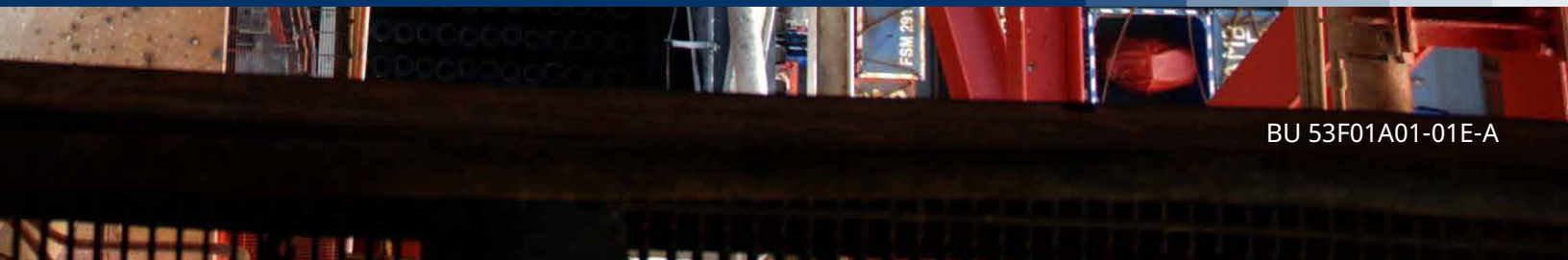
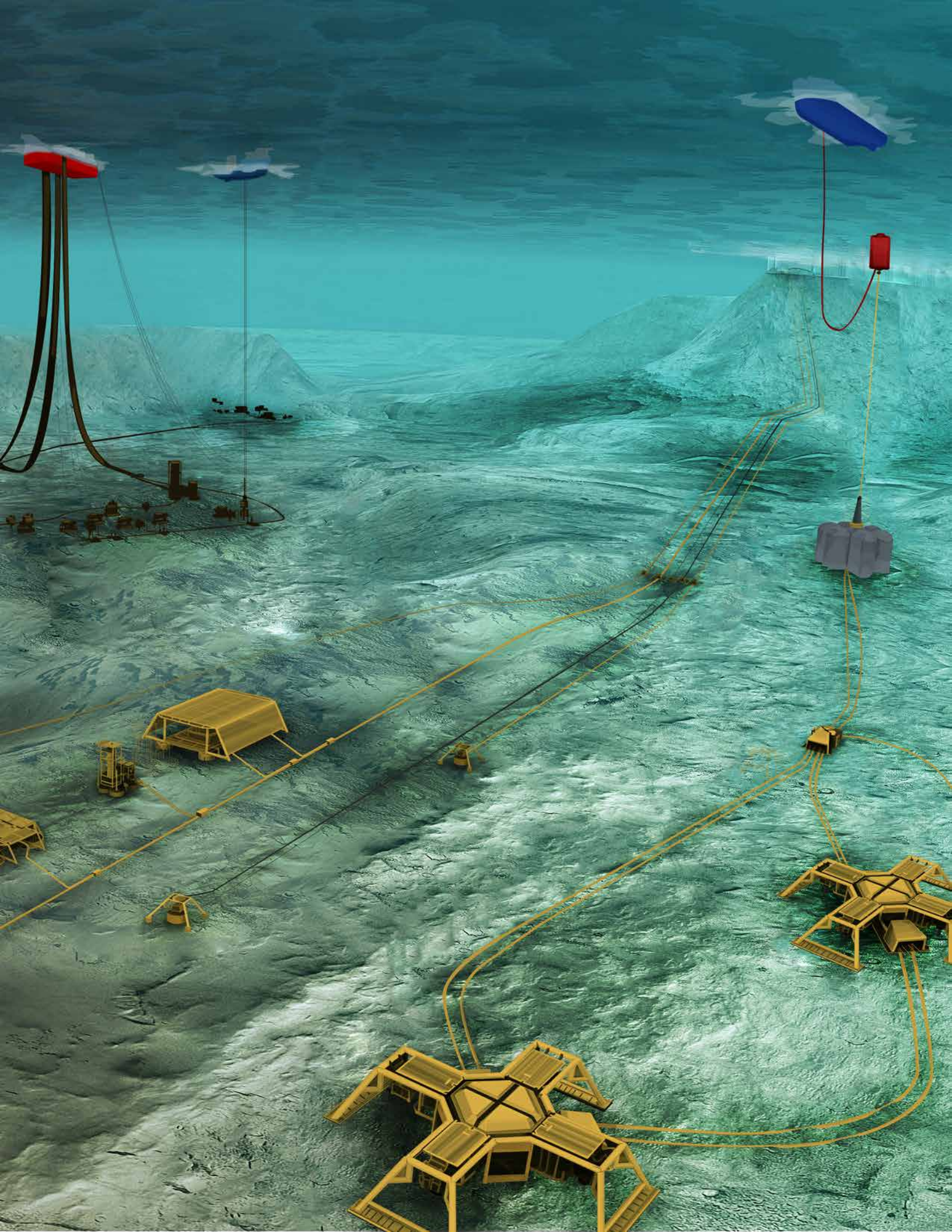


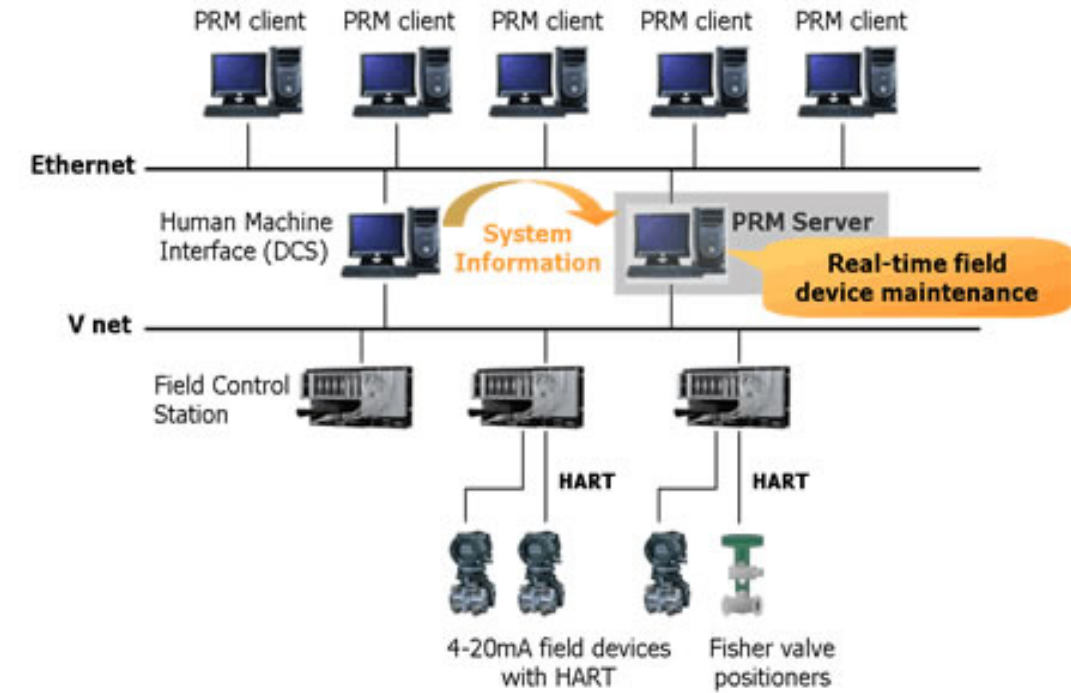


Subsea Master Control Station





Subsea Master Control Station



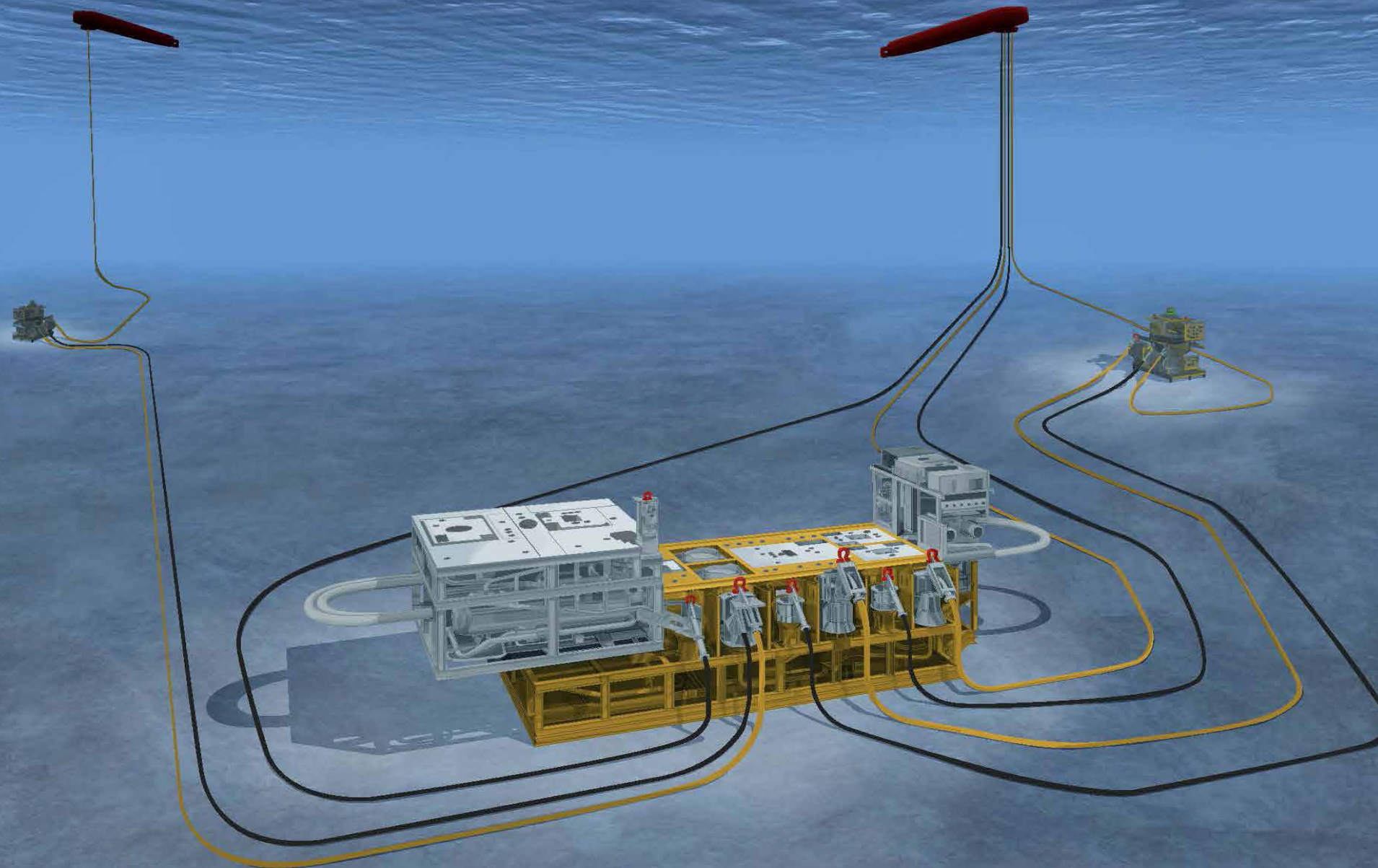
Overall system configuration

In the offshore industry, technology plays a critical role in the efficiency and quality of subsea projects. The standardization of subsea control systems allows for more efficient project execution that reduces engineering costs and time.

Yokogawa offers advanced solutions to maximize productivity by providing an Integrated DCS/MCS Control System for both topsides and subsea. This integrated architecture would allow a single window into the offshore platform from remotely anywhere that your DCS system can be accessed. Our Subsea Master Control Station (MCS) utilizes modular programming for more effective engineering and testing as well as a better streamlined change management process. The Subsea MCS features a modular unit design that brings more onshore capabilities to companies when it comes to testing, replicating and making changes to subsea wells.

Key Features of Subsea Master Control Station (MCS)

- Fully integrated control system for both topsides and subsea, in which engineering, testing and upgrades are executed through a single system
- Standard HMI's for the well control and alarm management standard in the modular well controls in the MCS
- Remote monitoring and control of the subsea production system and topsides equipment via a secure system
- Execution of valve commands, valve interlocks, automatic valve shutdown, and choke control
- Seamless integration with FMC Subsea systems using FMC722 protocol
- Native integration of Subsea Historian for Valve signature data



Customer Challenge

Making Subsea Development More Efficient

Limitations from a non-modular design: Standalone PLC based MCS's often are individually coded, requiring engineering efforts for the replication and testing for each well. Each change requires manually changing the code for individual wells and full retesting to assure absolute integrity of the controls prior to going offshore. This also results in more time and highly experienced, trained resources needed to maintain subsea well systems.

Complicated maintenance procedures: Having multiple systems in place requires troubleshooting and engineering expertise on each of those systems, all of which complicates the subsea systems maintenance process.

Lack of remote system access: Lack of remote system access demands more offshore efforts, increasing safety risks and maintenance costs.

Our Solutions

Shifting to a Modular Unit Design

Yokogawa Subsea Master Control Station provides a standardized application library (Toolkit) for control and monitoring of subsea operation across all the subsea projects, considerably reducing time and cost typically associated with engineering, maintaining, testing, and replicating subsea wells.

Integrated solution for topsides and subsea controls: A conventional, standalone MCS is replaced with a fully Integrated Control and Safety System (ICSS) featuring a Modular Unit Design that allows all changes for both topsides and subsea to occur from a single interface.

The Yokogawa MCS solution has standardized HMI and Alarm Management that aligns with industry best practices.

One unit procedure for multiple wells: In the modular design, a single generic code applies for all wells; once a modification is completed for one well, the change can be applied to all wells, saving time and effort while maintaining

quality. The same applies to testing procedures; once programming is tested for one well, it can be easily proven for others.

More efficient management of system: With no expertise on multiple systems needed and only one system to upgrade, well modification only requires a generic change, reducing facility downtime and increasing productivity. Remote system access also makes it possible for all changes and troubleshooting to be accomplished onshore for a more efficient maintenance process.

Customer Benefits

High Quality & Reduced Time, Costs and Engineering Efforts

Yokogawa's advanced solutions for subsea production give customers an advantage. The modular programming concept of our Subsea Master Control Station simplifies the processes of moving, renaming and testing subsea wells,

all of which could take up to a number of weeks without integrated topside and subsea systems.

Switching to a modular subsea system like the Master Control Station comes with benefits that include:

- Easier configuration and maintenance through one master database
- Remote system access
- Generic programming
- Simpler maintenance and management of corrections and changes
- Easier troubleshooting



“...the Stones Project had 80% Subsea MAC Toolkit Utilization which resulted in less engineering time developing the Subsea Control Typical, HMI design, and Alarm Management, which is 25% Cost Reduction in Yokogawa Application Engineering and over 50% Reduction of Testing... The Modular Design Approach of a MCS is a Unique Solution as it gives a simple and easy to maintain and replicate proven Well application. The Subsea projects team were completely satisfied with the way the project was implemented and with the results achieved.”

[Success Story – Subsea Controls Solution]

YOKOGAWA 

Yokogawa Electric Corporation

World Headquarters
9-32, Nakacho 2-chome,
Musashino-shi, Tokyo 180-8750
Japan
yokogawa.com/jp

Yokogawa Corporation of America

12530 W. Airport Blvd.,
Sugar Land, TX 77478
USA
yokogawa.com/us

Yokogawa Europe B.V.

Euroweg 2, 3825 HD
Amersfoort, The Netherlands
yokogawa.com/eu

Yokogawa Engineering Asia PTE. LTD

5 Bedok South Road, Singapore 469270,
Singapore
yokogawa.com/sg

Yokogawa China Co., Ltd.

3F Tower D, Cartelo Crocodile Building,
No.568 West Tianshan Road, Shanghai
200335, China
yokogawa.com/cn

**Yokogawa Middle East &
Africa B.S.C.(c)**

P.O. Box 10070,
Manama Building 577,
Road 2516, Busaiteen 225,
Muharraq, Bahrain
yokogawa.com/bh