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## INDUSTRY OVERVIEW

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*The information and statistics set out in this section and other sections of this document were extracted from different official government publications, available sources from public market research and other sources from independent suppliers. In addition, we engaged CCID for preparing an independent industry report in respect of the [REDACTED]. We believe that the sources of such information and statistics are appropriate and we have taken reasonable care in extracting and reproducing such information and statistics. We have no reason to believe that such information and statistics are false or misleading in any material respect or that any part of the information has been omitted rendering such information false or misleading. The information and statistics have not been independently verified by the Company, Sole Sponsor, Sole Global Coordinator, Joint Bookrunners, Joint Lead Managers, Underwriters, any other persons involved in the [REDACTED] or their respective directors, advisers and affiliates. Therefore, the Company, Sole Sponsor, Sole Global Coordinator, Joint Bookrunners, Joint Lead Managers, Underwriters, any other persons involved in the [REDACTED] or their respective directors, advisers or affiliates make no representation as to the correctness or accuracy in respect of the information and statistics set out in this document. The reliability of the CCID Report may be affected by the accuracy of the relevant assumptions and factors considered by CCID for the market forecasts, industry trends and the future development of the PRC asphalt mixing plant manufacturing industry. The information set out in this section should not be unduly relied upon as the information and statistics may be inaccurate, incomplete, out-dated or inconsistent with the other information prepared inside or outside the PRC.*

## SOURCES AND USE OF INFORMATION

We have commissioned CCID, an independent market research institution based in the PRC, to analyse and report on the asphalt mixing plant manufacturing industry in the PRC. The fee payable to CCID for the preparation and use of the CCID Report is RMB280,000. The payment of this commission is not conditional on our successful listing or on the research findings of the CCID Report.

CCID provides consulting services in the PRC. Headquartered in Beijing, it is listed on the Growth Enterprise Market of the Hong Kong Stock Exchange (HKEx Stock Code: 8235). CCID prepared its report based on the national statistics information, statistics of relevant government departments and industry associations, relevant national and local policies, site visits and interviews as well as its independent analysis on the relevant information. Market forecasts and industry trends in this section represent CCID's view on the future development of the PRC asphalt mixing plant manufacturing industry based on key drivers of market demand. CCID developed its estimates or forecasts on the following bases and assumptions:

- That the social, economic and political environment in the PRC being examined remain stable during the forecast period and the economic growth rate remain stable with a slight decline;

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- That the asphalt mixing plant manufacturing industry is expected to grow in line with the PRC's overall economic growth;
- CCID has considered related industry key drivers as including macroeconomic policy and development in the PRC, road construction planning and policies relating to asphalt mixing plant manufacturing industry in the PRC.

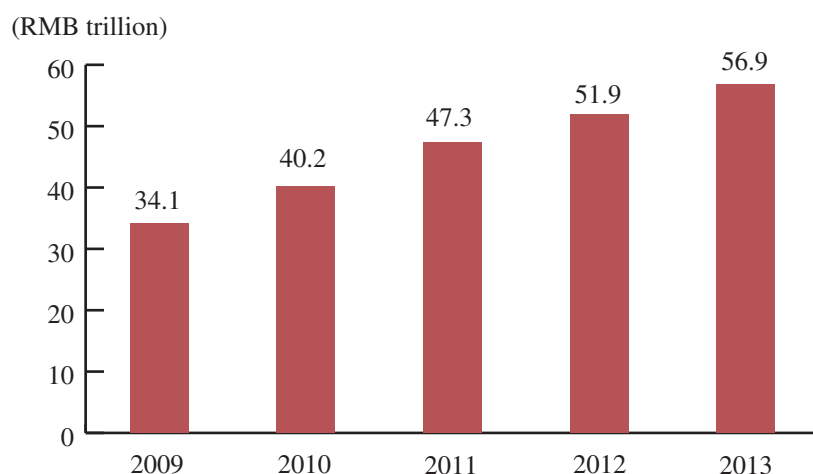
Except as otherwise noted, all the data and forecasts in this section are derived from the CCID Report. Our Directors, after reasonable consideration, confirm that they were not aware of any adverse change to the market information since the date of the CCID Report which may qualify, contradict or have an impact on the information in this section.

### OVERVIEW OF THE PRC ECONOMY AND ROADS IN THE PRC

#### Economic Growth of the PRC

The PRC has been experiencing significant economic growth in recent years. According to the National Bureau of Statistics of the PRC, the PRC's nominal GDP increased from approximately RMB34.1 trillion in 2009 to approximately RMB56.9 trillion in 2013, representing a CAGR of approximately 13.7%. The following chart sets forth the PRC's nominal GDP during the periods indicated:

**PRC's Nominal GDP, 2009-2013**



*Source:* CCID Report

*Note:* the latest information available is as of 2013

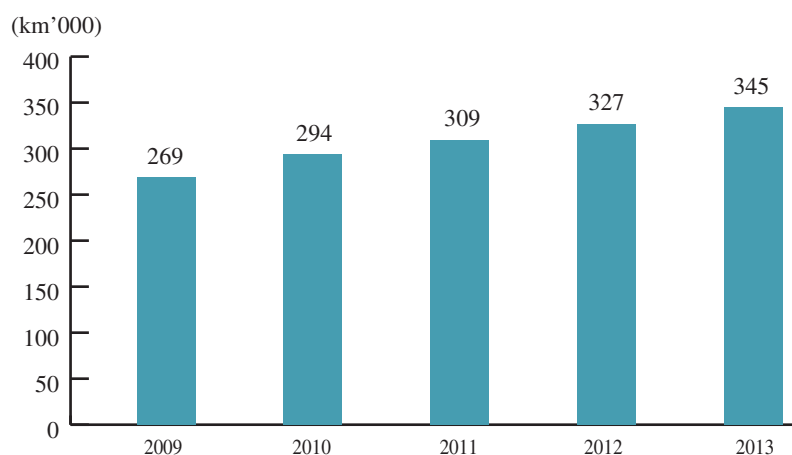
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Roads in the PRC can be broadly categorised into urban roads and highways.

### Urban roads

The mileage of urban roads in the PRC has increased from approximately 269,000 km in 2009 to approximately 345,000 km in 2013, representing a CAGR of approximately 6.4%, with an average increase of approximately 15,200 km per year. The table below shows the urban road mileage statistics in the PRC during the periods indicated:

**Urban road mileage in the PRC, 2009-2013**



Source: CCID Report

Note: the latest information available is as of 2013

### Highways

Highways in the PRC are graded according to its usage, functionality and traffic. They are classified into five grades: expressways, first grade highways, second grade highways, third grade highways and fourth grade highways. The table below sets out the total mileage of highways in the PRC by grade during the periods indicated:

**Total mileage of highways in the PRC, 2009-2013**

Year	Mileage by grade (km '000)						Total
	Expressways	First grade highways	Second grade highways	Third grade highways	Fourth grade highways	Non-graded highways	
2009	65.1	59.5	300.7	379.0	2,252.0	804.6	3,860.8
2010	74.1	64.4	308.7	388.0	2,469.5	703.5	4,008.2
2011	84.9	68.1	320.5	393.6	2,586.4	652.8	4,106.4
2012	96.2	74.3	331.5	401.9	2,705.8	627.9	4,237.5
2013	104.4	79.5	340.5	407.0	2,824.1	600.7	4,356.2
CAGR	12.5%	7.5%	3.2%	1.8%	5.8%	-7.1%	3.1%

Source: CCID Report

Note: the latest information available is as of 2013

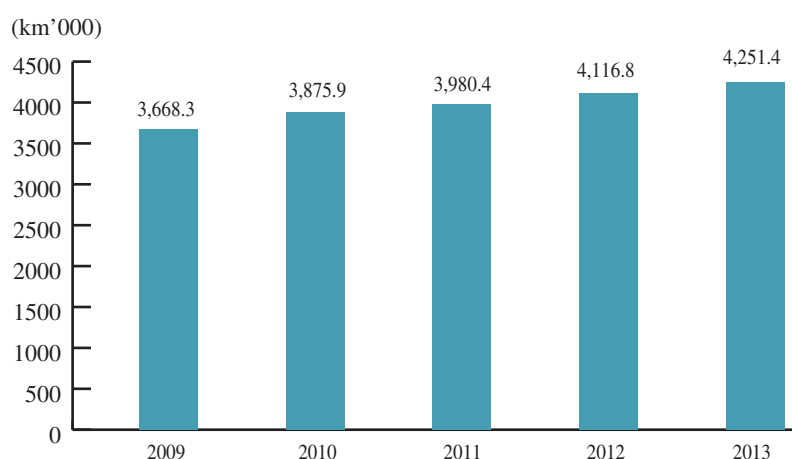
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The CAGR of expressways and first grade highways from 2009 to 2013 was approximately 12.5% and 7.5%, respectively and which were amongst the highest in the growth rate of highways during the same periods.

### Road maintenance

The following chart sets out the road mileage of highway maintenance during the periods indicated:

**Total mileage of highway maintenance in the PRC, 2009-2013**



Source: CCID Report

Note: the latest information available is as of 2013

The total mileage of highway maintenance increased from approximately 3.7 million km in 2009 to approximately 4.3 million km in 2013, representing a CAGR of 3.8%.

The expenditure relating to road maintenance during the Eleventh Five-Year Plan period was approximately RMB801.1 billion. The investment and road maintenance projects are expected to achieve growth of 10% to 20% during the Twelfth Five-Year Plan period. The total road maintenance and management funding required from 2011 to 2030 is approximately RMB11.5 trillion, among others, the maintenance and management funding required for national highways, inter-provincial highways and rural roads is RMB3.1 trillion, RMB3.2 trillion and RMB5.2 trillion, respectively, and 70% to 80% of the funding required for road maintenance and management belongs to funding for road maintenance and reconstruction.

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The following table sets out the expenditures for road maintenance in national public finance in China from 2010 to 2013:

	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
Expenditure for road maintenance (RMB billion)	45.0	54.1	52.2	57.6

Source: CCID Report

Note: the latest information available is as of 2013

The amount of expenditure for road maintenance increased from approximately RMB45.0 billion in 2010 to approximately RMB57.6 billion in 2013, representing a CAGR of approximately 8.6%.

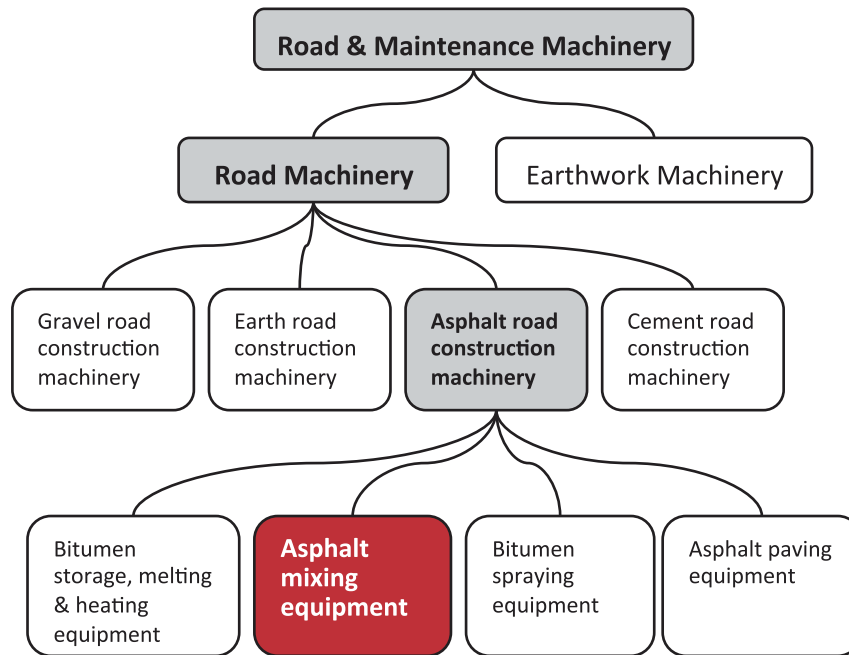
According to the CCID Report, the total mileage of the highways in the PRC will reach approximately 4.5 million km by 2015 and the majority of expressways, first grade highways and second grade highways are paved with asphalt mixtures. According to the CCID Report, by 2015, the total mileage of PRC highways which are paved with asphalt mixtures accounted for approximately 15% of the total mileage of the PRC highways, equivalent to approximately 680,000 km. Between 2011 and 2015, it is expected that not less than 17% of the mileage of the asphalt paved roads will be medium to large scale maintenance work. As such, the total mileage of expressways, first grade highways and second grade highways to be repaired is expected to reach approximately 120,000 km.

Using RAP as an alternative to new materials, such as aggregates, fillers and bitumen, in asphalt mixtures can effectively reduce cost. According to CCID Report, as up to 80% of the bitumen in the RAP can be recycled and use in the production of recycled asphalt mixtures, there could be up to 80% saving of the bitumen in the RAP portion of the materials in the recycled asphalt mixtures. According to the Guidance on Promoting Road Pavement Material Recycling\* (《交通運輸部關於加快推進公路路面材料循環利用工作的指導意見》) issued by the Ministry of Transport of the PRC in 2012, the annual volume of RAP generated from medium to large scale road maintenance projects for major highways alone has reached 160 million tonnes in 2012. If 30% of such volume can be recycled each year, over RMB10.0 billion of material costs may be saved in highway construction and maintenance projects each year.

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### CLASSIFICATION OF ROAD MACHINERY INDUSTRY

The asphalt mixing plant industry is classified in the PRC under road and maintenance industry. The diagram below shows the classification of our major products in our industry in the PRC:



### ASPHALT MIXING PLANT MANUFACTURING INDUSTRY IN THE PRC

#### Historic Development

Prior to 1978, the asphalt mixing plant manufacturing industry was in its early stage of development. Asphalt mixing plants were mainly small pieces of equipment which applied low technology and produced a small yield, only capable of performing basic constructions for asphalt pavements. From 1978 to 2000, through the introduction of advanced manufacturing technologies and equipment, a number of manufacturers began to develop and produce their own series of products, mainly focusing on asphalt mixing plants of 3000 model series or below. However, there was still a large disparity in the standard of technology, production efficiency and scale of production between 3000 model series asphalt mixing plants manufactured by local and overseas manufacturers. Since 2004, asphalt mixing plants were essentially no longer imported into the Chinese market. Since 2008, the rapid developments in road construction prompted manufacturers to further research and develop asphalt mixing plants to increase their production capabilities. In the past three years, the whole range of 2000 model series or below to 5000 model series asphalt mixing plants has been manufactured domestically in the PRC, fully satisfying the demand of the PRC market and gradually exporting to other countries.

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### Products

Asphalt mixing plants may be categorised according to their production capacity. 2000 model series or below, 3000 model series and 4000 model series or above asphalt mixing plants are generally regarded as small scale, medium scale and large scale asphalt mixing plants in the PRC, respectively. The following table sets forth the production capacity of asphalt mixing plants under standard conditions based on PRC national standard:

	<b>Production capacity<sup>(3)</sup></b>	<b>Mixing quantity</b>
	<i>(tonne/hour)</i>	<i>(kg/tank)</i>
2000 model series or below	80-160	1,000-2,000
3000 model series <sup>(1)</sup>	200-240	2,500-3,000
4000 model series	320	4,000
5000 model series <sup>(2)</sup>	400	5,000

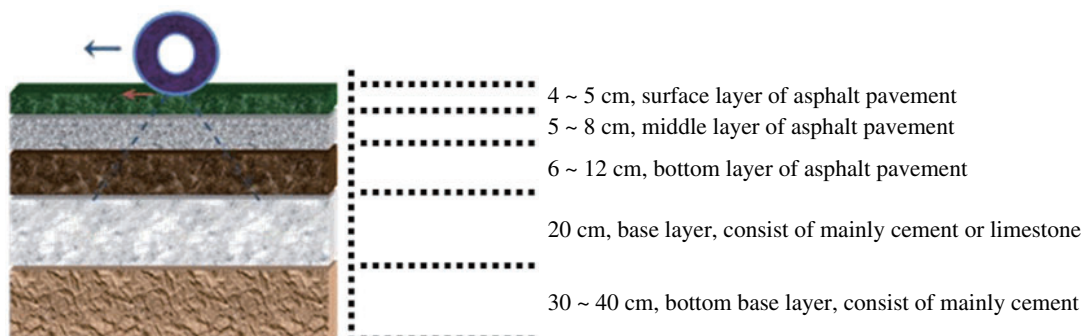
*Notes:*

- <sup>(1)</sup> Based on industry practice, asphalt mixing plants with production capacity of 200 tonnes per hour and mixing quantity of 2,500kg per tank is generally categorised as 3000 model series.
- <sup>(2)</sup> The setting of production capacity of 5000 model series asphalt mixing plants under standard conditions is based on industry practice.
- <sup>(3)</sup> The production of recycled asphalt mixtures by conventional asphalt mixing plants with recycling components installed usually requires longer mixing time than that required for the production of regular asphalt mixtures.

### STRUCTURE OF ASPHALT PAVED ROADS

Asphalt paved roads usually consist of five layers, with the top three layers being asphalt pavements and the bottom layers consists of cement or limestone. The following diagram shows the structure of paved road with asphalt mixtures:

The structure of asphalt pavements are set out as follows:



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Amongst the three layers of asphalt pavements, the surface layer of asphalt pavements contains more bitumen than the middle and bottom layers. As such, it requires more costs to produce the asphalt mixtures for use in the surface layer of asphalt pavements.

### **Asphalt pavement recycling technologies**

Asphalt pavement recycling technologies can be divided into four categories, namely, in-situ hot-mix recycling, hot-mix plant recycling, in-situ cold-mix recycling and cold-mix plant recycling. The following table sets forth the description of each of these four categories:

- In-situ hot-mix recycling – heating the pavement, mixing the RAP with a portion of new asphalt mixtures, repaving the pavement with recycled asphalt mixtures on site.
- Hot-mix plant recycling – cutting and milling the pavement, recycling the RAP in a hot mixing plant, then repaving the road using recycled asphalt mixtures.
- In-situ cold-mix recycling – cutting and milling the pavement, grinding the RAP materials, repaving the road with recycled asphalt mixtures on site.
- Cold-mix plant recycling – cutting and milling the pavement, recycling the RAP in a cold mixing plant, then repaving the road using the recycled asphalt mixtures.

We adopt hot-mixing plant recycling technology for our Recycling plants.

The asphalt pavement hot recycling technologies may be categorised into hot-mix plant recycling or in-situ hot recycling. The hot-mix plant recycling and in-situ hot recycling have different scope of application and target for different kinds of road damage. In-situ hot recycling is mainly used in road maintenance work for road damage in the surface layer of the asphalt pavements, whereas hot mix plant recycling may be used in road maintenance work for road damage in all layers of asphalt pavements. In addition to road maintenance work, the hot-mix plant recycling technology may also be applied in road construction projects.

The difference between hot-mix plant recycling technology and cold-mix plant recycling technology lies mainly in the quality of recycled asphalt mixtures produced. The recycled asphalt mixtures produced through hot-mix plant recycling technology may be used in all layers of asphalt pavements for all levels of roads. On the other hand, cold-mix plant recycling technology is generally used in road maintenance work where both the surface and non-surface layers of asphalt pavements are damaged. The recycled asphalt mixtures produced through cold mix plant recycling technology consist of RAP from the surface layer and the non-surface layers of asphalt pavements. Such recycled asphalt mixtures cannot be used in the surface layers of asphalt pavements in the same level of roads where the RAP was removed. For example, the recycled asphalt mixtures (which contained RAP removed from first grade highways) produced by applying cold-mix plant recycling technology may only be used in non-surface layers of asphalt pavements in first grade and second grade highways or the surface layer of lower grade highways.



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The difference between hot-mix plant recycling technology and in-situ cold-mix recycling mainly lies in the scope of application and the quality of recycled asphalt mixtures produced. Hot mix plant recycling technology may be used in road construction and maintenance projects, including the construction and maintenance of all level of highways. In-situ cold-mix recycling technology may only be used in road maintenance projects. With respect to the quality of recycled asphalt mixtures produced, similar to the recycled asphalt mixtures produced by cold-mix plant recycling, recycled asphalt mixtures produced by in-situ cold-mix recycling cannot be used in the surface layers of asphalt pavements in the same level of roads where the RAP was removed.

According to the CCID Report, the hot-mix plant recycling is the most common recycling technology currently in use and the hot recycling technologies will be adopted in the majority of roads maintenance projects in the PRC that requires recycled asphalt pavements in the next three to five years.

### Prices of Asphalt Mixing Plants

The following table sets forth the reference price of standard asphalt mixing plants in 2014 in the PRC based on model series:

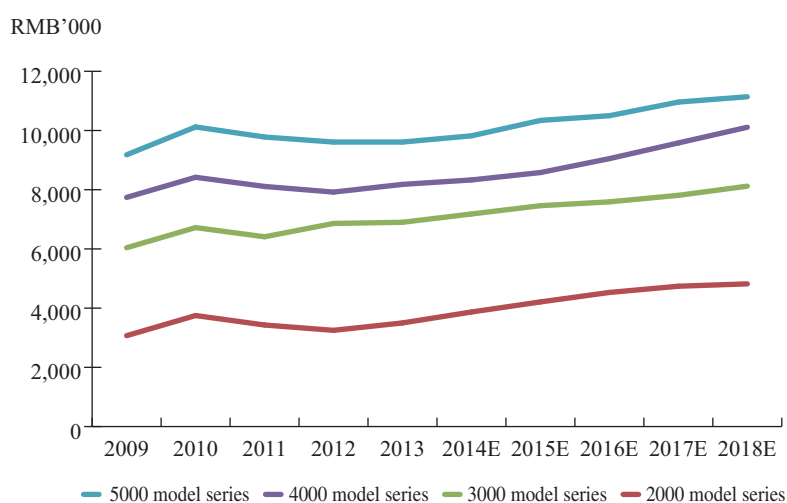
Model series	2000 or below	3000	4000	5000
Reference price (RMB) (in thousand)	1,700-4,100	4,300-6,800	6,000-8,800	6,800-10,900

Source: CCID Report

Based on our average selling price of asphalt mixing plants for the year ended 31 December 2014, the prices of our asphalt mixing plants are at the medium to high end of the range of the reference prices above.

The following chart sets out the price movements of asphalt mixing plants (including Conventional and Recycling Plants) in the PRC between 2009 and 2013 and the estimated prices of asphalt mixing plants between 2014 and 2018:

### Price movements of asphalt mixing plants in the PRC, 2009-2013, 2014E-2018E



Source: CCID Report

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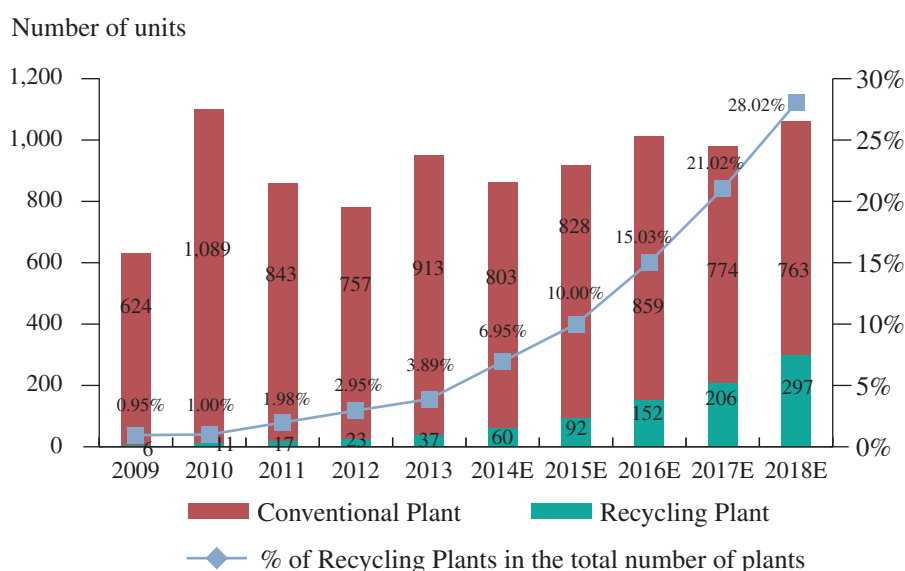
Prices of asphalt mixing plants have generally been stable from 2009 to 2013. The two major factors affecting asphalt mixing plants are prices of steel and imported raw materials. In view of the fact that there has been a decrease in steel price in the past three years, prices of imported components have been increasing slowly at a rate of 3-5% per year, and taking into consideration factors such as currency appreciation and inflation, the production cost of asphalt mixing plants has remained stable in the past few years.

From 2014 to 2018, it is estimated that the prices of asphalt mixing plants will increase, taking into consideration of a number of factors such as inflation and costs of labour. For 2000 model series or below asphalt mixing plants, the increase in price is expected to be lower than those of higher model series because of the lower technical barrier to entry into the small scale asphalt mixing plant market. Between 3000 model series and 4000 model series or above asphalt mixing plants, it is estimated that the increase in price in 4000 model series or above asphalt mixing plants would increase at a higher rate, because of the limited number of manufacturers in the large scale asphalt mixing plant market, the more advanced technical capabilities required to manufacture these plants and the higher technical barrier to entry into that market.

### Sales volume of asphalt mixing plants

The following table sets out the annual sales volume of asphalt mixing plants manufactured in the PRC between 2009 and 2013 and the estimated annual sales volume of asphalt mixing plants manufactured in the PRC between 2014 and 2018:

#### Annual sales volume of asphalt mixing plants manufactured in the PRC, 2009-2013, 2014E-2018E



Source: CCID Report

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The demand for asphalt mixing plants in the road construction industry reached a historic record in 2010 after the PRC government implemented policies to strengthen macroeconomic regulation and control efforts to stimulate the PRC's economic growth during the global economic crisis, with annual sales volume reaching 1,100 sets in 2010. In 2011 and 2012, as road construction gradually reached a steady growth rate, there has been a corresponding decrease in the demand for asphalt mixing plants. 860 and 780 sets of asphalt mixing plants manufactured in the PRC were sold in 2012 and 2013, respectively, representing a decrease of approximately 21.8% and 9.3% as compared to the same period of the last year, respectively. The sales volume of asphalt mixing plants manufactured in the PRC increased to approximately 950 units in 2013.

The percentage of sales volume of Recycling Plants manufactured in the PRC increased from approximately 1.0% in 2009 to approximately 3.9% in 2013. It is estimated that the percentage of sales volume of Recycling Plants manufactured in the PRC will increase from approximately 7.0% in 2014 to approximately 28.0% in 2018. With the increase in the sales volume of Recycling Plants, the sales volume of Conventional Plants decreases gradually. The percentage of sales volume of Conventional Plants manufactured in the PRC decreased from approximately 99.0% in 2009 to approximately 96.1% in 2013. It is estimated that the percentage of sales volume of Conventional Plants manufactured in the PRC will decrease from approximately 93.0% in 2014 to approximately 72.0% in 2018.

### Exports

In terms of type of products exported, asphalt mixing manufacturers in the PRC generally export small to medium scale asphalt mixing plants to markets such as in Southeast Asia and Africa. This is because such enterprises have a price advantage when selling small to medium scale asphalt mixing plant to such locations. We were the first and one of the few asphalt mixing plant manufacturers in the PRC that have acquired E.U. CE mark, and are capable of exporting our products to Europe and other developed countries such as Australia. Methods of exportation can either be (i) direct export to foreign users; or (ii) indirect export where products are first sold to

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PRC construction companies and then transported overseas for their construction work. The following table sets out certain exports data (including export and indirect export) for asphalt mixing plants in the PRC from 2011 to 2013:

**Exports Data for asphalt mixing plants in the PRC, 2011-2013**

Country	2011			2012			2013		
	Number	Amount	Average price of single set of plant	Number	Amount	Average price of single set of plant	Number	Amount	Average price of single set of plant
	(sets)	(US\$) (‘000)	(US\$) (‘000)	(sets)	(US\$) (‘000)	(US\$) (‘000)	(sets)	(US\$) (‘000)	(US\$) (‘000)
Russia	24	6,065.8	252.7	60	18,275.7	304.6	68	19,809.9	291.3
India	15	6,179.9	412.0	14	4,388.3	313.4	12	2,971.0	247.6
Mongolia	19	5,724.6	301.3	17	5,376.2	316.3	22	5,709.5	259.5
Indonesia	100	8,928.2	89.3	92	12,545.4	136.4	82	13,813.9	168.5
Nigeria	11	3,011.9	273.8	12	2,899.2	241.6	90	7,104.7	78.9
Sri Lanka	44	26,238.3	596.3	-	-	-	-	-	-
Kazakhstan	21	7,786.6	370.8	-	-	-	12	3,066.3	255.5
Saudi-Arabia	18	7,537.5	418.8	-	-	-	10	5,668.6	566.9
Algeria	21	3,091.4	147.2	19	3,119.8	164.2	-	-	-
Philippines	17	2,163.6	127.3	24	4,932.7	205.5	-	-	-
Angola	-	-	-	20	4,674.6	233.7	-	-	-
Malaysia	-	-	-	50	3,159.9	63.2	-	-	-
Zambia	-	-	-	-	-	-	22	6,232.0	283.2
Australia	-	-	-	-	-	-	24	5,477.1	228.2
Pakistan	-	-	-	-	-	-	13	4,547.0	349.8

*Source:* CCID Report

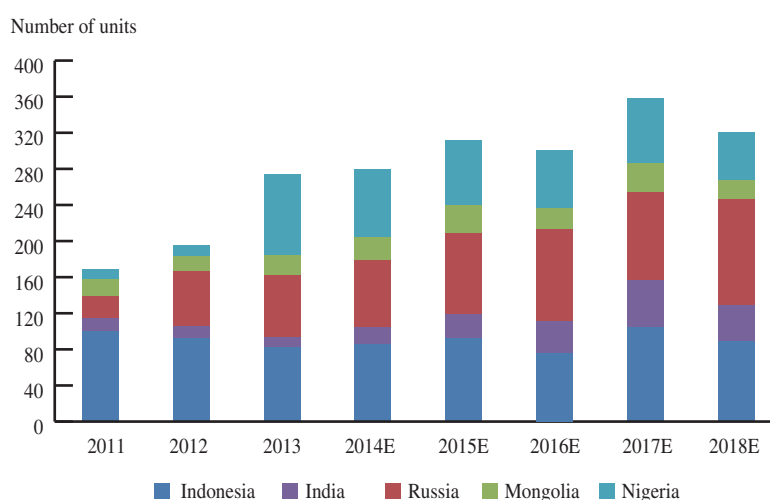
*Note:* the latest information available is as of 2013

According to the CCID Report, the average price of single set of plant exported out of the PRC as shown in the table above is generally lower than the price of the asphalt mixing plants in the PRC set out in the paragraph headed “Prices of Asphalt Mixing Plants” in this section above, mainly because the plants exported by PRC manufacturers were mainly small scale asphalt mixing plants and that many of those PRC manufacturers offered a lower price of the small scale asphalt mixing plants to promote its overseas sales.

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Based on the export data in recent years, countries such as Indonesia, India, Russia, Mongolia and Nigeria have become the major long term target countries for export of asphalt mixing plants by manufacturers in the PRC. Out of these five countries, we exported our asphalt mixing plants directly and indirectly to India, Russia and Mongolia during the Track Record Period. The following table sets forth the export data of asphalt mixing plants from the PRC to these five countries from 2011 to 2013 and the estimated export data from the PRC to these five countries from 2014 to 2018:

**Export of asphalt mixing plants, 2011-2013, 2014E-2018E**



Source: CCID Report

These countries include countries with high economic growth potential countries such as India and Russia, which are members of BRICS, and developing countries with populations of over 100 million such as Indonesia and Nigeria. CCID expects that the development of these countries will lead to an increase in infrastructure investment, which will in turn lead to a continuing and steady demand for asphalt mixing plants. In addition, with the “Vision and Actions on Jointly Building Silk Road Economic Belt and 21st – Century Maritime Silk Road” (《推動共建絲綢之路經濟帶和21世紀海上絲綢之路的願景與行動》) issued by the PRC government on 28 March 2015, business interactions between the PRC and other Asian, European and African countries are expected to increase. As such, investment in infrastructure and highways in the relevant regions is expected to increase. This will create opportunities for PRC machinery manufacturers to expand their overseas markets. As such, CCID is optimistic about the number of asphalt mixing plants to be exported from the PRC in the next 5 years.

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### Competitive Landscape

The medium to large scale asphalt mixing plant market is dominated by approximately 15 domestic and international asphalt mixing plant manufacturers. Amongst the number of units of medium to large scale asphalt mixing plants manufactured in the PRC and sold by domestic and international asphalt mixing plant manufacturers, the top five asphalt mixing manufacturers sold approximately 60.1% medium to large scale of the asphalt mixing plants. According to the CCID Report, in 2013, based on the sales volume of medium to large scale asphalt mixing plants manufactured in the PRC, we ranked second with a market share of approximately 13.8%. The other top five manufacturers include a state-owned company and non state-owned companies in the PRC as well as European based international manufacturers.

The competition in the PRC medium to large scale asphalt mixing plant market is intense, mainly due to customers' sophistication and familiarity with asphalt mixing plant manufacturers and their products. Asphalt mixing plants are typically operated by professional road construction companies, with users being more sophisticated and having a greater understanding for equipment operations. As such, manufacturers compete against each other in this market based on reliability of the plants, performance-price ratio of the plants as well as customer relations.

The small scale asphalt mixing plant market consists of mainly domestic asphalt mixing plant manufacturers and the competition is also intense. In addition to the customers' sophistication and familiarity with asphalt mixing plant manufacturers and their products, there is a larger number of manufacturers which are capable of manufacturing of small scale asphalt mixing plants on a mass production scale. According to the CCID Report, as at the end of 2013, there were about 40 asphalt mixing plant manufacturers in the PRC that were capable of manufacturing 2000 model series or below to 4000 model series asphalt mixing plants on a mass production scale. In 2013, of the total number of 950 units of asphalt mixing plants manufactured in the PRC and sold by domestic and international asphalt mixing plant manufacturers, 652 units or approximately 68.6% were small scale asphalt mixing plants, according to the CCID Report. There is intense price competition in this market because of the relatively low technical barriers to entry to this market. In addition to price competition, manufacturers may compete against each other in this market based on the technical capabilities to manufacturing such plants, reliability of the plants as well as comprehensive services.

In terms of the type of products, as the PRC government has in recent years been promoting environmental protection and encouraging the use of environmental friendly equipment and products, such as recycled asphalt mixtures, we expect that the demand for recycling plants will grow in the near future. The existing asphalt mixing plant manufacturers and perhaps an increasing number of new comers may try to penetrate this market and thereby increasing the competitive landscape in this market.

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### Key Drivers

#### *Maintenance of roads has become increasingly important*

The PRC has sustained almost 20 years of rapid road construction. As a result, a nationwide major road network has been established, with a total mileage of more than 4.4 million km in 2013, where second grade highways or above accounted for approximately 12.0% of the total mileage. As the road mileage in the network has continued to increase, a progressively larger number of major roads are required periodic maintenance. For example, in the Eleventh Five-Year Plan, the total national funding provided for road maintenance works was approximately RMB801.1 billion, resulting in 550,000 km of road reconstruction works, 167,000 km of large-scale road repair works and 364,000 km of mid-scale road repair works were completed. In the Twelfth Five-Year Plan – Development Outline of Highway Maintenance Management (《「十二五」公路養護管理發展綱要》), road maintenance is prioritised, and road maintenance is emphasised as one of the paramount requirements of the Plan. This is reinforced by policies to establish stable funding sources for road maintenance, to increase maintenance investments, to strengthen road maintenance and protection in order to fully utilise the existing road infrastructure. It is targeted that between 2011 and 2015, the road mileage of highways of national and provincial levels on which medium to large scale repair works are procured should account for not less than 17% of the total mileage.

#### *Environmental protection has become an important strategy for industrialisation and modernisation of the PRC*

Conservation of resources and the establishment of an environmental friendly society have been placed at the forefront of the PRC's strategies concerning industrialisation and modernisation. The Transportation "Twelfth Five-year" Development Planning\* (《交通運輸「十二五」發展規劃》), research in promotion of resource and energy conservation, as well as developing technology for environmental friendly maintenance methods are encouraged. These aims in turn facilitate the regeneration of pavement materials that would otherwise be wasted, such as RAP, and its application in road construction. The Twelfth Five-year Plan – Development Plan for Transportation also aims to reduce emissions in road maintenance work to minimise negative impacts on the environment. Goals have been set for a 40% utilisation rate for recycled asphalt pavement materials for road maintenance in all of the PRC; 70% for highways at national and provincial levels, and 90% for expressways by 2015. The Ministry of Transport released the Guidance on Promoting Road Pavement Material Recycling\* (《交通運輸部關於加快推進公路路面材料循環利用工作的指導意見》) (the "Guideline"), issued by the Ministry of Transport in 2012 requires local transportation departments to formulate a scientific working program to clarify the objectives, key tasks and measures relating to reclaiming and recycling of used pavement materials, targeting at achieving approximately "zero wastage" of used pavement materials in the PRC by the end of 2015; at least 95% of used pavement materials should be reclaimed; at least 50% of the used pavement materials should be recycled, whereby the recycling rate in the eastern, middle and western regions of the PRC should be at least 60%, 50% and 40%, respectively by 2015. The Guideline further provides that the recycling rate of the used pavement materials in the PRC should be at least 90% by 2020. These PRC government policies, together with the increasingly strict requirements for environmental protection and energy conservation in the PRC, are expected to lead to an increase in demand for Recycling Plants.

## INDUSTRY OVERVIEW

*Great potential for road construction and maintenance machinery market to develop in the Midwest and rural areas of the PRC*

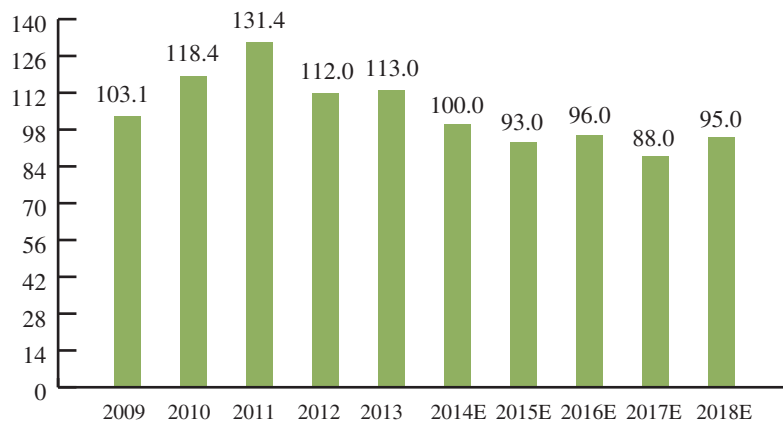
The infrastructure is less developed in the Midwest and rural areas in the PRC. Development of highways usually goes through three stages. In the first stage, the focus is mainly on the construction of highways and there is less road maintenance work. In the second stage, road construction and maintenance will be treated with equal importance. In the third stage, the focus will be mainly on road maintenance. The Midwest and rural areas in the PRC are still at the first stage of development of highways focusing on construction. This create great potentials for road construction and maintenance machinery manufacturers.

### PRICE MOVEMENTS OF STEEL AND ASPHALT

#### Prices of Steel

Steel is one of the major raw materials used in the manufacture of asphalt mixing plants. In the recent years, domestic steel prices have dropped. As there has been excess production of steel, prices have continued to drop. The following chart below shows the annual average domestic steel price index in the PRC between 2009 and 2013 and the estimated annual average domestic steel price index between 2014 and 2018:

**Average Annual Domestic Steel Price Index in the PRC, 2009-2013, 2014E-2018E**



Source: CCID Report

The main factor driving the steel prices is the price of imported iron ore. In recent years, Australia, the main country producing ore, has been increasing its production capacity of ore, which has led to a decline in international prices of iron ore. As such, it is expected that steel prices will continue to decrease in 2014 and 2015.

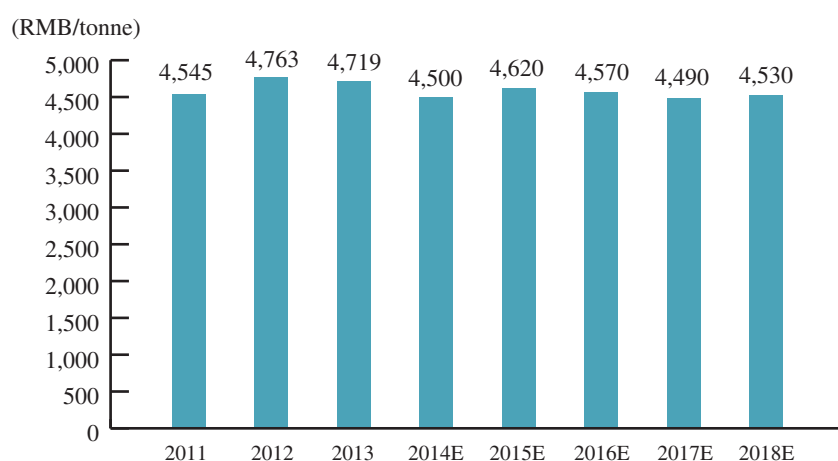


## INDUSTRY OVERVIEW

### Prices of Asphalt

The following chart sets out the average price of asphalt between 2011 and 2013 and the estimated average price of asphalt between 2014 and 2018 in the PRC:

**Average price of asphalt in the PRC, 2011-2013, 2014E-2018E**



Source: CCID Report

The road construction industry in the PRC is affected by both seasonal and regional factors. As a result, the domestic trading price of asphalt is also, to some extent, subject to variables. In the last two years, the West China Development Project and the revival of old industrial bases in Northeast China have boosted the demand for road infrastructure. Asphalt prices have correspondingly followed an upward trend. Between 2011 and 2012, the price of asphalt raw material (excluding Northwest China) in most areas of the PRC were between RMB4,300 per tonne to RMB4,900 per tonne. From 2014 to 2018, it is estimated that the price of asphalt materials will remain stable between RMB4,490 per tonne to RMB4,620 per tonne.

### Barriers of Entry to the Market

#### *Technology requirement*

As the profit margin of small scale asphalt mixing plants is low and the sales price of such plants between different manufacturers are very close, it was an inevitable trend for manufacturers to move towards manufacturing medium to large scale asphalt mixing plants. However, the requirements on technical standards, production control and environmental protection in the medium to large scale asphalt mixing plants markets are very stringent. Due to the higher technical capabilities required for the manufacture of medium to large scale asphalt mixing plants associated with higher productivity, such as those relating to noise control and product reliability, only a small number of manufacturers with high research and development capabilities could compete in this market. These factors form obvious technical barriers to entry to the medium to large scale asphalt mixing plant market.

## INDUSTRY OVERVIEW

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### *High capital requirement*

Asphalt mixing plant involves multiple subsystems and numerous core components. The domestic customers of medium to large scale asphalt mixing plant will usually request the manufacturers to import high-end components produced by international manufacturers to be used in the core system of the plants. Bulk purchase of imported components and longer repayment term may deter small scale manufacturers from entering the market as they may not have sufficient financial background to support this type of purchases.

In addition, because the road construction industry in the PRC is affected by both seasonal and regional factors, the orders from customers would also be affected by seasonality. Manufacturers with stronger capital strength would have a competitive advantage when it comes to purchases of raw materials, parts and components for the manufacture of asphalt mixing plants at times when there has been an increase in orders from customers due to seasonality.

### *Environmental protection requirement*

The production process of asphalt mixtures may cause serious environmental pollution issues if the environmental control measures of the asphalt mixing plants do not meet the PRC national standards. The PRC government has imposed more stringent environmental protection requirements on the asphalt mixing plants. Only those manufacturers which possess the technology for developing energy saving and environmentally friendly asphalt mixing plants would be able to complete in this market. In contrast, small to medium enterprises would face strong challenges in manufacturing asphalt mixing plants that meet the environmental protection standards in the PRC.