

新日光能源科技 股份有限公司



2014 年 12 月 18 日



新日光公司簡介

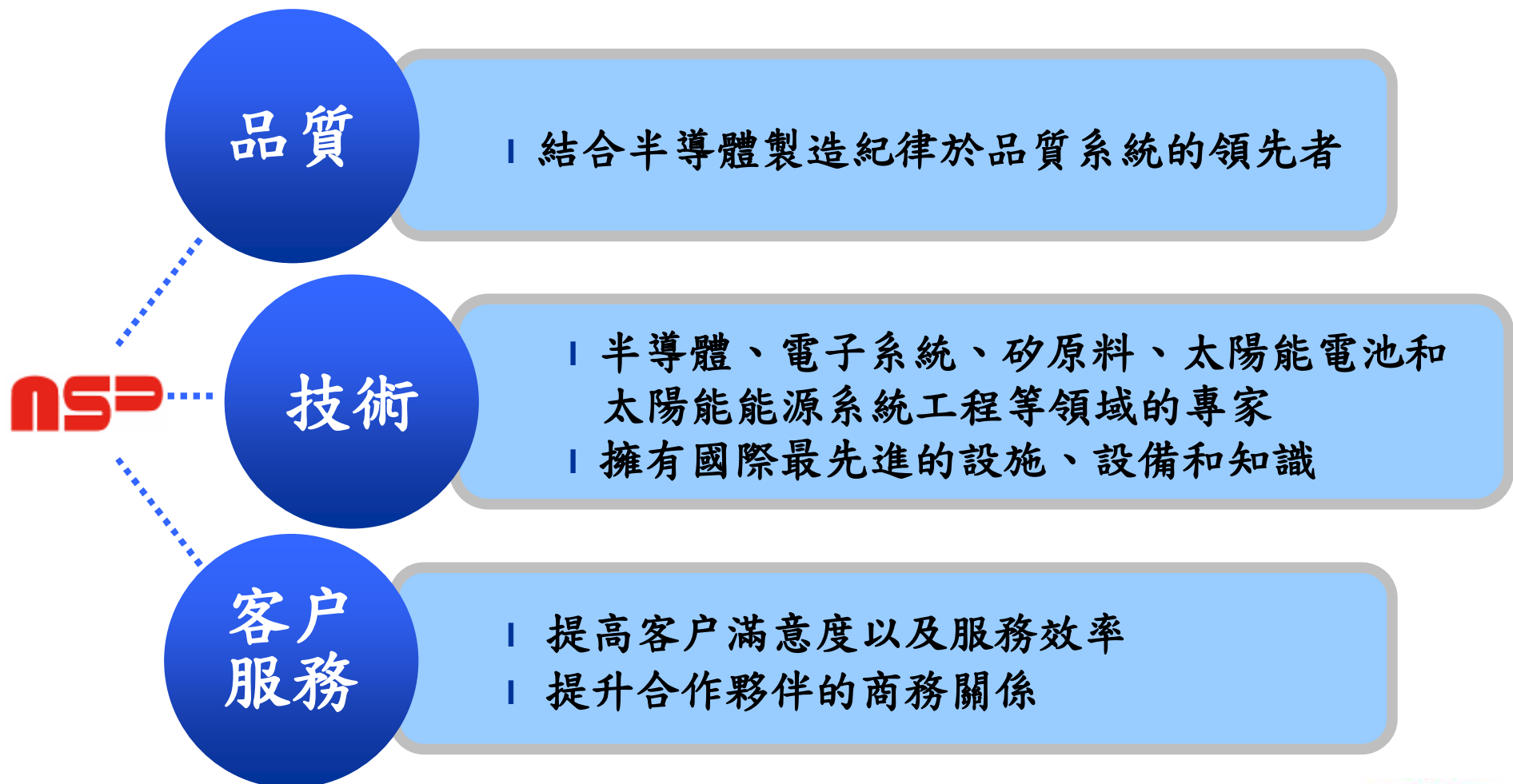
- | 成立時間: 2005 年 12 月
- | 產品: 結晶矽太陽能電池與模組
- | 2014 年底裝置產能:
 - | 電池: >2.20 GW
 - | 模組: > 480 MW
- | 員工人數: 約 3,600 人
- | 總部: 台灣 新竹
- | 於台灣證券交易所上市
 - | 2013 年 12 月 31 日市值台幣 342 億
- | 全球最大專業電池廠



里程碑

- | **2005.12:** 新日光成立
- | **2006.12:** 第一條產線進入全能量產，單月達成損益兩平
- | **2009.01:** 於台灣證交所上市
- | **2010.10:** 發表多晶電池 “Super 17” 與單晶電池 “Perfect 18” 高效率產品
- | **2011.09:** 於 EU PVSEC 發表高轉換效率方型單晶電池 “Black 19”
- | **2012.09:** 推出高效率產品 “Super 18” 與 “Black 19+”
- | **2013.05:** 合併旺能，成為全球最大專業太陽能電池公司
- | **2013.10:** 新日光模組獲頒能源局「金能獎」
- | **2013.10:** 於 PV Taiwan 發表新一代高效 “Super19” 與 “Black20” 電池以及雙面發電模組 “BiFi”
- | **2014.06:** 於 InterSolar EU 2014 發表高效多晶矽 Super 模組，以及單晶矽 Power 與 PowerH 模組
- | **2014.06:** 新日光產品累積出貨量超過 5 GW (十億瓦)

核心競爭優勢



經營團隊



- 林坤禧 博士 董事長
- | 前台積電資深副總
 - | 交通大學榮譽管理講席
 - | 美國 Kentucky 大學企管博士

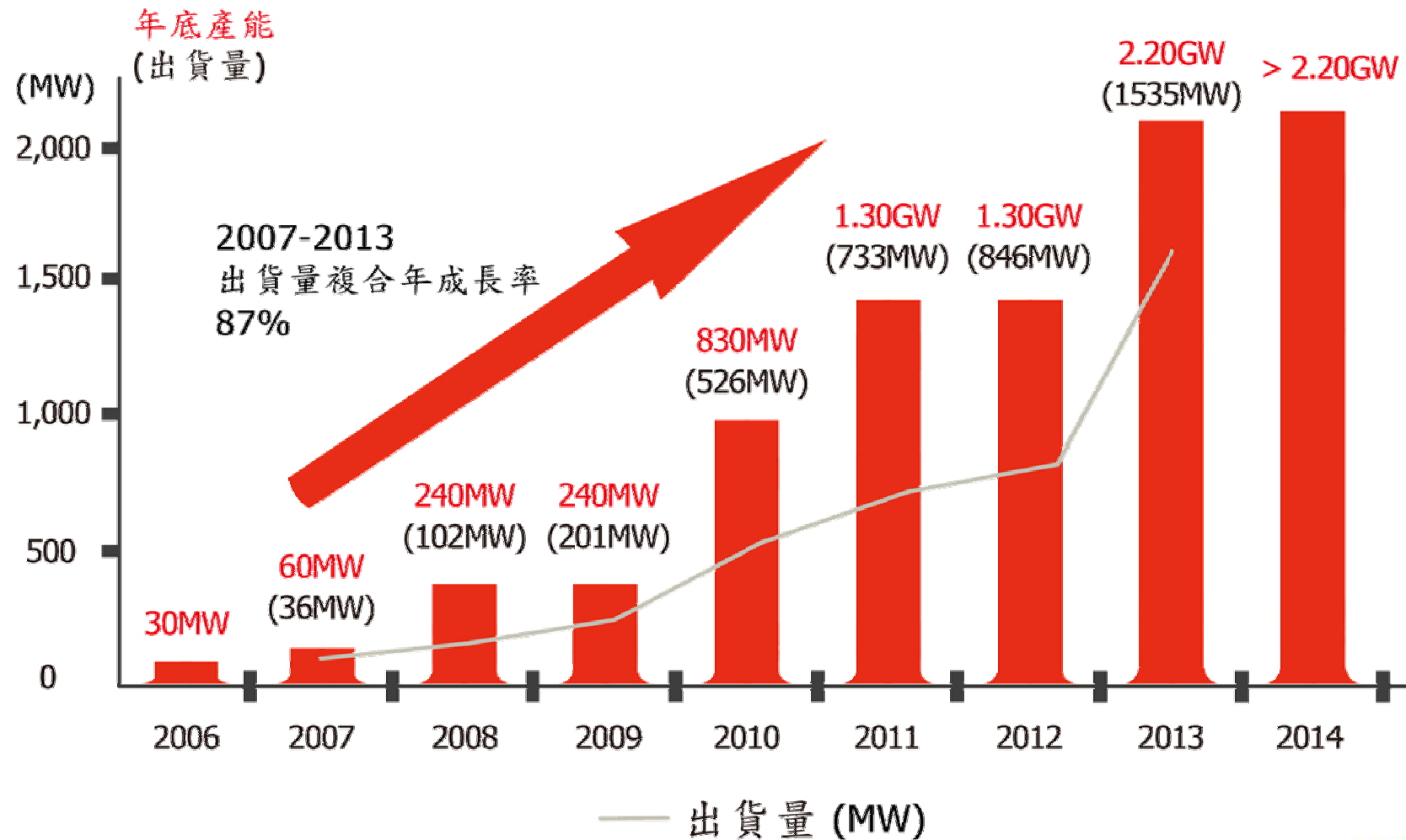


- 洪傳獻 博士 執行長
- | 現任台灣太陽光電產業協會理事長
 - | 曾任工研院太陽能電池實驗室研究組組長、光華非晶矽公司副總經理
 - | 清華大學電機博士



- 沈維鈞 先生 總經理
- | 曾任台積電資深處長
 - | 曾任台積電歐洲子公司總經理
 - | 美國 Santa Clara 大學企管碩士、Case Western Reserve 大學電機碩士

耀眼的成長

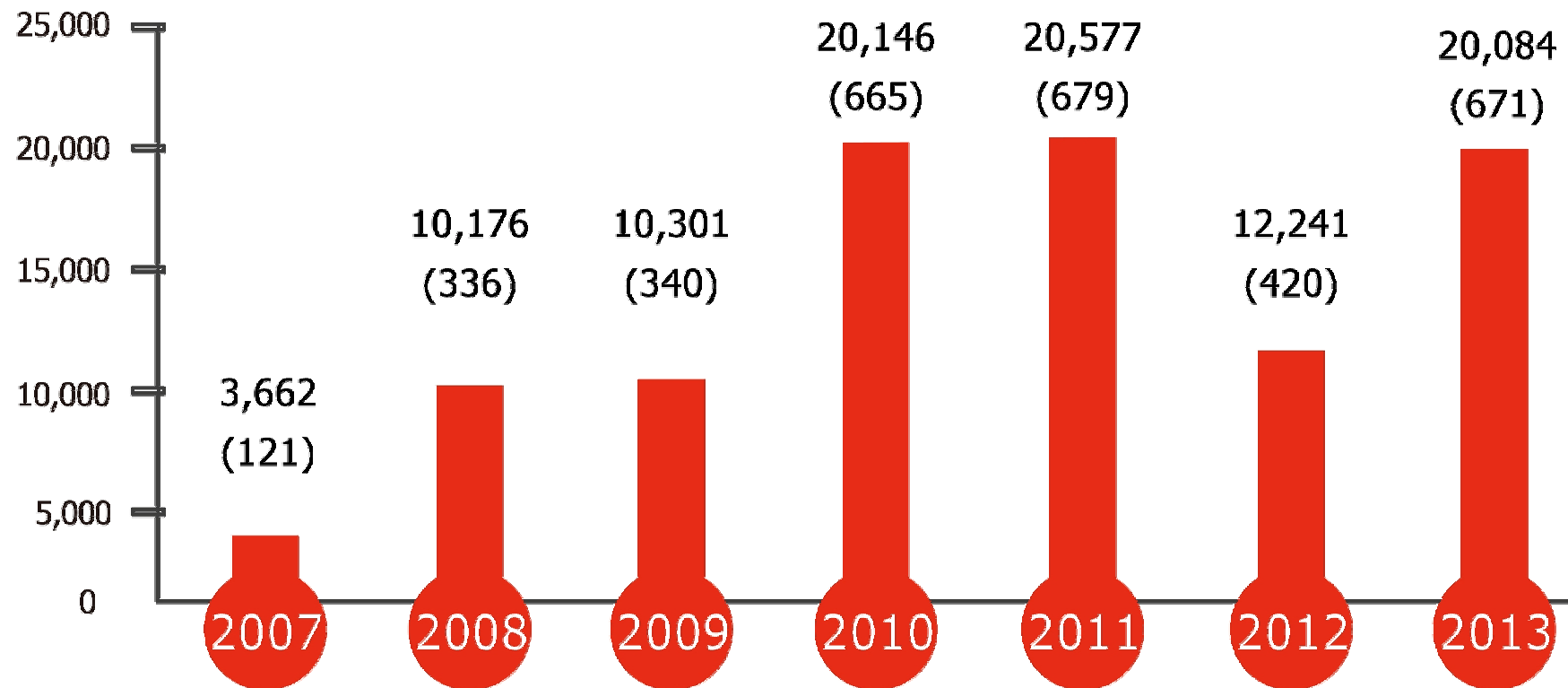


成長最快速的太陽能公司

新台幣:百萬元

(美元:百萬元)

營 收



•2012 年總出貨量成長 **15.4%**，因市場平均售價 (ASP) 的下降而使年營收下降

完備的電池生產與服務佈局

目前產能已達 **2,200 MW**

2014 年底產能: > 2,200 MW

中國：400 MW

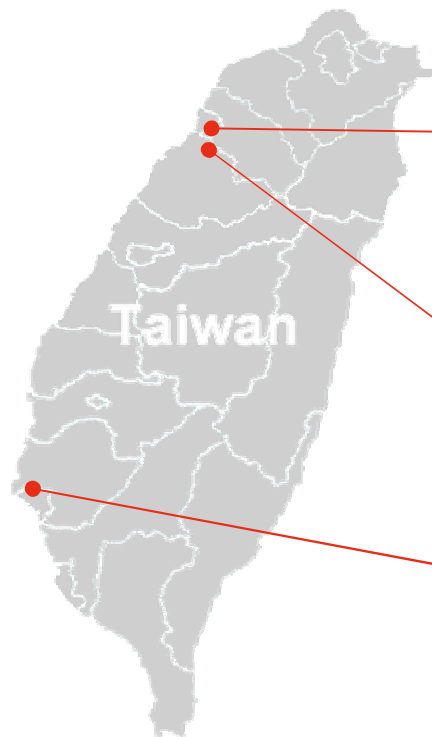


六廠



蘇州，吳江

台灣：1,800 MW



企業總部暨二廠
新竹科學園區



五廠
竹南科學園區



三廠
台南科技工業園區

完備的模組生產與服務佈局

目前產能已達 **410 MW**

2014 年底產能: > 480 MW

中國：180 MW



五二廠



蘇州，吳江

台灣：230 MW



永旺（新日光子公司）
新竹湖口工業園區



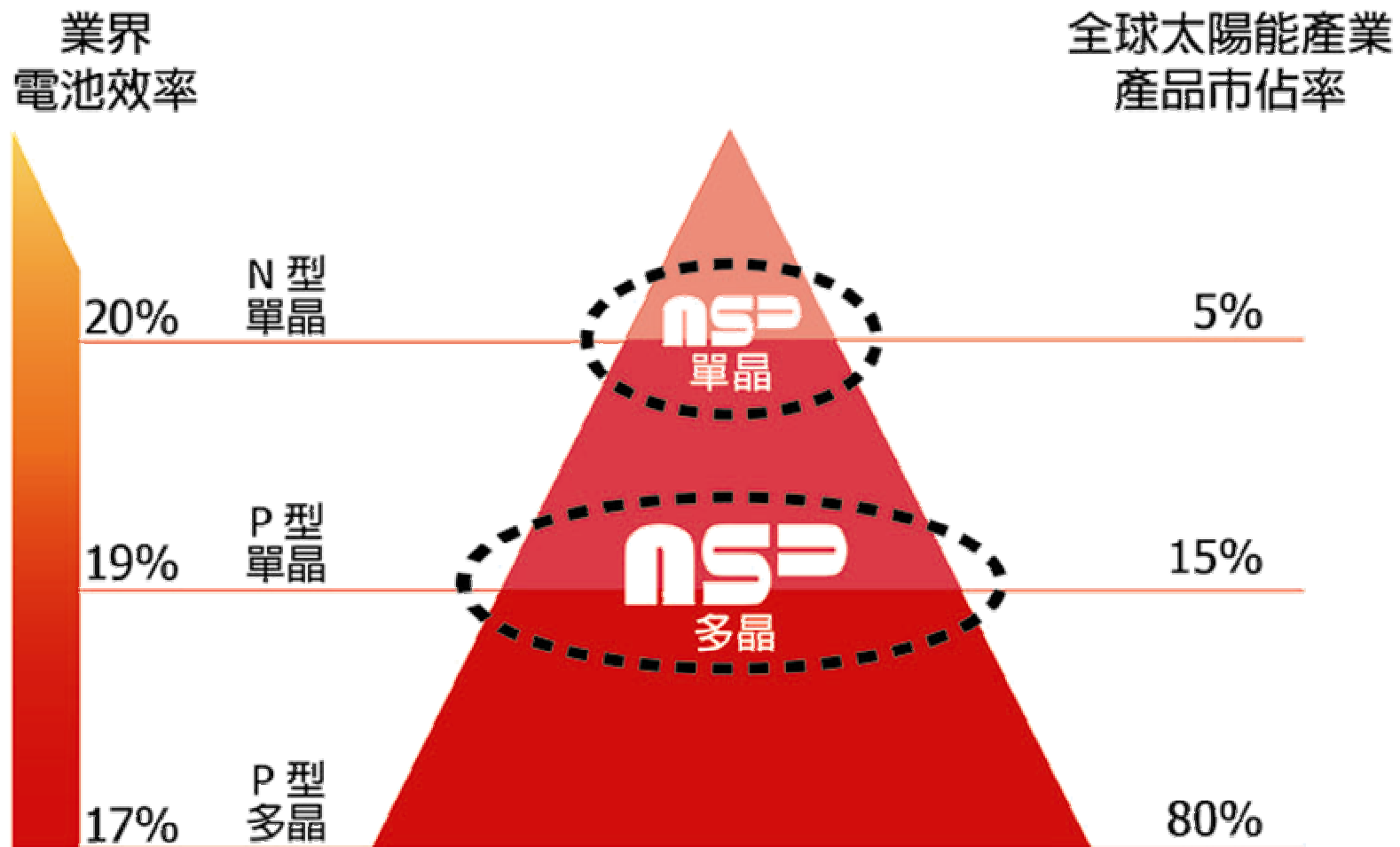
五一廠
新竹科學園區

卓越的製造能力

- | 半導體製程技術和太陽能元件物理的多年生產管理技術與經驗
- | 超高生產力
- | 高良率
- | 無與倫比的外觀和顏色均勻度
- | 需求為導向的製造業



新日光產品定位金字塔



NSP P 型單晶電池效率跨界挑戰市場上 N 型單晶電池效率
P 型多晶電池效率直逼業界 P 型單晶電池效率

新日光多晶產品

- | **Super19: 高效多晶電池**
- | 平均轉換效率大於 **18.9 %**
- | 最高轉換效率可達 **19.5 %**
- | 適合 **275W (60cells)** 和 **325W (72cells)** 模組

 **SUPER19**



 **SUPER**



新日光單晶產品

- | **Black20: 高效單晶電池**
- | 平均轉換效率大於 **20.0 %**
- | 最高轉換效率可達 **20.5 %**
- | 適合 **280W (60cells)** 和 **335W (72cells)** 模組

 **BLACK 20**



 **POWER**

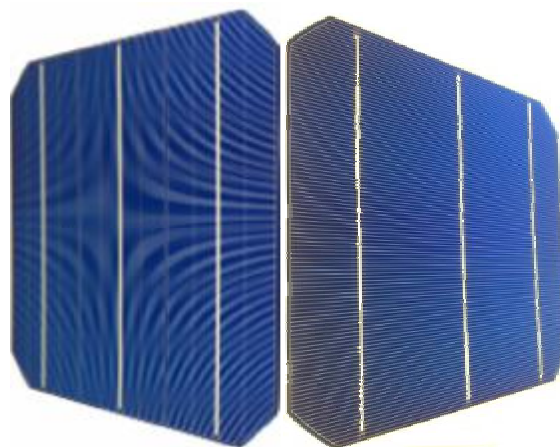


新日光 Bifacial 產品

- | BiFi: N 型雙面矽晶太陽電池
- | 電池效率無傳統 P 型的光致衰退效應，等同多出 3% 的發電量
- | 電池正面效率 **>20.0%**
- | 雙面太陽能模組 (60 cells) 雙面等效發電量等同於 **330W**
(在適當的安裝方式下, 模組背面的貢獻可以提高 20% 的發電量)
- | 理想的安裝場所所有平屋頂、垂直安裝、建築整合型、停車棚、雪地、沙漠地區等



BIFI



全球最大的 BIPV 系統



- | 國家體育場 (高雄世運主場館), 1MW PV System
- | EPC: 台達電, 電池: 新日光
- | 國際知名日本建築師伊東豊雄
- | 全球最大的 PV system 建築整合太陽能
- | 年減少二氧化碳排放量: 660 噸
- | 年發電量: 1.1 M 度

永旺能源 - 全球最大的機場電站

■ 美國印第安納波里斯機場, 合計 **25 MW**

■ 正式併網商轉啟用:
2013 年 10 月 18 日

■ 與 Indianapolis
Power and
Light Company (IPL)
簽立電力購買協議



謝謝

新日光能源科技

Tel: +886.3.5780011 Fax: +886.3.5781255

www.nsp.com

Neo Solar Power Corporation

December 18, 2014



NSP at A Glance

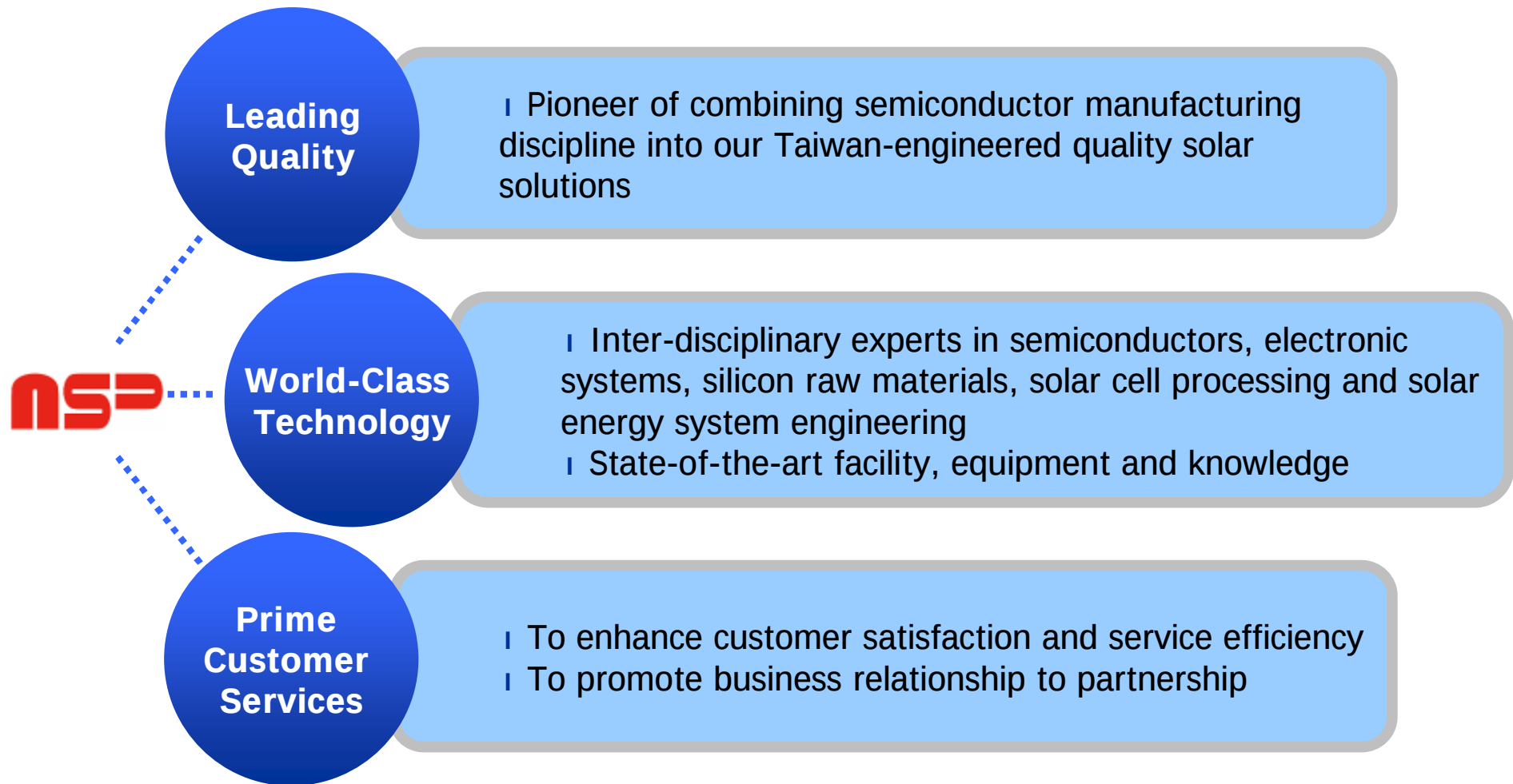
- | **Founded: December, 2005**
- | **Products: cells and modules**
- | **2014 Year-End Capacity:**
 - Cell: > 2.20 GW
 - Module: > 480 MW
- | **Employees: 3,600**
- | **Headquarters: Hsinchu, Taiwan**
- | **Listed in Taiwan Stock Exchange**
 - | **Market Cap US\$1.14 Billion at the end of 2013**
- | **The world's largest merchant cell company**



Milestones

- | **2005.12: NSP founded**
- | **2006.12: Breakeven and 100% utilization achieved**
- | **2009.01: Listed on the Taiwan Stock Exchange**
- | **2010.10: Launched "Super 17" (multi) & "Perfect 18" (mono) cells**
- | **2011.09: Launched mono cell "Black 19" at EU PVSEC**
- | **2012.09: Announced "Super 18" and "Black 19+"**
- | **2013.05: Merged with DelSolar**
- | **2013.10: Awarded "Taiwan Excellent PV Product" by the Bureau of Energy, Taiwan**
- | **2013.10: Launched "Super19", "Black20" cells and "BiFi" bifacial module at PV Taiwan**
- | **2014.06: Launched "Super" (multi), "Power" (mono) module, and half-cut module "PowerH" at InterSolar EU 2014**
- | **2014.06: More than 5 GW of Cells and Modules shipped globally since 2005**

Core Competences



The Executives



Dr. Quincy Lin

Chairman

- | 30+ years of experience in high tech management
- | Senior Vice President of Taiwan Semiconductor Manufacturing Company (TSMC)
- | Honorary Chair in Management at National Chiao-Tung University



Dr. Sam Hong

CEO

- | 30+ years of experience in PV solar energy
- | Research Division Director of PV Solar Energy Division at the Industrial Technology Research Institute (ITRI); VP & Plant Director of Sinonar Solar Cell
- | Chairman of Taiwan Photovoltaic Industry Association (TPVIA)

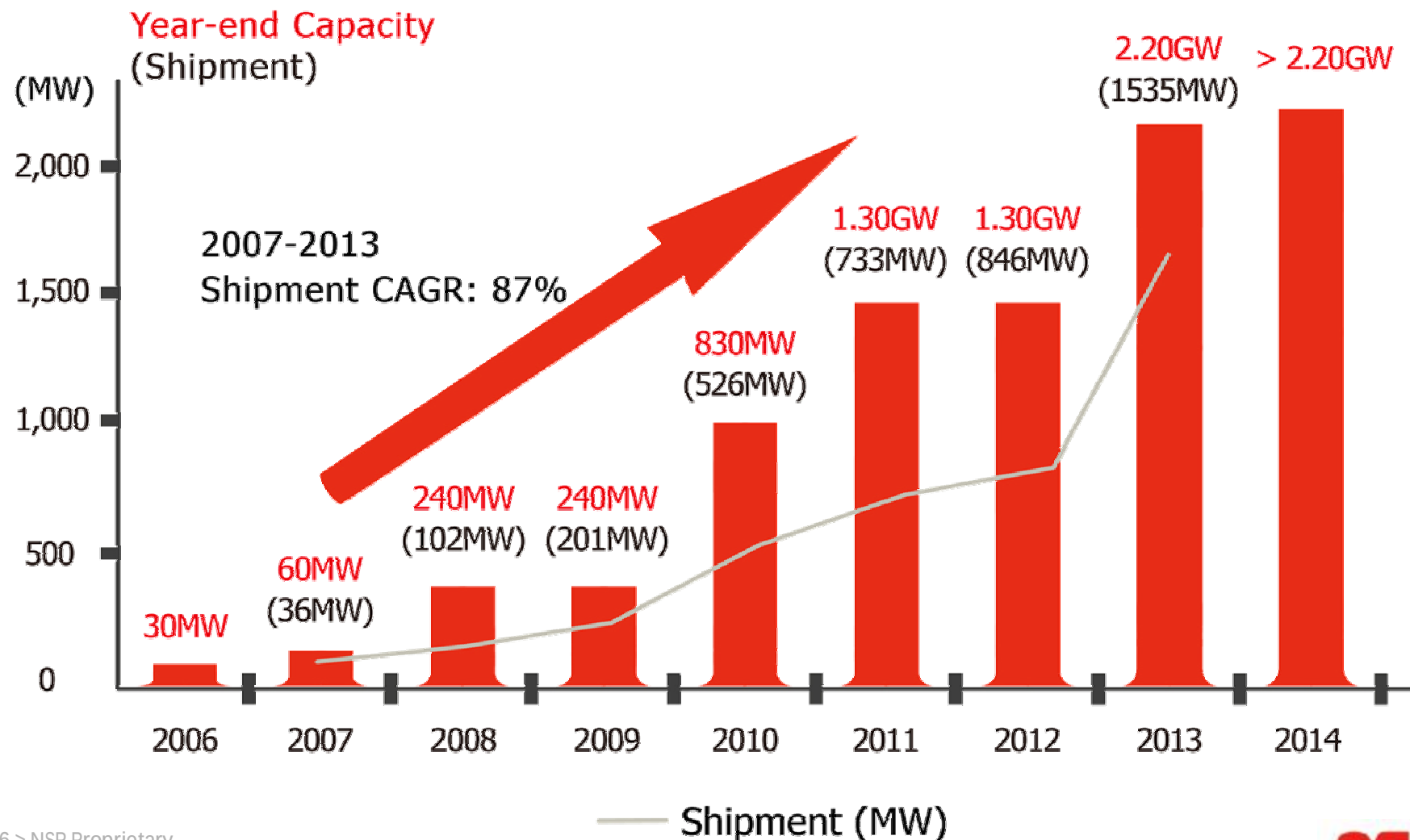


Mr. Andy Shen

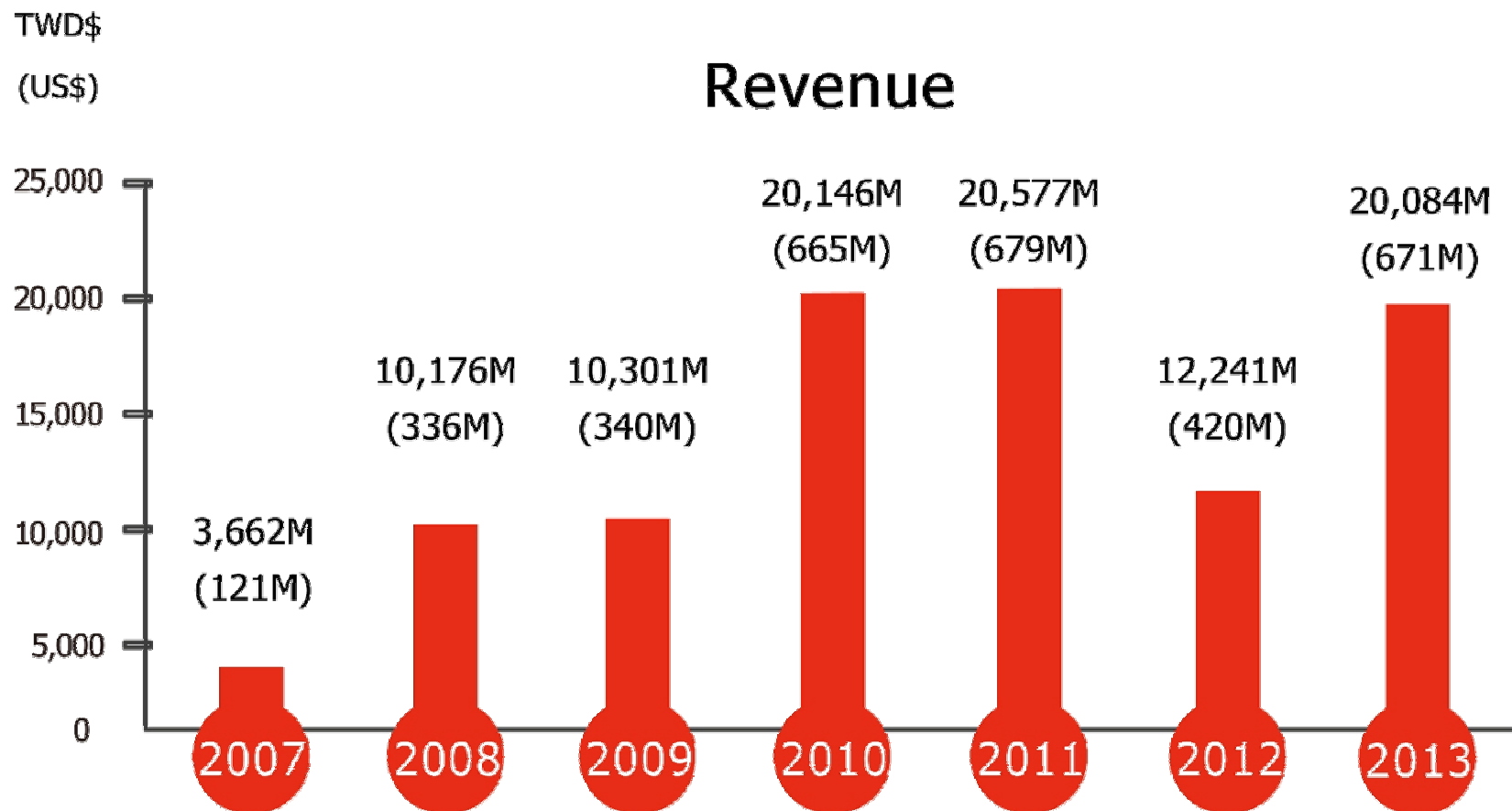
President

- | 30+ years of experience in semiconductor engineering, sales and marketing
- | Senior Director, TSMC
- | Managing Director, TSMC-Europe

Strong Growth Momentum



Revenue Growth



- 2012 revenue declined despite 15.4% shipment growth due to ASP erosion

Cell Capacity Overview

Current Total Capacity: 2,200 MW

Year-end Capacity 2014: > 2,200 MW

China : 400 MW

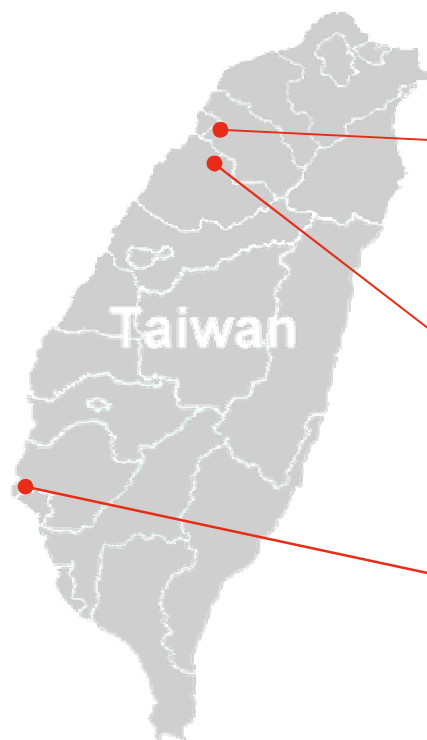


FAB 6



Wujiang, Suzhou

Taiwan : 1,800 MW



FAB 2 & HQ

Hsinchu Science Park



FAB 5

Chunan Science Park



FAB 3

Tainan Tech. Ind. Park

Module Capacity Overview

Current Total Capacity: 410 MW

Year-end Capacity 2014: > 480 MW

China : 180 MW



FAB 52



Wujiang, Suzhou

Taiwan : 230 MW



GES (NSP Subsidiary)
Hsinchu Ind. Park



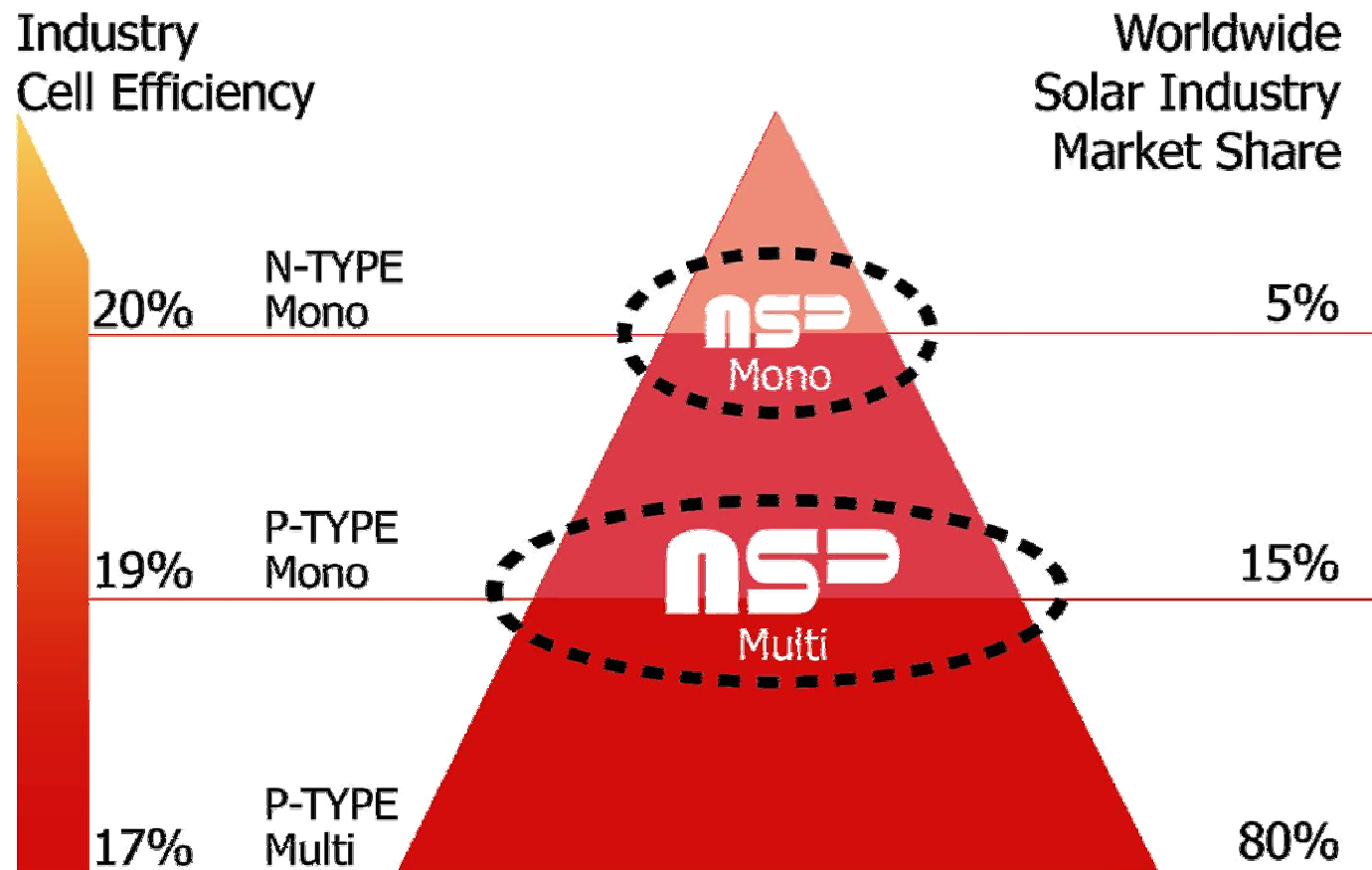
FAB 51
Hsinchu Science Park

Strong R&D Capability

- | **World leader in efficiency and yield**
- | **Advanced characterization based on years of experience in semiconductor device physics for optimized performance**
- | **Excellent manufacturability and reliability to shorten time to market**
- | **Customer oriented technology road map to support advanced products and partnership**



NSP Solar Product Pyramid



NSP p-type mono cell efficiency challenges market n-type mono cell efficiency. (p-type multi challenges p-type mono)

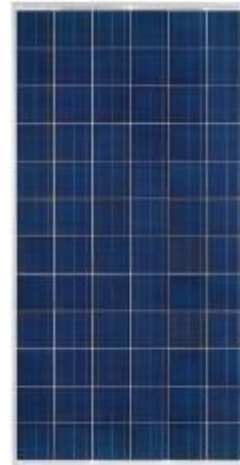
NSP Multi-crystalline Products

- | Super19: High efficiency multi cells
- | Average cell efficiency **>18.9 %**
- | Max cell efficiency: **19.5 %**
- | Ideal for **275W (60cells)** & **325W (72cells)** panels

 **SUPER19**



 **SUPER**



NSP Mono-crystalline Products

- | **Black20: High efficiency mono cells**
- | **Average cell efficiency >20.0 %**
- | **Max cell efficiency: 20.5 %**
- | **Ideal for 280W (60cells) & 335W (72cells) panels**

 **BLACK 20**

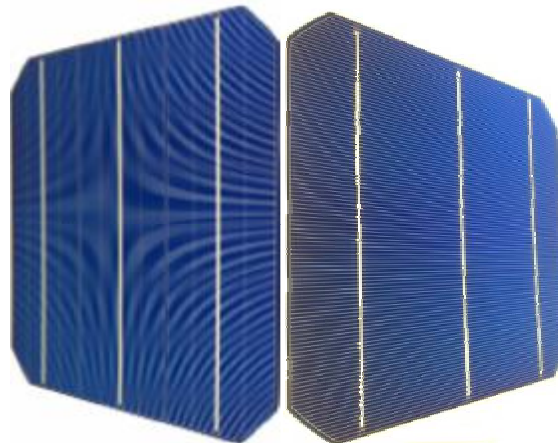


 **POWER**



NSP N-type Bifacial Product

- | BiFi: n-type bifacial mono-crystalline cells
- | Zero cell LID (equivalent to 3% more output in life time)
- | Average cell efficiency (front side) **>20.0%**
- | Nominal Power equivalent power **330W**
(20% power gain from rear side at suitable installation)
- | Ideal for flat rooftops, vertical installations, BIPV, carport, snow or desert environments



Proven Module Capability



- | **Power tolerance of 0 to +4.99 W providing a stable, high-energy system output**
- | **High PV cell shunt resistance enabling increased power output in low light conditions**
- | **Low temperature coefficients of power to produce high power output in all weather conditions**
- | **High efficiency solar cells and state-of-the-art manufacturing technology to enhance cost efficiency per kWh**
- | **High wind/snow load tolerant**
- | **Ammonia-resistant according to IEC 62716**

NSP Module Features

I Standard Offerings



Positive power tolerance
0~+4.99 watt



Withstand strong wind/snow load up to 5400 Pa
Pass ASTM E330
Maximum wind speed: 197 km/h (safety factor 3)



Excellent low light performance
3.5% relative eff. reduction at low-irradiance (200W/m²)



Certified ammonia resistance
According to IEC 62716 Ed. 1



100% EL inline inspection
Better module reliability



Prolonged aging test
2000 hours damp heat test; 400 thermal cycles



Compliance with RoHS and REACH



PID resistant
Enhanced module reliability

I Customized Offerings



Salt resistant
According to IEC 61701 Ed. 2 (severity 6)

Your Best Solar Partner



Largest BIPV in Taiwan



- | **Taiwan National Stadium, 1MW PV System, EPC by Delta, Solar cell by NSP**
- | **Architect: Toyo Ito**
- | **The largest building-integrated PV system in Taiwan**
- | **Annual CO₂ reduction: 660 MT**
- | **Annual Power Generation: 1.1 M KWpH**

Airport PV System by GES

- | **USA Indianapolis Airport, 25 MW**

- | **On-grid ceremony
Oct. 18, 2013**

- | **PPA with Indianapolis
Power and
Light Company (IPL)**



Corporate Social Responsibility

I Environmental Sustainability

- I Voluntary Commitment: A Member of PV Cycle
 - I Recycling end-of-life solar modules through PV cycle
 - I Minimizing environmental impact of end-of-life products
- I Carbon Footprint Verification
 - I Received the Reasonable Level of Assurance (the highest level for this certification)
- I Waste Recycling
 - I Management initiated waste reduction and recycling
- I Environmental Management System
 - I Assuring that environmental impact is being measured and improved



PAS 2050 : 2011



PAS 2050 : 2008



ISO 14001 : 2004



Corporate Social Responsibility

I Employee Well-being

I Safety and Health

- I Adapting occupational health and safety management systems
- I Training for laboratory work safety improvements



OHSAS 18001 : 2007

I Training and Development

- I Set up internal training programs and provide information on external training courses
- I Established E-learning platform and has been encouraging and promoting training courses



TOSHMS

I Workplace Wellness

- I Practices of work-life balance
- I Elimination of discrimination
- I Promotion of physical and mental health



Corporate Social Responsibility

■ Social Contribution

■ Volunteer Programs

- Environmental Care Volunteers:
Educating the public with knowledge on green energy, energy saving and environmental protection
- Social Care Volunteers:
Caring for community, society and the environment



Thank You

Neo Solar Power Corp.

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