

# Business Overview

May 11, 2018

**Chiyoda Corporation**

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# 1. Business Environment



Energy Business

- Increasing in natural gas demand centered in Asia. Expecting FID\* for new large-scale LNG projects in the near future
- Improving crude oil supply and demand balance from collaboration to reduce production and increasing demand in emerging countries
- Continued investment and development in US shale petroleum & petrochemical projects



Environment Business

- Expanding investments to Renewable Energy business from an increasingly aware decarbonizing society
- Progress of energy/ electricity storage technology
- Strong Investment in middle-molecule, biotechnology and antibody drugs



Digital Technology Innovation

- Promotion of AI, Big Data and IoT in the energy business
- Rapid evolution and expansion of options of digital technology

\*FID : Final Investment Decision



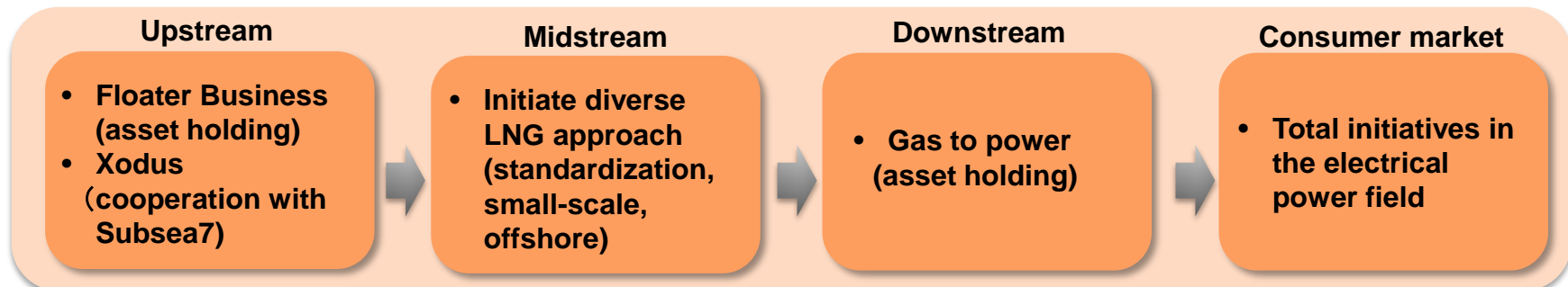
## 2. FY 2018 Business Development (Energy Business)

**< Increasing new orders for large-scale overseas projects and promoting business throughout the value chain >**

### 1) Large-scale EPC\* projects

LNG/Gas	Petroleum/Chemical/Metal
<p>Focus on;</p> <ul style="list-style-type: none"><li>■ Projects with high viability</li><li>■ Client's with whom Chiyoda has ample experience</li><li>■ Positive new markets</li></ul>	<p>Focus on projects where Chiyoda has technological strength or competition is relatively limited</p>
<p>USA, Mozambique Papua New Guinea, Qatar, Russia, Other Countries</p>	<p>USA, Indonesia, Other Countries, Japan</p>

### 2) Promoting “ Build energy value chain business”

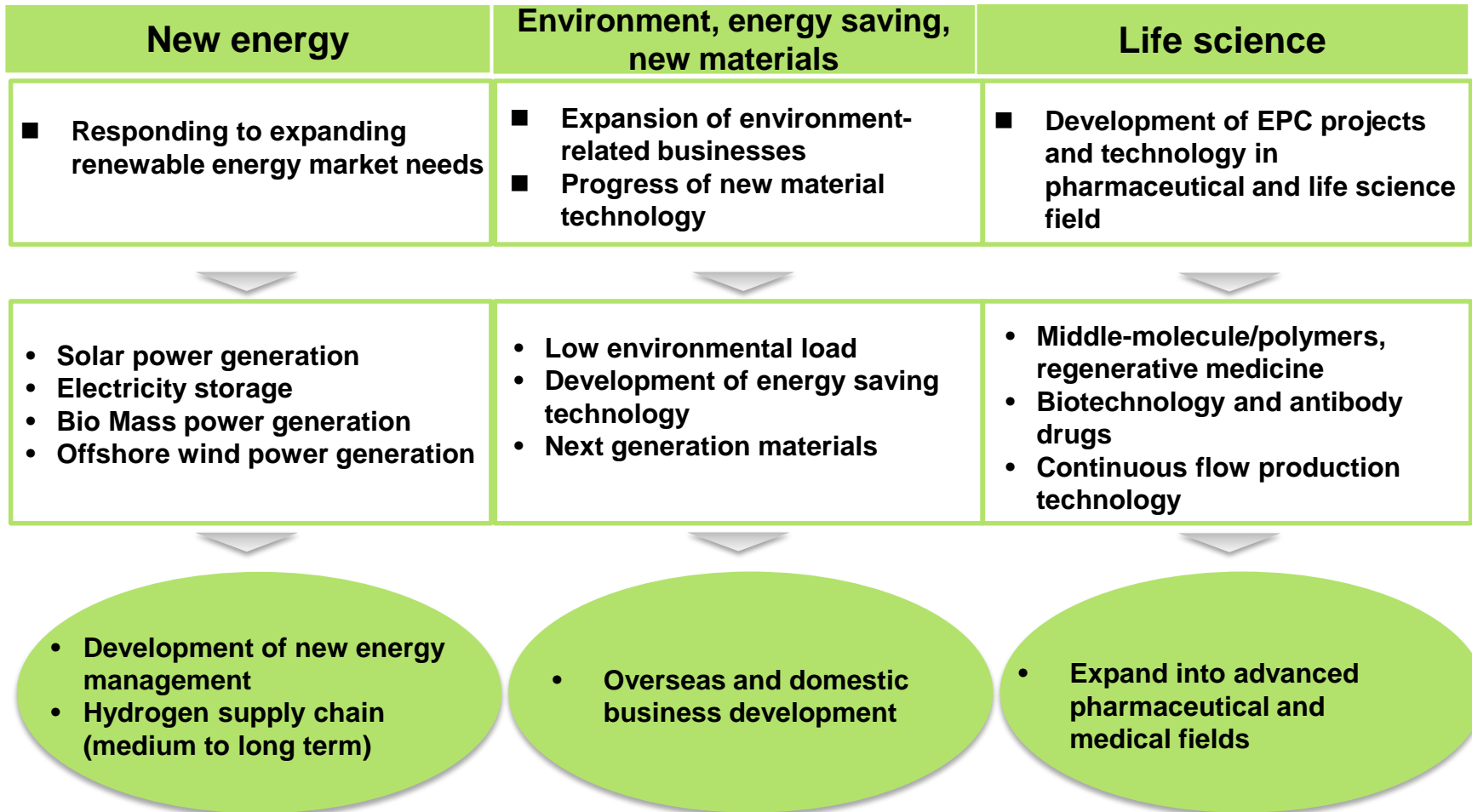


\*EPC : Engineering, Procurement and Construction



## 2. FY 2018 Business Development (Environment Business)

### < Enhance new energy, environment, energy saving, new materials and life science businesses >





## 2. Business Development (Digital Technology Innovation)

### < Acceleration of digital strategy (eg: AI) >

Companywide digitization	Development of new business models
Accelerate digitization of Chiyoda and improve EPC performance	Integration of plant engineering technology (eg: advanced analysis and digital innovation)

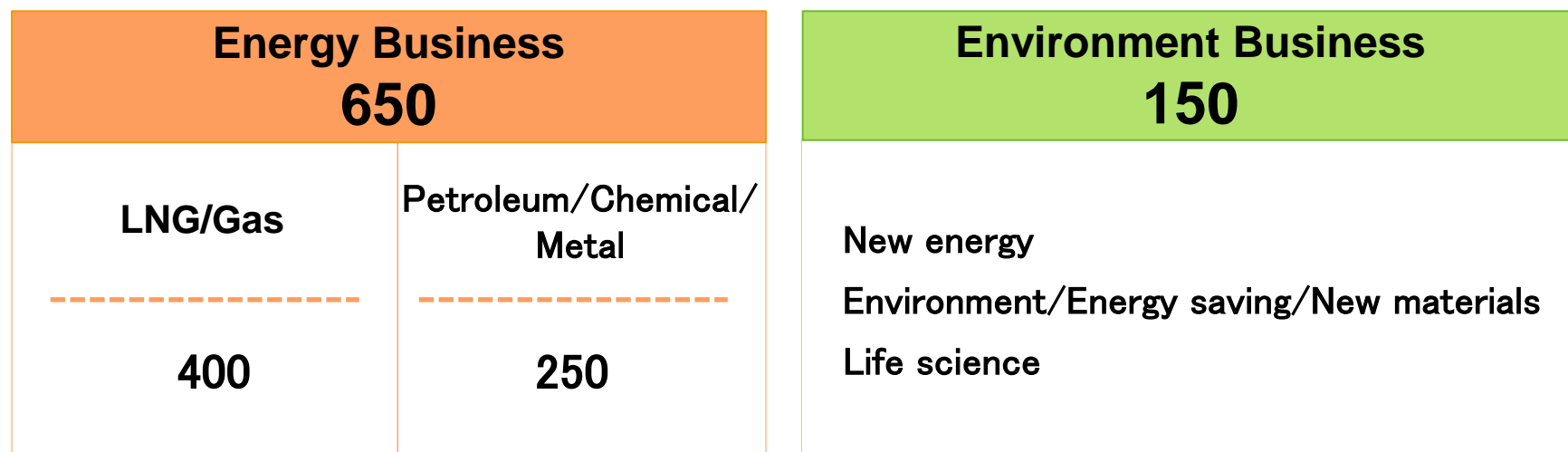
### Expansion of partnering

- Development and provision of plant smart IoT services
- Development and provision of services that combine AI technology
- Development and provision of services centered on plant digital twin

### 3. FY 2018 New Orders Forecast

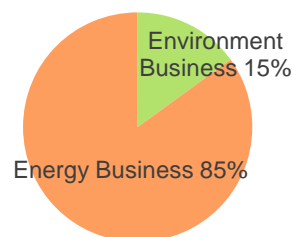
(Billions of Yen)

**800**

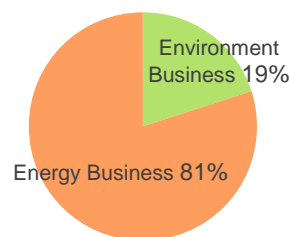


**[Reference : Earnings Portfolio Transition]**

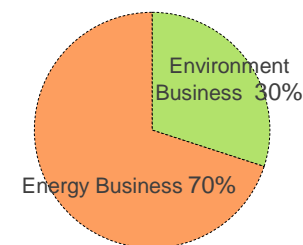
**Average from FY2013 to FY2016**  
 (Source: Medium – Term Management Plan: 2017)



**2018 New Order Forecast**



**Forecast for 2020**  
 (Source: Medium – Term Management Plan: 2017)



## 4. Business Topics



Courtesy of JSC Yamal LNG

### Yamal LNG 1<sup>st</sup> train commenced production

The 1<sup>st</sup> train was completed in December 2017.  
The 2<sup>nd</sup> and 3<sup>rd</sup> trains will be completed in 2018 and 2019.



Courtesy of Qatargas Operating Company Limited

### Award of FEED\* Contract for the North Field Expansion Project, Qatar

The scope of work is the addition of 3 x 7.8 mtpa LNG megatrans, with associated pre-investment, for Qatar Petroleum. A 4<sup>th</sup> LNG train can be added in the future as an option.

\*FEED : Front End Engineering Design



## 4. Business Topics



### Achievements in the Japanese Energy Field

**Chiyoda has been successful in our domestic market.**



Photo from corporate brochure

### Participation in middle-molecule pharmaceutical manufacturing facilities

**Chiyoda has been awarded an EPC contract for development of peptide therapeutics, a middle-molecule drug expected to grow in demand worldwide. Chiyoda also participated as an equity participant in this project.**

## 4. Business Topics



Photo by Chiyoda Corporation

### Commencement of construction for a Hydrogen Supply Chain demonstration Project

A ground breaking ceremony was held in Brunei in April 2018 for a project to demonstrate Chiyoda's SPERA hydrogen technology<sup>\*1</sup>. The world's first global hydrogen supply chain to connect Brunei and Japan is scheduled to commence in 2020.



Courtesy of JETRO

### Provision of digital technology for ADNOC LNG<sup>\*2</sup>

Chiyoda's target is to optimize plant operation and maintenance and production efficiency by providing digital technology combining our plant engineering technology and state-of-the-art AI technology.

<sup>\*1</sup> SPERA hydrogen technology: Developed by Chiyoda, the technology enables mass storage and transportation of hydrogen at normal temperature and pressure

<sup>\*2</sup> ADNOC LNG : Abu Dhabi National Oil Company LNG

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## Forward-Looking Statements

Any projections included in these materials are based solely on information available at the time this presentation was prepared. It is possible that actual results may vary significantly from the projections due to a number of risk factors such as economic conditions. The results projected here should not be construed in any way as being guaranteed by the Company. Investor are recommended not to depend solely on these projections for making investment decisions.

Please address inquiries to:

**IR, PR & CSR Department**

TEL +81-45-225-7734

URL <https://www.chiyodacorp.com/en/>



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