Business Overview

May 8, 2020
Chiyoda Corporation
FY2019 Achievements

Vision toward Revitalization and Growth

1. Progress and improved profitability of ongoing projects
   - Improved profitability of Cameron LNG, etc. due to revising contract terms
   - Freeport and Cameron LNG in the final stages of completion

2. Revitalization and growth initiatives
   - Stringent and comprehensive risk management procedures
   - Enhanced EPC execution with digital technology
   - New business aimed at “redefining engineering values”

3. Strengthen financial base to promote growth strategy
## Major Ongoing Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Freeport LNG</th>
<th>Cameron LNG</th>
<th>Tangguh LNG</th>
<th>Texas Ethylene</th>
<th>Golden Pass LNG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client</td>
<td>Freeport LNG</td>
<td>Cameron LNG</td>
<td>BP Berau</td>
<td>Gulf Coast Growth Venture (ExxonMobil-SABIC JV)</td>
<td>Golden Pass Product (ExxonMobil-SABIC JV)</td>
</tr>
<tr>
<td>Partner</td>
<td>Zachry McDermott</td>
<td>McDermott</td>
<td>Saipem Tripatra</td>
<td>Kiewit</td>
<td>Zachry McDermott</td>
</tr>
<tr>
<td>Status</td>
<td>Train 1, 2 &amp; 3: Commercial operation commenced</td>
<td>Train 1 &amp; 2: Commercial operation commenced</td>
<td>Scheduled completion date 3Q / 2021</td>
<td>Scheduled completion date 4Q / 2021</td>
<td>Scheduled completion date 2025</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Train3: Commissioning work ongoing toward commercial operation</td>
<td>Completion: Approx. 80%</td>
<td>Completion: Approx. 58%</td>
<td>Completion: Approx. 12%</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Construction ongoing</td>
<td>Module fabrication, shipment to U.S. and construction on site ongoing</td>
<td>Engineering, procurement and construction ongoing</td>
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## Business Environment

Addressing risks and business opportunities in a significantly changed business environment

### Changes & Opportunities

1. Global recession due to the outbreak of COVID-19 *
2. Crude oil and gas prices have fallen sharply. Energy supply-demand balance may fluctuate over the long term
3. Investment restraints and delays in the promotion of new projects centered on majors. LNG market moves from growth to maturity
4. Paradigm shift to a carbon-recycling society as a measure against global warming
5. Accelerate Business innovation by digitalization transformation
6. Increased health awareness and deepening the technology of life-science

*COVID-19: Novel Corona Virus Disease 2019*
## Corporate Value Enhancement

Accelerate transformation of 1) business portfolio and 2) profit structure by responding to changes in the business environment

### Business

<table>
<thead>
<tr>
<th>EPC Business</th>
<th>Initiative for growth</th>
</tr>
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</table>
| Energy       | ◆ Select projects with competitive advantage and high degree of realization, and strengthen activities to secure orders and profit  
◆ Achieve business innovation and strengthen price competitiveness by utilizing digital technology |
| Global environment | ◆ Accelerate shift to global environment  
    <Focus areas>  
    New energy, storage, and pharmaceutical / medical |

<table>
<thead>
<tr>
<th>New Business/Non-EPC</th>
<th>Initiative for growth</th>
</tr>
</thead>
</table>
| Digital transformation [refer to page 5] | ◆ Launching innovative digital products  
◆ Digital EPC promotion  
◆ Enhancing IT business infrastructure |
| Redefining engineering value [refer to page 6] | ◆ Strengthen organization (Frontier Business Div.)  
◆ Commercialization of Carbon cycle business / new utility business / life science business |

### Talent strategy

- Rebuild portfolio of personnel allocation
  - ◆ capacity development of Internal human resource
  - ◆ Utilization of external human resources

### Targeted Business portfolio transformation (around 2030)

- Ratio of EPC business vs Non-EPC business 50% : 50%
- Ratio of Energy vs global environment 50% : 50%

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![Diagram showing current and target business portfolio transformation](image)

- Current: EPC Approx. 100%, Energy 74%, Global Environment 26%
- Target: EPC 50%, Non-EPC 50%, Energy 50%, Global Environment 50%
## Further acceleration toward business innovation & profit

<table>
<thead>
<tr>
<th>Initiatives</th>
<th>Actions</th>
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</table>
| Launching innovative Digital Products           | ✦ Combining engineering expertise and AI technology  
✦ Product development to optimized plant operation  
✦ Products launched to the market and the clients under “EFEXIS™” brand name  
✦ Early monetization of proven products  
-LNG Plant AI Optimizer™ (LNG production efficiency improvement) |
| Digital EPC promotion (Innovation in EPC Competitiveness) | ✦ Improved construction management by Chiyoda AWP*  
✦ Automation of part of engineering work  
✦ Optimization of construction sites using drones and beacons |
| Further enhanced IT business infrastructure     | ✦ JV will start with an IT major with TIS Inc. in October 2020. to evolve IT business infrastructure |
| Efficiency improved by 20% by promoting company-wide digitalization | ✦ Achieve a 20% improvement in efficiency by promoting digitization and RPA ** in engineering, procurement, and construction and corporate management operations |

*AWP: Advanced Work Packaging  
**RPA: Robotics Process Automation*
Redefining Engineering Value

As a distinguished engineering company valued by our customers, industry and society, realize future growth by integrating pioneering technologies with conventional engineering expertise.

Create non-EPC Business

<table>
<thead>
<tr>
<th>Business Field</th>
<th>Actions</th>
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<tbody>
<tr>
<td>1 Carbon recycling business focused on Clean-Tech</td>
<td>◆ Commercialization of technology that effectively utilizes carbon dioxide as a valuable resource</td>
</tr>
<tr>
<td>2 Utility business in an Era of Decentralization</td>
<td>◆ Optimal energy provision service utilizing Chiyoda’s chemical engineering and hydrogen technology</td>
</tr>
<tr>
<td>3 Pharmaceutical &amp; Life-science</td>
<td>◆ Commercialization of new technology related to cell culture process; key to the development of regenerative medicine</td>
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SPERA* Hydrogen®

◆ Full-scale commencement of international large-scale hydrogen supply demonstration
◆ Together with Singaporean companies and Mitsubishi Corporation, aiming to realize a sustainable hydrogen economy - The safety of our technology is evaluated-
◆ Together with Hazer (Australian Company), to develop a hydrogen supply business for local production and for local consumption
◆ JV development of hydrogen technology with JXTG Energy to produce CO2-free hydrogen
Appendix

I  Major Ongoing Projects
II Digital Transformation
III Hydrogen Economy
Major Ongoing Projects

Freeport LNG Plant
Client : Freeport LNG Development, L.P.
Capacity : 15mtpa; 3 Trains
Country : U.S.A
Scope : EPC
Progress : Commercial operation commenced

Courtesy of Freeport LNG Development, L.P*
Digital Transformation

Launching innovative Digital Products

**EFEXIS™**

- **EFEXIS** = “Efficiency” + “Expertise”
- Chiyoda’s brand name for innovative digital products integrated “Engineering” and “Digital & AI Technologies”.
- Contributes the optimization and unmanned operation of industrial facilities.

**EFEXIS**

**Value Proposition**

**Improve Performance**
- LNG Plant AI Optimizer™
- Refinery Process Unit Optimizer
- Distillation Column Operation Optimizer
- Fired Heater Optimizer

**Improve Availability**
- Anomaly Prediction
- Failure Prediction
- Intelligent Furnace
- Furnace Coking Prediction

**Enhance Operation & Maintenance**
- Tank Corrosion Monitoring
- Gas Leak Detection
- SDM Control Tool
- Inspection Work Support and Automation Tool

Digital EPC Promotion

**FLACS (Field Labor Safety and Control System)**

- Worker management tool at construction sites using digital IoT technology.
- Accurately capture the number of mobilized people and their work progress at the construction site.
- Proven tool installed at our construction site.
Hydrogen Economy

- Initiatives and collaboration with 5 Singaporean Companies & Mitsubishi* for a hydrogen economy
- Create synergies Mitsubishi and accelerate Chiyoda’s business growth for the future

Towards a sustainable hydrogen economy in Singapore

- LNG receiving terminal operators (terminals, hubs, bunkering, etc.)
- Support the conversion to hydrogen energy by utilizing the port infrastructure of LNG receiving terminal operators

- City gas operators (860,000 customers)
- plant to use green hydrogen in the town gas

- Global Port Group**
- Conversion of port vehicles to fuel cells
- Vision of Hydrogen smart grid

- Developer (comprehensive development of industrial parks, commercial facilities, housing, etc.)
- Supporting development for hydrogen economy in Singapore based on know-how of renewable energy and technology integration

- Producer & Retailer of piped town gas

- Introduction of hydrogen into port vehicles

- Hydrogen supply infrastructure
- Valuing SPERA Hydrogen high safety standards
- developing low emissions strategies

- Hydrogen mixed into natural gas pipeline

- Bunkering

- Hydrogen Storage infrastructure

- Singapore Government

*Mitsubishi : Mitsubishi Corporation; Chiyoda’s largest shareholder
** Global Port Group: PSA is the world's second largest port operator
Sustained Growth and Reinforcement of Our Reputation for Reliability

Harmony between Energy and the Environment

Chiyoda Corporation IR, PR & CSR Department  https://www.chiyodacorp.com/en/

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