficiency measures		Savings		Savings amount (Million VND/Year)	Investment cost (Million VND)	Payback period (year)
			Electricity (kWh)	Coal (ton)			
1	Continue to regularly and periodically implement communication, education, and dissemination of energy saving knowledge to company employees		Recommended measures				
2	Develop, implement and certify Energy Management System according to ISO 50001:2018 standard		1,296,654	2.449	8,648	3,000	0.35
3	Solution for installing solar power system - typical example for 10MWp solar power system (without storage)		14,134,437		30,944.52	172,250	5.57
4	Install inverter for air compressor combined with central controller for compressed air system	Air compressor L1 – D31	84,934.92		165.45	600.00	3.86
		Air compressor L1 – D32	79,470.75		154.81	600.00	4.14
		Air compressor L2 – D33	48,868.52		95.20	600.00	7.04
		Air compressor L2 – D34	100,062.18		194.92	600.00	3.24
		Air compressor L3 – D35	194,713.10		379.30	600.00	1.62
		Air compressor L4 – D36	82,308.08		160.34	600.00	3.99
	Total energy savings of measures		590,357.55	-	1,150.02	3,600.00	3.13
5	Regularly maintain inspection and repair of compressed air leakage	Air compressor L1 – D31	23,084		44.97	20.00	0.44
		Air compressor L1 – D32	26,490		51.60	20.00	0.39
		Air compressor L2 – D33	20,980		40.87	20.00	0.49
		Air compressor L2 – D34	33,354		64.97	20.00	0.31
		Air compressor L3 – D35	33,097		64	20	0.31
		Air compressor L4 – D36	45,727		89.07	20.00	0.22
	Total energy savings of measures		182,732		356	120	0.34
6	Pipeline improvement "Install pressure-graded piping for compressed air system"	Air compressor L1 – D31	109,074		212.48	750.00	3.70
		Air compressor L1 – D32	143,047		278.66	750.00	2.79
		Air compressor L2 – D33	84,967		165.52	750.00	4.82
		Air compressor L2 – D34	180,112		350.86	750.00	2.20
		Air compressor L3 – D35	134,044		261.12	750.00	2.99
		Air compressor L4 – D36	185,193		360.76	750.00	2.14
	Total energy savings of measures		836,437.6		1,629.4	4,500.0	2.76
7	Equip a flow measurement system to monitor compressed air load		Recommended measures				

II. RESULTS OF DEPP3 PROJECT IMPLEMENTATION

LONG SON CEMENT

Level B List

No.	Energy efficiency measures		Savings		Savings amount (Million VND/Year)	Investment cost (Million VND)	Payback period (year)
			Electricity (kWh)	Coal (tons)			
8	Install the automatic HydroBall tube cleaning system, electronic descaling device, and automatic controller for the circulating water pump and cooling tower fan based on the condenser vacuum pressure – Typical example for Production Line 1		2,447,672		4,768	3,000	0.63
9	Replace 70W and 150W halogen bulbs with high-efficiency LED bulbs		744,045		1,449	2,841	1.96
10	Replace low-efficiency IE1 motors with high-efficiency motors (IE3-IE4) when opportunities arise – Typical example		85,833		167	1,090	6.52
11	Waste heat recovery solution (>100°C) using Organic Rankine Cycle (ORC) for the air conditioning system serving loads in the control room and substation areas, or for power generation (DC1 - DC4) – Typical example for the Line's HVAC system		1,296,480		2,525	9,000	3.56
12	Solution of applying Machine Learning to optimize production operation	Production Line 1	4,430,090	4,824	20,689	31,800	1.54
		Production Line 2	3,773,771	4,565	18,764	31,800	1.69
		Production Line 3	2,355,562	4,527	15,905	26,500	1.67
		Production Line 4	2,407,120	4,451	15,815	26,500	1.68
	Total energy savings of the solution		12,966,543	18,367	71,175	116,600	1.64
Total			**34,581,192**	**20,815**	**122,813**	**316,001**	**2.57**

II. RESULTS OF DEPP3 PROJECT IMPLEMENTATION

LONG SON CEMENT

Level A List

No.	Energy efficiency measures	Coal saved (tons)	Electricity saved (kWh)	Estimated cost savings (million VND)	Investment cost (million VND)	Payback period (years)
1	Develop, implement and certify Energy Management System according to ISO 50001:2018 standard	2,448	1,296,654	8,648	3,000	0.35
2	Solution for installing solar power system		14,134,437	30,945	172,250	5.57
3	Install inverter for air compressor combined with central controller for compressed air system		590,358	1,150	3,600	3.13
4	Pipeline improvement "Install pressure-graded piping for compressed air system"		836,437	1,629	4,500	2.76
5	Install automatic HydroBall tube cleaning system, electromagnetic descaling device, and automatic controller for circulating water pump and cooling tower fan based on condenser vacuum pressure		2,447,672	4,768	3,000	0.63
6	Waste heat recovery solution (>100°C) using Organic Rankine Cycle (ORC) for air conditioning system serving control room and substation loads or for power generation (DC1 - DC4)		1,296,480	2,525	9,000	3.56
7	Solution of applying Machine Learning to optimize production operation	18,366	12,966,543	71,175	116,600	1.64
Total		**20,815**	**33,568,581**	**120,840**	**311,950**	**2.58**

II. BENEFITS OF PARTICIPATING IN THE DEPP3 PROGRAM

1. Improve energy efficiency and reduce operating costs
2. Access international methods and standards
3. Develop a portfolio of feasible investment solutions
4. Enhance operational capacity and technology transformation
5. Contribute to emission reduction and sustainable development

III. RECOMMENDATIONS

1. In-depth technical support

- Continue to support the plant during the actual implementation phase of Level A solutions, especially highly complex solutions such as:
  - ❖ Applying Machine Learning to optimize operations
  - ❖ Waste heat recovery (ORC)
- Increase the involvement of international experts during the detailed engineering design phase and post-investment M&V (Measurement & Verification)

2. Capacity building and training

- Organize in-depth training programs for:
  - ❖ Operation team (operation optimization)
  - ❖ Technical team (energy management, data analysis)

3. Maintaining and expanding cooperation

- Express the desire to continue participating in:
  - ❖ Next phases of the DEPP/DE3 program
  - ❖ Programs related to: Carbon emission reduction & Future carbon market



THANK YOU!

- *Contact: Long Sơn Cement*
- *Email: contact@longsoncement.com.vn*
- *Tel: 023.789.79.789*
- *Website: https://longsoncement.com.vn/*