Energy Solution Business Pioneered by Hitachi and Hitachi ABB Power Grids

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Chairman and Director, Hitachi ABB Power Grids Ltd
Global Energy Trends

Energy Producers
- Progress in decarbonization and a shift to renewable energy
- Large-scale centralized power supply and distributed power supply

Energy Users
- RE100 membership expansion (200+companies)*
- Increased electricity demand
  - Expansion of the data center scale
  - Electrification of industries
  - Expanded introduction of EVs

* RE100: An international initiative to procure 100% of the electricity used in the business with renewable energy
Strong Investment in Renewable Energy

- Under various countries’ current development plans, renewable energy generation will grow at a CAGR of around 4.5% and annual investment will be more than US$300 billion.
- Increased generation and investment are needed for sustainable development.
- To utilize renewable energy, the development of power grids is essential (e.g. supply-demand adjustment, power system interconnection).

### Global renewable electricity generation

<table>
<thead>
<tr>
<th>Year</th>
<th>Stated policies scenario</th>
<th>Sustainable development scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>5,000</td>
<td>6,000</td>
</tr>
<tr>
<td>2030</td>
<td>13,000</td>
<td>15,000</td>
</tr>
<tr>
<td>2040</td>
<td>25,000</td>
<td>30,000</td>
</tr>
</tbody>
</table>

### Global annual average investment in renewables

<table>
<thead>
<tr>
<th>Year</th>
<th>Stated policies scenario</th>
<th>Sustainable development scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>200</td>
<td>800</td>
</tr>
<tr>
<td>2019-30</td>
<td>400</td>
<td>600</td>
</tr>
<tr>
<td>2031-40</td>
<td>600</td>
<td>800</td>
</tr>
</tbody>
</table>

Source: IEA World energy outlook 2019
Stated policy scenario: scenario incorporating development plans that have been published in various countries
Sustainable development scenario: scenario for achieving the goals set out in the Paris Agreement
## Overview
- Power grids business was spun off from ABB and Hitachi acquired 80.1% of shares on July 1, 2020
- After three years (2023) of the joint venture's establishment, Hitachi will make it a wholly owned subsidiary

## Business value
- Enterprise value is worth US$11 billion (1,188.0 billion yen)
- Share purchase price is approx. US$6.85 billion (740.0 billion yen), 80.1% of the equity value of approx. US$8.55 billion

## Finance
- Acquisition fund was provided by cash on hand, straight bond and debt

## Solvency
- Impact on consolidated B/S is currently under review
- D/E ratio will temporarily exceed 0.5x but will soon return to under 0.5x as we build up operating cash flow and sell assets
- New company is cash positive, and we’ll be able to create cost synergies soon
Aims of the Acquisition

- Strengthen and expand energy solutions business globally as a core of Social Innovation Business
- Accelerate Hitachi’s transformation into a truly global company by integration with advanced global management of the new company

Assets acquired

1 Business basis
- Global No. 1 position for T&D products and services

2 Management basis
- Customer base and human resource
  - Global footprint (around 90 countries and regions)
  - Number of customers (15,000+)
  - Sales sites (approx. 200)
  - Talented employees (approx. 36,000)

Business infrastructure
- Global operations
- Global back office functions
Business Basis: No.1 Global Business

- Acquisition of world-class products, systems and solutions
- Strong order backlog; earnings to recover with the convergence of COVID-19

<table>
<thead>
<tr>
<th>Grid automation</th>
<th>Grid integration</th>
<th>High voltage</th>
<th>Transformers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main products and services</td>
<td>HVDC transmission systems</td>
<td>High voltage switchgears and components (GIS, AIS) up to 1200 kV AC up to 1100 kV DC</td>
<td>Power Transformers up to 1200kV AC up to 1100kV DC</td>
</tr>
<tr>
<td>Automation products, systems and services</td>
<td>FACTS &amp; power quality systems and services</td>
<td>GCB</td>
<td>Distribution and traction transformers</td>
</tr>
<tr>
<td>SCADA systems</td>
<td>Power semiconductors</td>
<td>Maintenance services</td>
<td>Maintenance services</td>
</tr>
<tr>
<td>Enterprise software</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication networks</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Based on 2019 orders / a survey by Hitachi ABB Power Grids
SCADA (Supervisory Control And Data Acquisition): remote control monitoring system
FACTS (Flexible AC Transmission System): phase modulator
GIS: Gas Insulated Switchgear
AIS: Air Insulated Switchgear
GCB: Generator Circuit Breaker
Management basis:
Global Customer Base and Human Resource

• Acquisition of global infrastructure and approx. 36,000 talented employees to drive our Social Innovation Business
• Accelerate collaborative creation with global customers and partners

Strategic clients
Promote co-creation based on long-term partnerships

Frontline (sales and marketing) resource
Provide the “required values” in each regions

- 1. Utility
- 2. Renewable
- 3. Industry
- 4. EPC
- 5. Transportation
- 6. Data Center
- 7. Distribution, etc.

100+

4,000+

Europe • AMEA • AMERICAS
AMEA: Asia Pacific, Middle East and Africa
Hitachi’s Progress in Globalization

- Overseas employees / revenue ratio of Hitachi Group jump up with the new company
- Accelerate transformation into a truly global company with further improved diversity

**Increase in the number of employees by region with the new company**

<table>
<thead>
<tr>
<th>#</th>
<th>Areas with 1,000+ employees (in descending order)</th>
<th>Increase rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Northern Europe</td>
<td>×22.2</td>
</tr>
<tr>
<td>2</td>
<td>South Asia</td>
<td>×1.4</td>
</tr>
<tr>
<td>3</td>
<td>North America</td>
<td>×1.2</td>
</tr>
<tr>
<td>4</td>
<td>Eastern Europe</td>
<td>×3.9</td>
</tr>
<tr>
<td>5</td>
<td>East Asia</td>
<td>×1.0</td>
</tr>
<tr>
<td>6</td>
<td>Western Europe</td>
<td>×1.2</td>
</tr>
<tr>
<td>7</td>
<td>Central Europe</td>
<td>×2.1</td>
</tr>
<tr>
<td>8</td>
<td>South America</td>
<td>×2.9</td>
</tr>
<tr>
<td>9</td>
<td>Middle East</td>
<td>×4.2</td>
</tr>
<tr>
<td>10</td>
<td>Southeast Asia</td>
<td>×1.1</td>
</tr>
</tbody>
</table>

**Overseas employees**

- **Energy Sector**
  - ~10% to 80+% for the first time
- **Hitachi Group**
  - ~50% for the first time

**Overseas revenue**

- **Energy Sector**
  - ×21.5
- **Hitachi Group**
  - +24%

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*1 Based on an outlook of Hitachi’s headcount (as of March 31, 2021), incorporating major reorganizations in FY2020
*2 Based on a simple sum of Hitachi’s FY2019 revenue and the new company’s revenue that is assumed to be 1 trillion yen
*3 Based on a simple sum of number of employees of Hitachi Group (as of March 31, 2020) and the new company by region
## Trends and Opportunities in Major Markets

<table>
<thead>
<tr>
<th>North America</th>
<th>Europe</th>
<th>Middle East</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Progress of digitization</strong></td>
<td><strong>Eco-friendly grid</strong></td>
<td><strong>Post-oil &amp; gas</strong></td>
</tr>
</tbody>
</table>
| - High value digital solutions  
- Energy blockchain | - EV + EV charging stations  
- Hybridization in railways | - Utilization of renewable energy  
- Smart urban infrastructure |

<table>
<thead>
<tr>
<th>India</th>
<th>China</th>
<th>Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High economic growth</strong></td>
<td><strong>Transformation of energy portfolio</strong></td>
<td><strong>Grid transformation and higher resilience</strong></td>
</tr>
</tbody>
</table>
| - National grid maintenance + digitization  
- Energy management for industrial conglomerates | - From coal to renewable energy  
- Eco-friendly grid  
(EV expansion, zero waste energy) | - Grid development, enhancement by digital solutions |
### Business Expansion in 3 Phases
Leveraging Global Infrastructure

<table>
<thead>
<tr>
<th></th>
<th>Short-term (up to 1 year)</th>
<th>Medium-term (1 to 2 years)</th>
<th>Long-term (2-3 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New markets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Existing market</strong></td>
<td>1 Quick win</td>
<td>2 Expansion of digital solutions and markets</td>
<td>3 Development of new digital businesses</td>
</tr>
</tbody>
</table>

1. **Short-term**
   - Hitachi ABB Power Grids' strong OT know-how and experience will be applied to Lumada*
   - Joint offering in the regions (North America, Europe, Middle East, etc.) and sectors (energy, industry, etc.) where Hitachi ABB Power has a strong presence

2. **Medium-term**
   - Joint offering of new solutions for energy users (for EVs, data centers, etc.)
   - Development of new solutions and expansion of customer cases for both existing customers (T&D operators) and new customers (e.g. companies aiming RE100)

3. **Long-term**
   - Development of digital solutions for new markets (customers of non-energy sectors) (utilizing 5G or AI technologies)

*Hitachi’s advanced digital solutions, services, and technologies for turning data into insights to drive digital innovation

OT: Operational Technology

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Short-Term: Expand the Customer Value Achieved from New Company’s Energy Solutions with Lumada

• Hitachi ABB Power Grids’ modular software approach allows for integration of OT and IT data sources and is well positioned to leverage the power of Lumada.
Medium to Long-Term: Development and Deployment of New Energy Solutions

• Co-creation of new solutions with both customers within the Energy Sector (energy producers and T&D companies) and new customers, such as from the Mobility and Industry Sector
Becoming a Global Leader in Social Innovation Business

Combining digital technology with world-class power grids business to lead the global power grids transformation

Becoming a global leader in Social Innovation Business

HITACHI × ABB

Leading innovation with digital technology
- Building on the history of IT×OT×products and our diversified business portfolio to expand Social Innovation Business
- Drive customers’ DX by co-creations and Lumada

The world’s leading power grids business
- No.1 products, software and systems
- Excellence in global operations
- Strong and global customer base
- World’s largest installed base

DX: Digital transformation
Management Team of the New Company

Energy sector

Hitachi ABB Power Grids Ltd

Claudio Facchin
CEO

Directors

Hitachi Group

Toshikazu Nishino
Atsushi Oda
Ryuichi Otsuki
Duncan Hawthorne
Manuel Valverde
Timo Ihamuotila
Frank Duggan

ABB Ltd

Atsushi Oda
Senior Vice President and Executive Officer

Toshikazu Nishino
Executive Vice President and Executive Officer
Hitachi Social Innovation is
POWERING GOOD
HITACHI
Inspire the Next