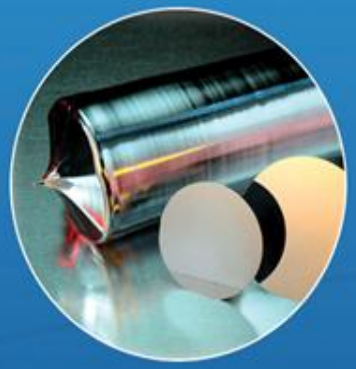


Goldman Sachs Green Energy Day

Singapore & Hong Kong

January 26th – 27th, 2016

Legal Disclaimer

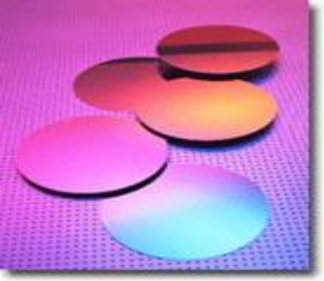
This document is for informational purposes only and is not an offer to buy or the solicitation of an offer to sell any securities.

SAS's statements that are not historical facts are forward-looking statements that indicate actions or results of actions that may occur in the future, based on current available information and underlying assumptions.

SAS does not warranty their accuracy, reliability and completeness. There are a number of factors such as economic conditions, firms abilities, industry environment that could cause actual results and developments to differ materially from those expressed or implied by forward looking statements. Investors should not place undue reliance on them.

Solar Business Sector

Sino-American Silicon Products Inc.

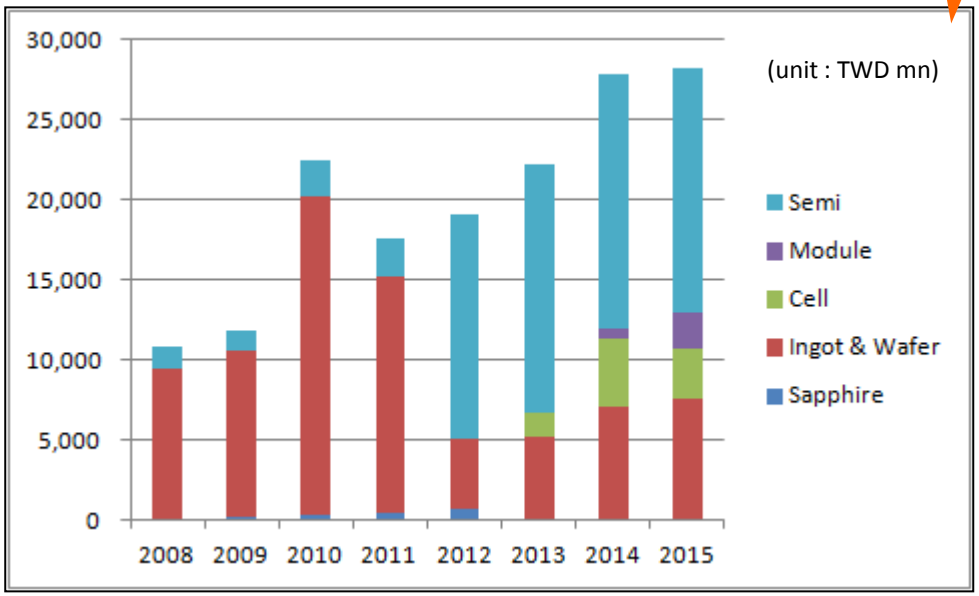


SAS Company Profile

- **Established** : 1981
- **Paid-in Capital** : TWD 5,800mn
- **Employees** : 4,633 (2016/01)
- **Headquarter** : Hsinchu Science Park, Taiwan R.O.C.
- **Products** : Solar Wafer / Cell / Module / Power Plant
  Semiconductor Wafer (3”~12”)
- **Revenue** : *2015 Jan~ Dec TWD 28,283 mn*

~ all-time high ~

2014 2015



SAS Milestones

1981 Sino-American Silicon Products Inc. established

……

1999 SST established in China

2000 Enter Solar Ingot / Wafer Business

2001 SAS IPO in Taiwan (5483 TT)

2008 Acquired GlobiTech Incorporated, TX, USA

2011 Company spin off – SAS / GWC / SSC

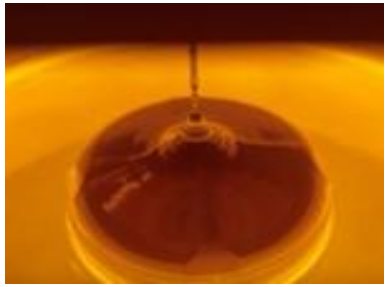
2012 Acquired Covalent Silicon, Japan

2014 Acquired ALEO module fab of Bosch group, Germany

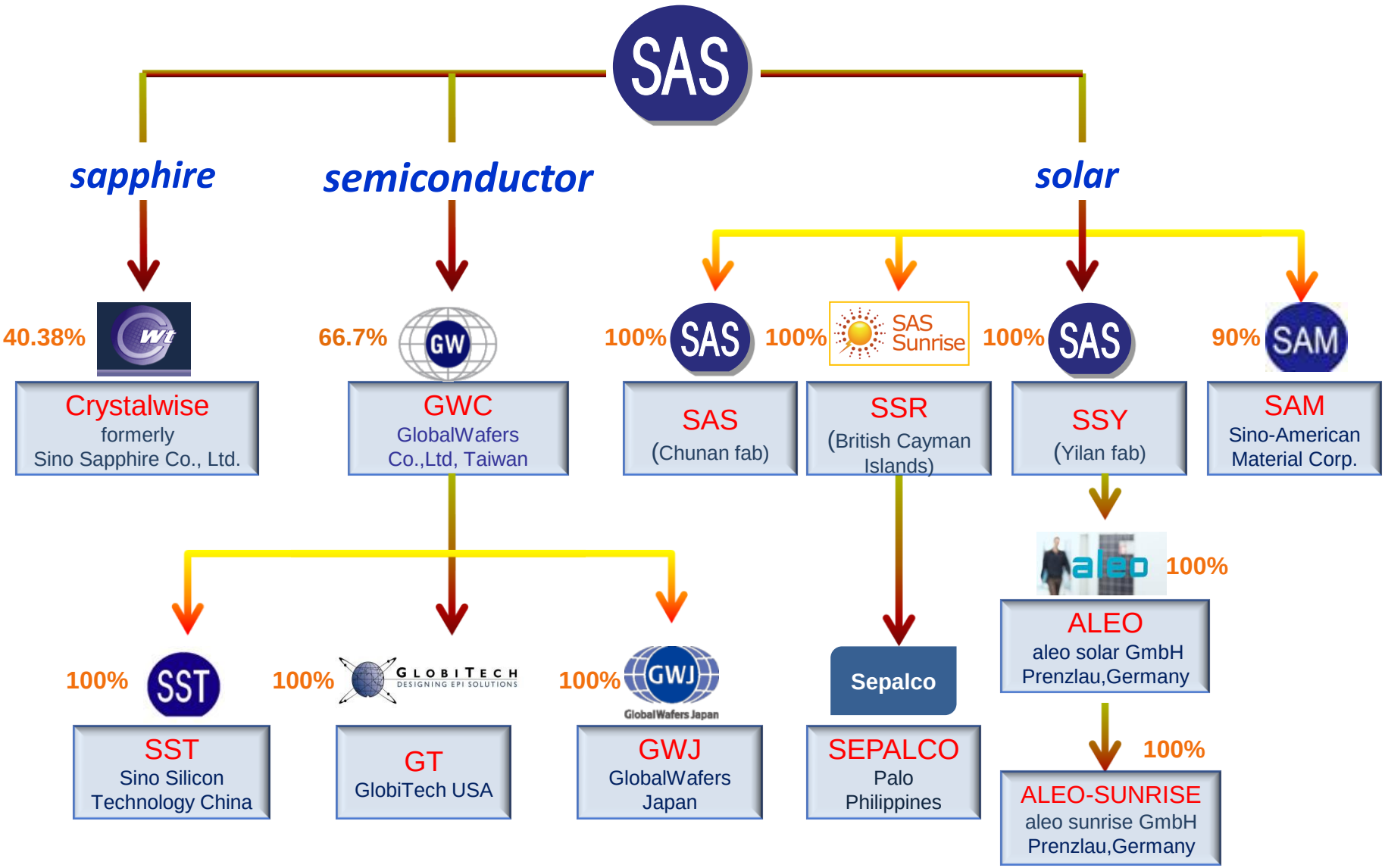
Merged Sunrise Global Solar Energy Co., Ltd. Taiwan

2015 SAS Sunrise Inc. (SSR) established for Solar Power Plant, Project Palo ground breaking

2015 GWC IPO in Taiwan (6488 TT)



Organization Structure



SAS Group (Solar)

Europe

ALEO (Germany)

SAS HQ Hsinchu

Taiwan

SAS Yilan (Fab 3)

Philippines

SSR (Sepalco PJ)

SAS Chunan (Fab1 & Fab-2)

Taiwan

SAS Consolidated Financial Statements

TWD mn	2013	%	2014	%	9M-2015	%
Revenue	22,215	100	27,821	100	21,270	100
Gross Margin	2,439	11	3,498	13	3,253	15
Operation Income	629	3	1,447	5	1,782	8
PBT	128	-	1,925	7	1,659	8
PAT	295	1	1,128	4	496	2
Total Debt & Debt ratio	19,088	48	19,304	47	16,146	36
ROE (%)	1.62		6.16		4.61	
EPS	0.57		2.06		0.86	

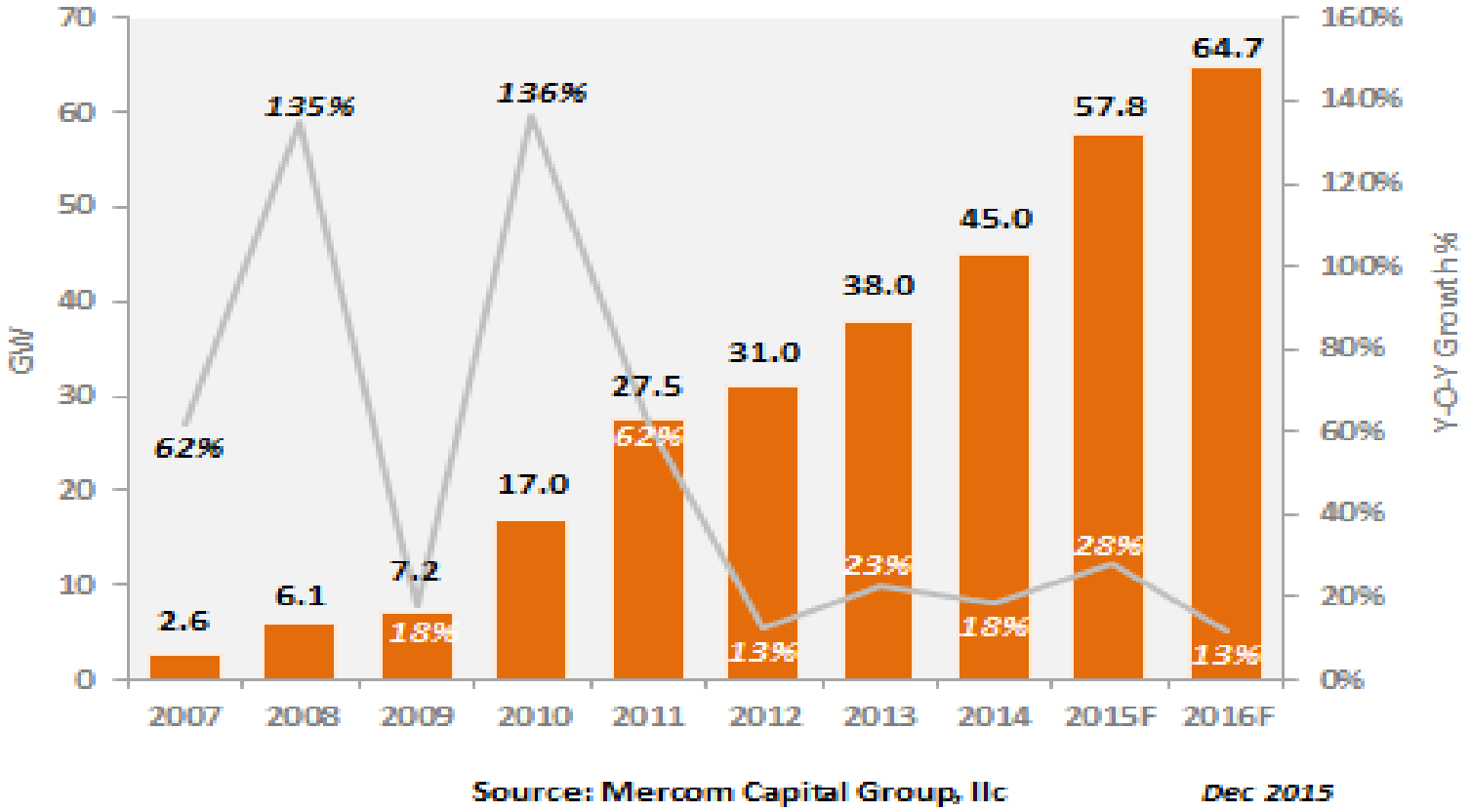
*ROE: annualized rate

SAS – Solar Financial Statements

TWD mn	2013	%	2014	%	9M-2015	%
Revenue	6,662	100	11,917	100	9,479	100
Gross Margin	(1,226)	(18)	(233)	(2)	59	1
Operation Income	(1,583)	(24)	(906)	(8)	(378)	(4)
PBT	149	2	1,287	11	628	7
PAT	295	4	1,128	9	496	5
Total Debt & Debt ratio	11,467	36	11,193	35	9,185	29
ROE (%)	1.51		5.66		3.02	
EPS	0.57		2.06		0.86	

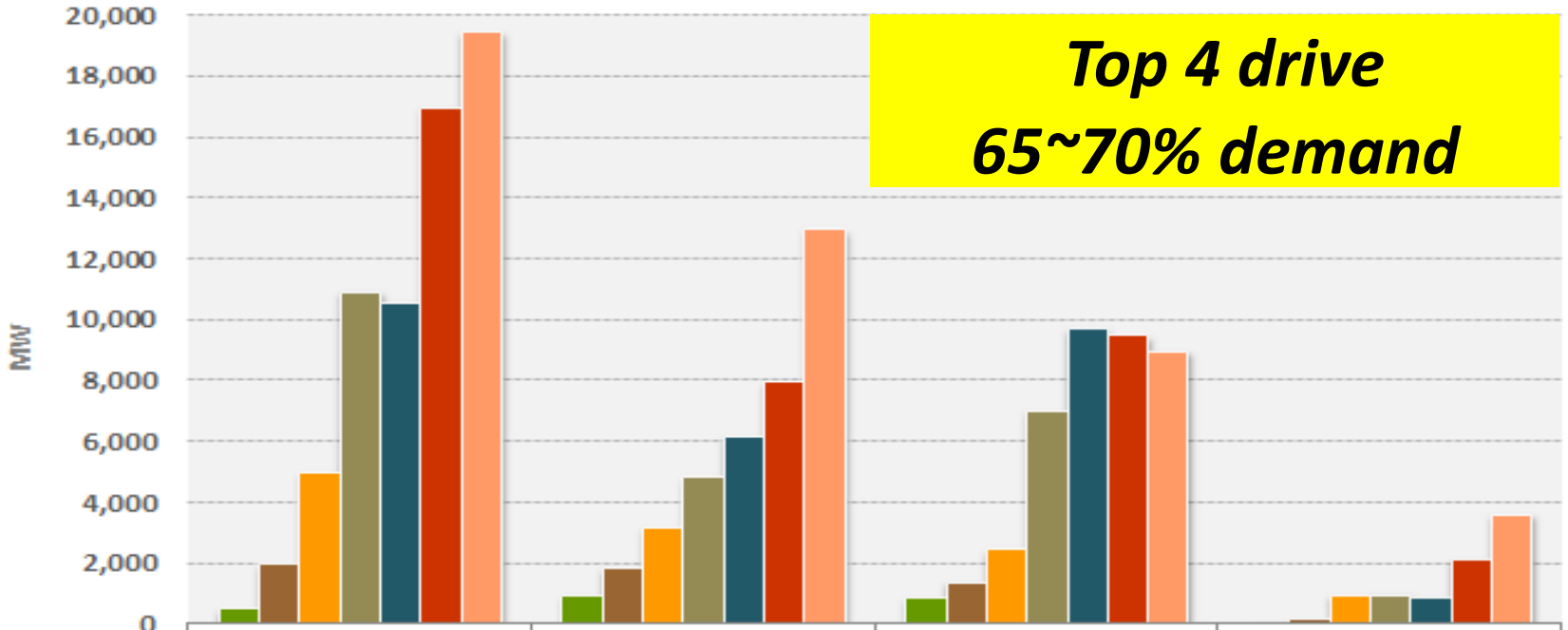
*ROE: annualized rate

Global Solar Market Forecast



Sustainable Growth in the past & future

Top Solar Market in 2016



	China	US	Japan	India
2010	520	961	893	12
2011	2,000	1,855	1,404	172
2012	5,000	3,192	2,467	986
2013	10,950	4,840	7,042	1,004
2014	10,600	6,200	9,740	883
2015F	17,000	8,000	9,500	2,154
2016F	19,500	13,000	9,000	3,645

Source: Mercom Capital Group, llc

Dec 2015

SAS Solar Manufacturing Site

(unit: MW)

	Company	Products	2015	2016	Location
SAS	SAS	Wafer	1,000	1,200	Taiwan
	SAS	Cell	800	800	Taiwan
	Aleo-Sunrise		0	200	Germany
	aleo	Module	340	340	
	SAS Sunrise	Solar Farm	0	50+	Philippines
	SAM	EVA	40	90	Taiwan

(as of Jan 2016)

Presence along the solar value chain

SAS | SAS | aleo | SAS Sunrise

Silicon	Ingot	Wafer	Cell	Module	D2D / Sales	Project Development	Project Investment	Yield Co.
								
• DSS Technology • High Eff.	• High Eff. Multi-wafer • Robust wafer (R-Wafer)	• High Eff. cell Celco • next generation Celco	• Premium segment Made in Germany • >300W output • High Eff. module	• Direct to dealer • More than 2,100 customers worldwide	• Feasibility study • Site selection • Energy Yield Prediction • Permits& Licensing	• Insurance • Legal & Technical • Due Diligence • Economic and Financial Modeling • Plant Design • Construction • Commissioning • Operations & Maintenance	• Portfolios Management • Stable Performance • Long Term Investment Return • Risk Control	

SAS dedicate to provide the PV Total Solutions with Competitive LCOE and WACC.

能源計算器的平準化成本Levelized cost of electricity (LCOE) 加權平均資本成本(Weighted Average Cost of Capital，WACC)

SAS Sunrise Inc. (SSR)

- Company name: SAS Sunrise Inc. (SSR)
- Established : Jun 2015
- Business scope : Solar Power Plant

- Project Palo (Sepalco)
  - . Location : Palo Philippines
  - . Capacity : 50MW
  - . Groundbreaking on 3 July 2015
  - . Commercial operation in Q1/'16
  - . Output 71M(KWH) per year
  - . 20 years contract with Philippines government
  - . To use mainly ALEO high conversion-efficiency mono module

- Next Project :

Solar cell tariff to US market

※ US Commerce 1st final tariff & 2nd preliminary tariff (July, Dec 2015 & Jan 2016)

表、中美2012太陽能雙反重審稅率比較表

中美2012太陽能雙反第一次重審稅率終判 (2015/7月)

公司名稱	反補貼	反傾銷	合併稅率
英利	20.94%	0.79%	21.73%
比亞迪	15.43%	9.67%	25.10%
天合光能 阿特斯 晶科 昱輝 其他配合廠商	20.94%	9.67%	30.61%
光為	23.28%	9.67%	32.95%
無錫尚德	20.94%	33.08%	54.02%
其他中國廠商	20.94%	238.95%	259.89%

*英利旗下的Yingli Green Energy Holding 及 Yingli Green Energy International Trading的稅率不同於英利，稅率為20.94%+9.67%=32.95%

中美2012太陽能雙反第二次重審稅率初判 (2015/12月)

公司名稱	反補貼(E)	反傾銷	合併稅率(E)
比亞迪	15.43%	7.27%	22.70%
天合光能	20.94%	4.53%	25.47%
阿特斯 晶澳 無錫尚德 其他配合廠商	20.94%	7.27%	28.21%
光為	23.28%	7.27%	30.55%
英利	20.94%	11.47%	32.41%
其他中國廠商	20.94%	238.95%	259.89%

*本次反補貼稅率為EnergyTrend先以持平做預估，實際稅率仍以後續美國商務部公佈為準。

Source: EnergyTrend, Dec., 2015

中美2012太陽能雙反第二次重審稅率初判 (2016/1月)

公司名稱	反補貼	反傾銷	合併稅率
天合光能	19.62%	4.53%	24.15%
晶澳 無錫尚德	19.62%	7.27%	26.89%

Source: Collected by EnergyTrend

Date: 2016.01.08

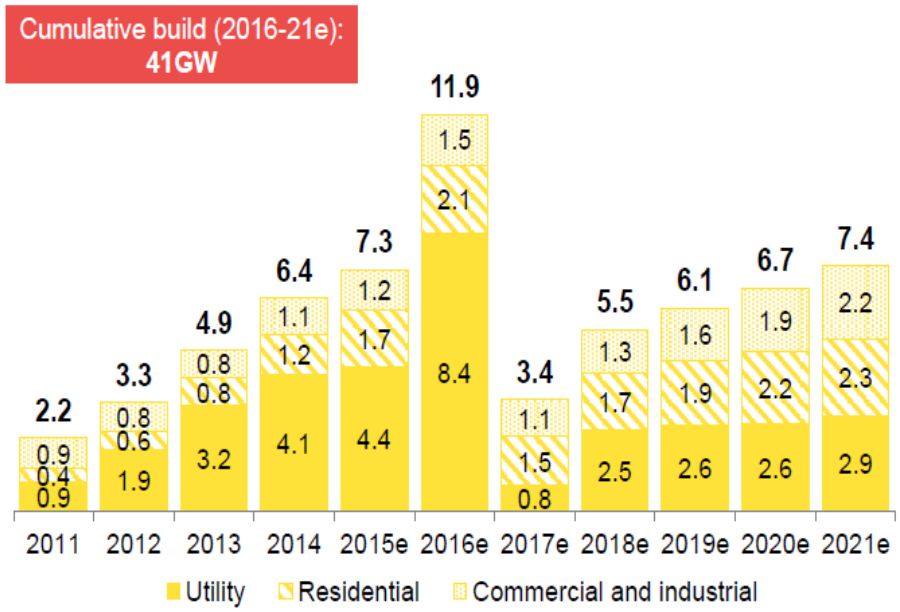
◆ **Taiwan:** anti-dumping only
ave. 19.5%(1st final)

◆ **China:** anti-dumping/subsidy
ave. 31%(1st final)
ave. 24~26%(2nd preliminary)

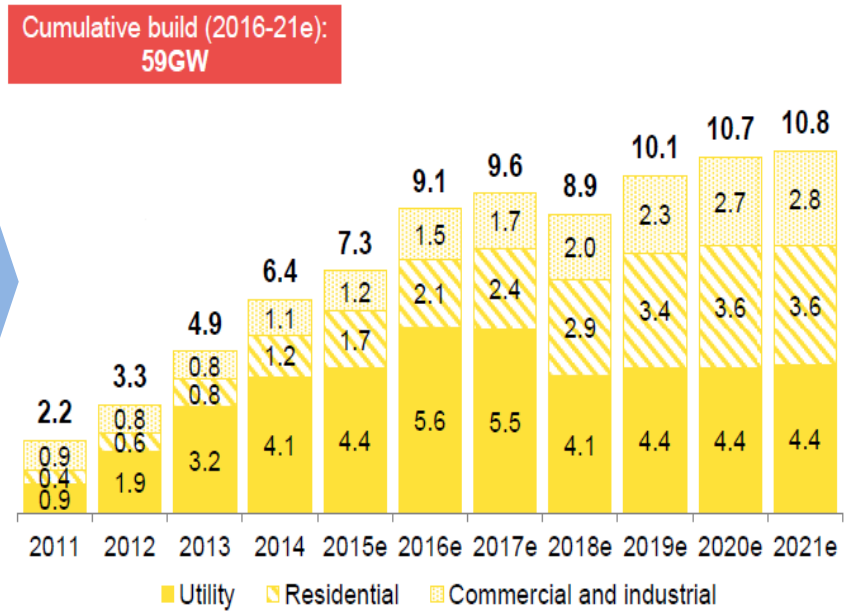
US policy of reducing import tax tariff continuously will surely accelerate solar installation boom in 2016 & onward

Impact of Tax Credit Extension (US)

before 5 years Tax Credit extension



with 5 years Tax Credit extension



Source: Bloomberg New Energy Finance 2015/12

Extra 20~25 GW solar installation till 2021

EU Anti-Circumvention investigation result

※ EU Commission announced investigation result (22 Dec 2015)

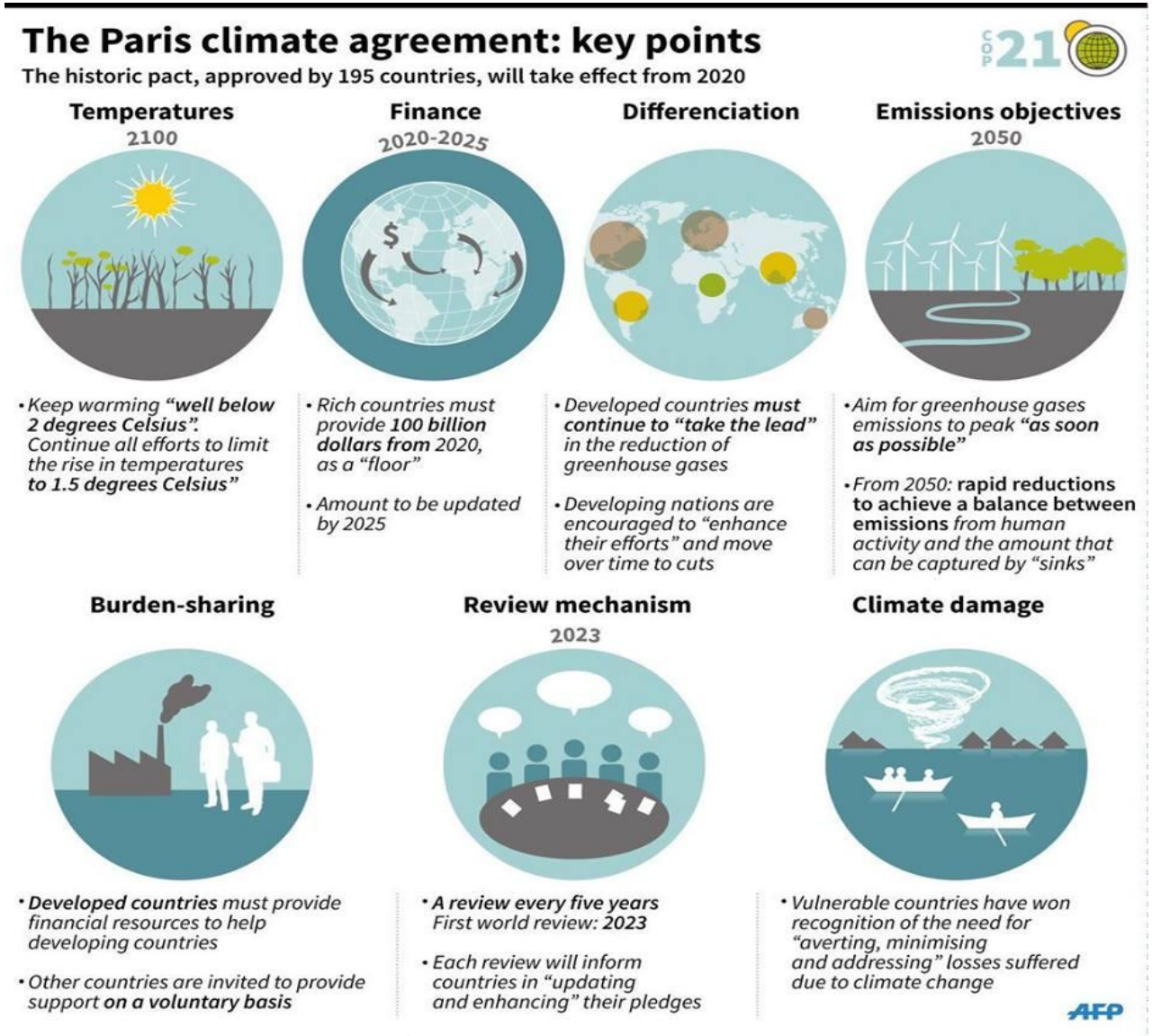
◆ Including SAS, total 21 Taiwan-based solar cell, module makers, plus 5 Malaysia-based makers have passed EU anti-circumvention investigation.

➔ ZERO tariff

(Exempted from EU anti-dumping tariffs of 53.4% and anti-subsidization tariffs of 11.5%)

EU anti-circumvention exempted list			
Taiwan			Malaysia
安集科技 ANJI Technology	英懋達 Inventec Energy	銶德 Ritek	友達 AUO
友達 AUO	英穩達 Inventec Solar	**中美矽晶 Sino-American Silicon**	偉創力 Flextronics
太陽光電 Big Sun Energy	樂福LOF	昇陽光電 Solartech	韓華Q Cell
長生太陽能 EEPV	明徽 Ming Hwei	光陽Sunengine Corporation	松下Panasonic
益通 E-TON	茂迪 Motech	聯景 Topcell	TS Solartech
昱晶 Gintech	新日光 NEO Solar	元晶 TSEC	
同昱 Gintung	全能 Perfect source	有成 Win Win Precision	

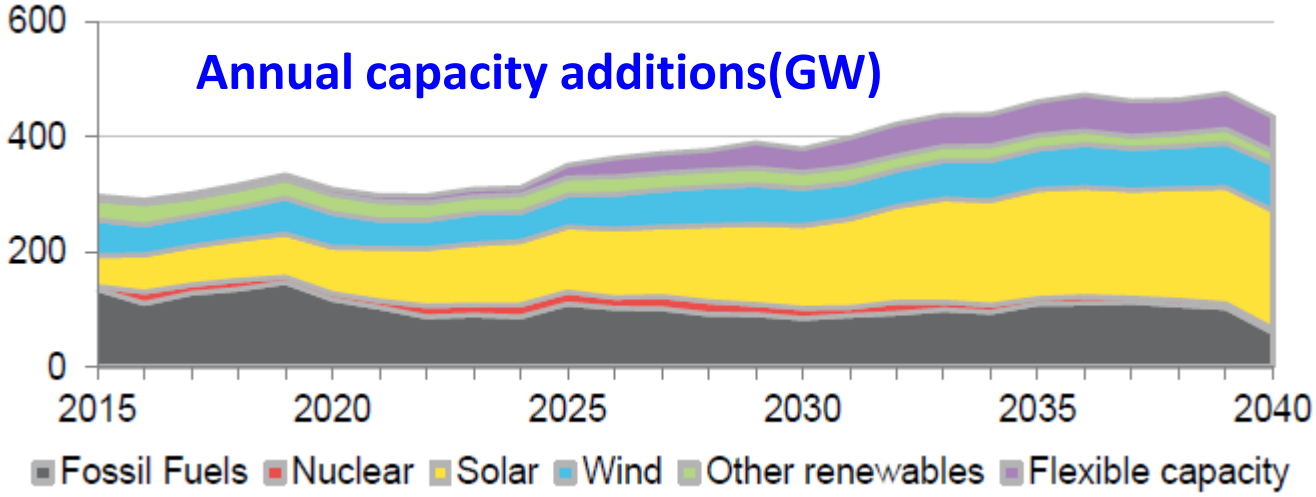
COP 21 Decisions in Dec 2015



Source: Bright Green Enterprise 2015/12

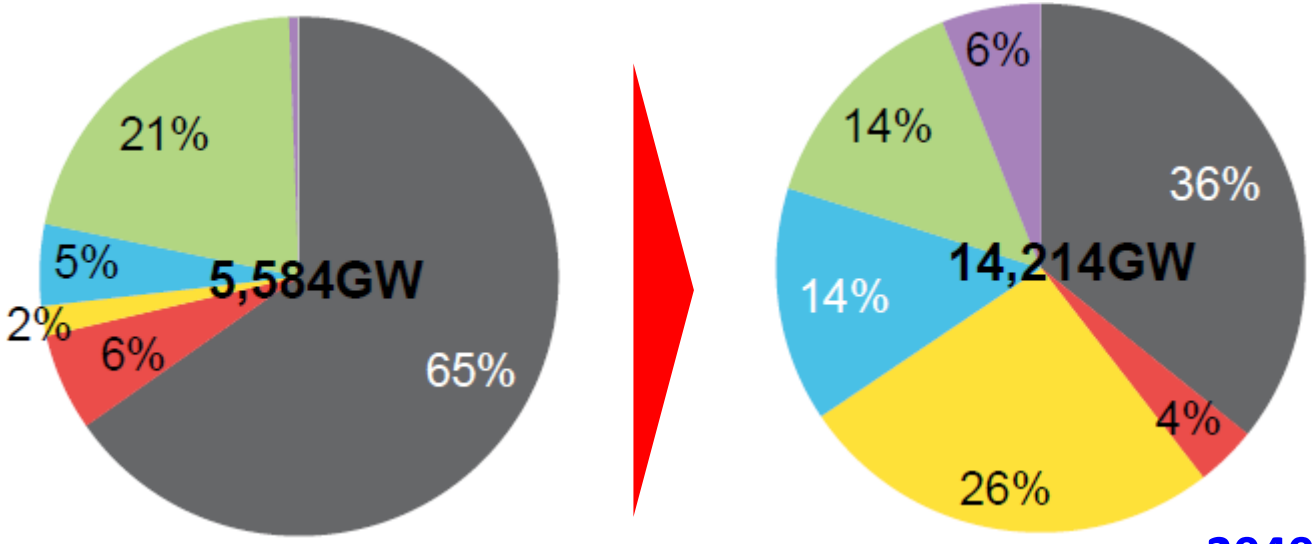
Next action?

WW Power-Generating Mix Trend



In next 25 years:

- Solar will boom worldwide
- accounting for 35% (3,429GW) of capacity additions
- nearly a third ($3.7 trillion) of global investment
- split evenly between small- and utility scale
- real solar revolution will be on rooftops, driven by high residential and commercial power price & the availability of residential storage in some countries



2012 (Solar=2%)

2040 (Solar=26%)

Source: Bloomberg New Energy Finance 2015/06

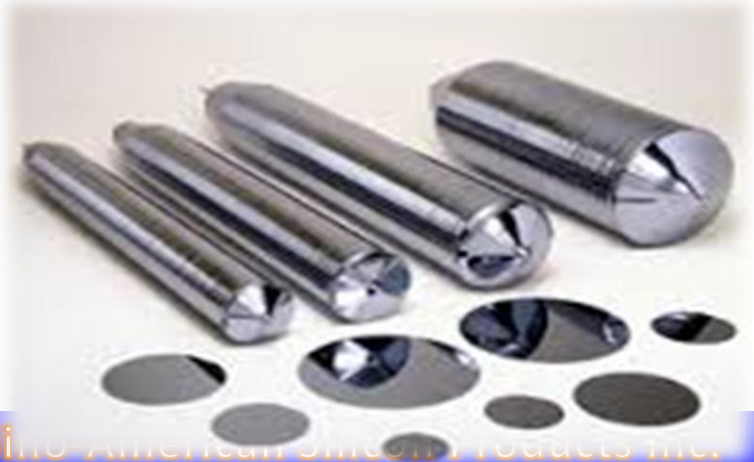
Semiconductor Business Sector

GWC fab in Niigata, Japan

GlobalWafers Co., Ltd.

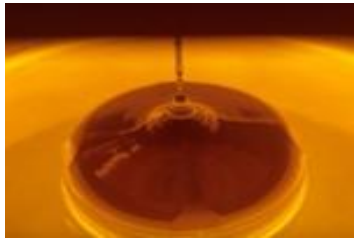
Company Profile

Established	2011 (Spin off from SAS)
IPO	2015/09/25 Listed in Taipei Exchange (6488 TT)
Headquarter	HsinChu Science Park, Taiwan, R.O.C.
Products	3” ~ 12” Semiconductor Wafers
Manufacturing Sites	Taiwan, China, U.S.A. & Japan
Paid-in Capital	NTD $3.693 billion
Chairperson & CEO	Doris Hsu
Employees	2,483 (2016/01)



Milestones <I>

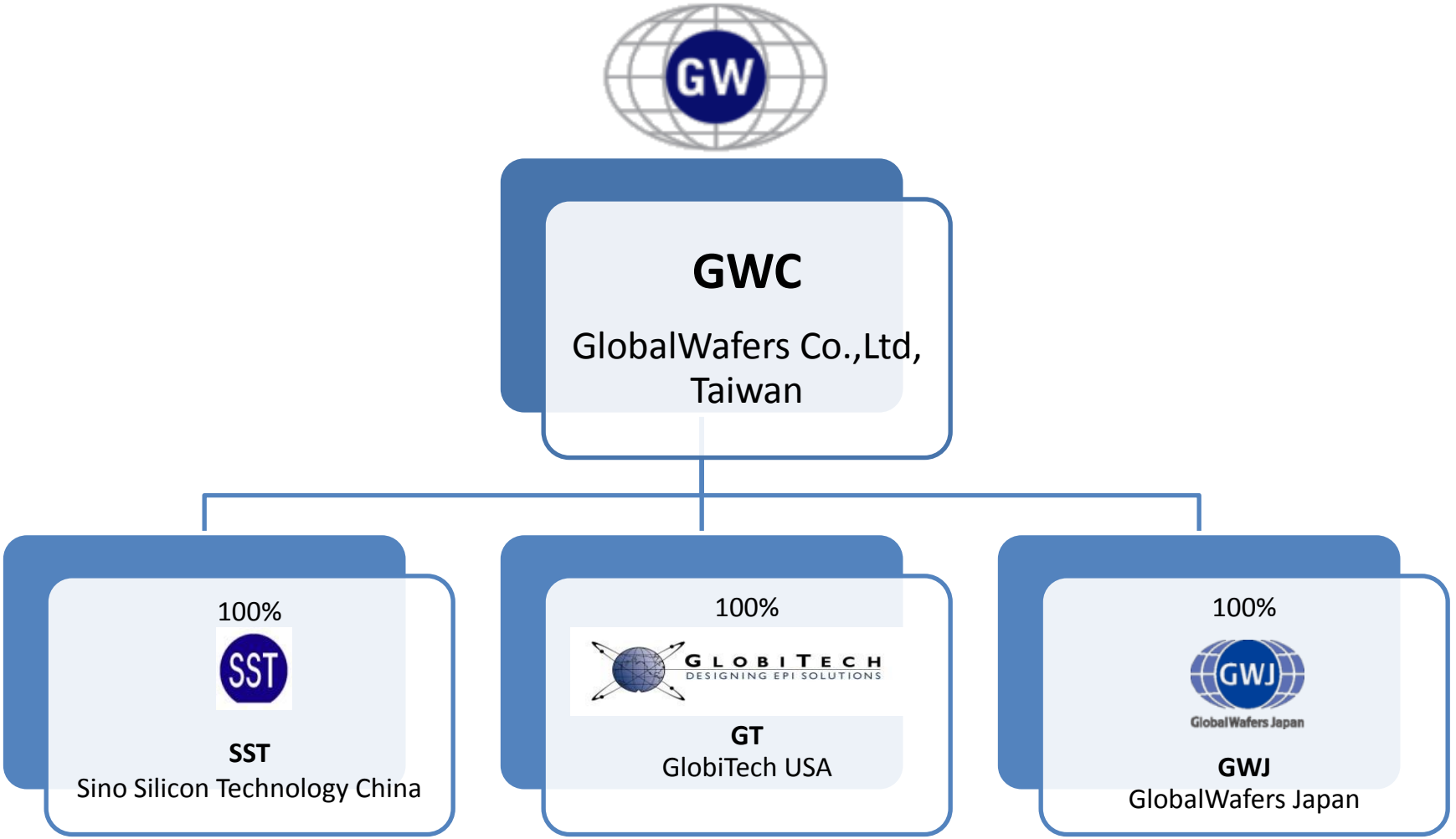
1981	Sino-American Silicon Products Inc. established
……	
1998	New owners and management team join SAS
1999	SST established in China
2001	SAS IPO in Taiwan (5483 TT)
2008	Acquired GlobiTech Incorporated, TX, USA
2011	Company spin off – SAS / GWC / SSC
2012	Acquired Covalent Silicon, Japan
2015	GWC IPO (Taipei Exchange)



Products

Annealed wafer	• Diameter: 8、12 • Application: Memory, LCD driver & Logic IC
EPI wafer	• Diameter: 4、5、6、8 • Application: Discrete, Logic IC, Analog & Memory
Polished wafer	• Diameter: 4、5、6、8、12 • Application: 4”~6” for Epi substrates & Analog 8”~12” mainly in logic IC
Diffused wafer	• Diameter: 3、4、5、6 • Application: Discrete
Non-polished wafer	• Diameter: 3、4、5、6 • Application: Discrete

Organization



Global Manufacturing Sites

JAPAN - GWJ

OGUNI

NIIGATA

TOKUYAMA

SEKIKAWA

TAIWAN - GWC

HSINCHU HQ

CHINA - SST

SST KUNSHAN

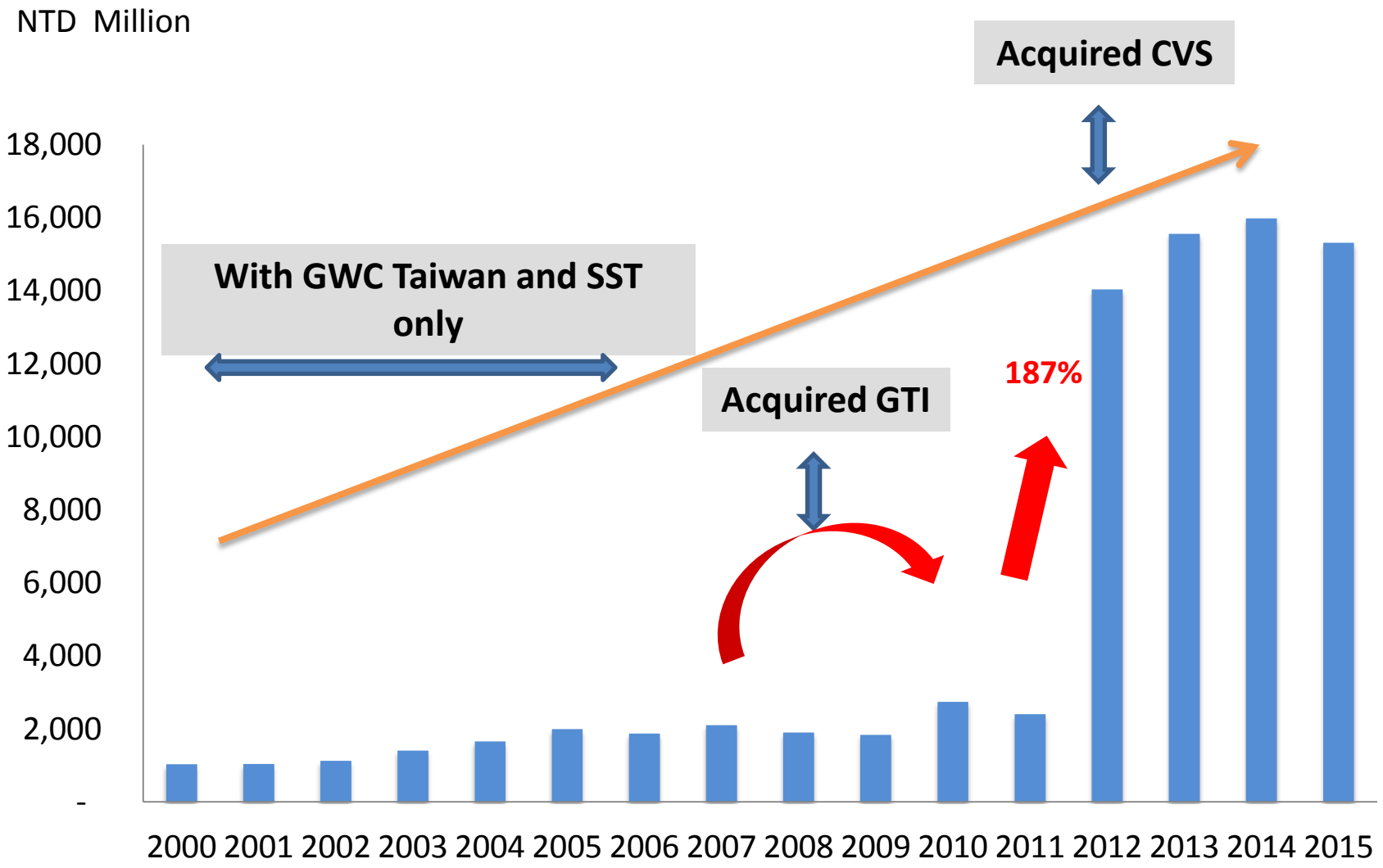
USA - GT

GLOBITECH TX

Manufacturing Sites Capacity

Sites	GWC (Taiwan)	SST (Kunshan, China)	GTI (Texas, USA)	GWJ (Japan)
Products	• 3” - 8” ingots • 3”- 6” wafers • Heavily-doped • Diffusion • Lapped/Etched/ Polished	• 3” - 8” • Heavily-doped	• 5” - 8” • Epitaxial	• 5” - 12” • Light & Heavily-doped • Diffusion • Annealed • SOI • Epitaxial
Group Products Application	• Power Discrete • Logic…….. • Sensor…….. • Memory……..			
Capacity	• 6” equivalent polished: 70kwm • ≦6” non polished : 1,000kwm	• 8” equivalent 40kwm • 6” equivalent 390kwm • 4” equivalent 400kwm **72kwm**	• 6” & 8” 460kwm **520kwm**	• 12” 188kwm • 8” 360kwm • Diffusion 130kwm • EPI 150kwm • SOI & FZ **8” 405kwm**

Group Revenue Trend

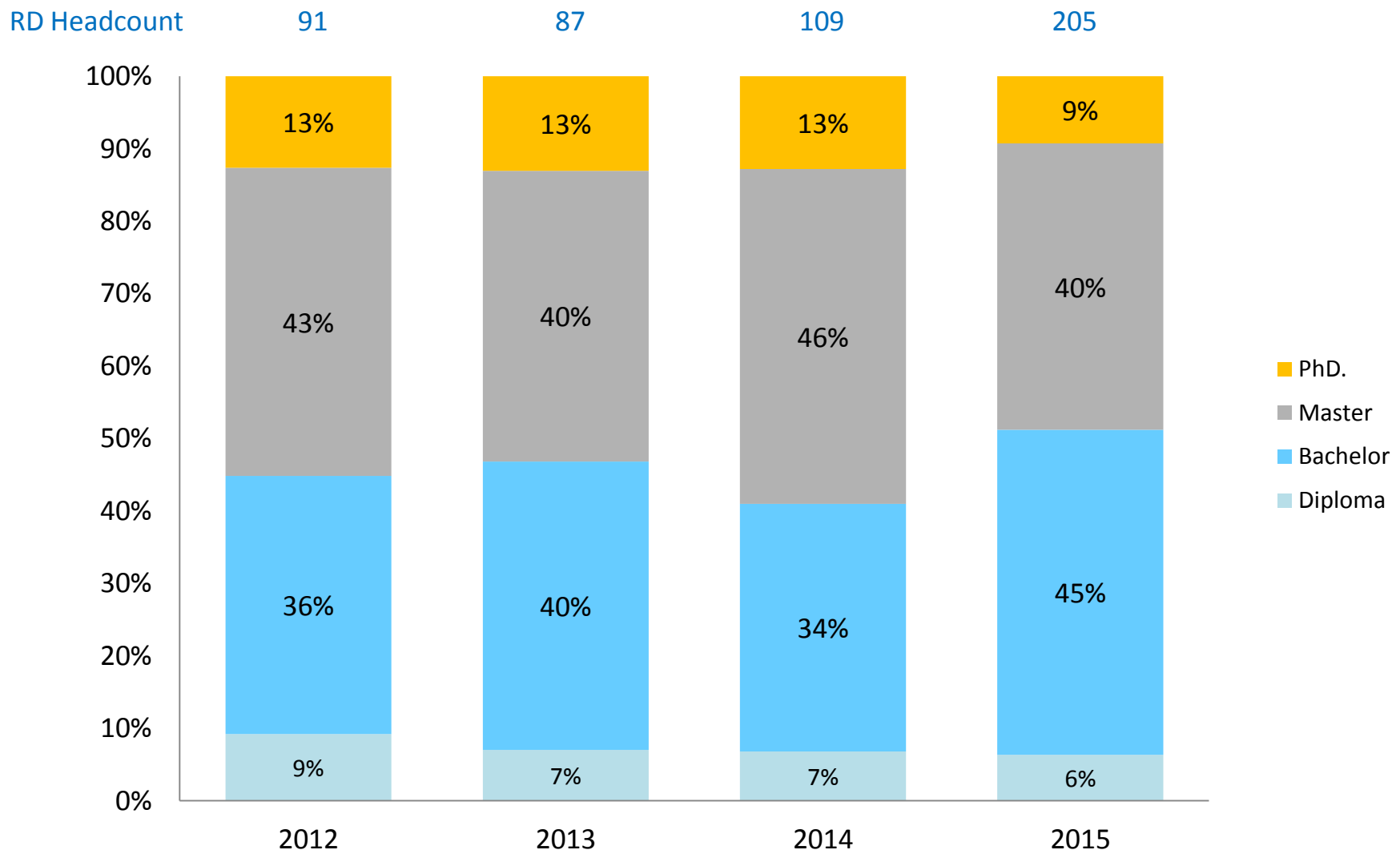


Tier-1 Major Customers

ASIA

US/ Europe

R&D Team Education Background

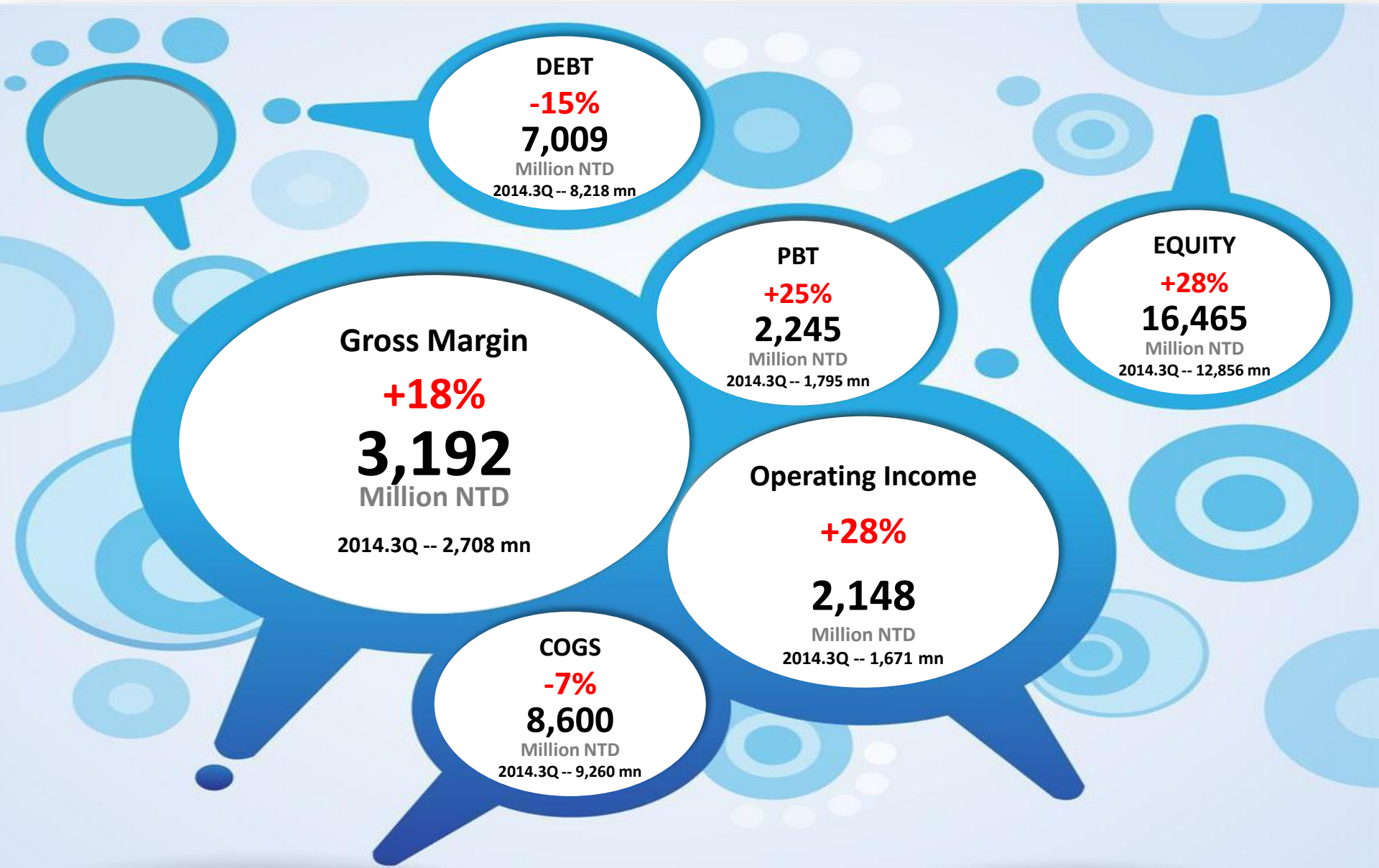


New Products Roadmap

Items	Application
8” ultra heavy dopant ingots growth	Low power consumption device
GaN on Silicon	Power device/ RF
Nano-structure wafers	Ultra thin wafers/ Strengthen substrate
Ultra high resolution CIS wafers	Image sensor、Sensor
Next generation automotive power device SiC wafers	Automotive power, High temp. power, Microwave & RF devices, UV LED, Photodiodes, Blue laser diodes

Specializing in next generation wafer development

Significant Financial Performance
2015/9M



Consolidated Financial Statements

2015/9M <I>

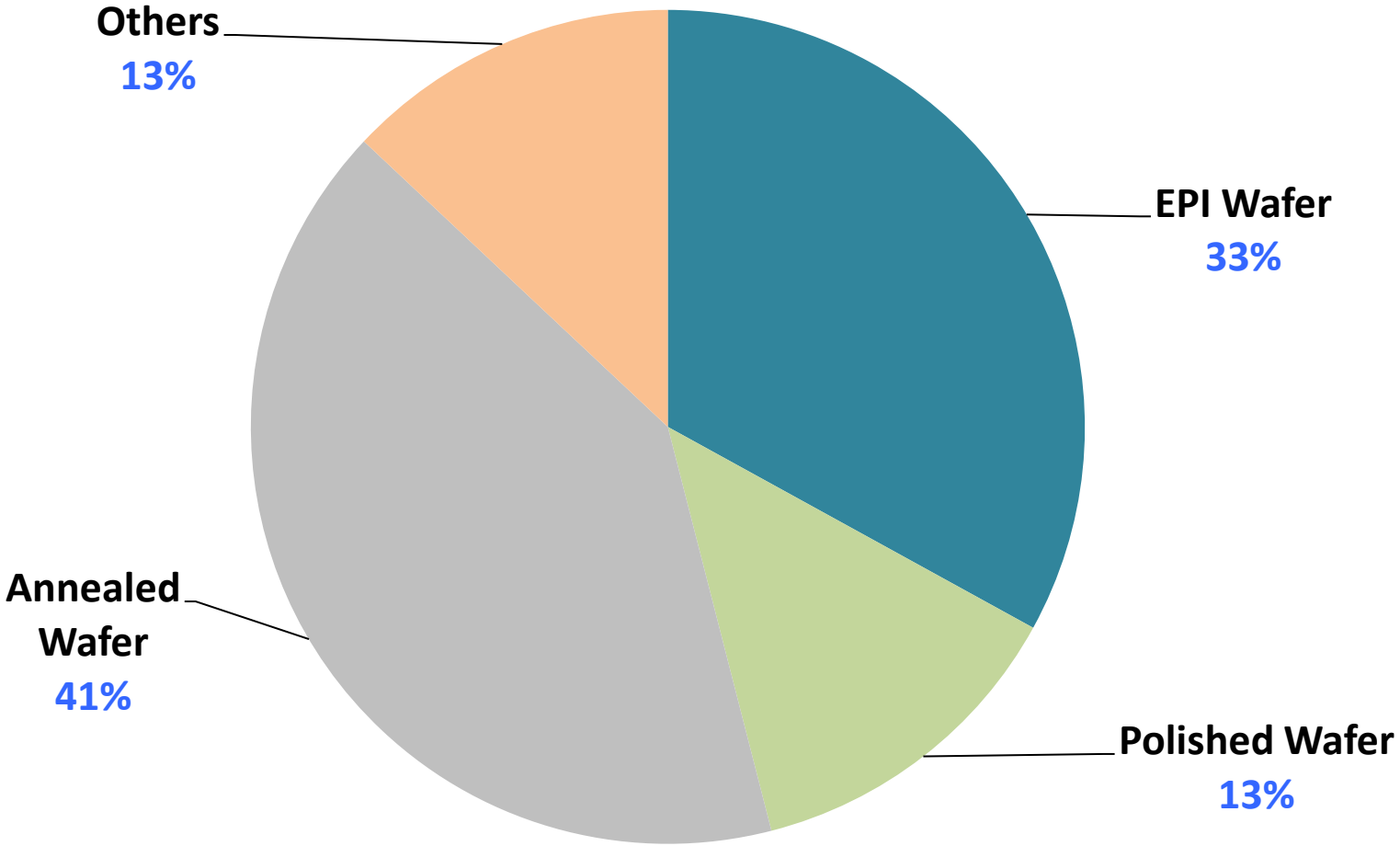
Million NTD	2013	%	2014	%	2015.9M	%
Revenue	15,570	100.0	15,922	100.0	11,792	100.0
Gross Profit	3,663	23.5	3,728	23.4	3,192	27.1
Operation Income	2,194	14.1	2,336	14.7	2,148	18.2
PBT	2,204	14.2	2,679	16.8	2,245	19.0
PAT	1,948	12.5	2,095	13.2	1,582	13.4
Total Debt & Debt ratio	7,939	37.7	8,184	38.3	7,009	29.9
ROE(%)	14.83		15.87		14.22	
EPS(NTD)	6.14		6.60		4.56	

Consolidated Financial Statements

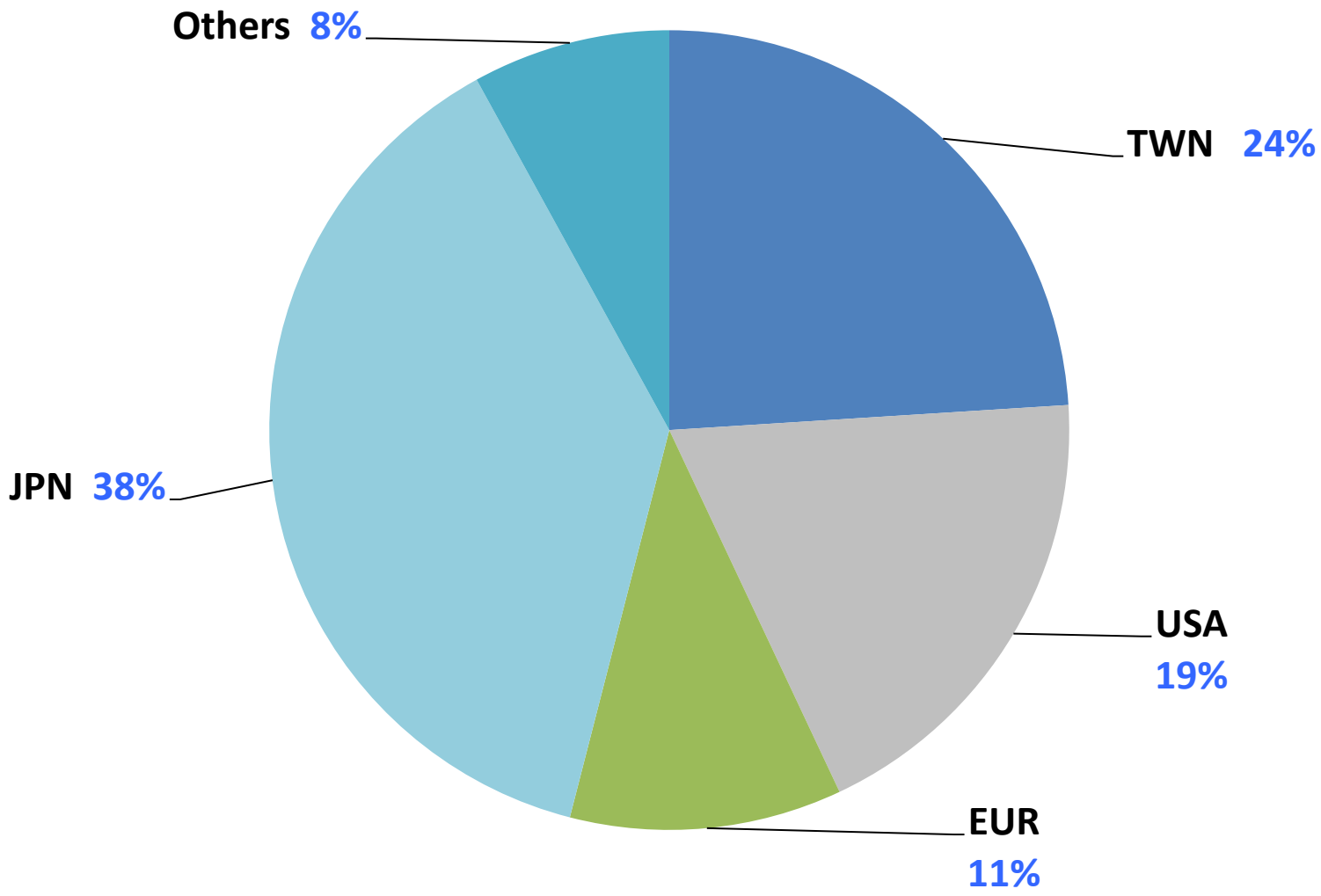
2015/9M <II>

Million NTD	2015.1Q	%	2015.2Q	%	2015.3Q	%
Revenue	4,044	100.0	3,983	100.0	3,764	100.0
Gross Profit	1,019	25.2	1,055	26.5	1,118	29.7
Operation Income	688	17.0	705	17.7	755	20.1
PBT	665	16.4	740	18.6	841	22.3
PAT	476	11.8	512	12.9	594	15.8
Total Debt & Debt ratio	7,148	31.4	8,871	39.0	7,009	29.9
ROE(%)	13.2		13.9		15.7	
EPS(NTD)	1.40		1.47		1.69	

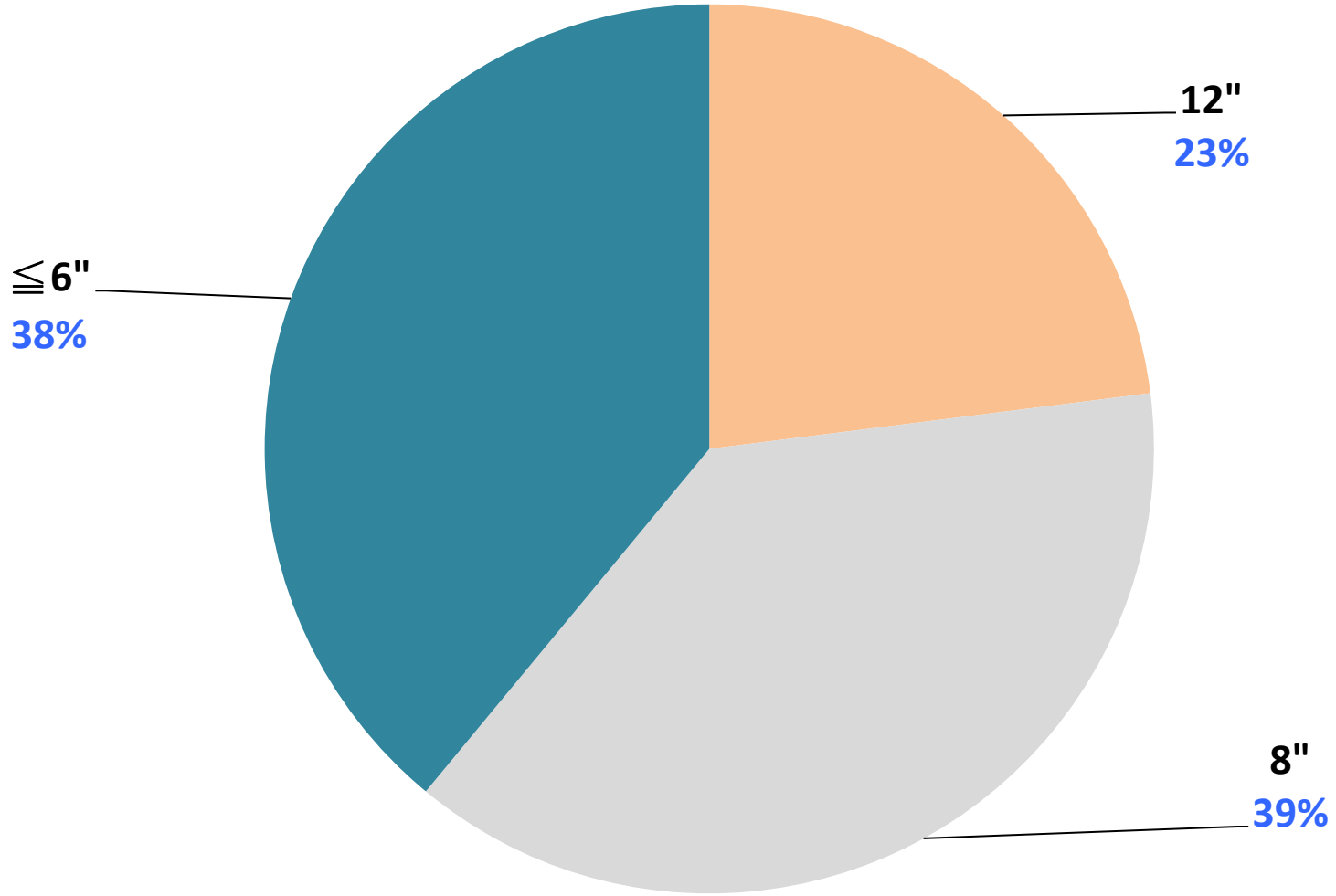
2015 Sales Distribution – by Products



2015 Sales Distribution – by Regions

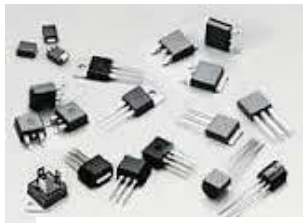


2015 Sales Distribution – by Diameters



Here GWC Wafers are Used....

Strong demands in IoT，Automotive、LCD Drive IC 、Handset device ....



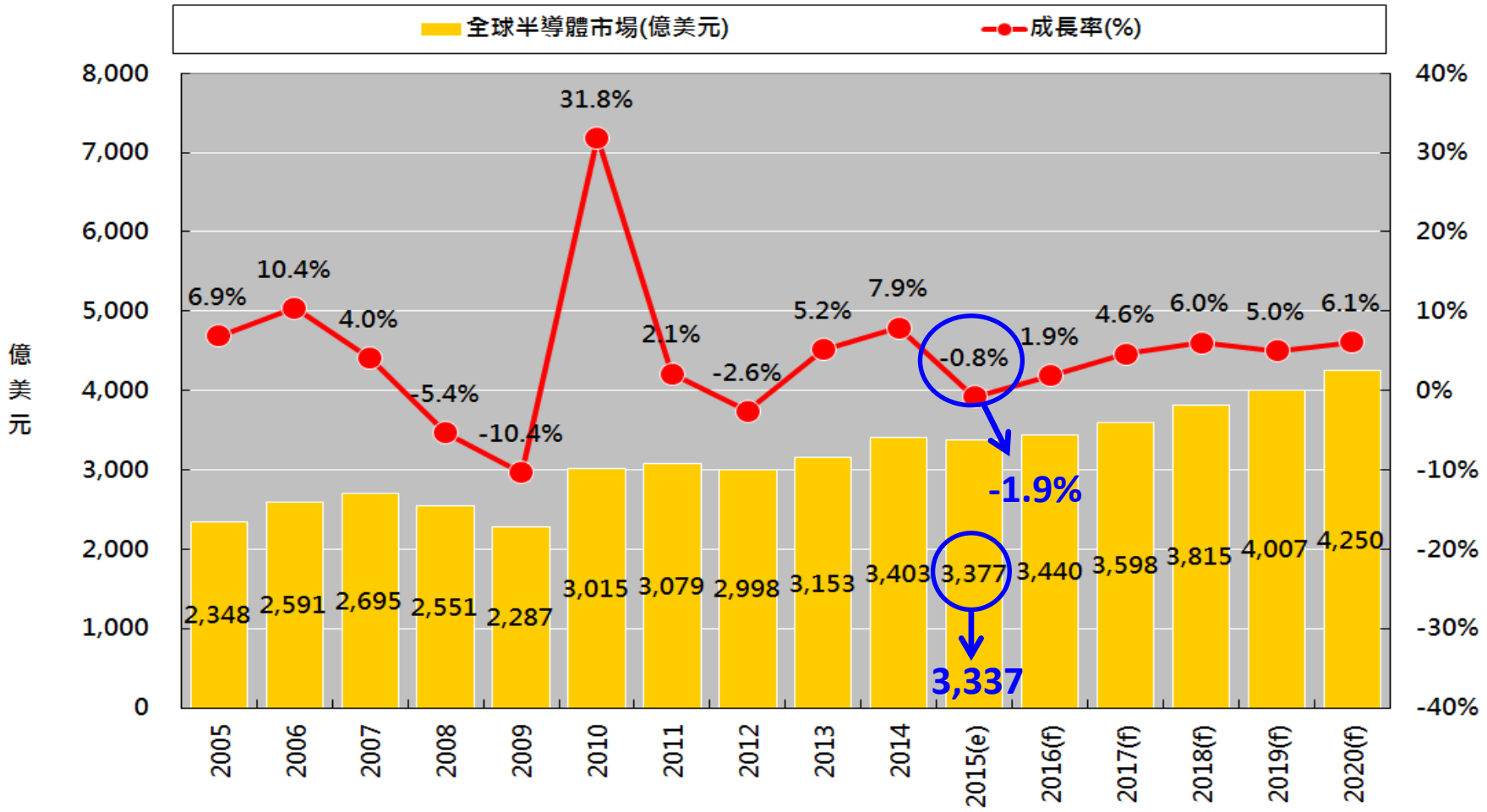
Automotive devices
Power/Discrete device
Memory Applications
LCD Driver IC/CIS/Logic
Consumer Electronic
Industrial Applications

Smart phone is driving new MEMS developments

Competitive Advantages

- Global Customers Base
  - * Global Tier-1 customers base in US, EU, Japan, Taiwan, Korea & A/P
- Leading Technology & RD Team
  - * ex-TI, ex-Toshiba R&D/Engineering experiences & training
  - * Strong development & manufacturing capability
- Global Sites Competitive Cost
  - * Global 7 manufacturing sites, centralized Purchasing, Production & Sales
  - * Acquired lowest manufacturing assets cost via M&A
- Strong Demands Growth
  - * Automotive, LCD drive IC, Handset devices
  - * IoT booming demands

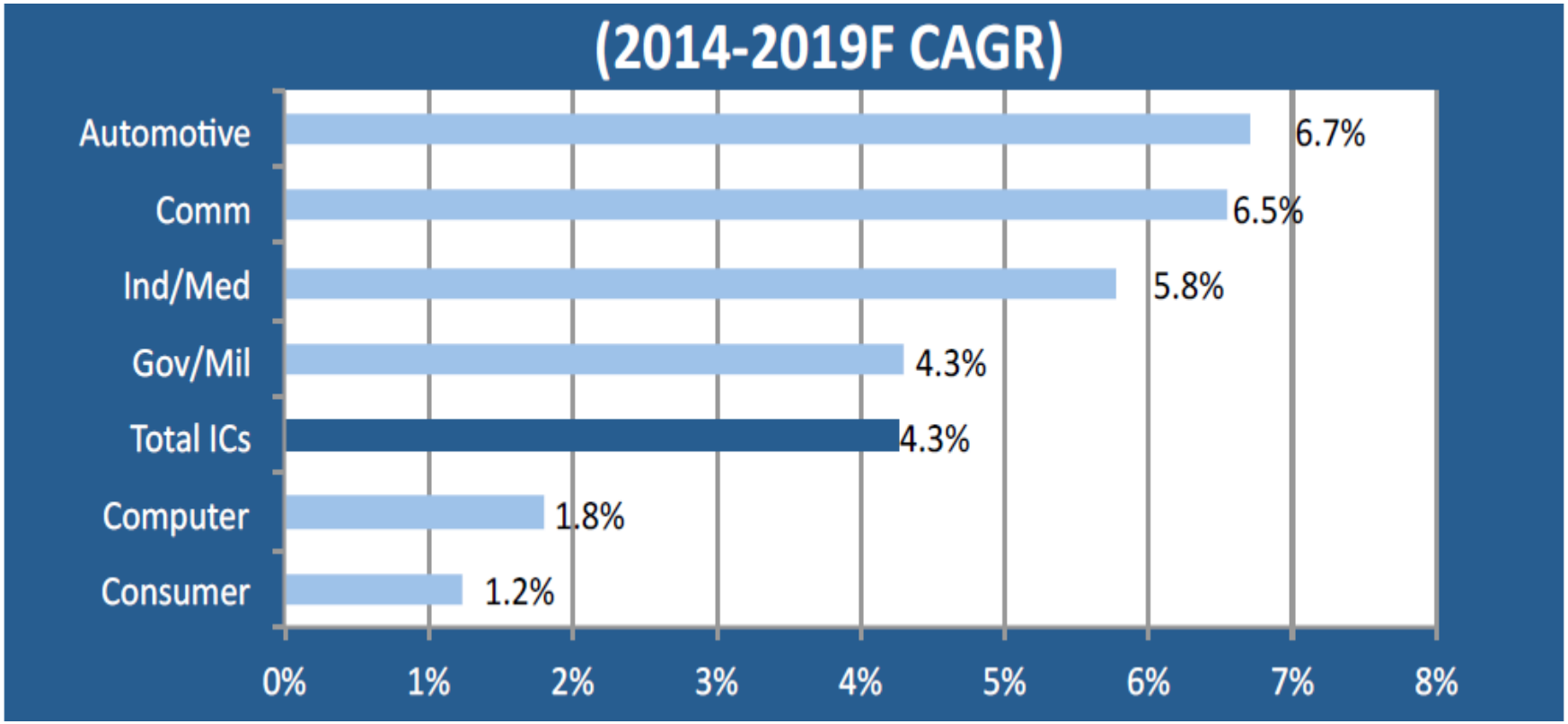
Global Semiconductor Market trend



Source: Gartner, WSTS, 工研院IEK 2015-11

Gartner revised worldwide semiconductor revenue declined from -0.8% to -1.9% in 2015 (2016/01)

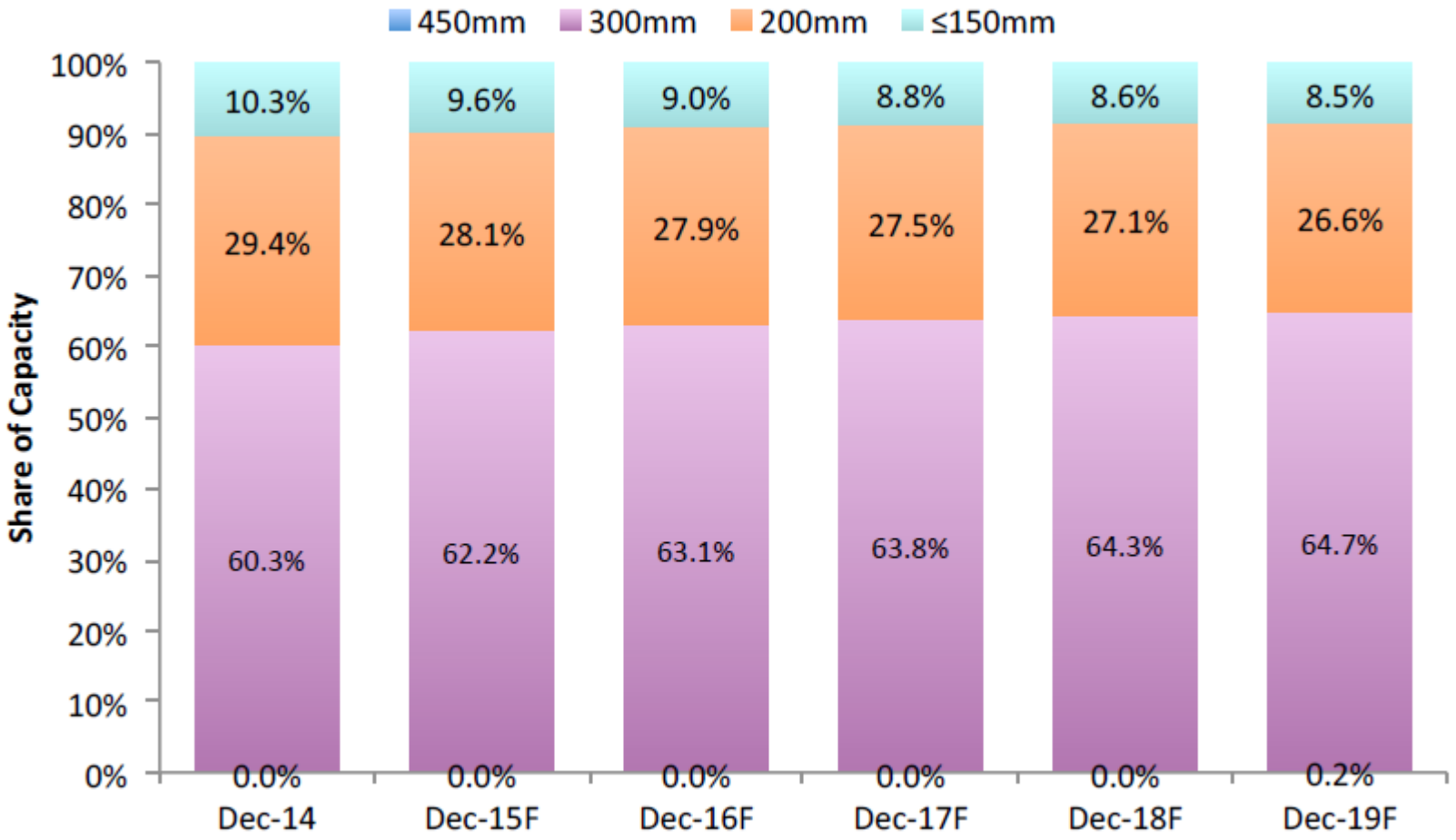
IC Market Growth Rate - by Applications



Source: IC Insights, 2015-11

Total ICs CAGR shows 4.3% up till 2019
Automotive, Communication, Industrial & Medical indicate strong growth prominently

Forecast for Wafer Size Shares



Source : IC Insights, 2015-09

Monthly Installed Capacity (200mm-Equiv. Wafers)

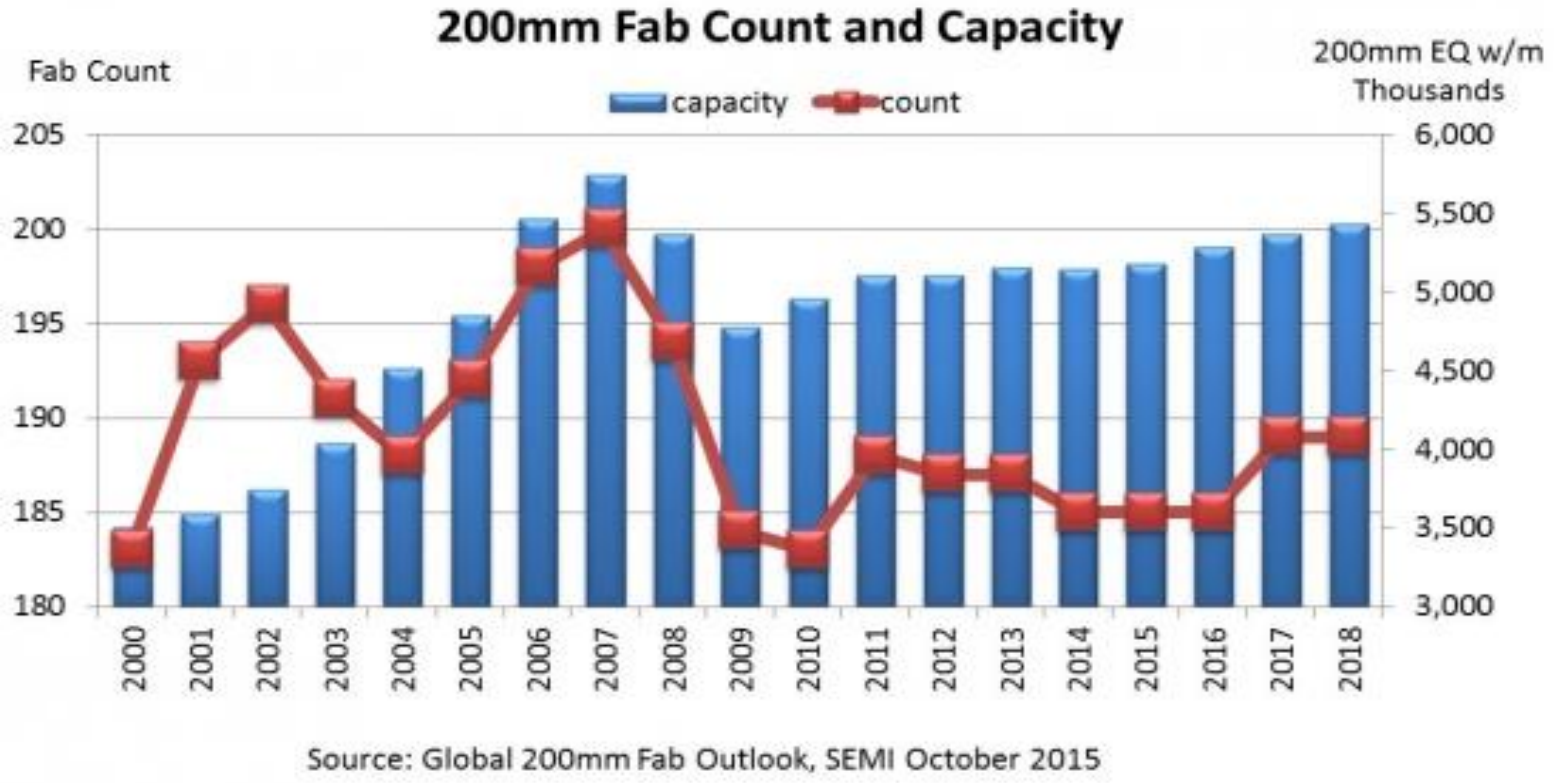
200mm & 300mm still play key materials for IC manufacturing

Semi Wafers Demands – by Application

Year	1997	2002	2007	2012	2017
Fab Capacity (200mm equiv. thousand wafer starts per month)	**5,655**	**7,519**	**15,441**	**18,068**	**20,609**
Memory	20%	19%	36%	29%	27%
Foundry	13%	19%	18%	27%	30%
MPU & Logic	35%	31%	22%	17%	16%
Analog, Discrete, MEMS & Other	32%	31%	24%	27%	26%

Source: SEMI (http://www.semi.org/)

200mm Fab Count & Capacity

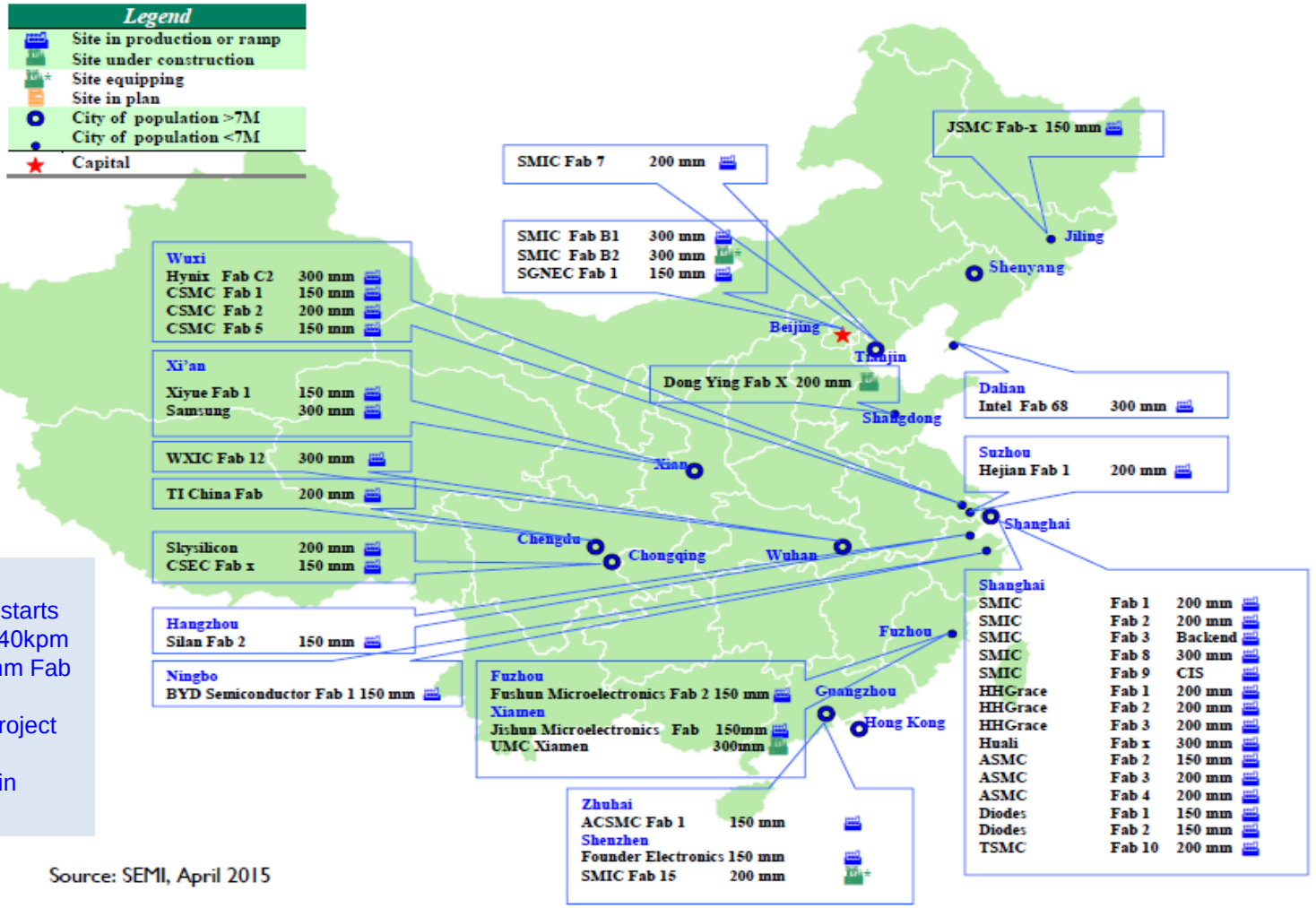


Source: Global 200mm Fab Outlook, SEMI October 2015

2015~2018

- ***Strong 200mm demand for IoT, sensors, MEMS, analog, power device***
- ***200mm input to increase 400kspm***
- ***Eight new 200mm facility/lines to begin operation***
- ***China & Southeast Asia to lead 200mm expansion***

China IC Fab Distribution



Source: SEMI, April 2015

new project ongoing,

- SAMSUNG: 300mm Fab starts mass production in Xi'an 40kpm
- POWERCHIP: new 300mm Fab project in Hefei 40kpm
- UMC: new 300mm Fab project in Xiamen 50kpm
- TSMC: new 300mm Fab in Nanjing 20kpm

Expanding 300mm Capacity in China

Company	Location	Tech-node (nm)	Capacity (K/month)	Products	Status
Huali	Shanghai	55	25	Foundry	Will add capacity to 35K/M
SK Hynix	Wuxi	29	130	DRAM	Production & Upgrade
Intel	Dalian	65	15	Chipset	Production
Samsung	Xi'an	20	40	NAND Flash	Total plan for Xi'an 1st phase: 100K/month
SMIC	Beijing	40	36	Foundry	Production
SMIC	Beijing	40-20 (Planned)	-	Foundry	Construction. 5K—6K/M in end of 2014
SMIC	Shanghai	40	14	Foundry	Production and expand to 14K/M in 2014
WXIC	Wuhan	45	9	NOR Flash, Foundry	Production

Source: SEMI China, Oct. 2014

New project:

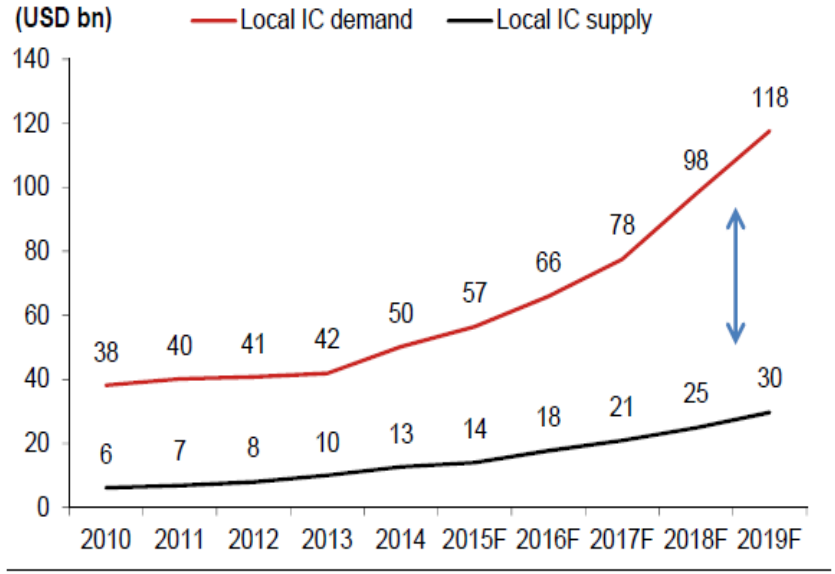
UMC (Xiamen 50kpm), Nexchip (Hefei, 40kpm), TSMC(Nanjing 20kpm)..

China IC Demand vs. Local Supply

China IC industry size and weight in global market

Source: IHS, Nomura Research, 2015/12

Imbalance between local IC supply and demand



Source: ICWise, SMIC, Nomura Research, 2015/12

China Local IC Supply fulfill IC Demand 25% only

Dividend Policy

Sino-American Silicon Products inc.		
Year	EPS	Dividend
2010	10.5	TWD 5.5
2011	1.02	TWD 0.85
2012	(4.9)	-
2013	0.57	TWD 1.0
2014	2.06	TWD 1.8
2015 Q3	0.86	

GlobalWafers Co., Ltd.		
Year	EPS	Dividend
2011	-	spin off
2012	3.44	TWD 2.8
2013	6.14*	TWD 5.5
2014	6.60	TWD 5.7
2015 Q3	4.56	

* If using ROC GAAP, it would be 6.22

Q&A