

RETROFIT SOLUTIONS FOR CRYOGENIC STORAGE & HANDLING FACILITIES @TGE



INTRODUCTION

Today's industry for liquefied gas storage includes a large number of facilities which have been in operational service for significant periods, even decades already. Increasingly plant owners consider retrofitting these facilities for different reasons:

PLANT LIFE TIME EXTENSION

- Design life time reached
- Material fatigue, e.g. due to environmental impact
- Availability of spare parts
- New regulations require new permits

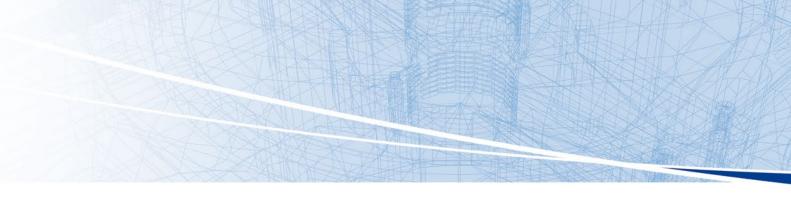
PLANT SERVICE MODIFICATION

- Maximising Existing Assets e.g. new product service allows a more profitable business
- Reaching new revenue streams e.g. extensions for new business like ship or truck loading

OPEX OPTIMIZATION

- Reduction of energy consumption, e.g. heat recovery, more efficient equipment and up-to-date process control
- Reduction of maintenance by replacement of susceptible material





CONDITIONS

Retrofits for cryogenic facilities requiring a full system decommissioning are usually complex projects rather than just replacements of single parts. Depending on the specific retrofitting project, the project management is confronted with additional tasks in comparison to an "empty plot" EPC project. Several conditions must be considered:



EXECUTION

TGE offers retrofit solutions in two project steps:

Retrofit study (E)	 Review existing plant documentation Evaluation of existing facilities/site survey Gap analysis to current international codes, standards and industry practice Tank inspection Retrofit design change program – technically & regulatory Cost & Schedule Determination
Retrofit implementation (EPC)	 Detailed retrofit project planning Basic/detail engineering Procurement of new components Disassembly of obsolete components Re-assembly according design change program Commissioning/start-up and training

WHY TGE

- Strong experience in storage and handling of liquefied gases
- Full inhouse design and inspection capabilities for cryogenic storage tanks and terminals
- Experienced in project execution in "brown-field" conditions/environment
- Able to perform a full EPC for retrofitting cryogenic storages and/or terminals

For further information

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