

# Ocean Development

We will deepen our collaboration with MODEC, Inc. to provide services beyond the existing domains.

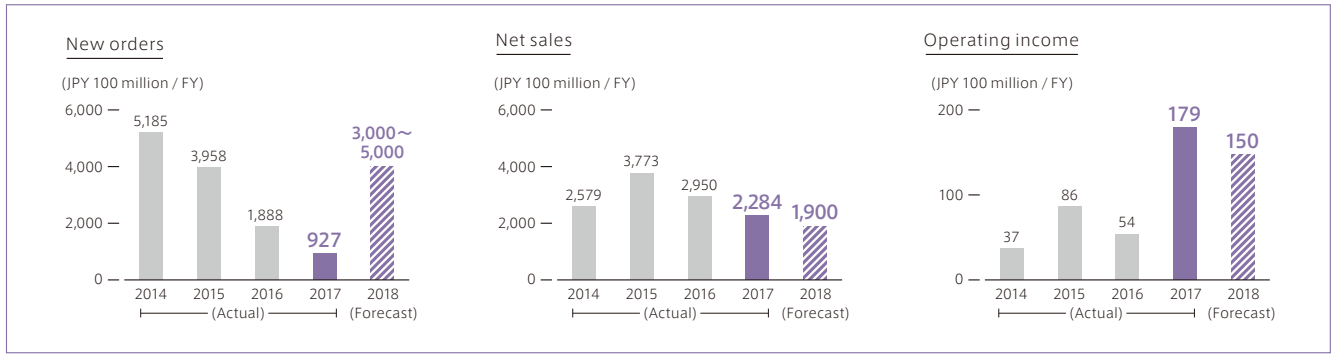
Director and Managing Executive Officer  
General Manager of Corporate Planning Headquarters  
Shinsuke Minoda



### Business environment and performance

Crude oil prices recovered from the low level recorded at the beginning of 2016, reflecting the anticipation of the elimination of excess supply attributed to the oil-producing countries' agreement to reduce production. West Texas Intermediate (WTI) has recovered to more than 50 US dollars per barrel. Oil companies are expected to continue development with a focus on deep-sea areas from the viewpoint of a sustainable supply of energy resources. Accordingly, businesses related to the floating production storage and offloading system (FPSO) are expected to grow stably in the medium and long term. In the midst of these conditions, we have established the Corporate Planning Headquarters, which performs corporate planning functions for the entire company, to create businesses in the core domains specified in the MES Group 2025 Vision that we announced in February 2016 and to increase the driving force for achieving this objective. We also changed our structure into one in which the ocean business is under the direct control of the Corporate Planning Headquarters. With MODEC, Inc., a group company that engages in the FPSO business, we will enhance collaboration in the overall group in areas including not only the manufacturing of hulls but also the field of engineering

called topside, the after-sales service business, and even joint participation in FPSO charter projects. Orders received declined by 96.063 billion yen (-50.9%) year on year, to 92.704 billion yen, although we received orders for specification changes, operation services, and others for existing FPSO projects. This is attributed mainly to a shift in the timing of the placement of orders for new projects. Net sales decreased by 66.562 billion yen (-22.6%) year on year, to 228.419 billion yen, due in part to a shift in the timing of the placement of orders for new projects, which offset the progress of the existing FPSO construction. Operating income increased by 12.522 billion yen (+233.1%) from the previous fiscal year, to 17.895 billion yen, mainly reflecting the improved profitability of existing projects.



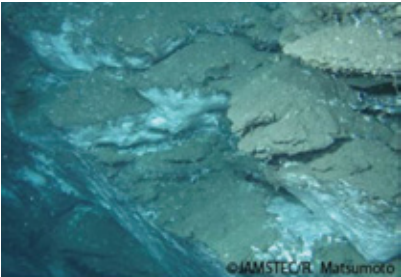
# Our Action

Initiatives for innovation based on the Mid-Term Business Plan

### Topics Promoting the commercialization of shallow methane hydrate production

#### Implementation of a research project on the development of technology for recovering shallow methane hydrate, which was commissioned by the government

Under the national government's Basic Plan on Ocean Policy that was developed in March 2008, development targets, how to achieve them, the development of the necessary technologies, the division of roles between the public and private sectors, and other details were determined for each type of marine energy and mineral resources, such as methane hydrate and polymetallic sulphides. The government decided to promote research for the practical application of methane hydrate, which is deposited in Japan's surrounding marine zones, and publicly recruited bodies implementing the research project. MES applied for this project jointly with Shimizu Corporation and Nihon University, with MES being the representative. Five consortiums were selected as a result, including MES. MES has a rich knowledge of gas hydrates and an extensive track record in offshore structures, machinery, and plants. We will aim to commercialize shallow methane hydrate production by working together with domestic and overseas partners.



Methane hydrate exposed on the ocean floor off Joetsu.  
Source: Website of Gas Hydrate Research Laboratory, Meiji University

### Topics Commencement of time charter of FPSO for the Lapa oil field in the "pre-salt" region offshore Brazil

Our subsidiary MODEC, Inc. (MODEC) was awarded the contract for the supply, time charter, and operations of Floating Production, Storage and Offloading (FPSO) unit by Guar  B.V., which is a 45% subsidiary of Petr leo Brasileiro S.A. (Petrobras), the national oil company of Brazil. MODEC was responsible for engineering, procurement, construction, mobilization and installation of the FPSO. The FPSO began crude oil production and a twenty-year time charter service (lease and operation & maintenance) off the coast of Brazil in December 2016. The FPSO, which was named the FPSO Cidade de Caraguatatuba MV27, is owned by Carioca MV27 B.V., whose shareholders are MODEC, Inc. (20.1%), Mitsui & Co., Ltd. (32.4%), Mitsui O.S.K. Lines, Ltd. (20.6%), Marubeni Corporation (17.6%), and MES (9.3%). It is expected that the commencement of the time charter service will further expand the revenue base of MODEC from the current fiscal year onwards.



FPSO Cidade de Caraguatatuba MV27

### Topics Enhanced cooperation with MODEC

#### Establishment of a department to support FPSO chartering business

In February 2016, MES established the FPSO Business Section, which handles all operations and management related to our participation in FPSO chartering-related businesses, in order to invest aggressively in businesses conducting FPSO chartering. We have already acquired shares of the following three Special Purpose Companies (SPCs) for FPSO chartering business from MODEC, Inc. We will further enhance our cooperation with MODEC as we continue to focus on the development of the offshore business.

○SPCs for FPSO charter business in which MES has currently investigated T.E.N. Ghana MV25 B.V. for "FPSO Prof. John Evans Atta Mills" offshore Ghana Cernambi Norte MV26 B.V. for "FPSO Cidade de Itagua  MV26" offshore Brazil Carioca MV27 B.V. for "FPSO Cidade de Caraguatatuba MV27" offshore Brazil

#### MODEC's first FPSO for offshore Ghana appears on new banknote of Ghana



MODEC supplied and has been operating the first FPSO for offshore Ghana, FPSO Kwame Nkrumah MV21, whose image was adopted for a new banknote of the Republic of Ghana.

In addition, the second FPSO which MODEC supplied for the country began operation in August 2016. In the past decade, MODEC has expended considerable efforts on identifying and involving Ghanaian based professionals and labor to contribute to the construction and eventual operation of these FPSOs through capacity building investments and development of local suppliers and fabricators. The adoption of the FPSO as an image on the currency, which is said to reflect the culture and historical backdrop representing each country, proves that the FPSO and MODEC are expected to contribute to the economic development of Ghana, which is a great honor.