



# CLEAN AIR SERVICE & SOLUTION

Assessment • Design • Fabrication • Construction • Maintenance

**Environmental Business Expert Partner by EPS**

### WHO WE ARE



Eco Plant Services Company (EPS) is one of the leading solution providers. The company has been established since 2002. With nearly two decades of experiences and competencies, we have offered the professional engineering and maintenance services & solutions, especially clean air solution to the manufacturing industries.

Since 2019, EPS has expanded our services not only in domestic market but also in international market.



### WHAT WE DO

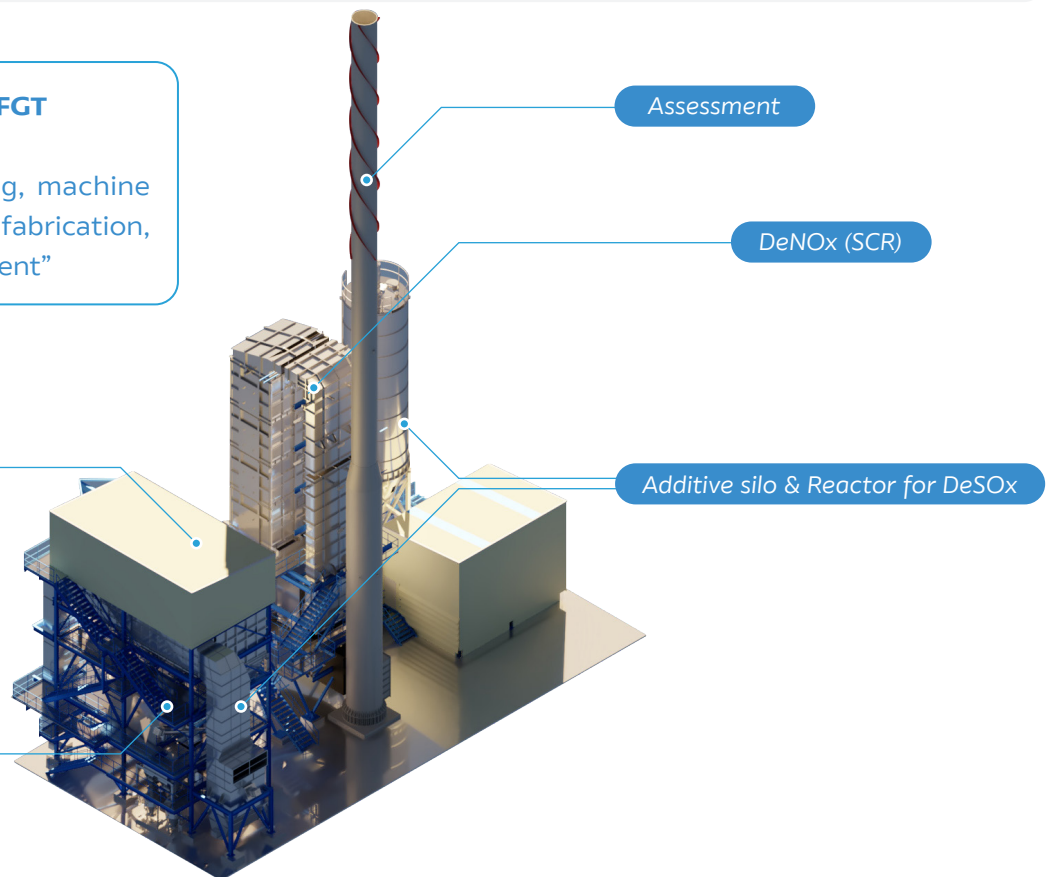


EPS works in the areas of assessment, design & engineering, machine supply, construction, project management, maintenance and after sale service to provide end-to-end experience with essential clean air technology to our customers.

We also provide Fabric Filter system, Electrostatic Precipitator, Wet Electrostatic Separation, SO<sub>x</sub> / NO<sub>x</sub> Removal system, and Wet scrubber in areas of focus: Cement and Mineral, Metal, Wood Particle Board, Waste to energy, Power Plant, Sugar industries, Loading Port and others. We ensure our customers by offering specific applications and high quality solutions.

#### Turnkey solution for FGT (flue gas treatment)

“design & engineering, machine supply, construction, fabrication, and project management”



# OUR SERVICE PACKAGE

## SERVICE & SOLUTION

We care for Environmental Quality of green society

EPS Clean Air Service & Solution provides a tailor made system for integrated solution with effective results. We create and customize 3 packages to fulfill our customer's needs as follows :

### 1. Assessment Package

### 2. Implementing Package : Design and Engineering / Fabrication / Construction

### 3. Maintenance and After Sales Service Package



#### ASSESSMENT

**Key Benefit :** Know & Prevent the problems first.

- Process assessment : Flow rate, Gas composition
- Stack Monitoring
- CEMs system



#### DESIGN AND ENGINEERING

**Key Benefit :** Improve System Efficiency.

- Process design and optimization
- Mechanical, Electrical, Civil Design
- 3D Modeling design
- CFD Modeling and Simulation



#### FABRICATION

**Key Benefit :** Cost competitiveness.

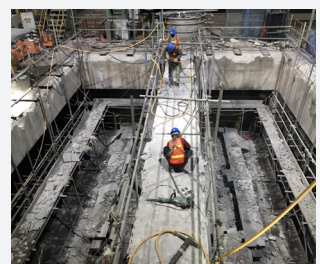
- EPS own Workshop facility for fabrication work.
- Fabrication – Normal Steel, Stainless
- Wear part, Welding and re-surface
- Welding certificate



#### CONSTRUCTION

**Key Benefit :** Confident with Professional team.

- EPS Project management team to assure Quality + On time + On Budget
- Using BIM for project execution
- Machine and Electrical equipment Installation
- Civil works



#### MAINTENANCE AND AFTER SALES SERVICE

**Key Benefit :** Maintain perfect operational level.

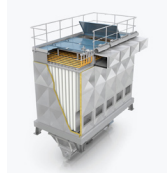
- Spare part supply : Bag Filter, ESP, etc.
- Yearly Inspection
- Minor and Major Overhaul



EPS is one of the world class solution providers in the field of innovative air and environmental technologies as we officially join with global partners. We have worked with leading experts and institutes to offer our customers specific applications and high quality solutions for better quality of air and environmental issues for many years.

### FLUE GAS TREATMENT

- BAG FILTER : 100-3,000,000 m<sup>3</sup>/h, Temperature up to 280 °C, Dust concentrations <10 mg/Nm<sup>3</sup>
- HOT-GAS FILTERS (CERAMIC FILTER ELEMENTS)
- ELECTROSTATIC PRECIPITATOR
- WET ELECTROSTATIC PRECIPITATOR
- NO<sub>x</sub> SEPARATION (DeNO<sub>x</sub>, SCR)
- SO<sub>x</sub> SEPARATION (DeSO<sub>x</sub>)
- WET SCRUBBER



### KEY BENEFITS

Clean air solution is regarded as a challenge for manufacturing industries. EPS clean air solution can help not only improve the standard of employee's healthiness but also reduce the maintenance of machine and equipment.

- Better Clean Air solution with customized design and quantifiable results.
- Minimized client's internal project scope and risk.
- Reduced air pollution emission for industries with quality, time and cost competitiveness.

### KEY PROJECT REFERENCE

No.	Plant	Year	Country	Kiln Capacity (t/d)	Capacity (m <sup>3</sup> /h)	Dust Emission (mg/m <sup>3</sup> )
1	Siam Cement Thung Song kiln no. 6	2014	Thailand	7,500	1,050,000	3.90
2	Siam Cement Thung Song kiln no. 5	2015	Thailand	5,500	770,000	0.18
3	Siam Cement Thung Song kiln no. 4	2016	Thailand	3,000	450,000	1.7
4	Siam Cement Kao Wong	2016	Thailand	10,000	1,632,000	0.90
5	Siam White Cement Kiln no.1	2018	Thailand	220	105,000	3.67
6	Siam Cement Lampang	2019	Thailand	6,000	934,000	1.35
7	Siam Cement Ta Luang kiln no. 5	2019	Thailand	4,200	660,000	5.92
8	Vietnam Construction Material	2019	Vietnam	5,000	900,000	30

# REFERENCE CASE 1

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### Conversion of ESP to Bag filter at Siam Cement plant at Kao Wong with capacity 10,000 tpd

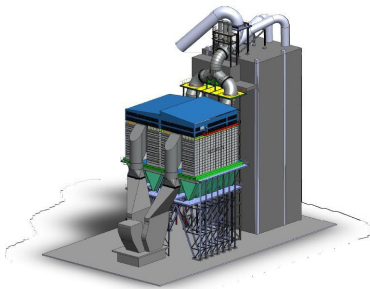
“Challenge : Conversion of SCG largest ESP to Bag Filter within a short period of time ”



Existing ESP



Finish installation  
of new bag filter



3D modeling by using BIM



More than 100 tons  
single part lifting



Installation works



#### CONTEXT

Dust emission was visible at stack during a transition period because the process parameter had been changed, causing inapplicable ESP. Hence, Fabric filter with design of  $<10 \text{ mg/m}^3$  dust emission control was considered for replacement.



#### ACTION

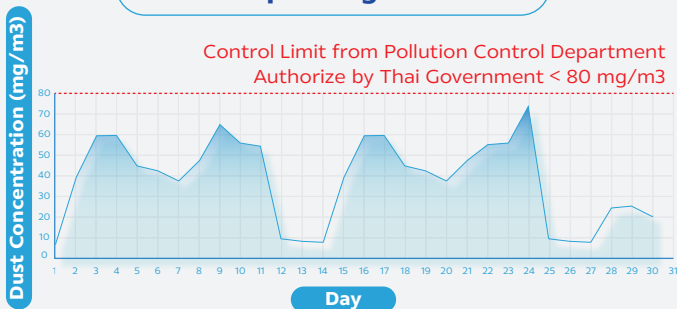
- Implemented the largest bag filter with Max. capacity 1,000,000  $\text{m}^3/\text{h}$  and 10 m. in length of filter bag of glass fiber with PTFE membrane to operate with max.  $250 \text{ }^\circ\text{C}$  and  $260 \text{ }^\circ\text{C}$  at peak condition
- Engineered for system integration e.g. duct design, CFD, and ID fan modification
- Local steel fabrication for top box, Casing, Duct
- Preassembled bag filter
- Dismantled and installed bag filter
- $>100$  tons single part lifting with mobile crane
- Supervision, Test run and Commissioning



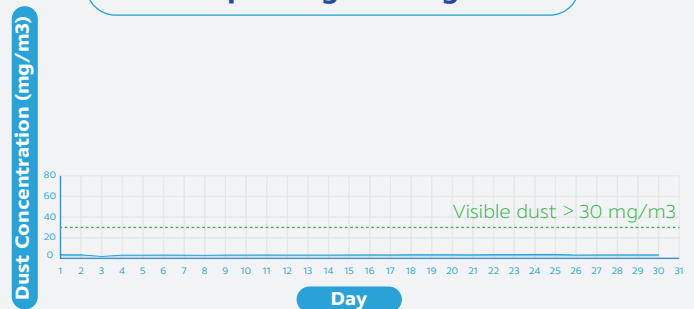
#### RESULT

- Reduced dust emission to  $0.90 \text{ mg/m}^3$  (Guarantee  $<10 \text{ mg/m}^3$ )
- Shutdown period within 30 days
- On time, On budget, and Vertical Start Up
- Reduced cost by 10-20% from local steel fabrication

#### Plant Operating with ESP



#### Plant Operating with Bag Filter



# REFERENCE CASE 2

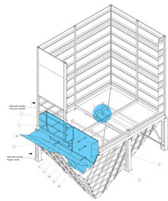
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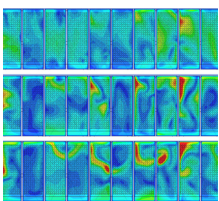
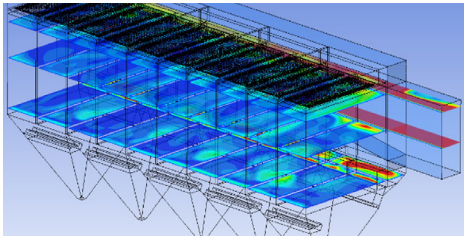
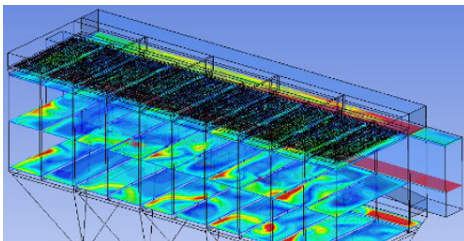
### Modification made from china bag filter at Vietnam Construction Materials (5,000 TPD) “Challenge : Customizing design to extend a lifetime of filter bags”



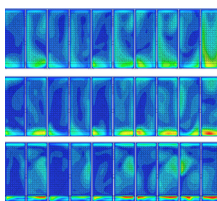
Existing bag filter



Unique baffle  
plate design



Operation with  
existing design



Operation with  
new baffle plate



#### CONTEXT

The cement plant was equipped with 900,000 m<sup>3</sup>/h bag filter made from China. Still, there was a high dust emission in some period of time because of the low efficiency in air distribution design. In addition, filter bags were repeatedly broken, leading to low plant reliability and high maintenance cost due to a shorter lifetime of bag filter (< 1 yr).



#### ACTION

- Simulated bag filter profiles by CFD software to find root cause of the problem and found that inappropriate gas distribution caused filter bag at the end of chamber to absorb higher relatively kinetic energy than other bags.
- Installed a new unique design of baffle plate to improve gas distribution efficiency and proved the result with CFD simulation.



#### RESULT

- Longer lifetime of filter bag (3 years)
- Dust emission reduces from 90 to 40 mg/m<sup>3</sup>
- Pressure loss reduces by -17%
- ID fan power consumption reduces by -2%

#### CONTACT INFORMATION

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