The New Medium-term Management Plan

「Forward 22」

May 26th 2020

Hitachi Zosen Corporation
President and COO  Sadao Mino
Ⅰ. The Long-term Vision 「Hitz 2030 Vision」 Summary

Ⅱ. The New Medium-term Management Plan 「Forward 22」

Ⅲ. Supplementary Information
   1. Review of the Previous Medium-term Management Plan 「Change & Growth」
   2. Realization of Sustainable Society “SDGs / Initiatives for Social Issues”
   3. Specific Example of IoT & AI Business Strategies
I. The Long-term Vision 「Hitz 2030 Vision」
Summary
1. Long-Term Vision “Overall Business Policy”

Technology for People, the Earth, and the Future
Aim to achieve SDGs through our Company’s products, services and activities

- Daily Life and Industrial Power Supply
  - Clean Energy
    - Wind Power
    - Biomass Power

- Environment & Plant
  - Clean Water
    - Methanation
    - Anaerobic Digestion
    - Incineration
    - CO₂
    - Waste

- Machinery, Infrastructure, Disaster Prevention Facilities
  - Resilient and prosperous community

- River and Sea
  - Clean Water
  - Recycled Water

Contribution for Realization of Sustainable and Safe & Secure Society

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2. Long-Term Vision “Goal for 2030”

To be Solution Partner for realizing Sustainable and Safe & Secure Society

Fully dedicate ourselves to solve issues of the market and our customers

Create and develop new businesses and products by pursuing added-value for customers

**Additional 5% by Growth Driver** on top of 5% in base case

Aim operating profit margin of 10% by 2030

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Operating Profit (%)

<table>
<thead>
<tr>
<th>Operating Profit (%)</th>
<th>Corporate group with strong social presence</th>
<th>Solution Provider for creating Recycling Society</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2014-16</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>FY2017-19</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>FY2020-22</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>FY2023-25</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>FY2026-28</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>FY2030</td>
<td>10.0</td>
<td></td>
</tr>
</tbody>
</table>

※Operating profit margin mentioned above: (3year total operating income) / (Total net sales for the same period)
3. Long-Term Vision “Path to improving Profitability to 10%”

- **Stabilize the fundamental revenue base**
  - Comprehensively develop EfW, Seawater Desalination, Water Treatment, Power Supply
  - Optimize strategies for each country and region
  - Develop and expand successful overseas business

- **Create new products & businesses and new business models**
  - Meet new demand PPP and others
  - Methanation business CO2 segregation, H2 generation, Power to Gas
  - Expand Wind Power

- **Expand O&M/Service in all business segments**
  - Solution for food supply, disaster prevention, safety
  - Decommissioning of nuclear power plants (Japan, NAC)
  - GPS monitoring service Autopilot: cars, agri/heavy machinery, ships

**“Slump Business Zero Mission”**

<table>
<thead>
<tr>
<th>Sales proportion (OP margin 3.5%)</th>
<th>O&amp;M/Service</th>
<th>EPC/New</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sales proportion (OP margin 10%)</th>
<th>O&amp;M/Service</th>
<th>EPC/New</th>
</tr>
</thead>
</table>

※EPC/New: Construction and manufacturing sales. A business that delivers new goods to customers.
O&M/Service: Business associated with services such as maintenance, operation and management after delivery of plants and products, and business based on long-term contracts such as power generation.
4. Long-Term Vision “Summary”

Our Vision for 2030:
“To be Solution Partner for realizing Sustainable and Safe & Secure Society”

Supply Clean Energy and Water

Environmental Conservation, Disaster Resilient & Prosperous Community

Aim to Maximize the value provided to customers

Goal ⇒ Improve Profitability “Operating income margin 10%”

Initiative Policy

• Maximize the value provided to customers by promoting the dialogue with the market and our customers and integrating IoT & AI into all businesses
• Improve profitability to promote open innovation, alliance, M&A for creating new products and businesses, in addition, selection and concentration of businesses and shift resources to growth areas
• Further improvement of profit margin by expanding O&M/Service businesses in all businesses, not just environmental businesses
Ⅱ. The New Medium-term Management Plan 「Forward 22」

Concept:

As we look ahead to our group’s goals under the long-term plan called “Hitz 2030 Vision,” the coming 3 years under the new medium-term management plan from FY2020 to FY2022 will be a period during which we will steadily and aggressively move forward to achieve enhanced profitability with an attitude of “I’ll do it! Stepping forward will change the future” with the cooperation of all the groups.
## 1. Targets and Basic Policies of the New Medium-term Management Plan

### Targets of “Forward 22”

<table>
<thead>
<tr>
<th></th>
<th>FY2019 (Actual)</th>
<th>FY2020 (Forecast)</th>
<th>FY2021 (Plan)</th>
<th>FY2022 (Plan)</th>
<th>Target for 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orders intakes</td>
<td>JPY454.1 billion</td>
<td>JPY410.0 billion</td>
<td></td>
<td></td>
<td>Operating income ratio 10%</td>
</tr>
<tr>
<td>Net sales</td>
<td>JPY402.4 billion</td>
<td>JPY400.0 billion</td>
<td></td>
<td></td>
<td>ROE 10%</td>
</tr>
<tr>
<td>Operating income(ratio)</td>
<td>JPY13.8 billion (3.5%)</td>
<td>JPY11.0 billion (2.8%)</td>
<td></td>
<td></td>
<td>Aim to achieve 5% of operating income ratio for FY2022</td>
</tr>
</tbody>
</table>

### Basic Policies of “Forward 22”

- Contribute to the realization of sustainable and safe & secure society through overall corporate activities
- Aim to be corporate group capable of sustainable growth by strengthening profitability

<table>
<thead>
<tr>
<th>Basic policies</th>
<th>Policy initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increase the added value of products and services</td>
<td>①Cutting-edge technologies, ②Shift business positioning, Close dialogue with customers and markets, ③Group's comprehensive strengths</td>
</tr>
<tr>
<td>• Promote business selection and concentration of businesses and shift resources to growth areas</td>
<td>①Utilizing Hitz Goal Achievement Monitoring System, ②Further promote portfolio management</td>
</tr>
<tr>
<td>• Promoting work style reforms by improving operational efficiency and productivity</td>
<td>①Improve operational efficiency by reforming the group management system, ②Review of manufacturing businesses, ③Develop human resources &amp; work style reform</td>
</tr>
</tbody>
</table>
2. Realization of Sustainable Society① “Provision of clean energy”

- **Biogas conversion**
  Convert organic waste such as food waste, human waste and waste cooking oil to biogas, and utilize it as energy (hydrogen gas and electricity).

- **Power to Gas**
  Excess power by renewable energy such as wind power and solar power to produce hydrogen gas or methane gas.

- **Offshore wind power**
  Promoting offshore wind power generation, which is expected to be the leading force of renewable energy in Japan.

- **Onshore wind power**

- **Biomass power**
  Biomass power generation does not cause any change to CO2 concentrations in the atmosphere.

- **Energy from Waste**
  Further development of domestic business, Overseas PPP business.

- **Increase in renewable energy for contribution of reduction of CO2 emissions**

※ PPP: Abbreviation of Public Private Partnership (aiming to improve efficiencies and improve public services by utilizing private capital and know-how of the private sector)
2. Realization of Sustainable Society② “Clean water, environmental conservation, and building a disaster resilient and prosperous community”

- Ensuring safety in nuclear fuel storage
  - Propose metal casks and concrete casks that have proven track records.

- Emergency water demand
  - Responding through rental facilities
  - PPP business

- Shortage of financial resources by local governments to water business

- Problem of waste plastics
  - Recycling utilization is being promoted further.
  - Propose large-size shield machine
  - Limits to the development of new urban underground networks

- Aging infra. and equipment, natural disasters
  - Maintenance and remote monitoring for bridges, hydraulic gates, steel stacks, etc.

- Labor shortage of agriculture and food industries, shortage of catch
  - Automatic steering services for agricultural machines.
  - Labor-saving services using AI.
  - Onshore aquaculture

- Tsunami and storm surge countermeasures
  - Seabed-type flap gates

- Air pollution due to the increase in the volume of ships transported
  - Promote introduction of SCR

- Ensuring railway safety
  - Provide an in-vehicle security system

- Recycling utilization is being promoted further.

※ Cask: A storing container of spent nuclear fuel, Shield machine: A machine for tunnel boring with shielding structures, Flap gate: A movable breakwater gate, SCR: Abbreviation of Selective Catalytic Reduction (NOx removal)
2. Realization of Sustainable Society③ “Hitz group’s Goal to Contribution to CO2 Reduction”

Contributing to CO₂ reduction through our customers’ business activities and their operations conducted the clean energy facilities constructed and technically supported by Hitz group such as Energy from Waste, Biomass Power Generation, Wind Power Generation and Solar Power Generation.

Present status: Working facilities at the end of FY2019

- Small size EfW: 1kt-CO₂/year
- Biomass Power: 74kt-CO₂/year
- Wind Power: 32kt-CO₂/year
- The others (Solar Power): 18kt-CO₂/year

Targeting status: Working facilities at the end of FY2022

- Small size EfW: 5kt-CO₂/year
- Biomass Power: 343kt-CO₂/year
- Wind Power: 33kt-CO₂/year
- The others (Solar Power): 18kt-CO₂/year

Long term target: Working facilities at the end of FY2030

- Wind Power
- The others
- EfW in JPN
- EfW in Europe and etc.

CO₂ Reduction 22.06Mt-CO₂/year

- EfW in China (including licensee): 10,663kt-CO₂/year
- EfW in Europe and etc.: 3,590kt-CO₂/year
- EfW in JPN: 1,440kt-CO₂/year

It’s equivalent to 7.2% of Japan’s CO₂ reduction target for FY2030.

Increase

The total CO₂ Reduction from FY2020 to FY2030

- Approximately 320Mt-CO₂
- EfW in JPN
- EfW in China, India and south-eastern Asia (including licensee)

☆ EfW: Abbreviation of Energy from Waste.
☆ These estimations are based on the index shown by Ministry of the Environment of Japan & Agency for Natural Resources Energy of Japan even though EU’s index is also adopted for the estimations in “EfW in Europe and etc.”. The estimated values include the CO₂ reduction in working facilities (including prospective facilities in this term) but exclude suspended or abolished facilities, and then heat utilizations in the facilities are also excluded. Targets for FY2023 and thereafter are calculated proportionally based on the results up to FY2019. Based on the draft by Ministry of the Environment of Japan, the targeting reduction value of Japan’s originated CO₂ emission is calculated as approximately 308Mt-CO₂ per year on the basis of the actual result of FY2013 and the guideline of FY2030.
3. “Forward 22” Specific Measures ① “Increase the Added Value of Products and Services by Utilization of Cutting-edge Technologies”

Promote IoT & AI business strategies ⇒ Accelerate the integration of IoT & AI into products and services and the improvement of productivity

Growth of IoT and AI businesses in core business domains and new-generation products and services

- Energy from waste plant
- Wind Power
- Onshore aquaculture
- Heat Exchanger
- Nondestructive inspection of end-of-pipe welds
- Water treatment facilities
- Shield machine
- Bridges/water gates
- GPS Positioning

New ERP system SAP’s business innovation

Smart Factory IoT innovation at production sites by robot AI & Production systems

Solving Customer’s Problems Labor saving, High value-added, multi-purpose develop

Establishing IoT & AI solutions for products and services

- Electronic Control BU
  - Develop IoT equipment and know-how

- Hitz Advanced Information Technology Center
  - Life assessment
  - Automated driving
  - Abnormal diagnosis
  - Decision making support
  - Predictive maintenance

- Technical Research Institute
  - AI technology development

Information Infrastructure [Network/Cloud] IoT Data Collection, Accumulation and Analysis Platform

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3. “Forward 22” Specific Measures
   “Goal Achievement Monitoring System and Portfolio Management"

“Hitz Goal Achievement Monitoring System”
A system for “Managing all employees” to realize strengthening profitability by increase in high-quality order intakes

Enhance the “Check” and “Action” functions of the PDCA cycles in order to increase the achievement rate of management and business plans. We will systematically manage KGI・KSF/KPIs as indicators to resolve issues.

A system of business evaluation by portfolio management and its countermeasures

<table>
<thead>
<tr>
<th>PLAN</th>
<th>DO</th>
<th>CHECK</th>
<th>ACTION</th>
</tr>
</thead>
</table>

**Target**
KGI (Key Goal Indicator)
Indicators for looking at results for measuring the achievement rate of the ultimate goal

**Business strategies**
KSF (Key Success Factor)
Activities that place the greatest emphasis on the realization of strategies

**Specific measures**
KPI (Key Performance Indicator)
“Rulers for looking at process” to measure the extent to which specific measures are being achieved and to monitor the speed and effectiveness of activities

Screening for low-profit businesses
Numerical indicator
- Operating income or ordinary income is in the red on the average of the consecutive 3 years

Strategy and Risk Evaluation
- Achievement rate of the business objectives
- Possibility of business position and attractiveness
- Presence of significant bottlenecks

**Business level**
Judgement of 4 level

1. Growth
   • Improve continuously

2. Core
   • Prioritize resource allocation

3. Improve profitability

4. Necessary measures
   • Resolve countermeasures at the Board meetings

Reorganize low-profit businesses and shift resources to growth areas

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3. “Forward 22” Specific Measures③
“Develop Human Resources and Work Style Reform"

Promote the personnel strategy by aiming to achieve the KPIs set for each priority measure. Promotion of diversity management and work style reform

Growth of People × Growth of the Organization × Growth of the Company

Priority measure I
For human resources recruitment & securing
Utilization of diverse human resources

Priority measure II
For human resources proper arrangement & strategic training
- Career Support
- Develop global & executive human resources

Priority measure III
Retention of human resources
Improving staff satisfaction

Awareness & climate reform
Share founder’s spirit

Our founder, E.H. Hunter visited Japan from the UK and established our company in 1881 with the challenge spirit, “I accomplish my course!“. 2020 marks the 140th year Hitz has been promoting this spirit with its executives and employees.
Ⅲ. Supplementary Information

1. Review of the Previous Medium-term Management Plan
   「Change & Growth」
2. Realization of Sustainable Society
   “SDGs / Initiatives for Social Issues”
3. Specific Example of IoT & AI Business Strategies
1. Review of 「Change & Growth」①
“Achievement of company-wide Numerical Plan”

(1) Change & Growth was the first step toward realizing our long-term vision of "Hitz 2030 Vision" and the 3-year period of building the foundation for achieving results, and we have worked to achieve our goals. As a result, profits fell significantly short of the plan.
(2) The worsening performance of HZI is the biggest factor, but the slump in earnings of our manufacturing business is also a major factor.
(3) Delay in capital reinforcement ~ Increase in interest-bearing debt due to financial support to HZI, etc.
(4) Financial (impairment) risks (SR99 issues: 6.6 B yen, JMU shares: 9.1 B yen recorded in FY2019)

<table>
<thead>
<tr>
<th></th>
<th>「Change &amp; Growth」 Plan</th>
<th>Actual</th>
<th>Achievement ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FY2017</td>
<td>FY2018</td>
<td>FY2019</td>
</tr>
<tr>
<td>Orders Intake</td>
<td>4,000</td>
<td>4,300</td>
<td>4,600</td>
</tr>
<tr>
<td>Net sales</td>
<td>3,600</td>
<td>4,000</td>
<td>4,300</td>
</tr>
<tr>
<td>Operating income (ratio)</td>
<td>125 (3.5%)</td>
<td>165 (4.1%)</td>
<td>205 (4.8%)</td>
</tr>
<tr>
<td>Ordinary income (ratio)</td>
<td>100 (2.8%)</td>
<td>140 (3.5%)</td>
<td>180 (4.2%)</td>
</tr>
<tr>
<td>Net Income</td>
<td>65</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Interest-bearing debt</td>
<td>1,100</td>
<td>1,050</td>
<td>1,000</td>
</tr>
<tr>
<td>Equity</td>
<td>Target: JPY130 B or more by the end of FY2019</td>
<td>1,169</td>
<td>1,195</td>
</tr>
<tr>
<td>Equity ratio</td>
<td>30.0%</td>
<td>30.5%</td>
<td>31.0%</td>
</tr>
</tbody>
</table>
1. Review of 「Change & Growth」 ②
“Achievement of Segment Numerical Plan”

(1) Environmental Systems and Industrial Plants:
   Significant impact from losses at overseas subsidiaries (HZI, HZIND, and Osmoflo)
(2) Machinery: Significant losses in marine engines and process equipment. Many subsidiaries (H&F, NAC, and IMEX) performed well.

<table>
<thead>
<tr>
<th>Orders intake</th>
<th>Segment</th>
<th>「Change &amp; Growth」 Plan FY2017</th>
<th>「Change &amp; Growth」 Plan FY2018</th>
<th>「Change &amp; Growth」 Plan FY2019</th>
<th>「Change &amp; Growth」 Plan 3FY total</th>
<th>Actual FY2017</th>
<th>Actual FY2018</th>
<th>Actual FY2019</th>
<th>Actual 3FY total</th>
<th>Achievement ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Environment &amp; Plant</td>
<td>2,550</td>
<td>2,750</td>
<td>2,900</td>
<td>8,200</td>
<td>2,572</td>
<td>3,147</td>
<td>2,894</td>
<td>8,613</td>
<td>105%</td>
</tr>
<tr>
<td></td>
<td>Machinery</td>
<td>1,000</td>
<td>1,050</td>
<td>1,150</td>
<td>3,200</td>
<td>984</td>
<td>1,007</td>
<td>1,143</td>
<td>3,134</td>
<td>98%</td>
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<tr>
<td></td>
<td>Infra.</td>
<td>350</td>
<td>380</td>
<td>430</td>
<td>1,160</td>
<td>314</td>
<td>276</td>
<td>397</td>
<td>987</td>
<td>85%</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>100</td>
<td>120</td>
<td>120</td>
<td>340</td>
<td>134</td>
<td>120</td>
<td>107</td>
<td>361</td>
<td>106%</td>
</tr>
<tr>
<td></td>
<td>total</td>
<td>4,000</td>
<td>4,300</td>
<td>4,600</td>
<td>12,900</td>
<td>4,004</td>
<td>4,550</td>
<td>4,541</td>
<td>13,096</td>
<td>102%</td>
</tr>
<tr>
<td>Net sales</td>
<td>Environment &amp; Plant</td>
<td>2,150</td>
<td>2,500</td>
<td>2,730</td>
<td>7,380</td>
<td>2,318</td>
<td>2,283</td>
<td>2,543</td>
<td>7,144</td>
<td>97%</td>
</tr>
<tr>
<td></td>
<td>Machinery</td>
<td>1,000</td>
<td>1,050</td>
<td>1,100</td>
<td>3,150</td>
<td>1,006</td>
<td>1,066</td>
<td>1,032</td>
<td>3,104</td>
<td>99%</td>
</tr>
<tr>
<td></td>
<td>Infra.</td>
<td>300</td>
<td>330</td>
<td>350</td>
<td>980</td>
<td>282</td>
<td>318</td>
<td>335</td>
<td>935</td>
<td>95%</td>
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<tr>
<td></td>
<td>Others</td>
<td>150</td>
<td>120</td>
<td>120</td>
<td>390</td>
<td>158</td>
<td>114</td>
<td>114</td>
<td>386</td>
<td>99%</td>
</tr>
<tr>
<td></td>
<td>total</td>
<td>3,600</td>
<td>4,000</td>
<td>4,300</td>
<td>11,900</td>
<td>3,764</td>
<td>3,781</td>
<td>4,024</td>
<td>11,570</td>
<td>97%</td>
</tr>
<tr>
<td>Operating income</td>
<td>Environment &amp; Plant</td>
<td>85</td>
<td>110</td>
<td>135</td>
<td>330</td>
<td>13</td>
<td>56</td>
<td>158</td>
<td>227</td>
<td>69%</td>
</tr>
<tr>
<td></td>
<td>Machinery</td>
<td>25</td>
<td>35</td>
<td>45</td>
<td>105</td>
<td>25</td>
<td>-3</td>
<td>-12</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Infra.</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>45</td>
<td>14</td>
<td>13</td>
<td>-16</td>
<td>11</td>
<td>24%</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>15</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>22</td>
<td>147%</td>
</tr>
<tr>
<td></td>
<td>total</td>
<td>125</td>
<td>165</td>
<td>205</td>
<td>495</td>
<td>59</td>
<td>73</td>
<td>138</td>
<td>271</td>
<td>55%</td>
</tr>
</tbody>
</table>

(Unit: 100 million yen)
1. Review of 「Change & Growth」③ “Progress status of Basic Strategies”

Evaluation: Progress (A certain results:〇 / Challenges remain:△)

### Basic Strategy (1)
**Restructuring of Business Foundation and Improvement of Productivity**

<p>| | |</p>
<table>
<thead>
<tr>
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</table>
| **1** | Business areas expansion  
⇒ Expansion of service business utilizing manufacturing | 〇 |
| **2** | ICT utilization  
⇒ Operation of S A P and A. I / TEC | 〇 |
| **3** | To strengthen risk management sys. | △ |
| **4** | Promotion of measures for high profitability | △ |
| **5** | Strengthening financial condition and expanding investment capacity for growth | △ |

### Basic Strategy (2)
**Maximizing the Group’s Comprehensive Strengths**

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>1</strong></td>
<td>Realize synergies by forming business clusters</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>Focus on consolidated business management</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>Human resources development by rotation</td>
</tr>
</tbody>
</table>

### Basic Strategy (3)
**Promoting Portfolio Management (PPM)**

<p>| | |</p>
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</table>
| **1** | Clarification of business base positioning by PPM  
⇒ Closure of overseas bases, NY, London and Seoul, Withdrawal from Cumberland and Nagaoka Hitachi Zosen Equipment (Dalian) | △ |
| **2** | Prioritized allocation of management resources to growing businesses and new businesses | △ |
| **3** | Consider revitalization of sluggish products | △ |
1. Review of 「Change & Growth」 and Initiatives in the New Medium-term Management Plan

Take on the challenge of new initiatives based on the basic strategies of "Change & Growth"

「Change & Growth」 Review

1. Achievement of numerical targets
   - Low level of achievement of profit items
   - Delay in strengthening financial position

2. Progress of Basic Strategies
   Few results have been achieved.
   (1) Business areas expansion, Realization and promotion of measures for high profitability
   (2) Maximizing the Group’s Comprehensive Strengths
   (3) Promotion of Portfolio Management (PPM)

3. Long-Term Vision "Hitz 2030 Vision"
   Probability is shaken regarding net sales of JPY1 trillion and an operating income margin of 10% or more.

Points of New Management Plan

- Introduction of Goal Achievement Monitoring System and thorough PDCA
- Implementation of structural reforms
- Thorough risk and cost management

- To refine business strategies, accelerate the use of advanced technology
- Strengthening Business Groups Activities
- Introduction of a systematic business evaluation system for further promotion

- Deliberation and implementation of specific measures for achieving the long-term vision
- Out of the management targets, achieving an operating income margin of 10% is positioned as our top priority.
Technology for People, the Earth, and the Future
Make every effort to achieve SDGs goals through our products and activities

Elimination of water shortages, preventing environmental degradation from industrial development
- Desalination plant
- Water, sewage, and industrial wastewater treatment systems
- Response to plastic waste problem

Resolving food safety, food loss, and other food issues
- Food manufacturing monitoring system
- Foreign substance separation equipment for food
- Water treatment of land aquaculture system

Building a disaster resilient and prosperous community～Protecting lives from natural disasters～
- Flap gate, GPS ocean monitoring system
- Water gates and offshore structures

Supplying renewable energy, reducing CO2 emissions
- Energy-from-Waste plant
- Methane fermentation system
- Wind power
- PPS

Sustainability effort other than product and business
- Promote diversity management
- Promote work style reforms
- Promote environmental education

Contributing to SDGs through overall corporate activities based on group philosophy

Promoting as a necessary concept for all activities
## 2. Realization of Sustainable Society

### “Initiatives for SDGs and Social Issues”

<table>
<thead>
<tr>
<th>Sub-segmentation</th>
<th>Challenges</th>
<th>Domestic/Overseas</th>
<th>Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy</strong></td>
<td>Increase emissions of CO2 by using fossil fuels (Increase in using renewable energy)</td>
<td>Domestic/Overseas</td>
<td>Further expand the energy business, including biomass. Expand the business of effectively utilizing organic waste, such as garbage, pruning branches, paper, urine, sewage tank sludge, and waste edible oil, by converting biogas.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overseas</td>
<td>Take on the challenge of overseas EfW's PPP business.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Domestic</td>
<td>Promoting offshore wind power generation, which is expected to be the main source of renewable energy in Japan</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td>Shortage of financial resources by local governments</td>
<td>Domestic</td>
<td>Aggressively enter the PPP business in response to requests for public-private partnerships from public institutions.</td>
</tr>
<tr>
<td></td>
<td>Water shortage</td>
<td>Overseas</td>
<td>Shift from equipment sales to water sales business. Responding to emergency water demand through rental facilities</td>
</tr>
</tbody>
</table>

※PPP: Abbreviation of Public Private Partnership (aiming to improve efficiencies and improve public services by utilizing private capital and know-how of the private sector)
## 2. Realization of Sustainable Society② “Initiatives for SDGs and Social Issues”

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Environmental conservation</strong></td>
<td>Waste disposal</td>
<td>Domestic/Overseas</td>
<td>Further expand our business domains and effectively utilize them as renewable energy (electricity and biogas).</td>
</tr>
<tr>
<td></td>
<td>Problem of waste plastics</td>
<td>Domestic</td>
<td>The need and urgency to dispose of waste plastics in Japan without exporting them is increasing, and recycling utilization is being promoted further.</td>
</tr>
<tr>
<td></td>
<td>Air pollution due to the increase in the volume of ships transported</td>
<td>Domestic/Overseas</td>
<td>We widely promote the introduction of SCR (NOx removal) as the countermeasure to environmental regulation (Tier3).</td>
</tr>
<tr>
<td></td>
<td>Ensuring safety in nuclear fuel storage</td>
<td>Domestic/Overseas</td>
<td>Propose metal casks and concrete casks in Japan and overseas that have proven track records in dry storage of irradiated nuclear fuels.</td>
</tr>
<tr>
<td><strong>Building a disaster resilient community</strong></td>
<td>Tsunami and storm surge countermeasures</td>
<td>Domestic</td>
<td>Promote the introduction of seabed-type flap gates (movable flap gate type breakwater) to disaster-risk areas.</td>
</tr>
<tr>
<td></td>
<td>Aging infrastructure and equipment, natural disasters</td>
<td>Domestic/Overseas</td>
<td>Expansion of business domains to maintenance and remote monitoring for bridges, water gates, and smokestacks.</td>
</tr>
<tr>
<td></td>
<td>Limits to the development of new urban underground networks</td>
<td>Domestic/Overseas</td>
<td>Develop our own A/S (pipe end inspection) to inspect the soundness of plant facilities.</td>
</tr>
<tr>
<td><strong>Building a prosperous community</strong></td>
<td>Labor shortage of agriculture and food industries, shortage of catch</td>
<td>Domestic</td>
<td>By utilizing satellite positioning data, provision of automatic steering services for agricultural machines that contribute to reducing the burden of agricultural work.</td>
</tr>
<tr>
<td></td>
<td>Ensuring railway Safety</td>
<td>Domestic</td>
<td>We have provided recording devices for food production lines as a means of visualizing food safety and prevention of contamination, and develop further labor-saving services such as product identification using AI.</td>
</tr>
<tr>
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<td>短少</td>
<td></td>
<td>Shortage of fishing is becoming the norm, and there is a tendency for catches to be insufficient. Sea-level aquaculture has problems such as shortage of appropriate locations and damage to ocean pollution. Promote onshore aquaculture to provide a safe, secure, and stable supply for resolutions.</td>
</tr>
</tbody>
</table>

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3. Specific Example of IoT & AI Business Strategies

Growth of IoT and AI businesses in core business domains and new-generation products and services

- **Energy from waste plant**
  - Realization of labor saving and economic operation through automatic and stable operation
  - Optimum operation support through remote monitoring

- **Water treatment facilities**
  - Optimum operation support through remote monitoring

- **Onshore aquaculture**
  - Optimum operation support through remote monitoring

- **Nondestructive inspection of end-of-pipe welds**
  - Automatic determination of defects with AI, realization of labor saving

- **Bridges/Water gates**
  - Bridges: Renovations, repairs, and maintenance business utilizing CIM (Construction Information Modeling/Management)
  - Water gates: Promotion of differentiation by popularization of Diagnostic and Status Monitoring System (“Shin-emon”)

- **Wind Power**
  - Selecting the right place of business by big data such as wind conditions and landforms
  - Realization of efficient and economic maintenance by the accumulation of operating data

- **Shield machine**
  - Optimum operation support through remote monitoring

- **GPS positioning**
  - Automatic operation support through remote monitoring
Technology for People, the Earth, and the Future

Hitachi Zosen creates links between mother nature and our future

Cautionary Statement
Forward-looking statements are based on information currently available to Hitachi Zosen Corporation. Therefore those forward-looking statements include unknown risks and uncertainties. Accordingly, you should note that the actual results could differ materially from those forward-looking statements. Risks and uncertainties that could influence the ultimate outcome include, but are not limited to, the economic conditions surrounding Hitachi Zosen Corporation and/or exchange rate fluctuation.