Status of 2015 Medium-Term Business Plan

May 9, 2017
Mitsubishi Heavy Industries, Ltd.

Shunichi Miyanaga, President and CEO
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   6. Acceleration of concentration into core competencies
I. FY2016 Results
## I. FY2016 Results

<table>
<thead>
<tr>
<th>FY2016 Actual</th>
<th>FY2015 Actual</th>
<th>Orders received (Overseas ratio)</th>
<th>Net sales</th>
<th>Operating income (Margin)</th>
<th>Net income※</th>
<th>ROE</th>
<th>FCF</th>
<th>Debt/Equity ratio</th>
<th>Equity ratio</th>
<th>Interest-bearing debt</th>
<th>Dividend per share</th>
<th>Foreign exchange rates:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>4,485.5</td>
<td>4,275.6</td>
<td>3,914.0</td>
<td>150.5</td>
<td>87.7</td>
<td>3.7%</td>
<td>7.5</td>
<td>0.53</td>
<td>30.5%</td>
<td>1,052.1</td>
<td>12 yen</td>
<td>119.7yen/$ 132.6yen/€</td>
</tr>
<tr>
<td>Previous Forecast</td>
<td></td>
<td>4,800.0</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Main reasons for variance from FY2015 Actual</td>
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<td></td>
</tr>
<tr>
<td>• Decline in Orders received from overseas markets, MHPS etc. (Decreased investment due to lower oil price)</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>• LNG carrier<em>1, MRJ, Tier1</em>1, MHPS*1</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>△approx. ¥50 billion</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>• Asset management benefits (extraordinary profit + approx. ¥110 billion) (FCF + approx. ¥200 billion)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*1 includes yen appreciation

*2 Deterioration of MHPS and further deterioration of LNG Carriers/MRJ reflected from previous forecast

**Foreign exchange rates:**
- 119.7yen/$
- 108.2yen/$
- 110yen/$
- 132.6yen/€
- 118.6yen/€
## I. FY2016 Results (2)

### Net Sales and Operating Income by Business Segment

<table>
<thead>
<tr>
<th>Former segment</th>
<th>FY2015 Actual (A)</th>
<th>(B)-(A)</th>
<th>FY2016 Actual(B)</th>
<th>FY2016 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Net sales</td>
<td>Operating income</td>
<td>Net sales</td>
<td>Operating income</td>
</tr>
<tr>
<td>Energy &amp; Environment</td>
<td>1,542.7</td>
<td>154.6</td>
<td>-72.3</td>
<td>-44.1</td>
</tr>
<tr>
<td></td>
<td>1,470.4</td>
<td>110.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial Aviation &amp; Transportation Systems</td>
<td>548.5</td>
<td>54.5</td>
<td>-33.1</td>
<td>-106.4</td>
</tr>
<tr>
<td></td>
<td>515.3</td>
<td>-51.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated Defense &amp; Space Systems</td>
<td>485.0</td>
<td>25.7</td>
<td>-14.4</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>470.6</td>
<td>27.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machinery, Equipment &amp; Infrastructure</td>
<td>1,432.3</td>
<td>80.0</td>
<td>5.6</td>
<td>-7.5</td>
</tr>
<tr>
<td></td>
<td>1,438.0</td>
<td>72.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>177.3</td>
<td>12.6</td>
<td>-1.4</td>
<td>-1.8</td>
</tr>
<tr>
<td></td>
<td>175.9</td>
<td>10.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eliminations or Corporate</td>
<td>-139.2</td>
<td>-18.1</td>
<td>-17.1</td>
<td>-1.1</td>
</tr>
<tr>
<td></td>
<td>-156.3</td>
<td>-19.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4,046.8</td>
<td>309.5</td>
<td>-132.7</td>
<td>-158.9</td>
</tr>
<tr>
<td></td>
<td>3,914.0</td>
<td>150.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### After segment reorganization*

<table>
<thead>
<tr>
<th>New segment</th>
<th>Net sales</th>
<th>Operating income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Systems</td>
<td>1,448.4</td>
<td>108.1</td>
</tr>
<tr>
<td>Industry &amp; Infrastructure</td>
<td>1,747.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Aircraft, Defense &amp; Space</td>
<td>703.4</td>
<td>0.9</td>
</tr>
<tr>
<td>Others</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Eliminations or Corporate</td>
<td>–160.7</td>
<td>-19.3</td>
</tr>
<tr>
<td>Total</td>
<td>3,914.0</td>
<td>150.5</td>
</tr>
</tbody>
</table>

*b* Use reorganization to integrate Commercial Aviation and Transportation Systems businesses (which face a challenging business environment, such as Commercial Aircraft and Commercial Ship) with other segments that have synergies, then accelerate measures.
II. Review of FY2017 Targets
## II. Review of FY2017 Targets -1

<table>
<thead>
<tr>
<th></th>
<th>FY2015 Actual</th>
<th>FY2016 Actual</th>
<th>FY2017</th>
<th>Previous target</th>
<th>New target</th>
<th>Factors behind target change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orders received (Overseas ratio)</td>
<td>4,485.5</td>
<td>4,275.6</td>
<td>5,500.0</td>
<td>4,500.0</td>
<td></td>
<td>(52%) (48%) (64%) (55%)</td>
</tr>
<tr>
<td>Net sales</td>
<td>4,046.8</td>
<td>3,914.0</td>
<td>5,000.0</td>
<td>4,150.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating income (Margin)</td>
<td>309.5</td>
<td>150.5</td>
<td>450.0</td>
<td>230.0</td>
<td></td>
<td>(7.6%) (3.8%) (9.0%) (5.5%)</td>
</tr>
<tr>
<td>Net income *1</td>
<td>63.8</td>
<td>87.7</td>
<td>200.0</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROE</td>
<td>3.7%</td>
<td>5.1%</td>
<td>10.2%</td>
<td>5.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FCF</td>
<td>7.5</td>
<td>104.6</td>
<td>200.0</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt/Equity ratio</td>
<td>0.53</td>
<td>0.44</td>
<td>0.4</td>
<td>0.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity ratio</td>
<td>30.5%</td>
<td>32.5%</td>
<td>35%</td>
<td>33%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest-bearing debt</td>
<td>1,052.1</td>
<td>925.5</td>
<td>900.0</td>
<td>850.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dividend per share</td>
<td>12 yen</td>
<td>12円</td>
<td>*3</td>
<td>*2 12円</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reflects uncertainty of global economy and market forecasts
- MHPS  Δ350
- Transportation Systems  Δ220
- Commercial Aircraft  Δ200
- PT(Metals Machinery)  Δ120
- Compressor  Δ110
- Total  Δ1,000

Reflects costs of measures to tackle challenges faced in 2016

| Foreign Exchange Rates | 119.7 yen/$ 132.6 yen/€ | 108.2 yen/$ 118.6 yen/€ | 110 yen/$ 130 yen/€ | 110 yen/$ 120 yen/€ |

*1: Profit attributable to Owners of Parent

*2: MHI is to conduct consolidation of shares (10 shares →1 share) on October 1, 2017. Dividend per share on this material is based on the case before consolidation of shares to be comparable to FY2016.

*3: Payout Ratio 30%±5%
II. Review of FY2017 Targets -2

Business scale (net sales)

<table>
<thead>
<tr>
<th>FY2016 (trillions of yen)</th>
<th>FY2017</th>
<th>FY2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growing sales of previously received orders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase from business growth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase depending on timing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Booking of orders received to sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time gap increased between order received and net sales, esp. for large scale thermal coal plants, etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Operating income

<table>
<thead>
<tr>
<th>Deviation from original target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business expansion delay*1</td>
</tr>
<tr>
<td>Commercial Ships</td>
</tr>
<tr>
<td>Commercial Aircraft, etc.</td>
</tr>
<tr>
<td>Other Improvements*2</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

*1 20% of Net Sales △850 bn yen
*2 Concentration into core competencies, etc.

Further concentration into core competencies (including M&A)

Organizational reforms, efficiency improvements etc.

Partial introduction in FY2017 (Acceleration of Reforms)

Impression along with increased sales

<table>
<thead>
<tr>
<th>Improvement along with increased sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forex impact etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>① Improvement from increased sales and PMI acceleration</th>
</tr>
</thead>
<tbody>
<tr>
<td>• MHPS (P.20-22), M-FET/PT (P.23-24)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>② Radical measures for commercial ship and commercial aircraft businesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Tier 1/MRJ (P.17-18), Commercial ship (P.19)</td>
</tr>
</tbody>
</table>

① Previously received orders at MHPS, etc.

② Turbochargers, forklift trucks, space systems, etc.

③ Land transportation systems, chemical plants, etc.
### II. Review of FY2017 Targets -3

#### Net Sales and Operating Income by Business Segment

<table>
<thead>
<tr>
<th></th>
<th>FY2016 Actual</th>
<th>FY2017 forecasts</th>
<th>Change from FY2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Net Sales</td>
<td>Operating Income</td>
<td>Net Sales</td>
</tr>
<tr>
<td>Power Systems</td>
<td>1,448.4</td>
<td>108.1</td>
<td>1,650.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry &amp; Infrastructure</td>
<td>1,747.0</td>
<td>50.0</td>
<td>1,850.0</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aircraft, Defense &amp; Space</td>
<td>703.4</td>
<td>0.9</td>
<td>650.0</td>
</tr>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>175.9</td>
<td>10.7</td>
<td>150.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eliminations or Corporate</td>
<td>-160.7</td>
<td>-19.3</td>
<td>-150.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3,914.0</td>
<td>150.5</td>
<td>4,150.0</td>
</tr>
</tbody>
</table>

|                        |                |
|                        | ( ) Margin     |

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MHPS: Mitsubishi Hitachi Power Systems, Ltd.
PT: Primetals Technologies
M - FET: Mitsubishi Heavy Industries Forklift, Engine & Turbocharger Holdings, Ltd.
PMI: Post Merger Integration
MRJ: Mitsubishi Regional Jet

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III. Evaluation of Overall Progress of 2015 Business Plan
III. Evaluation of Overall Progress of 2015 Business Plan (1)

1. Structural Reforms, such as concentration into core competencies are progressing smoothly and on time

2. Ongoing risk issues (SONGS/Cruise ships) now settled (see Reference Material p.43-44)

3. Optimizing asset management making progress with liquidation and utilization of balance sheet (p.25)

4. Challenges arose in FY2016 outside the scope of the Business Plan prompting fundamental measures for improvement

- Commercial Ships → LNG Carriers/insufficient cost improvements and delays (5 ships)
- Commercial Aircraft (Tier 1) → Yen appreciation and further decline in production (B777, Bombardier)
- MRJ → Further delay in development schedule and increase in cost
- MHPS → Delay in business expansion and PMI

Reinforce above measures, commence actions for next Business Plan

“Conclusion of Reforms”, reinforce organization and systems (P.26-33)
III. Evaluation of Overall Progress of 2015 Business Plan (2)

- ¥4 trillion business scale reached
- Further action needed to reach ¥5 trillion scale

- Similar to 12 Business Plan level, due to challenges that arose in FY16 (*1)

(*1) FY15-FY16 Operating Profit CATSΔ¥100 bn., MHPSΔ¥50 bn.

Improvement of D/E ratio

Increase in shareholders’ equity (*2)

Maintain dividend of 12 yen/share

(*2) Due to losses from cruise ship construction and MRJ development delays, the gap between target and forecast needs to be reconciled

FCF improvement (excl. impact from extraordinary factors)

<table>
<thead>
<tr>
<th>Year (FY)</th>
<th>00～07 Average</th>
<th>’08 Business Plan Average</th>
<th>’10 Business Plan Average</th>
<th>’12 Business Plan Average</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>D/E: Debt/Equity</td>
<td>FCF: Free Cash Flow</td>
<td>MRJ: Mitsubishi Regional Jet</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

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### III. Evaluation of Overall Progress of 2015 Business Plan (3)

**Improvement in net income before taxes (excluding extraordinary factors)**

Income before tax, excluding cruise ship, MRJ, business reforms costs and extraordinary profits (※1, 2)

<table>
<thead>
<tr>
<th>Year</th>
<th>Average</th>
<th>Impact from extraordinary factors to Operating Profit/Non-Operating Profit/Extraordinary Profit</th>
<th>Impact on Income before tax (blue)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-2007</td>
<td>62.2</td>
<td>51.6</td>
<td>51.6</td>
</tr>
<tr>
<td>2008-2009</td>
<td>59.7</td>
<td>46.5</td>
<td>46.5</td>
</tr>
<tr>
<td>2010-2011</td>
<td>90.4</td>
<td>54.6</td>
<td>54.6</td>
</tr>
<tr>
<td>2012-2014</td>
<td>200.8</td>
<td>132.6</td>
<td>132.6</td>
</tr>
<tr>
<td>2015</td>
<td>330.7</td>
<td>169.7</td>
<td>169.7</td>
</tr>
<tr>
<td>2016</td>
<td>319.0</td>
<td>211.0</td>
<td>211.0</td>
</tr>
</tbody>
</table>

※1: excl. gain on change in equity in FY13 (approx. ¥130bn)
※2: excl. extraordinary profit from asset management (approx. ¥110bn)
※3: incl. loss from equity method investment (MMC, approx. ¥20bn)

**Steady improvement through FY2015**

Decline related to lower operating profit due to several challenges in FY2016

**Improvement in operating cash flow (excluding extraordinary factors)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Average</th>
<th>OCF (ex S. Africa, Cruise Ships, MRJ)</th>
<th>OCF (ex S. Africa)</th>
<th>OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000~2006</td>
<td>129.9</td>
<td>62.2</td>
<td>59.7</td>
<td>54.6</td>
</tr>
<tr>
<td>2008 Business Plan Average</td>
<td>98.7</td>
<td>282.3</td>
<td>282.3</td>
<td>270.0</td>
</tr>
<tr>
<td>2010 Business Plan Average</td>
<td>269.1</td>
<td>265.8</td>
<td>251.2</td>
<td>248.4</td>
</tr>
<tr>
<td>2012 Business Plan Average</td>
<td>360.6</td>
<td>470.4</td>
<td>330.7</td>
<td>319.0</td>
</tr>
<tr>
<td>FY2015</td>
<td>381.6</td>
<td>319.0</td>
<td>211.0</td>
<td></td>
</tr>
<tr>
<td>FY2016</td>
<td>205.6</td>
<td>294.7</td>
<td>169.7</td>
<td></td>
</tr>
</tbody>
</table>

CF: Cash Flow  MRJ: Mitsubishi Regional Jet  MHPS: Mitsubishi Hitachi Power Systems, Ltd.
### Progress in business structure reforms

Business scale expansion and profitability measures are making steady progress as a result of business structure reforms (with the exception of certain challenging businesses, as shown below)

#### Gap between FY12 and FY16

<table>
<thead>
<tr>
<th></th>
<th>Orders Received</th>
<th>Net Sales (A)</th>
<th>Total Assets (B)</th>
<th>(A)-(B)</th>
<th>Operating Income</th>
<th>FCF</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Businesses</strong> (excl. those listed below)</td>
<td>+ 890</td>
<td>+ 710</td>
<td>+ 480</td>
<td>+ 230</td>
<td>+ 120</td>
<td>+ 120</td>
<td>Steady progress in business scale and profitability improvement</td>
</tr>
<tr>
<td><strong>Commercial ships + Commercial Aircraft</strong></td>
<td>▲ 320</td>
<td>+ 30</td>
<td>+ 300</td>
<td>▲ 270</td>
<td>▲ 80</td>
<td>▲ 120</td>
<td>*1 Cruise ship + MRJ (As already delivered, no further impact from Cruise ship #2 expected)</td>
</tr>
<tr>
<td><strong>MHPS (excl. S. Africa)</strong></td>
<td>+ 670 (+ 620)</td>
<td>+ 350 (+ 300)</td>
<td>+ 780 (+ 450)</td>
<td>▲ 430</td>
<td>▲ 50</td>
<td>▲ 100</td>
<td>▲ 50 (+ 0)</td>
</tr>
<tr>
<td><strong>Total (excl. S. Africa)</strong></td>
<td>+ 1240 (+1190)</td>
<td>+ 1090 (+1230)</td>
<td>+ 1560 (+190)</td>
<td>▲ 470</td>
<td>▲ 10</td>
<td>▲ 100</td>
<td>▲ 10 (+ 0)</td>
</tr>
</tbody>
</table>

Accelerate improved profit-generating structure through immediate measures (P.17-22)
III. Evaluation of Overall Progress of 2015 Business Plan (5)

Accelerate Concentration into Core Competencies (Movement of Net Sales and investment capital by position)

Net sales Capital investment

FY2011

Grow / maintain 1,957.3 1,047.7
Reform 656.7 612.3
New 92.0 182.5
Downscale/withdraw 81.4 52.8
Company wide 33.5 568.2

Net sales ¥2,820.9 bn. + ¥1093.1bn
Capital investment ¥2,463.5 bn. + ¥569.3bn

FY2016

Grow / maintain 2,762.2 1,412.9
Reform 1,095.3 606.1
New 1.7 446.7
Downscale/withdraw 93.0 105.5
Company Wide △38.2 461.6

Net sales ¥3,914.0 bn.
Capital investment ¥3,032.8 bn.

Major M&A Progress FY2012-2016
(FY2016 developments listed in blue)

<table>
<thead>
<tr>
<th>Position</th>
<th>Product/business</th>
<th>Sales increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grow/ maintain</td>
<td>• Hitachi (thermal power systems)</td>
<td>¥500bn (approx.)</td>
</tr>
<tr>
<td></td>
<td>• Siemens (metals machinery)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Toyo Engineering Works (air-conditioning &amp; refrigeration)</td>
<td></td>
</tr>
<tr>
<td>Reform</td>
<td>• PWPS/Turboden (GT)</td>
<td>¥300bn (approx.)</td>
</tr>
<tr>
<td></td>
<td>• Nichiyu/UniCarriers (forklift trucks)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Federal Broach (machine tools)</td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>• Vestas (offshore wind turbines)</td>
<td>(equity share)</td>
</tr>
<tr>
<td></td>
<td>• Lithium-ion batteries</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Industrial cranes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Fin stabilizers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Injection molding machines</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Sluice gates</td>
<td>(business transfer, equity share)</td>
</tr>
<tr>
<td></td>
<td>• X-ray treatment equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Marine diesel engines</td>
<td></td>
</tr>
<tr>
<td>Downscale/ withdraw</td>
<td>• ETC (electronic toll collection) onboard equipment</td>
<td></td>
</tr>
<tr>
<td>Company wide</td>
<td>• Real estate</td>
<td>(equity share)</td>
</tr>
<tr>
<td></td>
<td>• IT infrastructure operation/maintenance</td>
<td></td>
</tr>
</tbody>
</table>

(See p.45 for details)

GT: Gas Turbine
M&A: Mergers and Acquisitions
IV. Progress of Individual Measures

1. Measures for MRJ and Tier1 business
2. Reinforcement of commercial ship business structure reforms
3. Improvement of MHPS management
4. PMI at M-FET
5. PMI at Primetals Technologies (PT)
6. Asset Management Progress

Immediate measures
IV-1. Measures for MRJ and Tier1 business -1

Key measures and implementation schedule

Reinforce commercial aircraft business foundations (applies to Tier1 and MRJ)

**MRJ**
- Improve business viability
- Reform organization

**Tier-1 business**
- Medium-term measures against low capacity utilization at Nagoya facilities (see p.41)
- Strengthening of human resources (skills development, etc.) (p.29-30)
- Equipment and production technology innovations (p.29-30)
- Plant Reorganization (p.31)

Accumulation of technology that differentiates MHI

Accelerated MRJ70 development

Completion of MRJ90 development

Early recovery of profitability

Mass production of MRJ

Build synergies

Improvement of Tier1 business*

* Strengthen to OEM level

**Timeline**

- 2016
- 2017
- 2018
- 2019
- 2020~

---

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MRJ: Mitsubishi Regional Jet

OEM: Original Equipment Manufacturer
Long term strategy for commercial aircraft business

1) Reasons for continuation

- High entry barriers (technology, regulation, financing etc.)
- MHI’s capabilities (accumulation of technology, skills, financial support)
- Sustainable market growth and continuous technological development

• High possibility of becoming a core business, requires long-term commitment

2) Original business model, enhanced by MHI’s advantages

• Pursuing autonomy and synergies between aircraft business and advanced Tier 1 business
• Beyond existing framework, expand business field and increase additional value of MHI business
  → Integration with cyber security technology and ICT
  → Synergy with other MHI businesses, ex. traffic control system, etc.
**IV-2. Reinforcement of commercial ship business reforms**

### Overall schedule for business structure reforms

<table>
<thead>
<tr>
<th>FY2016</th>
<th>FY2017</th>
<th>FY2018-</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reform Internal Structure</strong></td>
<td><strong>Preparation of organization reforms</strong></td>
<td><strong>Corporate culture reform activities</strong></td>
</tr>
<tr>
<td>Cruise Ship #2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Build Alliance w. Partners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negotiations towards alliance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smooth progression of negotiations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 1st step in new structure

- **April (Delivery completed)**
- **July**
  - Basic agreement reached with Imabari and Namura

#### Transition to new structure

(Under assessment, incl. spin off)

- **Cost reduction and shorter construction period for LNG carriers**
  → Improvements driven by shared technology division

- **Expansion of engineering business**
  → Establishment of Marine Engineering Center (TBD)
  (Concentrated use of engineering resources)

- **Sales expansion for high value-added equipment/systems**

LNG: Liquefied Natural Gas

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1) FY2016 earnings decline and responses

Operating profit fell in FY16 due to yen appreciation, delay in business expansion and time taken to reduce fixed costs

Leveraging the following measures, achieve 10%+ margin with existing level of net sales in 2 years

- Reduce fixed costs → See graph on right
- Reduce variable costs (utilize LCC, etc.) → FY17: Δ¥10-15 bn. from FY16
- Accelerate PMI → Introduce chief officer system, strengthen SBU/KPI management system → Re-organize business structure and manufacturing bases (asset optimization, etc.)
IV-3. Improvement of MHPS management, PMI etc. (2)

2) Gas Turbine Business

**Challenge 1**

- Sluggish ongoing demand for new GTCC plants worldwide
- Strengthen service business
  → LTSA through use of IoT etc. (Long-term maintenance)
  Expansion of operation support service (See p.22)
- Strengthen ability to gather information globally and to offer more customer focused proposals
  → Concentrate human resources into key overseas markets *
  → Strengthen ties with trading companies and expand use of ECA financing

**Challenge 2**

- Increased competition from latest GE model (HA series)
- Expedite launch of high-performance gas turbine models
  → Accelerate development of next-generation 1650°C-class gas turbines
  Delivery in FY2019 (bring forward by 1.5 years)
- Strengthen cost competitiveness
  (See p.20)
3) Expand service business using IoT, AI, Big Data

Maximize use of automated autonomous operations

Enhanced O&M

O&M support

O&M monitoring

Data collection and evaluation (digitization)

Benefit for customers

Optimization of overall efficiency (group management level)

Remote operations (labor-saving, high reliability)

Longer intervals between inspections
- Automated warnings for malfunctions/anomalies, early detection and recovery measures
- Operating life extension measures, placing orders for spare parts

Performance improvement and optimization (equipment and plant levels)

Shorter inspection times

Higher operating ratios
- Preventive maintenance
- Short-term peak operation, eco operation
- Recommend replacement parts during regular maintenance

Gas turbine early malfunction detection service
- Orders received from China

Automated boiler control system
- Verified by Taiwan Power Co.

EMS (Energy Management System)

Power demand forecast
Total optimization
Control power-generation facilities

Power supply

Analysis
Monitoring

Synergies expected with other business

Global service center
- Remote monitoring, O&M support (Philippines)

Electrical current monitoring tool for rotating machines (developed jointly with Takada Corp.)
IV-4. PMI at M-FET (forklift truck business)

Current PMI plan is underway ahead of schedule

Defensive PMI acceleration (through MN and UC merger)

Approach
- Integration and elimination of redundant functions and sites
- Reinforcement of procurement and factory productivity enhancement

Outcome
- Reduction of fixed costs $\Delta 10\%$
- Operating income margin improvement 4$\% \rightarrow 8\%$

Operating ratio

<table>
<thead>
<tr>
<th></th>
<th>FY2016</th>
<th>FY2017 forecast</th>
<th>FY2018 target</th>
</tr>
</thead>
<tbody>
<tr>
<td>MN Factory A</td>
<td>70%</td>
<td>70%</td>
<td>100%</td>
</tr>
<tr>
<td>UC Factory B</td>
<td>70%</td>
<td>70%</td>
<td></td>
</tr>
<tr>
<td>Merger</td>
<td>Operating ratio 70%</td>
<td>Operating ratio 70%</td>
<td>Operating ratio 100%</td>
</tr>
</tbody>
</table>

Integration Process

Apply lessons learned from PMI programs at MHPS and PT

Aggressive From single product business to solutions business

Approach
- Next-generation forklift trucks
- AGV (Automated Guided Vehicles), logistics robots
- V2G (Vehicle to Grid) etc.

Outcome
- Sales expansion: 400 billion $\rightarrow$ Over ¥500 billion

Operating income margin (Before amortization of goodwill)

Fixed costs

<table>
<thead>
<tr>
<th></th>
<th>FY2016</th>
<th>FY2017 forecast</th>
<th>FY2018 target</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2016</td>
<td>400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY2017</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY2018</td>
<td></td>
<td></td>
<td>40～90</td>
</tr>
</tbody>
</table>

Laser Guide Type AGF (Automated Guided Forklift) (launched in Japanese market in April)

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MN: Mitsubishi Nichiyu Forklift Co., Ltd. UC: UniCarriers Corporation MHPS: Mitsubishi Hitachi Power Systems, Ltd. PT: Primetals Technologies PMI: Post Merger Integration

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MN: Mitsubishi Nichiyu Forklift Co., Ltd. UC: UniCarriers Corporation MHPS: Mitsubishi Hitachi Power Systems, Ltd. PT: Primetals Technologies PMI: Post Merger Integration
**IV-5. PMI at Primetals Technologies (PT)**

**PT orders received, by quarter (€ millions)**

- **Order received now in a gradual recovery trend**
- **Worldwide manufacturing capacity surplus continues**
- **Promote PMI to enable profit even at €1.5 bn. scale**
- **EBITDA improvement target (FY2016→2019)** + €85m

**PMI (business integration process)**
- **Consolidate organization** (completed)
  - Business segments: 10 → 7
  - Organizational functions: 26 → 9
- **Optimize work force scale** (8,000 → 7,100)
- **Eliminate redundant R&D costs** (completed)

**Further PMI and implementation of growth strategy**
- **Consolidate overseas locations** (Approx. 40 → 26)
- **Expand market share through implementation of growth strategy**
  - Improved utilization of key technologies
  - Reform of business model
  - Expansion of alliances

**Sustained growth**

**Order received**

- **FY2015** Orders received €1.5B
- **FY2016** Orders received €1.6B
- **FY2017** Orders received €1.7~1.8B
- **FY2018** Orders received Over €1.9B
- **Completion of PMI**

**Achieve top global position and stabilization of earnings**

PMI: Post Merger Integration  EBITDA: Earning Before Interest, Taxes, Depreciation and Amortization
IV-6. Asset Management Progress

Aims and progress status of asset management

Promote enhanced value and utilization of assets through asset shuffling, collaboration with other companies, etc., avoiding simple sells-off ➔ refer to examples below

**Ryoju Estate business**
(majority stake transferred in September 2017)

- **West Japan Railway Co.**
  - Real estate operations made a core non-transportation-related business; aiming for higher enterprise value and business scale expansion / strengthening
  - 70% investment

- **Ryoju Properties**
  - Operation consigned to other specialized companies, aiming for higher asset value and stable earning capability
  - Company spinoff, 30% investment

- **MHI Group**

**MHI Yokohama Bldg.**
(sold in March 2017)

- Sold in March 2017 (asset liquidation)
  ➔ In near term, used for MHPS head office functions, etc.
- Enhance total asset value through use of acquired capital

**Reconstruction of Daiichi Tamachi Building** (slated for completion in 2023)

- Greater convenience
  ➔ Proximity to Marunouchi (global headquarters), etc.
- Increase in total floor space
  ➔ Higher added value and profitability

Asset shuffling

- Promote enhanced value and utilization of assets through asset shuffling, collaboration with other companies, etc., avoiding simple sells-off

**Examples**
- Daiichi Tamachi Bldg.
- New Tamachi Bldg.
- Yokohama Bldg.
V. Organization and system reinforcements toward “Conclusion of Reforms”

- Preparations for “big leap” in 2018 Business Plan

1. Global and Local Management Optimization
2. Production Innovation
3. Asset Management Reinforcement
4. Innovation Laboratory (tentative name)
V-1. Global and Local Management Optimization -1

Current issues

- Optimize and strengthen global management system
- Reinforce regional management and operations (especially ex-Japan)
- Further utilize local human resources
- Eliminate unique rules lingering in some regions or businesses
- Optimize use of Group-wide resources
  - Consolidate small-scale bases (business offices, factories)

Corporate

Shinagawa Head Office

Global management system lacks experience compared to competitors

Corporate functions at bases

- Numerous small-scale bases (resources are locked in place and dispersed)
- Weak overseas business foundation

Business segments

Redundant functions within the Group. Siloed sales structure remains

Business divisions

Corporate function

Business companies

Corporate function

Global bases by scale

- Over 100 employees
- Under 100 employees
- Under 50 employees
- Under 10 employees

E.g. North America
(locations of bases having fewer than 50 employees)

Of approx. 300 bases worldwide, small-scale ones with fewer than 100 employees account for more than half the total.

Of approx. 70 bases in North America, bases with fewer than 50 employees account for approx. half the total.
V-1. Global and Local Management Optimization -2

Current status

Shinagawa Head Office

Corporate functions at bases

Corporate function

Global headquarters (Marunouchi)
- Enhance global management structure and efficiency
- Activate the local business management (clarification of authority transfer and responsibilities)

Target vision

Global headquarters

Regional headquarters

Corporate functions at bases

Regional Head Office (Japan) (Shinagawa → Tamachi)

Corporate functions at bases

Streamlining of regional bases and functions

Reinforcement of overseas regional management and sales & marketing strength

Earnings improvement at overseas businesses

Increased overseas service personnel

Qualitative and quantitative reinforcement of domestic sales & marketing and service segments

Corporate functions at bases

Excess personnel after consolidation, efficiency enhancement, etc. will initially undergo advanced training at specialized organizations (next page) and then be reassigned to overseas regional duties or business segments.

Corporate function

Corporate function

BPO: Business Process Outsourcing
Globalization

- Increase in overseas factory management and technical guidance jobs from expansion of overseas production → Decrease in domestic conventional jobs

Mutual impact

Significant technological changes, etc.

- Rapid progress in IoT, AI, Robotics and other technologies
  → Automation of direct and indirect work
  → Increased need for data analysts, etc.

- Qualitative changes in factory work, etc. due to change in product (see next page)

HR Response

(accelerated response by specialist teams)

- Development of human resources suited to the times
- Human resources fluidity, centering on continuous rotation of human resources (development and pooling)

Education/training

- Higher levels of techniques/skills
- Multi-skilled workers and professional conversions

Manual work

- Automation (IoT, AI, etc.)
- Integrated production lines

AI and robots

- Development and introduction of innovative production and management methods
- R&D and introduction of the latest technologies and processes, including AI

Production process and system innovations

(Accelerated response by specially appointed teams)
Tackle changing needs for technological and skills areas through education and productivity innovation (previous page)

**Aircraft**

- Completed aircraft: YS-11, MU-2, MU-300
- Main wings: Shift to electronics and computers
- MRJ: Outfitting of electronic equipment, Cyber security, Automated inspection and process control, Maintenance technology
- Fuselage: Automated assembly

**Ships**

- Car ferries / Cruise ships: Cabin interior technologies, Entertainment facility installation technologies, Low-temperature, cryogenic technologies, Special tank processing technologies
- LPG carriers / LNG carriers: Automation control technologies
- Shift in focus from hull work to outrigging
- Car carriers: Structural design technologies, Welding technologies, Large block construction
- Tankers: ""
## Power and Machinery Business

- Reduction of domestic production scale in tandem with expansion of global production
- Domestic production facilities scattered and dilapidated (Decline in competitiveness)

## Aerospace Business

- Expansion in domestic production
- Lack of global competitiveness

### Countermeasures

- Consolidation and reorganization of bases
- Investment through use of IoT/AI
- Broaden and deepen skill sets
- Increase value of land and facilities through asset management

### Productivity improvement target \( \geq 30\% \)

**Proposed consolidation of core businesses**

**Optimal reorganization of domestic entities in Aircraft, Defense & Space (Including Hiroshima, Kobe)**

**Metals machinery**
- (Hiroshima, U.S., Mexico, China)
**Compressors** (Hiroshima, U.S.)
**Shipbuilding**
- (Nagasaki, Shimonoseki)
**Gas turbines**
- (Takasago + U.S.)
**Nuclear power, machinery**
- (Kobe*)  
  * shared factory scheme

---

**IoT**: Internet of Things  
**AI**: Artificial Intelligence
V-3. Asset Management Reinforcement

Further carry out current measures, propose and implement asset management beyond the conventional framework as measures ahead of the 2018 Business Plan.

Asset management focused on each segment (current)
- Newly idle assets of low book value dispersed

Centralized management of all Groupwide assets
- Pursue maximum asset values and appropriate returns
  - Highly active shared factories (shared within Group, leased to other companies)
  - Lease office building space to other companies
  - Lease and multi-purpose usage of idle lands
    → Future, creation of stable CF of several 10 billions of yen per year
    → Progressive application from domestic to overseas assets

Balance sheet
- Current assets
- Liabilities
- Fixed assets
- Net assets

Significant room for effective use of assets
- Underused factories
- Underused offices
- Idle land properties
  - Majority of assets have been fully depreciated
V-4. Innovation Laboratory (tentative name)

Objective

Garner leading-edge knowledge and ideas from external sources, utilize for foundational technologies and new product development
→ Conduct cooperative research globally with “Novel ideas and approaches”

Organization format (plan)

- Establish wholly owned subsidiary (SPC), specialized in R&D
  → SPC enables more technology-oriented activities
- Research theme is at discretion of Project Manager (PM)
  → Optimized structure suitable for each theme (Partner, Location)

CTO: Chief Technology Officer

CTO

Innovation Laboratory

Development of new products, etc.

Development of technologies with shared foundations

Incorporation of cutting-edge knowledge

Future expansion

Research scale approx. ¥120 billion

Utilize PMs from outside MHL

Project manager (Research Team A)

Project manager (Research Team B)

Project manager (Research Team C)

Use of external institutions (Examples)

University

Research institute

Other company

Nano technology

Big data

New material

Quantum computer

Nanotechnology

Big data

Quantum computer

New material

→ SPC enables more technology-oriented activities

→ Optimized structure suitable for each theme (Partner, Location)

Innovation Laboratory

Incorporation of cutting-edge knowledge

Future expansion

Research scale approx. ¥120 billion

Utilize PMs from outside MHL

Project manager (Research Team A)

Project manager (Research Team B)

Project manager (Research Team C)

Use of external institutions (Examples)

University

Research institute

Other company

Nano technology

Big data

Quantum computer

New material

→ SPC enables more technology-oriented activities

→ Optimized structure suitable for each theme (Partner, Location)
VI. Summary
Numerical targets for 2015 Business Plan

- FY2017 targets have been adjusted
  - Reflecting uncertainty of global economy and market forecast
  - Bake in sufficient funds to tackle challenges that occurred in 2016
- Original targets will be shifted to second year of 2018 Business Plan

Orders received: 4.5 trillion yen,
Net income: 100 billion yen, etc. (P.7)

Conclusion of Reforms

- Complete reforms in 2017, and compile additional measures (e.g. MRJ reforms) by 1H FY2018

Smooth transition to 2018 Business Plan (continuous growth phase)

- Implementation of advance measures necessary for long-term sustained growth (pp.26-33)
- As machinery/engineering conglomerate, build long-term sustainable growth plan*

*Establish long-term direction of business portfolio within FY17, with leading-edge technology and complex system engineering at core
### 18 Business Plan

- **Conclusion of reforms**
- **Advance measures**
  - Production segment innovations and increased value
  - Further reinforcement of asset management
  - Optimization of global/local management
  - Build and prepare for long-term growth
  - Structure promoting innovation

### 15 Business Plan

#### 2015 Business Plan
- **(Completion of reforms)**
- **Structural reforms**
- **Cruise ships /SONGS**
- **Remaining risk management**
- **Sinop nuclear power plant** 
  - (feasibility study/risk reduction, implementation structure)
- **MRJ development**
  - (organizational reforms, business viability improvement)
- **Business reform (incl. immediate measures)**
  - Reform of Commercial Ship Business
  - Commercial Aircraft Business (Tier 1) Reforms
  - PMI acceleration

#### 18 Business Plan

- **Profitability**
  - Global standard profitability
  - Further reinforcement of financial foundation
- **MRJ**
  - Start mass production and make MRJ more attractive
  - Strengthen synergies with Tier 1 business
- **To sustained growth phase**
  - (FY2020)
  - Delivery of first aircraft ★
  - Business scale ¥5 tn.

#### 15 Business Plan

- **2015 Business Plan**
  - (Completion of reforms)
- **Structural reforms**
- **Cruise ships /SONGS**
- **Remaining risk management**
- **Sinop nuclear power plant** 
  - (feasibility study/risk reduction, implementation structure)
- **MRJ development**
  - (organizational reforms, business viability improvement)
- **Business reform (incl. immediate measures)**
  - Reform of Commercial Ship Business
  - Commercial Aircraft Business (Tier 1) Reforms
  - PMI acceleration

### Summary

- **Production segment innovations and increased value**
- **Further reinforcement of asset management**
- **Optimization of global/local management**
- **Build and prepare for long-term growth**
- **Structure promoting innovation**
- **Conclusion of reforms**
- **Advance measures**
- **Conclusion of reforms**
- **Advance measures**
- **Conclusion of reforms**
- **Advance measures**
- **Conclusion of reforms**
- **Advance measures**
### VI. Summary -3

#### Keys to achieving numerical targets

- **Business scale**
  - Business expansion of JV such as MHPS (Incl. market recovery)
  - Business growth in engineering/service field

- **Profitability & Financial Foundation**
  - Achieving business scale of 5 trillion yen → Achieve scale merit
  - Completion of reforms → Profitability recovery from challenging businesses
  - Continuous concentration into core competence
  - Reinforcement of risk management
  - Enhancement of asset management

#### Table: Business Plan

<table>
<thead>
<tr>
<th>Term</th>
<th>00-11 average</th>
<th>12 Business Plan Average</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
<th>FY2019</th>
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</thead>
<tbody>
<tr>
<td>Orders received (¥ tn)</td>
<td>2.90</td>
<td>3.72</td>
<td>4.70</td>
<td>5.10</td>
<td>5.50</td>
<td>5.50</td>
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<tr>
<td>Net Sales (¥ tn)</td>
<td>2.68</td>
<td>3.39</td>
<td>4.49</td>
<td>4.28</td>
<td>4.60</td>
<td>5.00</td>
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<tr>
<td>Operating income (¥ bn)</td>
<td>87.5</td>
<td>122.7</td>
<td>165.3</td>
<td>162.8</td>
<td>159.8</td>
<td>100.0</td>
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<tr>
<td>Net Income (¥ bn)</td>
<td>24.9</td>
<td>63.8</td>
<td>130.0</td>
<td>87.7</td>
<td>100.0</td>
<td>200.0</td>
</tr>
<tr>
<td>Net income(except for cruise ship and MRJ)</td>
<td>131.6</td>
<td>100.0</td>
<td>104.6</td>
<td>100.0</td>
<td>200.0</td>
<td></td>
</tr>
<tr>
<td>FCF (¥ bn)</td>
<td>222.8</td>
<td>161.2</td>
<td>297.6</td>
<td>200.0</td>
<td>200.0</td>
<td>200.0</td>
</tr>
<tr>
<td>FCF (except for cruise ship and MRJ)</td>
<td>131.6</td>
<td>100.0</td>
<td>104.6</td>
<td>100.0</td>
<td>200.0</td>
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</tr>
<tr>
<td>ROE (except for cruise ship and MRJ)</td>
<td>19.9</td>
<td>10.9%</td>
<td>9.0%</td>
<td>8.8%</td>
<td>10%</td>
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<tr>
<td>ROE</td>
<td>1.9%</td>
<td>10.9%</td>
<td>9.0%</td>
<td>8.8%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Net assets (¥ bn)</td>
<td>1,330.0</td>
<td>1,774.8</td>
<td>1,999.7</td>
<td>2,150.0</td>
<td>2,330.0</td>
<td>2,500.0</td>
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<tr>
<td>Shareholder equity (¥ bn)</td>
<td>1,234.1</td>
<td>1,491.3</td>
<td>1,637.8</td>
<td>1,679.4</td>
<td>1,750.0</td>
<td>2,000.0</td>
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<tr>
<td>Orders received (¥ tn)</td>
<td>2.90</td>
<td>3.72</td>
<td>4.70</td>
<td>5.10</td>
<td>5.50</td>
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<tr>
<td>Net Sales (¥ tn)</td>
<td>2.68</td>
<td>3.39</td>
<td>4.49</td>
<td>4.28</td>
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<td>Operating income (¥ bn)</td>
<td>87.5</td>
<td>122.7</td>
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<td>162.8</td>
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<tr>
<td>Net Income (¥ bn)</td>
<td>24.9</td>
<td>63.8</td>
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<tr>
<td>Net income(except for cruise ship and MRJ)</td>
<td>131.6</td>
<td>100.0</td>
<td>104.6</td>
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<tr>
<td>FCF (¥ bn)</td>
<td>222.8</td>
<td>161.2</td>
<td>297.6</td>
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<tr>
<td>FCF (except for cruise ship and MRJ)</td>
<td>131.6</td>
<td>100.0</td>
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</tr>
</tbody>
</table>

**Term**: 00-11 average, 12 Business Plan Average, FY2015, FY2016, FY2017, FY2019

**Vietnamese Heavy Industries, Ltd.** All Rights Reserved.

**ROE**: Return On Equity  
**FCF**: Free Cash Flow  
**MHPS**: Mitsubishi Hitachi Power Systems, Ltd.
Reference Materials

1. Technology topics in FY2016 - P.40
2. Medium-term measures against low capacity utilization at Nagoya facilities - P.41
3. Investments relating to AREVA of France - P.42
4. SONGS arbitration - P.43
5. AIDA Cruise Ship Construction Project - P.44
6. Acceleration of concentration into core competencies - P.45
Reference 1: Technology topics in FY2016

**Completion of world’s largest CO₂ capture plant in Texas, USA**
- Captures 4,776 tons per day of CO₂ from coal-fired power plant
- MHI Group has delivered 11 commercial CO₂ capture systems worldwide. (top share of global market)

**Large-output Organic Rankine Cycle 5-stage axial turbine**
- “5-stage 16MW” multi-stage large-scale axial turbine resolving vibration and other issues and achieving outstanding efficiency

**Start of operation of new electric steelmaking furnace (Mexico)**
- World’s most efficient electric furnace, cuts power consumption and CO₂ emissions by 25% and reduces production costs by near 20%

**Advanced AGV (automated guided vehicle) employing laser guidance**
- Material handling capacity increased by more than 20% by laser guidance and proprietary optimized operation algorithms applying onboard AI

**Stealth and high-maneuverability technologies enabling realization of Advanced Technology Demonstrator (X-2)**
- Extremely high stealth capability and outstanding maneuverability with flying capability not possible with conventional aircraft
  → Airframe system and advanced engine system integration

**Combustion stabilization technology for H3 rocket engine (LE-9)**
- Development of key technologies to control high-frequency combustion vibrations
- In March 2016, applicability has been demonstrated in full-size proto-type firing tests

**Exhaust pulsation energy-using technology for high-performance vehicle-use turbochargers**
- World’s first nonstationary performance evaluation technology for turbochargers, factoring in intermittent engine exhaust gas flow

**Mobile combat vehicle (production launched in FY2016)**
- Combat vehicle featuring outstanding mobility and air transport capability
- World’s highest level of firing accuracy while traveling and outstanding mobility
Reference 2: Medium-term measures against low capacity utilization at Nagoya facilities

Measures for Tier1 production volume and staff

- Completed reduction of over 700 personnel (re-allocation within/out MHI)
- Approx. 6,600
- Direct staff
- Indirect staff

2015 actual
2016 actual
2017 forecast

B787
B777
GX

Measures for MRJ timetable and staff

- First flight
- Design changes (electrical wiring)
- Flight testing in Japan and U.S.
- Acquisition of TC
- Delivery of first aircraft
- Outlook: mid-2020
- Target: end-2019

- Maintaining staff for mass production, by temporary re-allocation
- Approx. 2,850
- Optimization of MITAC employee numbers

- 1.5-2 year delay
- Production of final test aircraft

- 2015
- 2016
- 2017
- 2018
- 2019
- 2020

- Feb 2017
- Apr 2017 (actual)
- Oct 2017 (target)
- Apr 2018 (target)

- 2015 actual
- 2016 actual
- 2017 forecast

- MRJ Division
- MITAC

- Apr 2017 (actual)
- Apr 2017 (target)
- Oct 2017 (target)
- Apr 2018 (target)

- 2015
- 2016
- 2017
- 2018
- 2019
- 2020

- Maintaining staff for mass production, by temporary re-allocation
- Approx. 2,850
- Optimization of MITAC employee numbers

- Feb 2017
- Apr 2017 (actual)
- Oct 2017 (target)
- Apr 2018 (target)
Reference 3: Investments relating to AREVA of France

- Investment into stable earnings businesses after separation of existing risks
- Creation and expansion of business opportunities through strengthening of strategic relationships with EDF and New AREVA

**Purpose of investment into NewCo**

- Reinforce collaboration with global leader (AREVA) in field of nuclear fuel cycle
  - Strengthen MHI’s response capability to reactor decommissioning and fuel cycle

**Purposes of investment into New ANP**

- Increase business opportunities, including ATMEA, through expanded collaboration with EDF
- Achieve stable profitability at New ANP
  - After-sale services and fuel cycle
  - Reactor-related engineering business (no EPC risk)
SONGS: San Onofre Nuclear Generating Station  SCE: Southern California Edison  SG: Steam Generator

Reference 4: SONGS arbitration

### Chronology from contract signing to passage of arbitration award

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>▼September 30: Contract signed</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>▼Unit No.2 delivery (January 7, 2009)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>▼Unit No.3 delivery (August 18, 2010)</td>
<td></td>
<td></td>
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<tr>
<td>▼January 31: Leak from SG tubing at Unit No.3</td>
<td></td>
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<tr>
<td>Meetings to discuss response measures, followed by construction of verification equipment, etc.</td>
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<td></td>
<td></td>
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<tr>
<td>▼June 7: Determination to decommission SONGS (Units No.2 and No.3)</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>▼July 18: Notification of dispute from SCE</td>
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<tr>
<td>▼October 17: Request by SCE for arbitration</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▼March 14: Arbitration awarded</td>
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</tr>
</tbody>
</table>

* SONGS comprises 3 units; MHI supplied SGs to Units No.2 and No.3. (The decision to decommission Unit No.1 was made in 1992.)

### Arbitration award

- Upper limit of responsibility stipulated in contract (approx. US$137 million) is valid.  
- MHI to pay approx. US$118 million, after adjustments for expenses already paid, interest, etc.  
- Rejection of SCE and other claimants’ allegation of fraud and gross negligence by MHI (award sought: US$6.667 billion)  
- SCE and other claimants to bear majority (approx. US$58 million) of MHI’s arbitration expenses  

As claimed by MHI
## Reference 5: AIDA Cruise Ship Construction Project

### Construction and gain/loss record

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1st ship</td>
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<td></td>
<td></td>
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<tr>
<td>Original</td>
<td>Basic design</td>
<td>Detailed design</td>
<td>Procurement</td>
<td>Launch</td>
<td>Hull construction</td>
<td>Interior work</td>
<td>Testing</td>
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<tr>
<td>Actual</td>
<td>Basic design</td>
<td>Detailed design</td>
<td>Procurement</td>
<td>Launch</td>
<td>Hull construction</td>
<td>Interior work</td>
<td>Testing</td>
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<tr>
<td>2nd ship</td>
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<tr>
<td>Original</td>
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<td>Detailed design</td>
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<td>Interior work</td>
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<tr>
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<td>Hull construction</td>
<td>Interior work</td>
<td>Testing</td>
<td></td>
</tr>
</tbody>
</table>

### Gain / Loss

- **Operating income**:
  - FY2011: -9.3 billion yen
  - FY2012: 6.0 billion yen
  - FY2013: -0.1 billion yen
  - FY2014: 0 billion yen
  - FY2015: 0 billion yen
  - FY2016: 0 billion yen
  - FY2017: 0 billion yen

- **Extraordinary loss**:
  - FY2015: -64.1 billion yen
  - FY2016: -69.5 billion yen
  - FY2017: -103.9 billion yen
  - FY2018: -34.3 billion yen

- **Cumulative to date**:
  - FY2011: -9.3 billion yen
  - FY2012: -3.3 billion yen
  - FY2013: -67.5 billion yen
  - FY2014: -136.0 billion yen
  - FY2015: -239.9 billion yen
  - FY2016: -274.2 billion yen

Finished except for normal warranty.
<table>
<thead>
<tr>
<th>Acquisition</th>
<th>Company</th>
<th>Product/Business</th>
<th>Agreement date</th>
<th>Net sales contribution</th>
<th>PMI Status and Results to Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Broach (USA)</td>
<td>Machine tools</td>
<td>Apr 2012</td>
<td>Approx. JPY 5bn</td>
<td>Business expansion and stabilization from lineup integration</td>
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</tr>
<tr>
<td>PWPS(USA), Turboden(Italy)</td>
<td>Gas turbines</td>
<td>Dec 2012</td>
<td>Approx. JPY 80bn</td>
<td>Business expansion from added lineup in small/medium GT</td>
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<tr>
<td>Daily Equipment (USA)</td>
<td>Forklift trucks</td>
<td>Jan 2012</td>
<td>Approx. JPY 1.5bn</td>
<td>Expansion of after-sale servicing business</td>
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<tr>
<td>Concant (India)</td>
<td>Metals machinery</td>
<td>Jun 2012</td>
<td>Approx. JPY 2.5bn</td>
<td>Strengthening of upstream product lineup</td>
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<td>Toyo Engineering Works</td>
<td>Refrigeration systems</td>
<td>Jan 2014</td>
<td>Approx. JPY 16bn</td>
<td>Strengthening of engineering business</td>
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<td>UniCarriers Holdings</td>
<td>Forklift trucks</td>
<td>Jul 2015</td>
<td>Approx. JPY 185bn</td>
<td>Further business scale growth and expanded global market share</td>
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<tr>
<td>PWPS: Pratt &amp; Whitney Power Systems</td>
<td>Gas turbines</td>
<td>Dec 2012</td>
<td>Approx. JPY 80bn</td>
<td>Business expansion from added lineup in small/medium GT</td>
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<td>Siemens (Germany)</td>
<td>Metals machinery</td>
<td>May 2014</td>
<td>Approx. JPY 150bn</td>
<td>Business expansion from full GT lineup (small to large), expansion of unique technologies</td>
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<td>IHI Metaltech</td>
<td>Metals machinery</td>
<td>Jul 2013</td>
<td>Approx. JPY 10bn</td>
<td>Strengthened lineups of aluminum rolling mills, etc.</td>
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<tr>
<td>Mahindra &amp; Mahindra (India)</td>
<td>Agricultural machinery</td>
<td>May 2015</td>
<td>(equity-based)</td>
<td>Stronger competitiveness in domestic and global markets</td>
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<td>Vestas (Denmark)</td>
<td>Wind turbines</td>
<td>Sep 2013</td>
<td>(equity-based)</td>
<td>Early achievement of strategic model (BMW) development and order receipt targets</td>
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<td>Ryobi</td>
<td>Commercial printing machinery</td>
<td>Jun 2013</td>
<td>(equity-based)</td>
<td>Business strengthening from product lineup and production integration</td>
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<tr>
<td>Fuji Xerox</td>
<td>Document-related</td>
<td>Oct 2013</td>
<td>-</td>
<td>Reductions in direct/indirect costs from standardization and effective document-related processes</td>
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<tr>
<td>Miyaji Engineering</td>
<td>Bridges</td>
<td>Nov 2014</td>
<td>(equity-based)</td>
<td>Market share expansion and enhanced market presence</td>
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<td>Japan Tunnel Systems</td>
<td>Tunneling shield machine</td>
<td>May 2015</td>
<td>(equity-based)</td>
<td>Assured capture of domestic demand and accelerate business expansion overseas</td>
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<tr>
<td>Fuji Oozx</td>
<td>Automobile engine valves</td>
<td>Jan 2016</td>
<td>(equity-based)</td>
<td>Expansion of product lineup and sales network, reductions in production costs</td>
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<tr>
<td>Ube Machinery</td>
<td>Injection molding machines</td>
<td>Jul 2016</td>
<td>-</td>
<td>Expansion of product lineup and sales network, reductions in production costs</td>
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<tr>
<td>NTT Data</td>
<td>Real estate</td>
<td>Oct 2016</td>
<td>(equity-based)</td>
<td>Boost corporate value through partnership with JR West</td>
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<td>HIDROMEK (Turkey)</td>
<td>Motor graders</td>
<td>Nov 2013</td>
<td>-</td>
<td>Promotion of business concentration into core competence</td>
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<td>Delta Electronics (Taiwan)</td>
<td>Lithium rechargeable batteries</td>
<td>Apr 2014</td>
<td>-</td>
<td>Promotion of business concentration into core competence</td>
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<td>Sumitomo Heavy Industries</td>
<td>Industrial cranes</td>
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<td>Michinori Holdings</td>
<td>Shonan Monorail</td>
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<tr>
<td>Tohmei Industries</td>
<td>Ship stabilizers</td>
<td>Mar 2016</td>
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<td>Promotion of business concentration into core competence</td>
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<table>
<thead>
<tr>
<th>JV</th>
<th>OI: Overseas Initiatives</th>
<th>PMI: Post Merger Integration</th>
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<tr>
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<td>Sluice gates</td>
<td>May 2016</td>
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<td>Hitachi</td>
<td>X-ray medical equipment</td>
<td>Aug 2016</td>
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<td>Promotion of business concentration into core competence</td>
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<td>Kobe Diesel</td>
<td>Marine diesel engines</td>
<td>Dec 2016</td>
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<td>Furuno Electric</td>
<td>ETC onboard devices</td>
<td>Jan 2017</td>
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<td>Withdrewal</td>
<td>Ecoux (Brazil)</td>
<td>Shipbuilding</td>
<td>Jan 2016</td>
<td>(equity-based)</td>
<td>Promotion of business concentration into core competence</td>
</tr>
</tbody>
</table>

PMI: Post Merger Integration  PWPS: Pratt & Whitney Power Systems

Reference 6: Acceleration of concentration into core competencies: M&A