Case Study

Chimney Construction for Quang Trach 1 Thermal Power Plant

Vietnam

DATA AT A GLANCE

Chimney height	230 m
No. of internal steel flues	2
No. of internal platforms	7
Windshield concrete volume	7,250 m^3
Pilecap concrete volume	3,100 m^3
Diameter of internal flue	7.5 m

Precision Engineering

Executed a 3,850 m^3 slipform casting in a seamless 24-hour pour, demonstrating BEC's mastery of large-scale vertical structures.

Safe High-rise Execution

Delivered the 230 m chimney with zero lost-time incidents, reflecting BEC's unwavering commitment to safety in high-rise construction.

High Performance

Engineered to resist heat and corrosion, delivering long-term durability and meeting strict emissions control requirements.

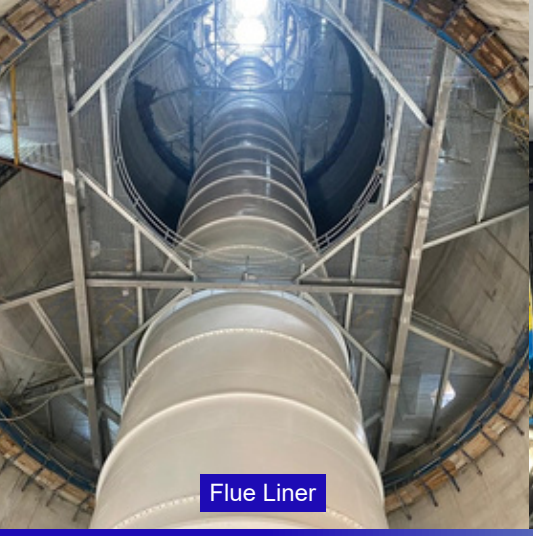
Project Overview

The Quang Trạch I Power Plant is part of Vietnam's national strategy to strengthen energy security and meet rising electricity demand. The facility comprises two ultra-supercritical coal-fired units with a combined capacity of 1,400 MW.

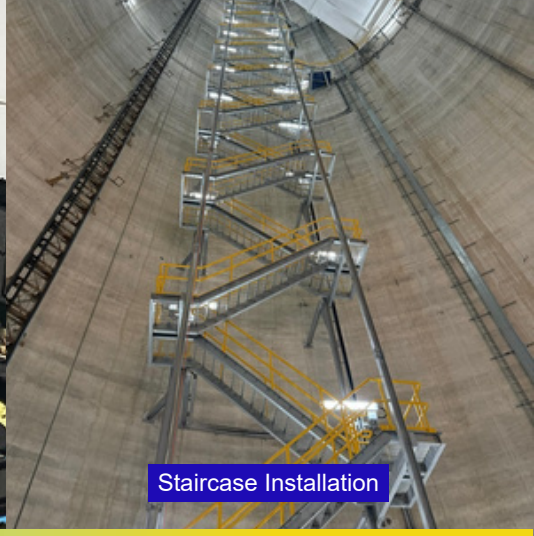
Balanced Engineering & Construction (BEC) was awarded the contract to construct the plant's 230-metre environmental compliance chimney, a critical structure designed to manage emissions from the new generating units. Built on reclaimed coastal land, the chimney required precision engineering and safe high-rise execution under challenging site conditions.

Challenges

- **Reclaimed Coastal Land** – The chimney foundation was constructed on reclaimed ground, requiring specialised geotechnical design to manage soil settlement, load distribution, and ensure long-term stability against coastal conditions.
- **Marine and Weather Exposure** – Located within the Hòn La Economic Zone, the site is exposed to typhoons, high humidity, salt-laden air and wind speeds of 55 m/sec (3-second gusts). These conditions demanded robust structural engineering, careful construction practices and durable corrosion-resistant materials.


Flue Liner


Borosilicate Block Lining


Staircase Installation

Owner

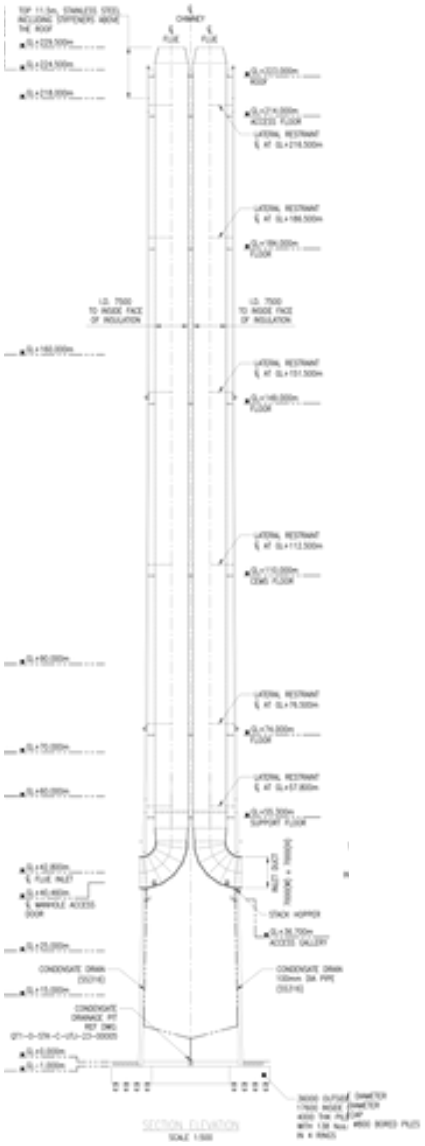
Vietnam Electricity (EVN)

Client

Consortium of MC,HDEC and CC1

Completion Date

March, 2025



Detail of work by BEC

The Quang Trạch 1 chimney was constructed using the slipform method, allowing for a continuous 24-hour pour of concrete to achieve a seamless 230-metre shaft.

Scope of work by BEC included:

- Detailed design and engineering works
- Pile-cap construction
- Borosilicate block lining for long-term durability
- AWL (Aircraft Warning Lights) system installation
- Internal steel works
- Protective coating and external painting
- Electrical and lighting systems integrated throughout
- Suppy and installation of rack-and-pinion access hoist
- Lightning protection system

The BEC Advantage

The Quang Trạch I chimney was delivered safely, on time, and to specification, demonstrating BEC's expertise in constructing one of Vietnam's tallest industrial chimneys under challenging coastal conditions. The continuous 24-hour slipform casting showcased precision engineering, while borosilicate-lined flues provided long-term durability and emissions compliance.

By integrating civil, mechanical, and electrical systems, including steel platforms, coatings, lighting, and hoist provisions, BEC handed over a fully operational structure that strengthens the reliability of Quang Trạch 1 and supports Vietnam's goal of securing stable energy generation.

Contact us to learn more about BEC's engineering solutions!

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