Major Business Introduction

Samsung SDI takes a new leap into becoming the global leader in the material and energy total solutions.

Business Portfolio

- Small-sized Li-ion Battery
- Automotive Batteries
Value Creating Products

**Era of BoT through next generation battery**

Leading a new era of BoT, where everything is connected through batteries, Samsung SDI's stripe battery and band battery can be applied to wearable devices of various designs. By minimizing the width of internal sealing, energy density was increased in simultaneously with a longer battery life. Not only does this combination create a product with superior quality, but also an ultra-thin battery with outstanding product stability.

**Power Devices**

Samsung's Li-ion battery technology allows power devices to run longer and many can now utilize lighter, smaller batteries. In the case of power tools, the company owns technologies such as 3.0 Ah battery cells, the world's largest capacity of Li-ion batteries as well as rapid-charging packs, which can reach a complete charge within 30 min. Li-ion batteries found in vacuum cleaners do not have a memory effect as one of its notable features. It can be charged at any time, and while discharging, voltage drops are extremely small, enabling it to maintain a constant suction force.

**Material for Semiconductors (SOH, SOD, CMP, EMC)**

Samsung SDI's manufacturing process includes SOH, an ancillary material that works to form micro patterns within semiconductors, SOD, a coating material applied in the silicon thin film process which insulates between transistors, CMP slurry, an abrasive substance that smoothes surfaces and accommodates semiconductors’ micropatterned design, as well as EMC, which is responsible for protecting semiconductor circuits from factors in the external environment such as moisture, heat, and shock. The company is working to maximize the potential of these functions, which serve as necessary building blocks of semiconductors.
Samsung SDI operates the material R&D center by classifying them by business areas in effort to conduct more efficient R&D and effective technology management. Management is executed so that each business area's R&D results can link to developments of sustainable products. Samsung SDI, meanwhile, focuses its R&D capacity on improving the sustainability of its representative products, leading to overall sustainable corporate growth.

Differentiated Automotive Battery Offered Exclusively by Samsung SDI
Using world-class Li-ion battery technology, cells for plug-in hybrid vehicles and cells for electric vehicles were designed to standardized sizes so that Samsung SDI's battery modules can easily replace each other. LVS (Low Voltage Systems) is gaining immense popularity for its high fuel efficiency and exhaust gas improvement along with its low price, as a light-weight, next generation battery.

Energy Storage System (ESS)
The one-stop ESS solution of Samsung SDI minimizes output fluctuations based on outstanding cell technology and boasts superior energy efficiency that is able to enhance overall power quality. With its ESS battery products, the company is focusing not only on the domestic market and advanced markets, such as Japan, the Americas, Europe, etc., but also emerging markets, and is providing various applications available residential, utility-scale, commercial & industrial, and UPS.

Display Materials
PET (Polyethylene Terephthalate) became the world's first technology to replace TAC (Tri Acetyl Cellulose) film, lowering costs and enhancing durability, which is a core material of existing display polarizing films. In 2015, through the development of ultra-high bright CR (Color Resist) technology, Samsung SDI was able to maintain control in the market.
Due to the market’s technology advancement and intensified price competition, the need for constant investment into introducing new technologies and developing new products within the industry is growing everyday. Samsung SDI is working to improve customer satisfaction through establishment of an effective R&D system and innovative improvement of products and technologies.

R&D Organization
To overcome ever-growing competition within the battery industry and to secure future growth momentum, Samsung SDI is working to reinforce the professional capabilities of its basic functions. In 2015, to reinforce organizational efficiency and improve output performance, Samsung SDI entirely restructured its organizations according to business areas, including its existing battery research lab. R&D is being conducted for small-sized Li-ion batteries, automotive, and ESS batteries, and the electronics materials department through the Material R&D Center directly under the CEO and composed of a diverse development team spanning multiple departments so that a common vision of reinforcing product competitiveness and creating first class materials can be achieved. Among a total of 2,443 R&D personnel, about 52.4% of them hold Masters or PhD degrees. These personnel are supported in the research lab, so as to enable them to work to the best of their research abilities.

R&D Organization Map

R&D Focused Promotion Direction

- Development of core materials for high-performance and low-cost batteries
- Improving simulation technology and analysis on lithium ion battery mechanism

- Reinforcement of competitiveness of polymer products through development of high-energy density material and new processing technology
- Pioneering a new application market through differentiation of cylindrical batteries

- Securing technology leadership of automotive battery through development of high-energy density and high safety technology
- Expansion of automotive battery business through differentiation of module and pack technology

- Development of differentiated materials applicable to semiconductors and displays
- Development of OLED materials and next generation polarizing film, and high transmittance CR
R&D Investments

Samsung SDI is spearheading efforts to enhance customer satisfaction by reinforcing technological competitiveness by each business department and improving product quality through constant R&D investment. In 2015, R&D investment cost was about 539.5 billion won accounting for 10% of sales. In 2016, Samsung SDI plans to further expand R&D investment, and prioritize R&D activities around new products and technologies to accommodate new applications according to the growth of eco-friendly, renewable energy, etc.

Investment Amount for R&D

* Chemical Division was excluded from R&D investment and sales calculation.

![Diagram showing R&D investment amount and target goal]

<table>
<thead>
<tr>
<th>Year</th>
<th>Investment Amount for R&amp;D (billion won)</th>
<th>% of Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>539.5</td>
<td>10%</td>
</tr>
<tr>
<td>2016</td>
<td>573.5</td>
<td>9%</td>
</tr>
</tbody>
</table>

Major R&D Performance

<table>
<thead>
<tr>
<th>Research project</th>
<th>Research result and expected effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed gap-filling polymer material for protection of electrode assembly of cylindrical secondary cell batteries</td>
<td>Improved vibration resistance by fixing and protecting internal components of batteries (jelly roll)</td>
</tr>
<tr>
<td>Developed high efficiency PV Paste</td>
<td>Increased market share through development of high efficiency PV Paste</td>
</tr>
<tr>
<td>Developed the next-generation polarizing films</td>
<td>Expanded product portfolio by developing polarizing films applicable to new display products</td>
</tr>
<tr>
<td>Developed OLED materials</td>
<td>Entered new markets through development of high efficiency OLED materials</td>
</tr>
<tr>
<td>Developed slurry and EMC for semiconductors</td>
<td>Increased market share through development of new products Increased market share through superior void characteristics of EMC development</td>
</tr>
</tbody>
</table>

Intellectual Property Portfolio

Samsung SDI established a foundation for maintaining possessed technology and developing new technology through synergy of battery technology and materials in the field of energy technology. Focusing on the material R&D center, the company is reinforcing intellectual property portfolio by supporting individual business departments in patent efficiency and pioneering next-generation business areas. As of 2015, the company owns 4,770 patents in the domestic market, and owns 5,964 patents in major overseas markets such as the United States, China, and Japan. Samsung SDI is focusing on securing R&D competitiveness through applying for, registering and maintaining patents.
Business Overview

Samsung SDI's small-sized Li-ion battery department is constantly making efforts to improve quality and ensure product safety since its establishment of the Li-ion secondary battery business in 2000. SDI is producing batteries used in non-IT products such as vacuum cleaners and power tools, and in IT products, such as laptops and smartphones. In particular, SDI is leading the small sized Li-ion battery market through outstanding technology in automotive batteries and high power batteries.

2016 Market Outlook

In 2016, it is expected that market demand for small-sized secondary batteries will grow by about 12% compared to last year, to record a total of 5.7 billion cells. In particular, the main driver of non-IT business, such as applications including vacuum cleaners and power tools, is demand for bigger and more efficient batteries. Thus, we forecast growth of more than 31% compared to the previous year. Furthermore, because the market for electric vehicles using cylindrical batteries has experienced normalization in 2015, it has experienced rising demand in 2015 and it is expected to see further growth in demand in 2016. As the expansion of IoT (Internet of Things) continues, it is expected that smartphones and smartwatches will maintain a growth rate of 7% and 42% respectively. For all these areas, Samsung SDI plans to drive innovative technology in lithium-ion batteries and maintain its leadership in both IT and non-IT sectors.

<table>
<thead>
<tr>
<th>Category</th>
<th>2015</th>
<th>2016(E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-IT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wearables*</td>
<td>97</td>
<td>138</td>
</tr>
<tr>
<td>E-Bikes</td>
<td>219</td>
<td>252</td>
</tr>
<tr>
<td>E-Vehicles</td>
<td>668</td>
<td>999</td>
</tr>
<tr>
<td>Vacuum Cleaners</td>
<td>52</td>
<td>78</td>
</tr>
<tr>
<td>Power Tools</td>
<td>511</td>
<td>572</td>
</tr>
<tr>
<td>Others</td>
<td>368</td>
<td>463</td>
</tr>
<tr>
<td>IT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feature Phones**</td>
<td>438</td>
<td>395</td>
</tr>
<tr>
<td>Smartphones</td>
<td>1,437</td>
<td>1,535</td>
</tr>
<tr>
<td>Tablet PC</td>
<td>339</td>
<td>342</td>
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<tr>
<td>Laptop PCs</td>
<td>665</td>
<td>639</td>
</tr>
<tr>
<td>Others</td>
<td>359</td>
<td>337</td>
</tr>
</tbody>
</table>

Total: 5,153 5,749

* Source: B3, as of Nov. 2015 date of issue
Overview

Business Portfolio

Strategic Focus & Approach

Sustainability Management

Appendix

2015 Activities and Performance

Market Share

2005 25.2% 2010 2015

* Source: B3, as of Nov. 2015 date of issue

2015 Activities and Performance

2016 Business Plans

Samsung SDI, applying new business strategies in 2015, aims to constantly expand our product line in response to market changes such as new technologies dealing with energy density or rapid changes and growth in China or other new markets. Furthermore, through the superiority of high power cylindrical secondary batteries in the next-generation market, such as power tools and new applications, SDI is hoping to achieve sustainable market growth. Through expansion of the rapidly growing electric vehicle market, Samsung SDI hopes to lead this growing market on a global scale through its technical leadership in both large and small battery segments.

In 2015, there were developments related with supply and demand of products that Samsung SDI worked diligently to address, such as the breakthrough of the age of Internet of Things, vitalization of wearable devices, high growth rate of new applications of non-IT areas, as well as decreased demand for feature phone batteries due to expansion of smartphone distribution. Samsung SDI not only maintained first place in the power tool market by striving for proliferation and development of new devices, but according to a B3* survey, the company also maintained first place in global market share for small-sized secondary batteries for six consecutive years, exhibiting solid market dominance. Likewise, the company succeeded in becoming the world’s first to mass produce free shaped batteries for smartwatches, to meet the needs of the emerging era of Internet of Things.

2015 Activities and Performance

BUSINESS CASE

01. Participated in the Eurobike 2015

Samsung SDI released a battery pack for electric bicycles, which can run 100km at the Eurobike 2015. In this exhibition, the company showcased 12 battery packs which are currently being supplied to global bicycle companies together with cells with varying specs. This includes the standardized six types of battery packs which can be directly used by attaching them externally or inserting them internally into the bicycle. In addition, a new technology was introduced and received strong interest, Where through including Bluetooth functionality in a battery pack, users can check battery level, and drivable distance with their smartphones while riding.

02. Smartwatch Battery Technology

Samsung SDI announced the release of battery technology used in Samsung Smartwatch Gear S2 at IFA 2015, the largest IT application exhibition in Europe, hosted in Germany. The battery utilized in the Gear S2 uses new technology which allows it to have a hexagonal shape, this shape better utilizes the space available and allows capacity to be increased by 25%. A semi-circle shaped battery which fits the circular design of a smartwatch is also under development, and if it is commercialized, it is expected its capacity can be improved by 50% compared to rectangular batteries.
Business Overview

Automotive Battery Business Division is maintaining its cutting-edge technological prowess by executing constant large-scale investments to provide the best products and services to consumers and to secure competitive advantage in the market. Due to growing concern about global warming caused by GHG emissions and climate change, consumer demand for eco-friendly products is continuously increasing. Therefore, automotive manufacturers are introducing various electric vehicles in order to meet consumer need and solve environmental problems. To meet such market changes, the automotive battery business department is focusing on developing sustainable and eco-friendly battery technology. Notably, Li-ion battery has greatly improved energy density compared with existing lead acid, NiCd, and NiMH batteries, has extended battery life, and improved safety. Samsung SDI, a global leader of new and innovative energy solutions, based on amassed experiences in the battery sector for mobile devices, promises to not only develop high-efficiency, high-energy density batteries for electric vehicles, but also nurture the infinite potential use of rechargeable batteries.

2016 Market Outlook

In 2016, it is expected that the electric vehicle market will expand and environmentally friendly vehicles released by global major OEMs will grow in number. Along with next-generation models such as Toyota Prius, Nissan Leaf and GM Volt, various PHEV models such as BMW X5, VW Golf/Passat, Audi Q7 followed by Mitsubishi Outlander and Volvo V60, are expected to be released. In the case of the Chinese market, it is expected that commercial vehicles, which have a high carbon dioxide reduction effect as well as various environmentally friendly vehicles such as BYD vehicles and small-sized electric vehicles from local OEMs, will lead the market. Accordingly, it is expected that demand for vehicle batteries, due to the massive release of PHEV models and growth of the of China's electric vehicle market, will grow by 25% to reach 2.84 million units.

Mid-term and Long-term Demand Outlook (unit: 1,000 vehicles)

<table>
<thead>
<tr>
<th>Year</th>
<th>BEV</th>
<th>PHEV</th>
<th>HEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>2,274</td>
<td>2,840</td>
<td>3,556</td>
</tr>
<tr>
<td>2016</td>
<td>2,816</td>
<td>3,585</td>
<td>4,154</td>
</tr>
<tr>
<td>2017</td>
<td>3,291</td>
<td>4,020</td>
<td>4,926</td>
</tr>
<tr>
<td>2018</td>
<td>3,972</td>
<td>4,868</td>
<td>5,621</td>
</tr>
<tr>
<td>2019</td>
<td>4,535</td>
<td>5,601</td>
<td>6,334</td>
</tr>
<tr>
<td>2020</td>
<td>5,111</td>
<td>6,369</td>
<td>7,102</td>
</tr>
</tbody>
</table>

* source: B3

2016 Business Plans

In 2016, the automotive battery business department plans to locate additional strategic customer bases, in an attempt to expand the scope of its customer structure, which had focused primarily on Europe until now. On the other hand, it will seek to raise overall profits by expanding its sales of module/pack products which can create high added value. Winning new, large EV projects and expanding market share in China, where high growth is expected in the future, will improve sales and profits and serve as an opportunity to sustain long-term growth.
To possess a total solution for automotive batteries, Samsung SDI acquired the pack business subsidiary of Magna, a world-class automotive parts manufacturer. By doing so, the company not only secured the highest-level competitiveness for pack technology. As a notable contract-winning achievement, the company initiated co-development of Sports Utility Vehicle which can drive up to 500km with a single charge with a premium European OEM in 2015. Winning such contracts proves that Samsung SDI is contributing not only in terms of longer driving distance of electric vehicles, but also helping to increase the electric vehicle market as a whole. Furthermore, in order to respond to the rapidly growing China’s electric vehicle market, the company established a plant solely for automotive battery production in Xi’an, and from this, is now able to produce enough batteries each year to meet the demand of 40,000 electric cars. Samsung SDI won battery supply projects from leading companies in the bus/truck market and its major supply chains. The company will continue to proactively conduct marketing activities to form a global network by participating in major global auto shows in Detroit, Frankfurt, and Shanghai.

**2015 Activities and Performance**

- **Acquired Austrian-subsidiary of Magna International**
  In May 2015, in a bid to reinforce its competitiveness in battery pack system solutions, Samsung SDI acquired Magna Steyr Battery Systems (MSBS), which is an Austrian-subsidiary of Magna International, established the Samsung SDI Battery Systems, and then held an official celebration for business initiation. Combining Samsung SDI’s world-class cell technology and Samsung SDI Battery Systems’ battery pack know-how, the company reinforced its capability to provide customers with an enhanced product portfolio and create optimized results and synergies. Furthermore, by combining the two companies’ global sales, R&D, and production facilities, the company expects that this merger can contribute to regional development in Europe and North America.

- **Mass Production Initiated at the Xi’an plant in China**
  In October 2015, Samsung SDI hosted a celebration for the opening of the automotive battery plant in the Gaoxin industrial development area, Xi’an, China. To lead the rapidly-growing Chinese electric vehicle market, Samsung SDI became the first among global battery manufacturing companies to complete a plant dedicated to automotive battery production in China, and initiated mass production in September 2015. Through Samsung SDI’s Xi’an plant, which is able to produce high-performance and high-energy batteries that can supply up to 40,000 electric vehicles per year, Samsung SDI signed battery supply contracts with 10 local vehicle manufacturing companies, including the largest bus manufacturing company in China, Yutong Bus, and the leader of the Chinese truck industry, Foton Truck. To meet the increasing demand, Samsung SDI plans to invest $600 million in the Xi’an plant by 2020 with its local partner, to accomplish its goal of reaching $1 billion in sales.
Samsung SDI Sustainability Report 2015

Launched in 2011, the Energy Storage System (ESS) technology of Samsung SDI’s ESS division utilizes Samsung SDI’s secondary battery technology, which has market leading quality lifespan and performance. It satisfies user’s various needs, while providing custom solutions within strategic markets such as electric power use, commercial use, household use, communication use, etc. ESS solutions from kWh to MWh sizes will catalyze the transition from traditional carbon intensive power generation to the new world of renewable energy.

Business Overview

Developed countries such as the United States, Japan, and Europe are conducting large-scale demonstration projects made possible by ESS-related government subsidies, and are creating price competitiveness through mass production of Li-ion secondary batteries. Furthermore, developed countries are systematically encouraging ESS installation, by passing ESS installation mandates or providing subsidies for connecting renewable energies and ESS. From these developments, the company expects that demand for ESS will increase not only in the United States, the world’s largest ESS market, but also in Germany and Japan. Due to KEPCO’s frequency regulation ESS and the government initiative to support the development of the ESS industry as part of the 2030 Energy New Business Expansion Strategy, the ESS market in Korea is also expected to grow.

2016 Market Outlook

Developed countries such as the United States, Japan, and Europe are conducting large-scale demonstration projects made possible by ESS-related government subsidies, and are creating price competitiveness through mass production of Li-ion secondary batteries. Furthermore, developed countries are systematically encouraging ESS installation, by passing ESS installation mandates or providing subsidies for connecting renewable energies and ESS. From these developments, the company expects that demand for ESS will increase not only in the United States, the world’s largest ESS market, but also in Germany and Japan. Due to KEPCO’s frequency regulation ESS and the government initiative to support the development of the ESS industry as part of the 2030 Energy New Business Expansion Strategy, the ESS market in Korea is also expected to grow.

2016 Business Plans

In Japan, the company plans to maintain its market share by focusing on household ESS solutions in 2016. Samsung SDI will also strengthen its strategic approach to satisfy demand toward increased ESS application in major electric power companies, as displayed by the vitalization of the solar power industry. Samsung SDI plans to expand its ESS solution business in North America and EU markets, showing steady growth, will make ceaseless efforts to increase sales in Korea and China, and will reinforce its position as a leader of the ESS market by releasing products with innovative technologies. In particular, through the development of high output products for frequency regulation (F/R) at the domestic Korea Electric Power Corporation and development of UES technology, which is a combination of UPS and ESS, the company plans to create new business models under its title of a “Technology Driven Company”.

Mid-term and Long-term Demand Outlook (unit: GWh)

<table>
<thead>
<tr>
<th>Year</th>
<th>Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>1.6</td>
</tr>
<tr>
<td>2016</td>
<td>2.5</td>
</tr>
<tr>
<td>2018</td>
<td>7.3</td>
</tr>
<tr>
<td>2020</td>
<td>18.5</td>
</tr>
</tbody>
</table>

* source: Samsung SDI ESS Division

- Increased market participation by global SI companies and power generation companies
- Expansion and actualization of battery ESS project

Our Industry

Major Issues

Business Portfolio 03

ESS
Energy Storage System
In Korea, in an effort to guide the domestic market, Samsung SDI contributed a large-scale supply of goods to Korea Electric Power Corporation’s demonstration project for F/R, and boosted ESS supplies linked to wind power with Korea Southern Power and Daemyung GEC. In the Japanese market, the company expanded sales focusing on selling a household solution with Nichicon. In order to pioneer and occupy new markets, the company signed an MOU (Memorandum of Understanding) for micro-grid ESS project development with ABB, a global strategic equipment company. Also, in order to share in cooperative promotion, signed an MOU to create ESS project opportunities with E.ON, a German company specialized in the energy sector. Samsung SDI captured a 24.3% share of the global Li-ion ESS market in the third quarter of 2015, which puts it in first place, and is strengthening cooperative ties and marketing activities through various applications with multiple existing partner companies in a bid to expand the scope of business cooperation.

**2015 Activities and Performance**

**BUSINESS CASE**

**01. Samsung SDI Supplies ESS Batteries to the Largest Power Generation Company in North America**

In July 2015, Samsung SDI signed an ESS supply contract for an ESS project with a scale of 36MW with Duke Energy, the largest power generation company in North America. The project aims to replace the installed Lead Acid battery ESS with Li-ion battery ESS, and Samsung SDI sought out this project as an opportunity to improve functions of wind power plants and ESS through advanced power battery technology. The fact that the company won this project is proof of a growing cooperative relationship with the largest power generation company in North America based on the trust of Samsung SDI's outstanding technology, quality, and service. Samsung SDI is thought to have successfully laid the groundwork for pre-occupying the North America ESS market by signing a commercial ESS supply contract on a scale of 25MWh with GCN of the US in October 2014, and winning this ESS project for electric power.

**02. Samsung SDI, with its Technological Prowess, is Selected as a Contractor for ESS Installation for KEPCO Frequency Regulation**

Under the new climate regulations, KEPCO initiated the establishment of its ESS project for frequency regulation with a total scale of 500MW, scheduled to be completed by 2018 and ensure stable supply against the abrupt imbalance in electric power supply and create new growth power. Since 2014, Samsung SDI, based on its domestic and international business experiences, has been participating in this ESS project. Samsung SDI was ranked first place in technology evaluation in the battery sector in 2014 and 2015, and supplied batteries for substations in New Yongin, New Hwasan, and Gyeongsan. In the future, working with KEPCO, the company will expand the range of ESS application for peak reductions and stability of renewable energy output so that the company can actively participate in creating an ecosystem for the ESS industry.

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**Risks**
- Expansion of business opportunities in new renewable energy sector are expected to be delayed due to the continuing trend of low oil prices
- Intensified price competition due to low-price policy between battery companies

**Opportunities**
- Subsidy of 11 billion yen for new construction of zero-energy houses and 10 billion yen for energy innovations in Japan
- Continuous ESS subsidies connected with solar power PV for households in Germany
Business Overview

Samsung SDI’s electronic material department maintains its world-class competitiveness based on advanced technology and specialized capability in various materials such as semiconductors, displays, secondary batteries and Solar Cells. The company is focusing on constant investments, which are positively influencing fiscal results, and productivity in R&D related to PV Paste, which is used in Solar Cells, eco-friendly renewable energy, and OLED material, and is spotlighted as a promising product.

2016 Market Outlook

As the growth of TV and smartphone markets, which are major demand-driven industries, is slowing down, stagnation is also expected in downstream industries such as semiconductors and displays. However, it is also expected that demand for materials, along with technology advancements such as micro-processing of semiconductors, expansion of 3D structures, and increased OLED adoption, will be steady. It is expected that business opportunities in new areas will expand, from market growth of semiconductors for vehicles and displays, and increased demand of AP and communication chips following the expansion of IoT. However, in the case of the LCD and secondary battery market, due to generalization of technology, intense competition is expected, and Samsung SDI will be required to secure differentiated technologies, cost savings, and make efforts to respond to diversified customers.

2016 Business Plans

In 2016, under the goal of reinforcing its market share in existing markets and pre-occupying potential next-gen markets through customer diversification and establishment of global bases, Samsung SDI plans to proactively release differentiated products and focus on technological competitiveness and marketing proficiency. For semiconductors and display materials, not only will the company proactively supply products of outstanding competitive quality to secure its advantage in existing markets, but Samsung SDI also plans to

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**Mid-term and Long-term Demand Outlook for Materials**

(Unit: billion won)

- Semiconductor materials
- Display materials
- PASTE materials
- Battery materials

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>17,427</td>
<td>18,908</td>
<td>24,705</td>
</tr>
<tr>
<td>Sales</td>
<td>787</td>
<td>2,610</td>
<td>8,500</td>
</tr>
<tr>
<td>Sales</td>
<td>983</td>
<td>1,319</td>
<td>1,775</td>
</tr>
<tr>
<td>Sales</td>
<td>12,586</td>
<td>11,551</td>
<td>10,810</td>
</tr>
<tr>
<td>Sales</td>
<td>3,071</td>
<td>3,328</td>
<td>3,620</td>
</tr>
</tbody>
</table>

* Source: Samsung SDI Electronic Materials Division
Samsung SDI had strived to establish a qualitative business structure for sustained growth through careful selection and focus in 2015. The company targeted the world’s largest photovoltaic market, China, and captured largest market share for PV Paste in China, boosting sales in year-on-year (YoY), and improved production and manufacturing efficiency, achieving zero defects, contributing to the great achievement. Additionally, the company will complete and ramp up a new polarizer film production line in China during the second half of 2016 to help secure local operations to meet local demand in real-time. Through these business activities and achievements, among all of its products, five products were ranked within top three in the global market.

reinforce its customer-oriented local response system by establishing global bases. Due to expected market growth of OLED material centering on mobile devices, Samsung SDI plans to make efforts to secure new customers through shared marketing with Novaled, a German OLED material company which Samsung SDI acquired in 2013. Moreover, through strategic timing, the company plans to establish a system which can supply flexible display materials, leading the next-generation’s mobile device market.

2015 Activities and Performance

**BUSINESS CASE**

**01. Signed MOU with Wuxi, China for Establishment of Polarized Film Plant**

In May 2015, Samsung SDI signed an MOU with the Wuxi regional government of China in order to establish a polarized film plant. After China recently emerged as one of the major markets of polarized film for large TVs, Samsung SDI decided to establish a plant in China in response to local demand from customers, and the company plans to invest about 200 billion won in the construction site located in Wuxi New District to build a polarized film plant production with an annual scale of 30 - 40 million m². The company plans to commence mass production in the second half of next year, and expects to increase its global competitiveness as production sharply increases following completion of the plant in China, allowing us to respond to customer demand in the Chinese market on a real-time basis.

**02. Reinforced Standing in Chinese Photovoltaic Material Market**

In 2015, Samsung SDI achieved first place in market share of Paste material in China, which possesses the largest photovoltaic industry in the world. The company released new products based on advanced technologies with better efficiency and physical properties were introduced at the SNEC PV Power Expo in Shanghai, China. In 2016, the company will focus on faster response as it is expected to complete a local plant in China, which will help diversify customers as well as lead the local market. GTM, the market research firm, and the global solar power market are expected to grow more than 8% annually to reach a capacity of 125GW by 2025 from 58GW in 2015. Therefore, the PV paste market is expected to see large-scale growth.