

February 26, 2025 Investor Relations Corporate Strategy Division Tokyo Electron Limited

# IR Day Q&A - February 26, 2025

## Questions

- Q1 The final year of the Medium-term Management Plan (FY2027) is approaching. To achieve the net sales target of 3 trillion yen, how much contribution to sales do you expect from each of your main products? Also, the operating profit margin (OPM) for Q3 FY2025 was 30.5%. Based on the Medium-term Management Plan and the information presented on IR Day, please explain how much OPM can be improved through factors other than sales expansion, to achieve the medium-term OPM target of 35%.
- Q2 If you achieve the Medium-term Management Plan targets of net sales of 3 trillion yen and an OPM of 35% in FY2027, your operating profit will exceed 1 trillion yen. Then, I think your equity capital will increase, and you will not be able to reach the target of 30% ROE. I understand that you have been active on shareholder returns recently. With the achievement of the ROE target in mind, will you continue shareholder returns, including share buyback?
- Q3 When did you start considering the Smart Production concept for the new production building in Miyagi, and what is the economic impact you assume? Could you also explain your plans in expanding it to equipment other than etch?
- Q4 The Ultimate Wet Development technology seems to have excellent performance. Does it have any disadvantages compared to your competitors' technology? Could you also tell us about the evaluation status of major customers and when you expect to acquire PORs with this new technology?
- Q5 You mentioned the new cleaning system ZEXSTA<sup>™</sup> is required in the SiN removal process in 3D NAND. Will this product contribute to further market expansion and increased market share? When will ZEXSTA<sup>™</sup> be released to the market?
- Q6 You presented the performance improvement of etch process using square waves. The etch market has been attracting significant attention, as a competitor announced their new cryogenic tool. How is TEL's product differentiated from the competitor's?
- Q7 TEL has good etch technology and I have had high expectations for many years, but I feel that the gap in market share with competitors is not narrowing. I also hear that TEL is slow to bring prototypes to customer sites for evaluation. On the other hand, as in the recent case of the cryogenic etch, the pace of development seems to be faster than ever. Could you tell me what innovations and efforts you have made to increase your development speed over the past 10 years?
- Q8 You introduced a new product for plasma enhanced CVD (PECVD). Once you acquire PORs, we can expect it to make a significant contribution to your sales. What potential does it have, and what differentiates your tool from those of competitors?
- Q9 You have a low market share in ALD among major deposition segments. What challenges do you see? Also, many of the new products presented today are single wafer systems. Can we look forward to new products in the batch ALD area in the future?



- Q10 Considering the size of your sales, how much share do you expect to have in the bonding equipment market? Also, are you stronger in the frontend processes or in advanced packaging?
- Q11 Is the GPM of the backend equipment the same as that of the conventional equipment used in the frontend process?
- Q12 What is TEL's strength in bonding? You explained your technologies for warped wafers, distortion and so on. What has been highly valued by customers, and what will lead to an increase in market share?
- Q13 When will Ulucus<sup>™</sup> L (released at the end of CY2023) and Ulucus<sup>™</sup> LX (released at the end of CY2024) be adopted for mass production? Also, which applications are you targeting?
- Q14 What is the share of China in the WFE market in CY2025? US SPE manufacturers have said that export restrictions to China are affecting their earnings this year. Does TEL have any problems with shipments to China?



# ■ Q&A

- Q1 The final year of the Medium-term Management Plan (FY2027) is approaching. To achieve the net sales target of 3 trillion yen, how much contribution to sales do you expect from each of your main products? Also, the operating profit margin (OPM) for Q3 FY2025 was 30.5%. Based on the Medium-term Management Plan and the information presented on IR Day, please explain how much OPM can be improved through factors other than sales expansion, to achieve the medium-term OPM target of 35%.
- A1 As the Medium-term Management Plan has been progressing, we expect FY2025 sales to be around 2.4 trillion yen. For CY2026, which overlaps with FY2027, we explained our assumption of double-digit growth of WFE<sup>\*1</sup>. Given the current situation where we have been making steady progress in acquiring POR<sup>\*2</sup> and releasing new products, we believe we can achieve the Medium-term Management Plan target of 3 trillion yen in net sales. We also aim to achieve our target OPM of 35% through a dual approach of expanding sales and improving the gross profit margin (GPM) based on the higher value of our products and services. Regarding the contribution of products to revenue growth, etch will definitely be a major contributor. While keeping an eye on macroeconomic trends and other risks, we will continue our investment for future growth. Our Medium-term Management Plan is challenging. That is why it is worth achieving it, and we are progressing steadily toward the goal.

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- Q2 If you achieve the Medium-term Management Plan targets of net sales of 3 trillion yen and an OPM of 35% in FY2027, your operating profit will exceed 1 trillion yen. Then, I think your equity capital will increase, and you will not be able to reach the target of 30% ROE. I understand that you have been active on shareholder returns recently. With the achievement of the ROE target in mind, will you continue shareholder returns, including share buyback?
- A2 In FY2025, we conducted share buyback two times. We will flexibly implement share buybacks taking into account various factors, and we would like to achieve an ROE of 30% or more while appropriately conducting shareholder returns.



- Q3 When did you start considering the Smart Production concept for the new production building in Miyagi, and what is the economic impact you assume? Could you also explain your plans in expanding it to equipment other than etch?
- A3 When we introduced the automated warehouse in Miyagi plant, we were able to reduce labor hours, and efficiency was improved to a certain degree. After that, we started considering the Smart Production concept. By incorporating automation into manufacturing, assembly, and inspection processes, we can enhance productivity without increasing headcounts, similar to automated warehouse. As for economic impact, we expect cost reductions of more than 10 billion yen each year in and after 2030 for etch, where the market is expected to grow substantially. The higher the sales become, the greater the effect will be.

Regarding the expansion of Smart Production beyond etch, there is a high possibility that the concept can be applied to deposition because there are many similarities between etch and deposition, as it is also a dry process. We are working to standardize our equipment, along with the integration of the functions for the concept of Smart Production. On the other hand, coater/developers and cleaning systems use different production methods from dry equipment. The manufacturing processes for coater/developers and cleaning systems have been optimized to suit the method of manufacturing and shipping modules by partner companies and assembling the modules at the customers' plants. Therefore, we are not currently considering introducing the Smart Production concept as it is to them. However, we will promote DX regardless of plants and equipment.

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- Q4 The Ultimate Wet Development technology seems to have excellent performance. Does it have any disadvantages compared to your competitors' technology? Could you also tell us about the evaluation status of major customers and when you expect to acquire PORs with this new technology?
- A4 Ultimate Wet Development is expected to outperform competing technologies in performance. As Ultimate Wet Development is an extension of existing technology, it is highly compatible with existing coater/developers, and it has gained high trust and expectations from customers. Evaluation for mass production is also underway. Regarding the applicable nodes, some customers have already adopted it to D1b<sup>\*3</sup> DRAM for mass production. Evaluation for mass production is also underway for D1c<sup>\*3</sup> DRAM and beyond. It is also expected to support MOR<sup>\*4</sup> process. For logic, we plan to introduce this technology to 10A and after.

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- Q5 You mentioned the new cleaning system ZEXSTA<sup>™</sup> is required in the SiN removal process in 3D NAND. Will this product contribute to further market expansion and increased market share? When will ZEXSTA<sup>™</sup> be released to the market?
- A5 ZEXSTA<sup>™</sup> is expected to further contribute to the DRAM structural change from 2D to 3D, in addition to the SiN removal in 3D NAND. As the number of cleaning processes will increase in the future, we believe that ZEXSTA<sup>™</sup> will significantly expand its market share in a wide range of applications, from general cleaning to fine wet etch processes. As for the release timing, we have conducted customer evaluations for the product, and we believe ZEXSTA<sup>™</sup> will be adopted within one to two years at the earliest. We have been ahead in introducing a high-productivity batch tool and SPM<sup>\*5</sup> Vapor into the market, which we presented today. We aim to be No. 1 in the cleaning market.



- Q6 You presented the performance improvement of etch process using square waves. The etch market has been attracting significant attention, as a competitor announced their new cryogenic tool. How is TEL's product differentiated from the competitor's?
- A6 The crux of the technology lies in adjusting each parameter to be the most efficient combination; of gas supply, exhaust of byproducts, and transferring energy vertically. There are countless combinations of these parameters. We believe that competitors also use gas chemistry to improve their etch profile to meet their customers' needs. TEL differentiates by combining square wave and pulse parameters to meet customer's device structures.

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- Q7 TEL has good etch technology and I have had high expectations for many years, but I feel that the gap in market share with competitors is not narrowing. I also hear that TEL is slow to bring prototypes to customer sites for evaluation. On the other hand, as in the recent case of the cryogenic etch, the pace of development seems to be faster than ever. Could you tell me what innovations and efforts you have made to increase your development speed over the past 10 years?
- A7 It is essential to accurately understand customers' needs and provide timely responses at points of technological change, but we have sometimes failed to seize opportunities in the past. The technologies presented today are the result of continued investment in R&D over the last decade. The importance of engaging with customers from an early stage in anticipation of future technologies has been increasing. And this is a major counter action to the issue of delay in introducing prototypes for development evaluation to customers, as you pointed out. We are proud to say that we have gained technological competitiveness in conductor etch as well as dielectric etch. In the future, we will strive to surpass our competitors and obtain PORs.

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- Q8 You introduced a new product for plasma enhanced CVD (PECVD). Once you acquire PORs, we can expect it to make a significant contribution to your sales. What potential does it have, and what differentiates your tool from those of competitors?
- A8 Both PECVD and PVD markets are huge, and we plan to expand our SAM<sup>\*6</sup>. Since PECVD can be processed at lower temperatures, TEL can propose it for various applications. In addition to FEOL<sup>\*7</sup> applications such as contact spacers, we believe that metal gapfill for next-generation interconnect processes and airgap, which is an innovative technology to reduce parasitic capacity, can be realized with the chambers on the platform we presented today. Although it will take some time before it can contribute to sales from a business perspective, we will plant seeds well in advance with a mediumterm perspective.

- Q9 You have a low market share in ALD among major deposition segments. What challenges do you see? Also, many of the new products presented today are single wafer systems. Can we look forward to new products in the batch ALD area in the future?
- A9 TEL's ALD lineup includes batch ALD and space-divided semi-batch ALD. As semiconductor devices become more scaled, ALD is replacing some conventional CVD processes. In such cases, we expect to see an increase in processes that leverage the productivity benefits of batch deposition and high-temperature processes, which enhance film quality. By selecting right applications and providing the optimal products for them, we aim to raise our position in the ALD segment.



- Q10 Considering the size of your sales, how much share do you expect to have in the bonding equipment market? Also, are you stronger in the frontend processes or in advanced packaging?
- A10 According to internal estimations, TEL has over 20% share of TAM<sup>\*8</sup> for bonders. At this point, TEL is focusing on frontend processes. When the fusion bonding technology was first established, the frontend market was where we could most effectively grow. As for backend, we believe that the scope of application for advanced packaging, such as die level packaging, will expand in the next 5 to 10 years, and we will expand our business in line with the technological shift.

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- Q11 Is the GPM of the backend equipment the same as that of the conventional equipment used in the frontend process?
- A11 In the process of semiconductor evolution, advanced packaging will be a driver, along with the frontend. Advanced packaging is a technology that boosts the performance of semiconductors. Equipment that are used in these processes can significantly improve the performance of customers' devices, and therefore have high added value. Profit margins are similar to those of frontend equipment.

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- Q12 What is TEL's strength in bonding? You explained your technologies for warped wafers, distortion and so on. What has been highly valued by customers, and what will lead to an increase in market share?
- A12 Our strength is that we can provide high-value-added bonders that combines plasma technology and cleaning technology, with high cleanliness, which we have cultivated in the frontend processes. We have already delivered a lot of equipment for CMOS image sensors and HBM<sup>\*9</sup> and have mass production experience. Currently, we are receiving inquiries for 3D NAND, logic BSPDN<sup>\*10</sup>, and advanced packages as new applications.

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- Q13 When will Ulucus<sup>™</sup> L (released at the end of CY2023) and Ulucus<sup>™</sup> LX (released at the end of CY2024) be adopted for mass production? Also, which applications are you targeting?
- A13 We received PORs for bonders from customers first, and have promoted laser related products along with them. Laser related products include the Ulucus<sup>™</sup> L, the laser trimmer and the Ulucus<sup>™</sup> LX, the laser lift-off system, which customers select based on their device structures and purposes. Therefore, we are working on our evaluation and mass production activities, aligning with the customer's roadmap for introducing bonding mass production. Applications include advanced logic/foundry, 3D NAND, and DRAM, where customer engagement is progressing.



- Q14 What is the share of China in the WFE market in CY2025? US SPE manufacturers have said that export restrictions to China are affecting their earnings this year. Does TEL have any problems with shipments to China?
- The share of China in the WFE market in CY2025 is expected to be about 35%. We A14 assume that the share of China will decrease as investment in leading-edge areas outside China increases, and as new investment is held back by the newly emerging manufacturers in China to stabilize their mass production. Over the medium to long term, we expect it to remain at 30-35%.

Regarding export restrictions to China, we cannot deny the impact, but we will closely monitor the situation and take appropriate action.

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- \*1 WFE (Wafer Fab Equipment): The semiconductor production process is divided into frontend production, in which circuits are formed on wafers and inspected, and back-end production, in which wafers are cut into chips, assembled and inspected again. WFE refers to the production equipment used in front-end production and in wafer-level packaging production.
- \*2 POR (Process of Record): Certification of the adoption of equipment in customers' semiconductor production processes
- \*3 1b/1c: DRAM device nodes
- \*4 MOR (Metal Oxide Resist)
- \*5 SPM (Sulfuric Acid and Hydrogen Peroxide Mixture) \*6 SAM (Served Available Market)
- \*7 FEOL (Frond End Of Line): Processes to form transistors
- \*8 TAM (Total Available Market)
- \*9 HBM (High Bandwidth Memory)
- \*10 BSPDN (Backside Power Delivery Network): A structure with interconnects on the backside to supply power to transistors.

FY2025 refers to the financial year ending in March 2025.

FY2026 refers to the financial year ending in March 2026.

FY2027 refers to the financial year ending in March 2027.

The content above is a summary of the Q&A session. An audio recording synchronized with the slides is available here.