

Case Study

Tangguh LNG Expansion Project



Asset/Facility overview

Industry	Oil & Gas
Sharecat Customer	BP (Asset Owner/Operator)
Asset type / location	LNG liquefaction plant, Indonesia
Lifecycle Phases	<ul style="list-style-type: none"> Early phase design (FEED) Detail design & execution Construction & commissioning Start Up & Early Operation



Figure 1. Tangguh LNG train 3 (picture courtesy of BP).

The Tangguh Expansion Project included;

- Two offshore platforms
- 13 new production wells
- A new third train of liquefaction rated at 3.8MTPA of LNG (a capacity increase of ~50%)
- Gas pre-treatment and processing
- A new LNG jetty with expanded loading facilities and associated infrastructure.

The project had a CAPEX of ~\$8 Billion USD and delivered its first LNG cargo in October 2023.

Platform functionality used

<input checked="" type="checkbox"/>	Documents management, workflows & reviews
<input checked="" type="checkbox"/>	Asset data & equipment registers
<input checked="" type="checkbox"/>	Reference Data Library / Class Library Management
<input checked="" type="checkbox"/>	Automated tag & document numbering
<input type="checkbox"/>	Product Catalogue
<input checked="" type="checkbox"/>	Reporting & analytics

Key figures

# EPC Contractors	7	<ul style="list-style-type: none"> - Onshore scope (FEED & execute): CSTS JV - Chiyoda, Saipem, Tripatra & Suluh Ardhi Eng. - Onshore scope (FEED only): RJK JV - Rekin, KBR & JGC. - Offshore scope (execute): Saipem.
# Suppliers	391	
# Purchase Orders	825	
# Unique Documents	102 519	Engineering (owner/operator & EPC) and supplier documents
# Document Revisions	288 646	
# Tagged equipment items	170 812	
# Data attributes collected	7 650 321	

# Workspace users	893	
Dates	2014 to 2023	From FEED through to start-up.

Factors for selecting the Sharecat platform

The original Tangguh project (LNG trains 1 & 2) depended on the EPC contractors' systems, which resulted in challenges with data accuracy, lack of definitions such as equipment classes, as well as common issues such as incorrect and duplicate tag numbering. From this experience, BP identified a key element for successfully delivering the Tangguh Expansion Project was to use a system that was both document and data centric – i.e. one that could handle, collect and validate documents and data automatically which also enabled collaborative working with its contractors on information from all sources – BP, EPC contractors and suppliers.

Importantly BP defined that the required system must;

- Be proven in similar applications in heavy and complex industries.
- Handle both documents and asset data, with class library / Reference Data Library (RDL) capability.
- Use automation to minimize high volume, low value tasks by personnel.
- Include automated checking and validation to improve quality.
- Be scalable for large data volumes across the lifecycle from early design through to operations.
- Report on information quality and completeness against defined milestones for streamlined start up.
- Assign tags based on the same engineering numbering system as train 1 and 2, but, preventing any duplicates to existing tags.
- Provide global 24-hour access to the latest information for engineering teams in Jakarta, Japan, Italy, the UK, and construction and commissioning teams at the remote site locations and platform construction yards in Indonesia.

Thanks to successful use on the BP Quad 204 project, the Tangguh team were introduced to the Sharecat platform which met all defined requirements (above), resulting in the Sharecat platform being selected and implemented.

Successes & benefits identified

The BP team summarised their experience from using the Sharecat platform as follows:

"In my experience most solutions normally struggle to meet expectations and demands of users, but from the moment I first came across Sharecat it frankly blew my mind. When comparing the value provided to the cost spent, the Sharecat platform definitely has been a very good investment for us."

Dodi Jatikusuma, Project Information Management Manager – BP Tangguh LNG.

Key benefits identified were:

- ~\$2 million (US dollars) direct saving in the EPC contract. Through collaboration with the EPC contractors in BP's workspace, the requirement for the EPC contractor to provide their own "Central Document Management" and "Central Tag+Data Management" tools was removed.
- A single workspace for all project phases, from 2014 to 2023 when first operations began. Including running a competitive FEED within the same workspace, with two competing EPC consortia with full segregation.
- Through the platform, improved EPCs understanding of BP's requirements and expectations for information, ultimately leading higher quality handover earlier.
- EPC Contractors were able to access and use the workspace in the Sharecat platform under BP's license. This enabled them to use functions for automatically checking the quality of their data submissions, as their systems lacked capability for processing data and use of class libraries.
- Disputes and change orders for "missing information" were avoided as automated distribution ensured the latest versions of BP specifications were issued to all relevant EPC contractors with an audit trail.
- Integrated reporting & analytics enabled current 'real time' status accessible for all parties. This allowed BP to drive and measure contractor performance according to their need dates.
- No locally installed software or associated IT support costs.
- High volumes of documents and data collected and processed without issue.

Sharecat™

- Significant reduction in document control effort and cost through automation of high-volume activities. For example, Information automatically processed, validated against BP class library requirements and distributed/issued in 'real time' to all project participants globally.
- The platform enabled efficient transfer of interface critical information between EPC contractors to track and verify that the latest information was issued to the respective contractors (onshore scope to offshore scope and vice versa).
- Remote construction and commissioning teams could access and utilise the latest information.
- Enable the Reliability & Maintenance team to have the maintenance program built and activated at start-up of the facility. Through accessing available data within Sharecat the design of the Maintenance program began early – during project execution – enabling quality issues to be detected early and corrected.
- Staged handover to operations via 8 pre-defined "ready for start-up" milestones.
- Enable seamless interaction between the project and operations teams to facilitate successful multiple start-ups, in stages, next to a fully operational live plant (trains 1 & 2), with a smooth handover.
- Loading high quality data, in structure, into operations systems without typical major data processing and clean-up costs. This included exporting the class library definitions to configure the operations system.
- Controlled access to information, in accordance with bp's Confidentiality and Information Classification requirements, safely executed with zero digital security incidents.

The COVID-19 Pandemic - a unique challenge

During the execution of the project, the COVID-19 pandemic presented an unexpected challenge which required the construction team at site reducing from ~10 000 to <2000. Thanks to the Sharecat platform being a cloud SaaS solution, the project was able to transition to remote working to help safeguard personnel without the project needing to be suspended.

"Without Sharecat being a cloud-based system we would have been unlikely to be able to continue with detail engineering design, commissioning and construction activities during the COVID restrictions".

Dodi Jatikusuma, Project Information Management Manager – BP Tangguh LNG.

The future

The success from the Tangguh Expansion Project, has resulted in BP continuing to use Sharecat for the new UCC project at Tangguh. The UCC project will reduce carbon emissions through injecting CO₂ offshore while enhancing gas recovery to maintain production. This project is targeted to start execution in 2024/25.

Figure 2. (right) Tangguh UCC project outline (picture courtesy of BP).

