# FY2013 Financial Forecast and Management Policy

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# FY2012 Review





# **FY2012 Highlights**

- ► Enhanced our position in focused areas

  Etch 26% →33%, Cleaning 14%→16% (Source: Gartner)
- ► R&D expenses for future growth: ¥81.5bn
- ► Medium to long term strategic investment: ¥39.5bn

  Miyagi new plant, Kunshan plant (China)

  TEL Technology Center Tsukuba, TEL Technology Center Korea
- Announced two acquisitions\* in growth areas
  Oerlikon Solar (Switzerland), NEXX Systems (US)

<sup>\*</sup> Oerlikon Solar (acquisition contract signed March 2), NEXX Systems (signed March 16), as of April 27 neither deal has closed.





#### **FY2012 New Products**

- ► High productivity models for finer design rules
  - ◆ Single wafer cleaning system CELLESTA<sup>™</sup> -i
  - ◆ Auto wet station EXPEDIUS™ -i
  - ◆ Scrubber system NS300+ HT
  - Coater/developer CLEAN TRACK™ LITHIUS Pro™ Z



- New products for 3DI chip stack technologies
  - ◆ Deep Si etcher for TSV Tactras<sup>™</sup> FAVIAS
  - ◆ Dielectric liner deposition TELINDY PLUS™ VDP
  - ♦ Wafer bonder, de-bonder Synapse<sup>™</sup> series



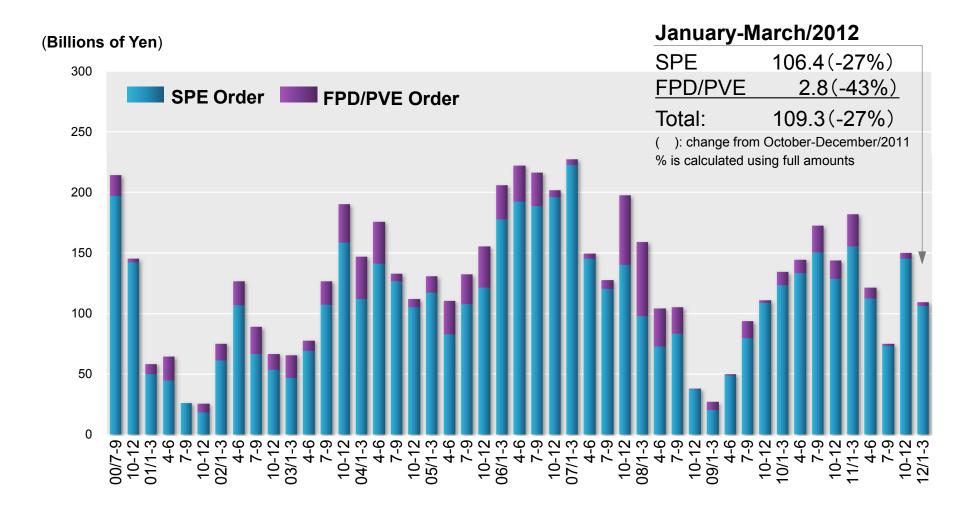


# **Business Environment**

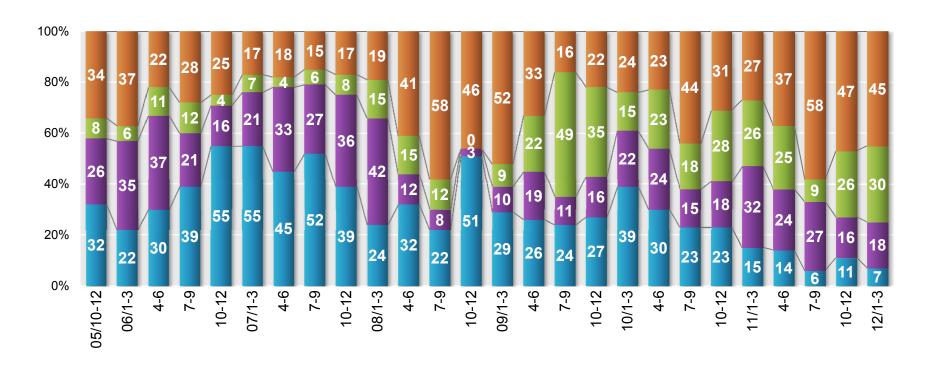




# **Quarterly Orders**



# SPE Orders by Application: Equipment only



Logic & others (MPU, System LSI, Others)

Logic foundry

Flash

DRAM

# **Business Environment (as of April 2012)**

#### ► SPE capex

Memory demand still weak, recovery of overall chip market is delayed, 2012 capex expected to be slightly below 2011. However, expected investment by logic foundries due to uptake of cutting-edge 32/28nm process for mobile devices might provide some upside.

#### ► FPD capex

Sluggish market due to over-supply of panels, large decline expected in 2012. However small/medium-sized panel equipment demand and growth in emerging nations TV markets expected to lead to growth in equipment market in 2013.

### ► PV capex

Continued growth expected in medium/long-term, but due to overcapacity and resulting price declines, capex expected to remain sluggish.



# FY2013 Financial Estimates





#### **FY2013 Financial Estimates**

(Billions of Yen)

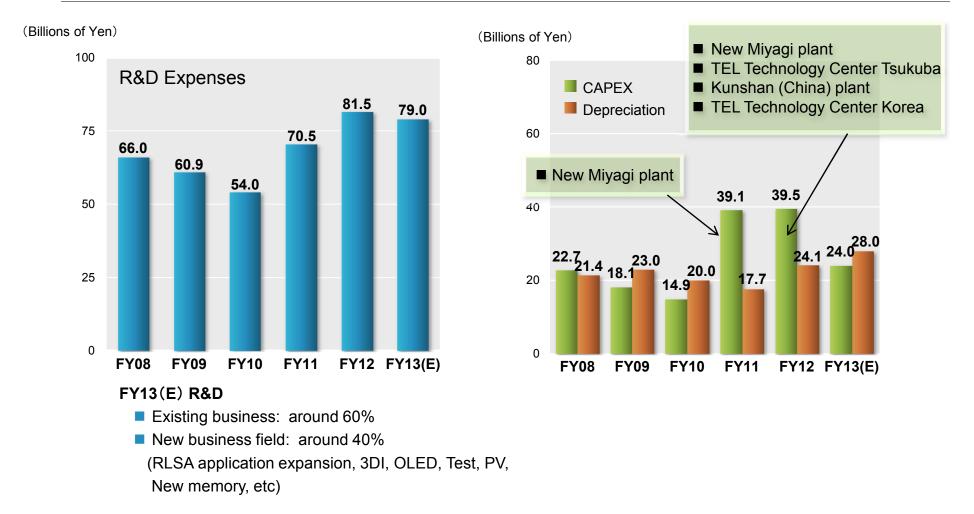
	EV0040	FY2013 (E)			
	FY2012	1 <sup>st</sup> half	2 <sup>nd</sup> half	Full year	YoY change
Net sales	633.0	275.0	315.0	590.0	-7%
SPE	477.8	223.0	251.0	474.0	-1%
FPD/PVE	69.8	9.0	11.0	20.0	-71%
EC/CN	84.8	43.0	53.0	96.0	+13%
Others	0.4	-	-	-	-
Operating income	60.4 9.5%	12.5 4.5%	34.5 11.0%	<b>47.0</b> 8.0%	-13.4 -1.5pts
Income before income taxes	60.6	12.5	35.5	48.0	-12.6
Net income	36.7	7.4	22.6	30.0	-6.7
EPS (Yen)	205.0	41.3	126.1	167.4	-37.6

<sup>1.</sup> SPE: Semiconductor Production Equipment, FPD/PVE: Flat Panel Display and Photovoltaic Cell Production Equipment, EC/CN: Electronic Components and Computer Networks

### Recovery in sales and profits expected from second half

<sup>2</sup> YoY changes and profit ratios are calculated using full amounts, before rounding.

## **R&D Expenses and CAPEX**



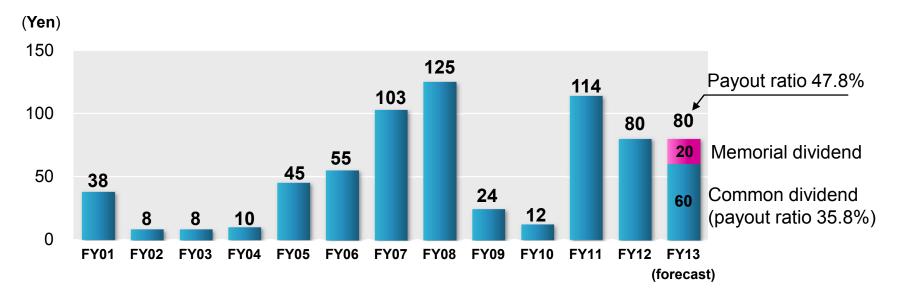
Maintain high R&D spending, get capex back to normal level



#### **FY2013 Dividend Forecast**

Dividend per share (E)					
Interim	Year-end	Year total			
¥25	¥55	¥80			

20 yen memorial dividend of 50<sup>th</sup> anniversary is included above (interim 10, year-end 10).



#### Plan memorial dividend in addition to common dividend

\*Changed dividend payout ratio from around 20% to around 35% from FY11 year end dividend.

**5**<sup>©</sup> Years

# **Business Strategies**





# **SPE Business: Key Issues**

- Strengthen core areas
- Expand business opportunities by using in-house technologies
- Enhance development with leading customers from upper streams
- Strengthen high growth areas: Packaging and 3DI
- Focus on achieving volume production technology of promising next generation devices (STT-MRAM)



## **Strengthen Core Areas**

#### **Etching system**

#### Fiscal 2012 achievement

- Share up from 26% to 33% (Source: Gartner)
  - Oxide etch: Further expand in memory High Aspect Ratio Contact (HARC) process and logic BEOL interconnect formation process
  - > Poly Etch: Increase in gate formation related process for logic

#### Fiscal 2013 key issues

- Unify development and production at new Miyagi plant, use new production method to double development speed, halve production lead time
- Expand share in Poly Etch market with RLSA™ Etch

#### Growth strategy

Develop technologies for Fin-FET, 3D-NAND and next generation memory



Tactras™ RLSA™ Etch

RLSA: Radial Line Slot Antenna

## **Strengthen Core Areas**

#### **Cleaning system**

#### Fiscal 2012 achievement

- Share: Up from 14% to 16% (Source: Gartner)
  - Increase single wafer cleaning position at major logic makers
  - Expand dry cleaning system share at major memory/logic makers

#### ► Fiscal 2013 key issues

- Expand single wafer cleaning system share by introducing new product CELLESTA™-i (announced July 2011)
- Expand use of Certas in dry cleaning processes



CELLESTATM -i

# **Expand Business Opportunities by using in-house Technology**

#### Thermal processing system

- Expand sales of new product NT333 (Taking orders from Oct. 2012)
  - ➤ High quality, high productivity ALD equipment with targeting SiO2 film formation
  - Target markets: 1Xnm generation, 3D NAND, next generation memory
  - Steadily expand applications in single wafer deposition market



NT333

#### Single wafer deposition system

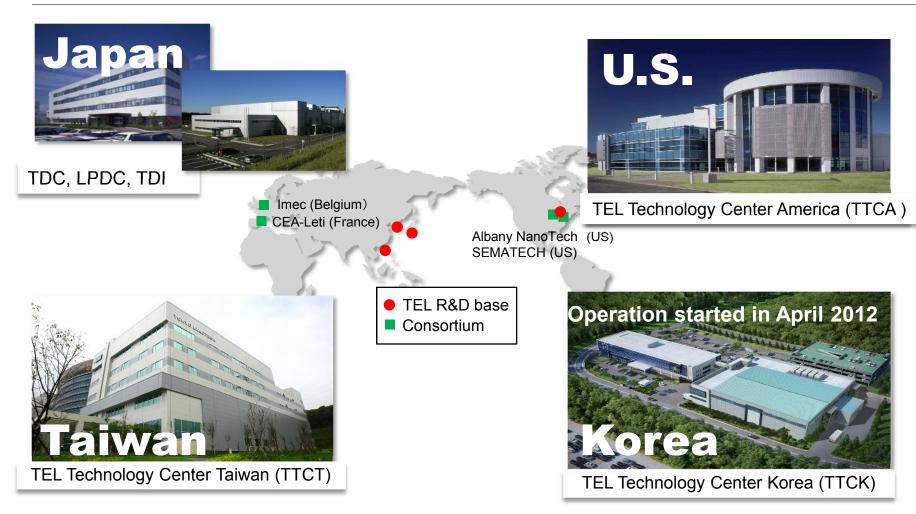
- Develop new metal deposition products
- Expand sales of new products launched in gate formation related process High-k CVD, SPAi Bais (plasma oxidation/nitridation tool)

#### **Coater/Developer**

- Accelerate cutting-edge lithography R&D
  - ➤ EUV\*1: Collaboration with imec, SEMATEC
  - ➤ DSA\*2: Collaboration with imec, Wisconsin University
  - ➤ EB\*3: Participate in CEA-Leti imagine program consortium
- \*1 Extreme Ultra-Violet
- \*2 Direct Self Assembly
- \*3 Electron Beam

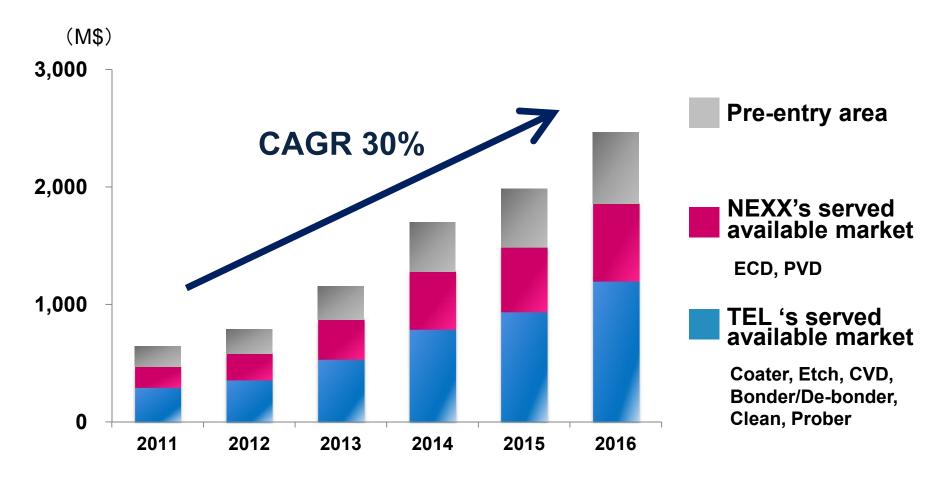


# **Enhance Development with Customers from Upper Streams**



R&D closely linked to customers allows rapid response

## **Equipment Market for Wafer Level Packaging (WLP)**



CAGR 30% in the WLP equipment market including for TSV

(Source: TEL estimate based on Yole's data)



# Acquisition of U.S. NEXX Systems\*

Contract date: March 15, 2012

Purchase cost: approx. \$206M (¥17.0B) Planned closing of acquisition: May 2012



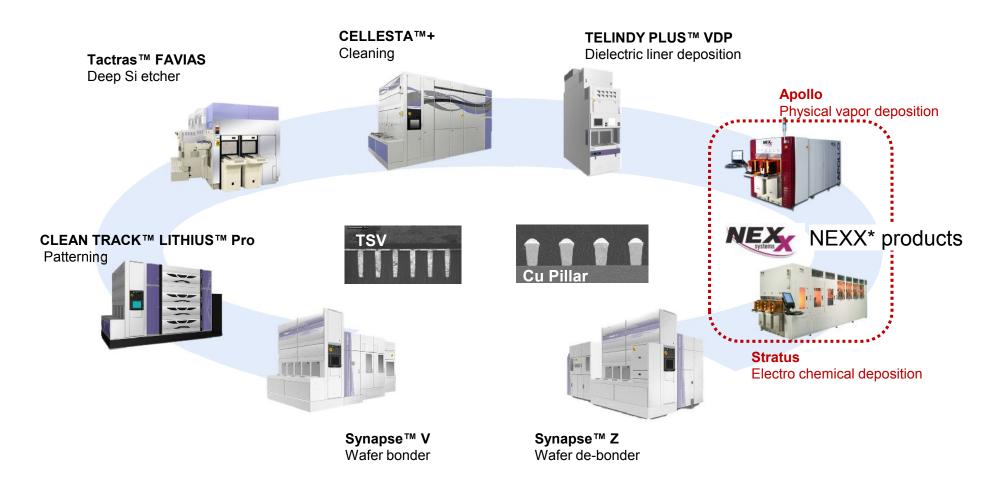
- Deposition tools for Wafer Label Packaging (WLP)
   Electrochemical Deposition (ECD), Sputter (PVD)
- ♦ High growth expected in WLP tool market CAGR 30%, \$2.5B market by 2015
- Has sold 142 units to over 40 customers, including major customers
- Differentiated technologies (high-productivity tool)

Excellent track record as a leading company in the WLP market

\*Based in Billerica, Massachusetts, U.S., \$76.5M in sales as of December 2011



# **TEL Products in Advanced Packaging Area**



# Strengthen product line-up in wafer level packaging market

\*NEXX Systems acquisition expected to complete in May 2012

**5**<sup>©</sup> Years

# Using STT-MRAM to Overcome Issues with Existing Devices

#### DRAM issues

- 1. Limits to large capacity
- 2. Volatile memory
- 3. Difficult to achieve low energy consumption

#### LOGIC issues

Limits to cache memory

Large surface area needed, in standby mode requires energy source

#### Issues overcome by STT-MRAM

Overcoming limits by magnetic storage method

Miniaturization possible due to small capacitor surface area

Non-volatile memory

Due to magnetic storage method

Low energy consumption possible

Due to non-volatile memory

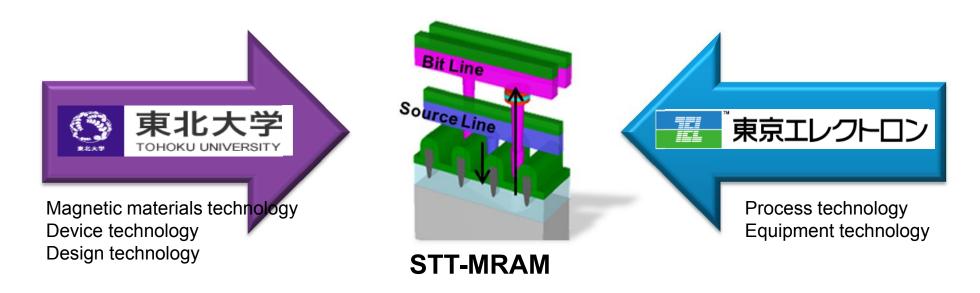
Reduced chip size and low energy consumption possible

Due to low cell area and non-volatile

STT-MRAM is a strong candidate for next-generation devices



# Joint Development of STT-MRAM with Tohoku University



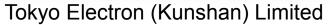
- Joint development of integration technology and production technology
- Establish volume production technology and production process technology by combining each parties technology

Accelerate development aiming to rapidly attain volume production capability

#### **Initiatives in FPD Business**

- Launching high-performance and high-productivity dry-etch system for hi-resolution mobile panels and OLED TFT backplanes
- Improving cost-competitiveness of coater/developer
- Reduce costs and increase customer responsiveness at Kunshan plant in China
- Reallocation of resources for OLED equipment development







Location: Kunshan, Jiangsu, China

Floor area: 28,246m<sup>2</sup>

# **Entry to OLED Equipment Market**

Two types of deposition equipment to form light emission layer

# Evaporation method (TEL original technology)

- High precision deposition control
- Highly efficient usage of organic materials
- High productivity of in-line method
- Space-saving design

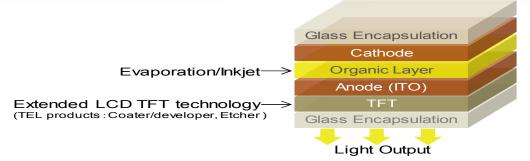
White OLED + color filter

# Inkjet method

(JD with Seiko Epson)

- Next generation printing technology
- Minimize use of organic materials
- RGB coating by single application
- High scalability to large substrate

**RGB OLED** 



Customer evaluation begins in 2012, target large size panel production equipment market (from 2013)



## **Approach to PV business**



#### Advantages of thin film silicon PV

- Low materials cost in panel production and simple production process
   Low production cost
- High generating capacity in high temperature environment and unfavorable daylight regions
   High electricity generation
- Short energy payback time
- ◆ Toxic/rare materials not required

Major medium/long term growth opportunity in thin film PV

# **Acquisition of Oerlikon Solar\***

Contract date: March 2, 2012

Purchase cost: CHF250M (¥22.5B)

Planned closing of acquisition: June/July 2012



- Thin-film silicon technology, end-to-end solution
- Low-cost power generation technology
- Technology for large-scale power plant with high power output
- Global top-class R&D capability
  - > Renewing world class record of conversion rate in thin film Si every year
  - Technology base from Neuchatel University, Switzerland

### Aiming at production cost under €0.35/Wp, power generation cost under \$0.08/kWh

\*Based in Trubbach, Switzerland, CHF323M in sales as of December 2011

<sup>\*</sup>Tokyo Electron has acted as Oerlikon Solar's Asia/Oceania sales representative since 2009



# **TEL Technology Center Tsukuba**

- PV Business
  - Process development and evaluation in thin-film silicon PV technology
  - Introducing Oerlikon Solar equipment for use in R&D
- SPE Business:
  - R&D for new base technology and core technology



Location: Tsukuba City, Ibaraki Prefecture

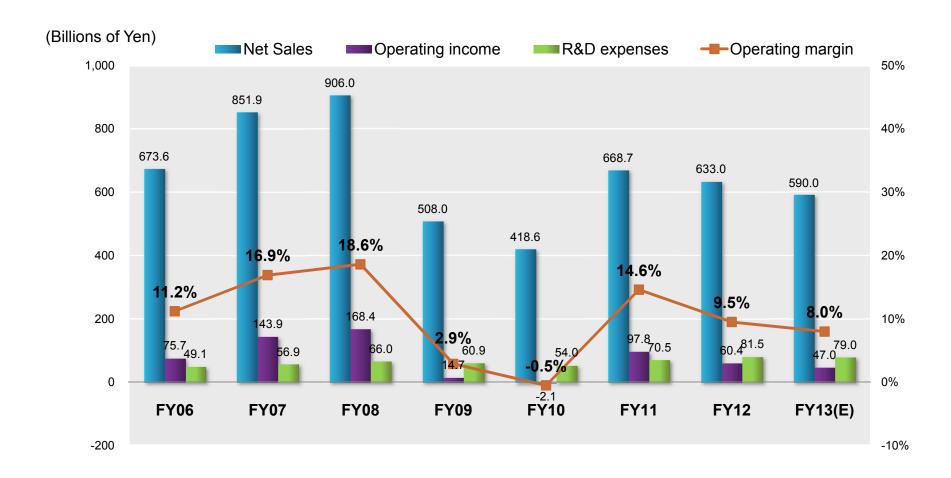
Floor area: 13.234m<sup>2</sup>

Staff: approx.: 110 (1st year)

Expected benefits

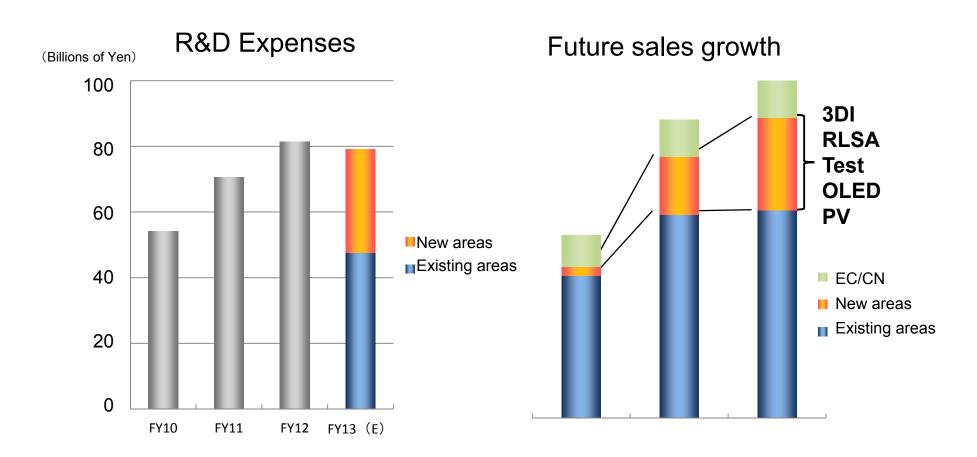
- > Organic cooperation with research institutes and universities
- > Recruit top class engineers

#### **Consolidated Financial Outlook**



From FY11, maintain active investment for mid/long-term growth

# For Achieving Medium/Long-term Growth



Aiming for medium/long-term growth through active investment in new areas



#### ▶ Disclaimer regarding forward-looking statement

Forecast of TEL's performance and future prospects and other sort of information published are made based on information available at the time of publication. Actual performance and results may differ significantly from the forecast described here due to changes in various external and internal factors, including the economic situation, semiconductor/FPD/PV market conditions, intensification of sales competition, safety and product quality management, and intellectual property-related risks.

#### Processing of numbers

For the amount listed, because fractions are rounded down, there may be the cases where the total for certain account titles does not correspond to the sum of the respective figures for account titles. Percentages are calculated using full amounts, before rounding.

#### ► Exchange Risk

In principle, export sales of Tokyo Electron's mainstay semiconductor and FPD/PV cell production equipment are denominated in yen. While some settlements are denominated in dollars, exchange risk is hedged as forward exchange contracts are made individually at the time of booking. Accordingly, the effect of exchange rates on profits is negligible.

FPD/PV: Flat panel display/Photovoltaic



**5**<sup>©</sup> Years