



# Case Study

## Flare Stack Maintenance

Singapore Refining Company

### DATA AT A GLANCE

System	RCC LP - HP Flare
Flare Stack Height	125 m
Shutdown Window	19 Days
Key Works	Flare tip replacement and steam line upsize

### Detailed Planning



Six months of preparation enabled execution of complex, multi-discipline works.

### Safety Excellence



Thorough risk assessments, supervision, and real-time coordination ensured safe execution and zero incidents.

### Ahead of Schedule



Completed within a 19-day shutdown window, despite additional emergent works.

## Project Overview

Balanced Engineering & Construction (BEC) was engaged to deliver safety-critical works during a major refinery turnaround.

The scope included flare tip replacement, steam line upgrade, high-level platform works, electrical and instrumentation cabling, guy wire tensioning, UT inspection, pre and post-turnaround verticality surveys, and reinstatement of insulation and cladding on the flare system.

The project required precise planning, multi-discipline coordination, and strict adherence to shutdown safety and quality controls to meet critical turnaround schedules.

## Challenges

Works on a 125-metre flare stack during a major refinery turnaround required careful planning and coordination:

- Complex Access:** Critical activities at the upper sections of the flare demanded carefully engineered access systems and precise sequencing.
- Turnaround Constraints:** A 19-day shutdown required the execution of complex, multi-discipline works within a fixed and highly compressed timeframe.
- Emergent Scope Management:** Additional scope identified during execution had to be safely assessed, approved, and incorporated without impacting the shutdown schedule or safety performance.



Replacement of high-energy cable



Removal of old LP flare tip



Tensioning & greasing of guy wires

#### Owner

Singapore Refining Company

#### Client

Singapore Refining Company

#### Completion Date

October, 2025

## Detail of work by BEC

BEC delivered multi-discipline works on the LP/HP flare system during a major refinery turnaround, including flare tip replacement, steam line upgrade, high-level platform and access works, and electrical and instrumentation cabling.

The scope also covered guy wire tensioning, UT inspection, pre- and post-turnaround verticality surveys, and full reinstatement of insulation, cladding, and coatings, ensuring the flare system was safely verified and ready for recommissioning.

## The BEC Advantage

The project was delivered ahead of schedule within a 19-day shutdown window, underpinned by six months of detailed pre-shutdown planning.

Despite the introduction of emergent works during execution, BEC successfully integrated the additional scope without compromising safety, quality, or turnaround milestones, enabling timely recommissioning of the flare system and supporting overall turnaround objectives.

All activities were completed with a strong safety performance, achieving zero incidents and full compliance with refinery shutdown and quality requirements. The successful execution reinforced BEC's capability to deliver complex flare system works under intense time pressure while maintaining high standards of safety and reliability.

For complex flare system works, shutdown support, or safety-critical maintenance at height, contact Balanced Engineering & Construction:



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