

5 Jul 2017
 Corporate Research

 China
 Environmental Protection

Key data

Substantial shareholder (%):	
China Everbright International (CEIL)	69.70%
Floating Shares	28.49%
Others	1.81%
Total	100.00%

Source: Company data

Revenue the year of 2016 (%)
By segment

Biomass	81.6
Hazardous waste treatment	11.2
Solar energy and wind power	7.2
Total	100.0

By revenue sources

Construction revenue	68.2
Operation revenue	30.5
Finance revenue	1.3
Total	100.0

Source: Company data

Frank Liu
 Analyst
frank.liu@cebi.com.hk
 (852)2916-9632

Marco Yau
 Senior Analyst
marco.yau@cebi.com.hk
 (852)2916-9631

China Everbright Greentech Limited

1257 HK

Price target: HK\$6.68 - BUY

Gearing up for future

China Everbright Greentech Limited (“CEGL” or “the company”) is a leader in the fast-growing China environmental protection (EP) industry. Its business includes biomass power generation, hazardous waste treatment (HWT), solar energy and wind power generation. Backed by Everbright Group and Everbright International (257 HK), the company’s business is in the growth stage, with advantages in projects selection and execution. We initiate coverage on CEGL with a BUY rating and a target price of HK\$6.68, implying 2017E and 2018 P/E of 16.1x and 13.5x.

Efficient participant in EP industry. CEGL operates in fast-growing industries supported by favorable governmental policies. Investment in the PRC EP industry is expected to grow at a CAGR of 17.5% from Rmb1,600.0bn in 2017 to Rmb3,049.4bn in 2021. The company’s business has been growing quickly in number of projects, power generation and waste treatment capacity. With efficient management, utilization ratio of its biomass projects reached over 86.8% in 2016.

Unique biomass business model. As the only company to employ integrated biomass and waste-to-energy (WTE) business model in China, CEGL can provide one-stop services for local governments to handle both biomass waste and household waste at the same location according to Frost & Sullivan. We believe by sharing the grid connection systems, water drainage systems and other ancillary systems between the biomass facility and the household waste-to-energy facility, this business model is expected to not only maximize environmental service output but also lower the overall costs of development and operation, raising the overall investment returns of the projects. In our view, these integrated projects provide an ideal option especially in places where standalone WTE projects are not commercially viable.

Competitive advantages in HWT sector. The company’s HWT projects are located in eastern China where generation of hazardous waste is highest. With careful project selection and strong technical capabilities, CEGL ranks third in China in terms of aggregate disposal designed capacity for all projects in operation, under construction and at the planning stage as of Dec 31, 2016. Its annual HTW designed capacity is 504.15kt, ranking first in eastern China. Supported by huge demand and brand name built by an experienced management team, treatment fee also rose dramatically from Rmb1,490.7/t in 2014 to Rmb2,413.6 /t in 2016.

Initiate with BUY rating on attractive valuation. CEGL operates in two fastest growing subsectors (Biomass and HWT) in China’s EP sectors. We project its 2017E and 2018E net income to be HK\$857mn (+36% YoY) and HK\$1,025mn (+20% YoY). We believe the company’s share is trading at an attractive valuation of 12.5x 2017PE as compared to an industry average of 13.5x. Our DCF-derived fair value for the company is HK\$6.68 (24% upside), implying a 2017E and 2018 P/E multiple of 16.1x and 13.5x.

Risk factors: 1) Project risk; 2) Policy risk; 3) Accounting standard risk; 4) Raw material supply risk; 5) Environmental risk.

Financial summary:

Ended	2014A	2015A	2016A	2017E	2018E	2019E
Revenue (HK\$ mn)	1,058	1,203	3,000	5,096	6,359	6,997
Changes (YoY%)	72%	14%	149%	70%	25%	10%
EBITDA (HK\$ mn)	306	442	983	1,417	1,864	2,283
Changes (YoY%)	33%	44%	122%	44%	32%	22%
Net income(HK\$ mn)	200	271	630	857	1,025	1,173
EPS (HK\$)	0.10	0.13	0.30	0.41	0.50	0.57
Changes (YoY%)	41%	36%	132%	36%	20%	14%

Source: Company data, CEBI

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China Everbright Greentech Limited

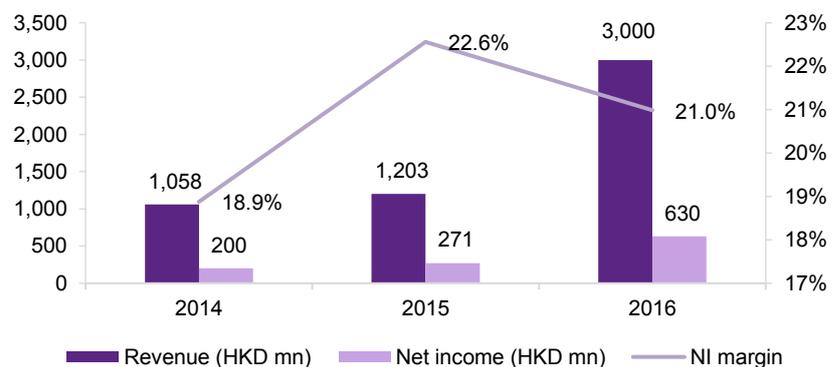
China Everbright Greentech Limited is a leader in China's fast-growing environmental protection (EP) industry. Its business includes biomass power generation, hazardous waste treatment (HWT), solar energy and wind power generation. It has a diversified portfolio with 68 projects, including 37 in biomass, 22 in HWT, 7 in solar power generation, and 2 in wind power generation by 11 April 2017. Those projects are located in 6 provinces in China as well as Germany, with total investment exceeding Rmb15.8bn.

Global attention on environmental issues in China, especially those pertaining to the air pollution, smog, and their adverse impacts on health, has been growing over the years. Building an eco-friendly society has become one of the core goals of the 2016-2020 Five-Year Plan (FYP). We believe CEG's commercial goals are well aligned with China's policy targets and social welfare, and it is well positioned to benefit from the continuous growth of the EP industry and rural development in China. According to Frost & Sullivan, as the only company to employ integrated biomass and waste-to-energy (WTE) business model in China, the company is ranked 4th in terms of biomass power generation designed capacity, and its aggregate hazardous waste disposal designed capacity for all projects in operation, under construction and at the planning stage was the highest in eastern China and ranked third nationally as of Dec 31, 2016.

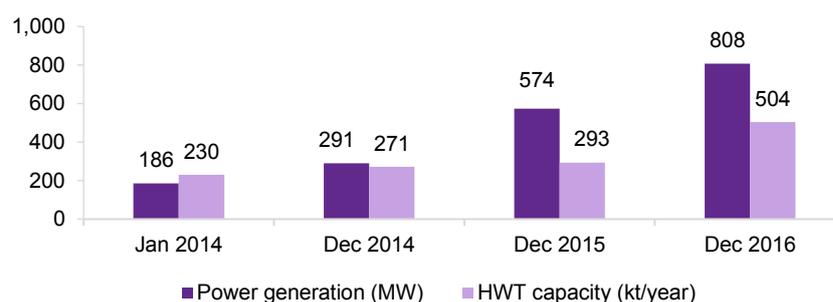
Fast-growing leader in EP sector

The company's project portfolio increased quickly since 2014. Total power generation capacity increased from 185.9MW in Jan 2014 to 935.9MW by Apr 2017; total HWT capacity increased from 230k ton/year in Jan 2014 to 504.15 k ton/year by Apr 2017. Financially, total revenue for the year increased from HK\$1,057.8mn in 2014 to HK\$1,203.2mn in 2015 and further increased to HK\$3,000.1mn in 2016. Total profit for the year increased from HK\$199.7mn in 2014 to HK\$271.4mn in 2015, and further increased to HK\$629.5mn in 2016.

Fig.1: CEG's revenue and profit from 2014 to 2016



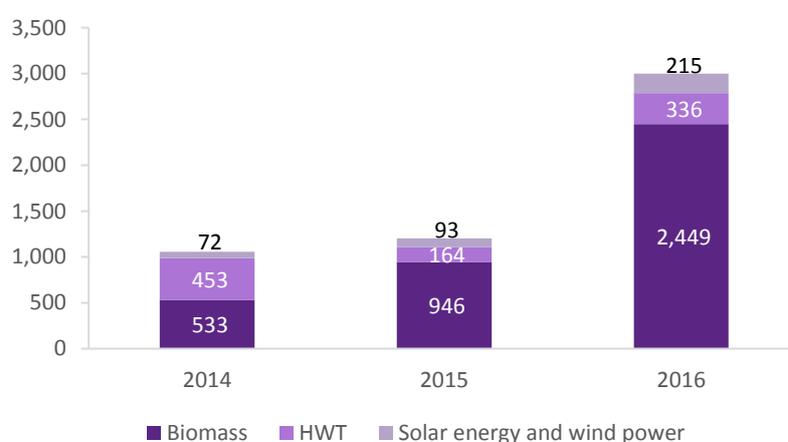
Source: Company data

Fig.2: CEGL's designed capacity (Jan 2014- Dec 2016)

Source: Company data

Revenue composition

Although the company maintains operation in solar and wind power segment, biomass and HWT businesses are the major income drivers (92.8 % of total revenue in 2016). In our view, supported by national policies, the company's future development focus will be its biomass and HWT projects. In 2016, the revenue from biomass segment constitutes around 82% of total revenue due to increasing number of biomass in construction. We expect future revenue to be more balanced between biomass and HWT segments.

Fig.3: Revenue breakdown by segment from 2014 to 2016 (HK\$ mn)

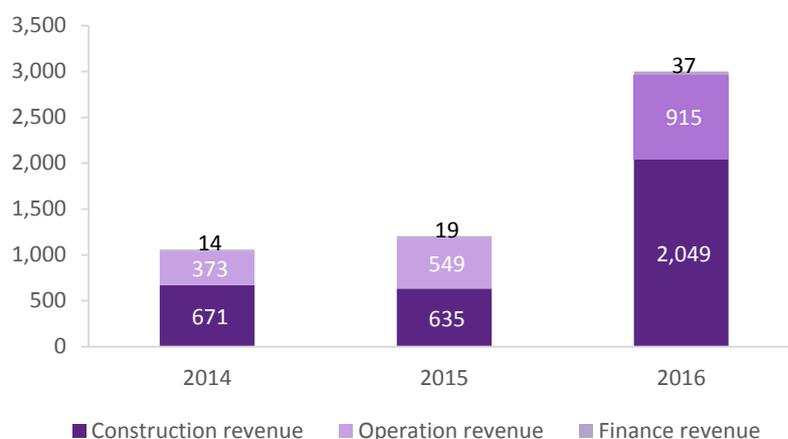
Source: Company data

As of Apr 2017, CEGL had 68 projects in its portfolio, including 24 projects in operation, 14 projects under construction and 30 projects at the planning stage. Of these projects, 66 are projects under the Build-Own-Operate ("BOO") or Build-Operate-Transfer ("BOT") model with the local government customers. In addition to the BOO and BOT projects, the company acquired a HWT project, the Lianyungang Hazardous Waste Incineration Project (Phase I) in Lianyungang, Jiangsu Province, and a ground solar energy project, the German Ground Solar Energy Project, in Germany. Both projects are acquired from independent 3rd parties.

Hong Kong Financial Reporting Standards ("HKFRS") requires all projects with concession arrangements (all BOT projects and most BOO projects in CEGL's portfolio) to record construction revenue. Accordingly, most of the company's biomass and HWT projects

recorded construction revenue. Below is the company's revenue breakdown by source.

Fig.4: Revenue breakdown by source from 2014 to 2016 (HK\$ mn)

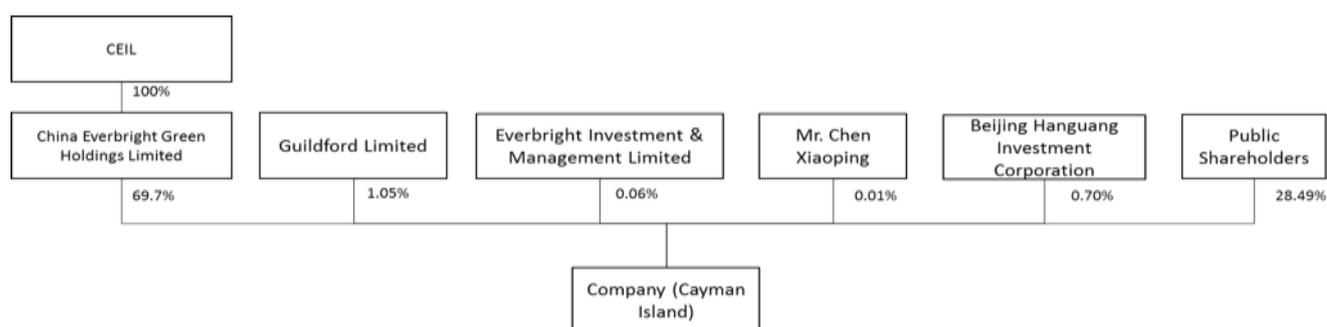


Source: Company data

Shareholder's background

In 2015, CEGE was incorporated in Cayman island as an indirect wholly-owned subsidiary of China Everbright International Limited (CEIL) to hold the greentech business of the CEIL Group. After the IPO and partial exercise of the over-allotment option, the current floating portion of total shares is 28.49%. CEIL holds 69.7% of the issued share capital of the company through China Everbright Green Holdings, an investment holding company. CEIL focuses on 4 main business segments, primarily in PRC: (1) environmental energy; (2) environmental water; (3) greentech; (4) envirotech.

Fig.5: CEGE's capital structure



Source: Company data

While the environmental energy segment mainly focuses on municipal WTE projects, the environmental water segment mainly focuses on wastewater treatment projects, reusable water projects and wastewater source heat pump projects. The environmental technology segment, which includes greentech and envirotech, mainly focuses on research and development (R&D) and equipment manufacturing.

Business model of biomass projects

The company's biomass operations help tackle with China's escalating

air pollution and smog issues by converting biomass raw materials into electricity and heat instead of burning them in the open air, as is commonly the case in many parts of country. At the same time, these projects provide benefits to farmers and the rural economy with employment opportunities during the course of biomass raw material purchases. The company targets regions with abundant biomass resources and favorable government support such as Jiangsu Province and Anhui Province. In addition to electricity and heat generation from biomass raw materials, CEGL developed a unique business model of integrating biomass and WTE projects to provide one-stop services for local governments to process both biomass raw materials and household waste at the same location. In our view, costs of development and operation of these integrated projects, as compared to those on a standalone basis, are lower, and entail higher overall investment returns as a result. As of Apr 2017, the company had 12 pairs of integrated biomass and waste-to-energy projects (23 of the company's projects), among which 1 was in operation and 11 were either under construction or at the planning stage.

Biomass projects utilize biomass raw materials to generate power. According to Frost & Sullivan, currently all biomass projects are on-grid compulsorily, with an average tariff of Rmb0.75/KWH, higher than the normal tariff Rmb0.3-0.5 /KWH for traditional coal-fueled power plants. According to NDRC, normal tariff will be collected from State Grid, while the difference between normal tariff and the biomass on-grid tariff is collected from MoF.

Some biomass projects can generate steam in operation. The initial steam supply prices for these projects range from Rmb220/ton to Rmb240/ton.

For integrated projects with WTE capacity, waste treatment fee will be another revenue source. CEGL receives waste treatment fees from the local government for the household waste it processes under the applicable concession agreement and the waste treatment service agreement entered into with the local government. Under these agreements, the local governments agree to pay waste treatment fees on a monthly basis based on a fixed treatment fee per ton of waste and the actual amount of waste processed. The waste treatment fees are negotiated with the local governments, subject to adjustments based on consumer price index and producer price index. CEGL's agreements with the local government typically include a minimum guaranteed volume of household waste to be supplied by the local government to ensure a certain minimum level of utilization and operational efficiency of its facilities. In this case, CEGL is entitled to receive waste treatment fees based on the guaranteed minimum volume of waste even if the amount of waste actually treated is less than such guaranteed volume.

As of Apr 2017, the company has 37 biomass projects, including 7 in operation, 12 under construction, and 18 at the planning stage. The aggregate power generation designed capacity reached 810 MW; the aggregate biomass raw material processing designed capacity is 7,099,800 tons p.a., and the aggregate household waste processing designed capacity is 1,679,000 tons p.a.

Fig.6: Operating data for biomass projects

	Year ended Dec 31,		
	2014	2015	2016
No. of projects at period end:			
Projects in operation	2	2	7
Projects under construction	0	5	12
Projects in planning	6	16	13
Total	8	23	32
Electricity sold (MWh)	271,460	440,640	618,718
Average on-grid tariff (Rmb/KWh)	0.75	0.75	0.75
Biomass material processed (ton)	359,576	520,159	728,142
Household waste processed (ton)	0	0	73,526
Utilization rate (%)	82.2%	90.8%	86.8%

Source: Company data

CEGL has established comprehensive biomass supply networks covering collection, storage, transportation, utilization and management.

In the process of collection and storage, to achieve economies of scale, CEGL reaches a large number of individual farmers primarily through a network of biomass brokers handling collection and storage.

On the logistic side, the company intends to allocate available raw material sources among its projects based on estimate of the available biomass supply and inventory data of each project, which will help manage and maximize synergies among multiple projects.

In the utilization stage, the company collects a wide variety of biomass raw materials, including agricultural waste such as straw, husks, and forestry residues such as waste wood and debris from construction and demolition, tree trimmings, and other manufacturing wood waste. After collecting and gathering the biomass raw materials from various collection points, the company centrally allocates their end use among multiple projects based on the nature and quality to achieve economies of scale.

On the management front, CEGL centrally manages its biomass projects and biomass suppliers in each region at a regional management center. Through the relevant regional management center, CEGL shares management teams, financial resources, and biomass supply sources, and coordinate among projects for project sourcing, management, and operation. CEGL currently has 2 regional management centers in Anhui Province and Jiangsu Province for its biomass projects.

Business model of HWT projects

CEGL collects and safely disposes of hazardous waste. It provides services to industrial companies and medical facilities in exchange for waste treatment fees. Revenues from its HWT business amounted to HK\$453.1mn in 2014, HK\$164.2mn in 2015 and HK\$335.8mn in 2016, which accounted for 42.8%, 13.7% and 11.2% of CEGL's total revenues for the corresponding periods.

As of Apr 2017, CEGL had 22 HWT projects across Jiangsu Province and Shandong Province in eastern China, including 8 projects in operation, 2 projects under construction and 12 projects at the planning stage, with an aggregate hazardous waste disposal designed capacity of 504.15k tons p.a. According to Frost & Sullivan, among all centralized HWT companies in China, CEGL was ranked 1st in eastern China and 3rd in China in terms of aggregate disposal designed capacity for all

projects in operation, under construction and at the planning stage as of Dec 31, 2016. It was ranked 5th in terms of aggregate disposal designed capacity in operation among all HWT companies in China as of Dec 31, 2016.

CEGL currently has the capability to process various types of industrial hazardous waste and medical waste, covering 42 out of 46 types of industrial and medical hazardous waste according to the National Catalog of Hazardous Waste (国家危险废物名录). Methods of treatment mainly include landfill disposal and incineration disposal. Prior to the final treatment, a pretreatment process may need to be conducted through a physical-chemical process such as solidification, stabilization, etc. to remove or reduce the hazardous impact.

As of Apr 2017, waste treatment fees ranged from under Rmb2,000/ton to ~Rmb17,000/ton. The waste treatment fees are generally determined based on the fee guidance set by the local government with consideration of the market conditions. The fees may also vary significantly according to the type of hazardous waste based on the hazardous characteristics, the difficulty of the treatment process, the volume of landfill required, and the guidance price for the applicable category of waste. Prior to Aug 2014, CEGL processed a large amount of flying ash waste for Suzhou government at the Suzhou Hazardous Waste Landfill Project. Treatment fee for this particular type of waste usually has a lower unit price per ton. Hence, the company has reduced the treated amount since Aug 2014 and successfully raised the average HWT fees per ton payable to CEGL.

Fig.7: Operating data for HWT projects

	Year ended December 31,		
	2014	2015	2016
No. of projects at period end:			
Projects in operation	4	4	8
Projects under construction	3	4	2
Projects in planning	5	5	12
Total	12	13	22
Hazardous waste collected (ton)	60,740	52,341	99,640
Average waste treatment fee (Rmb/ton)	1,490.7	2,171.9	2,413.6

Source: Company data

Business model of solar and wind power generation projects

CEGL develops, manages and operates solar parks and wind farms to generate electricity. It primarily sells electricity to local power grid companies. Revenues from solar energy and wind power business amounted to HK\$72.1mn in 2014, HK\$92.7mn in 2015 and HK\$215.1mn in 2016, which accounted for 6.8%, 7.7% and 7.2% of CEGL's total revenues in the corresponding periods. As of Apr 2017, CEGL had 9 projects in operation with an aggregate power generation designed capacity of 125.9 MW. Wind projects and PV projects had a total capacity of 96MW and 29.9MW as of Apr 2017.

CEGL's solar projects in China were developed prior to Aug 2013 and enjoy the on-grid tariffs under the then effective laws and regulations. The average tariff is Rmb2.23/KWH, much higher than the tariff cell of Rmb1.00/KWH for projects built after Aug 2013. German Ground Solar Energy Project enjoys an on-grid tariff of EUR0.2207/kWh (exclusive of VAT). On the other hand, CEGL's wind projects are located in Ningwu, Shanxi, where wind resources are rich. The tariffs of the two projects

were set at Rmb0.61/KWH, the highest on-grid tariff in the bracket of wind resources zone IV.

Fig.8: Operating data for solar and wind power generation projects

	Year ended December 31,		
	2014	2015	2016
No. of projects at period end:			
Projects in operation	7	9	9
Solar energy			
Electricity sold (MWh)	29,829	28,909	28,134
Average on-grid tariff (Rmb/KWh)	2.25	2.23	2.27
Wind power			
Electricity sold (MWh)	-	41,586	244,556
Average on-grid tariff (Rmb/KWh)	-	0.61	0.61

Source: Company data

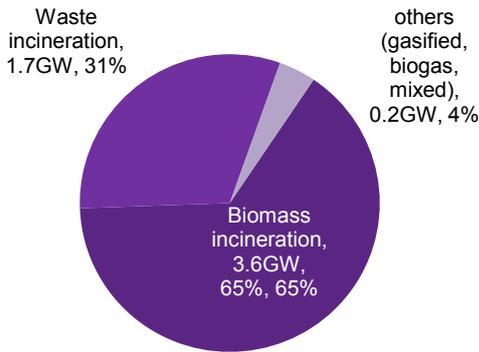
Industry overview and trend

Biomass power generation is an effective supplement to China's alternative energy blueprint

According to statistics from Renewable Energy Policy Network for the 21st Century("REN21"), from 2004 to 2015, global biomass power generation capacity increased from below 36GW to 106GW; total power generated rose from 227 TWh to 464TWh (CAGR:6.72%). According to REN21, from a global perspective, biomass resources have become an effective supplement for fossil energy. It is an important component of renewable energy industry, with total capacity ranking 4th (top 3: hydro, wind and solar) according to REN21. The U.S. has the largest capacity, followed by China, German and Brazil. The leading countries for electricity generation from biomass in 2015 were the U.S. (69 TWh), Germany (50 TWh), China (48 TWh), Brazil (40 TWh) and Japan (36 TWh), followed by the U.K. and India according to REN21.

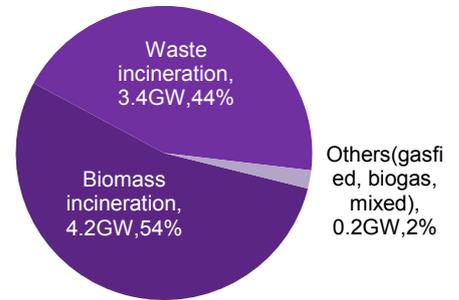
According to xny365, China is rich in biomass resources. Currently, biomass sources in the country mainly include agricultural straws and forestry residues such as waste wood and debris from construction and demolition, tree trimmings, and other manufacturing wood waste. According to xny365, in theory, these resources are collectively equivalent to 1.54 bn tons of standard coal in 2012. Due to losses in collection and other sources of usage, viable biomass resources are equivalent to 715mn tons of standard coal, amounting to ~20% of China's national power consumption according to xny365.

Fig.9: Biomass power capacity in 2010



Source: CCXR, Biomass 12th FYP

Fig.10: Biomass Power capacity in 2013

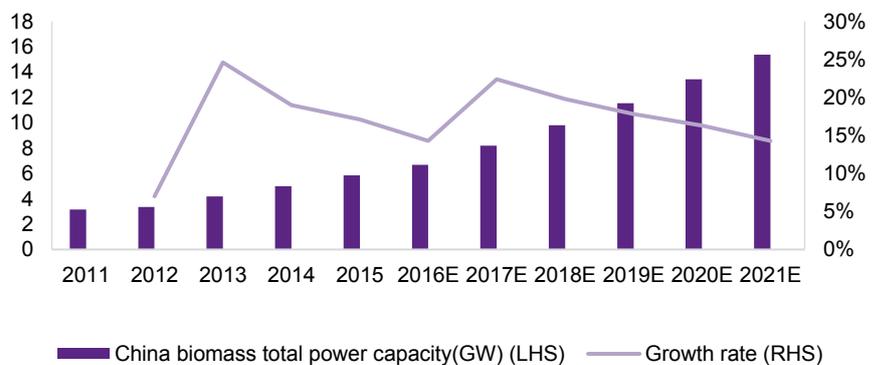


Source: CCXR

According to IN-EN, biomass power generation has started since 2005 in China. In 2006, with the release of Renewable Energy Law and strong policy support such as favorable tariffs, biomass industry started to expand swiftly. According to IN-EN, during the 11th and 12th five-year-plan (FYP) period, total capacity of biomass power rose substantially at a CAGR of 19%. According to IN-EN, from 2010 to 2013, growth of biomass capacity fell behind that of WTE projects. We believe the industry still has a high potential for development.

According to NDRC, “The National Plan on Climate Change (2014-2020)” proposed carbon dioxide emission per GDP to drop 40-45% in 2020. The 13th FYP for energy development promulgated by the NEA in Dec 2016 set the goal of installing a cumulative biomass power generation capacity (including power generation capacity of waste-to-energy projects) of 15,000 MW by 2020. According to the plan, biomass capacity will grow at a CAGR of 18.1% from 2015 to 2020. In Nov 2015, MOHURD and other 10 national ministries jointly announced the “Guidance on Promoting Agricultural Waste Control and Utilization in Rural Areas”, targeting the utilization ratio of agricultural straws at 85%. We believe more supporting policies will be introduced to increase utilization. Biomass power generation industry will maintain a high growth in the 13th FYP period.

Fig.11: 2011-2021E total biomass capacity (GW) & growth (YoY) in China

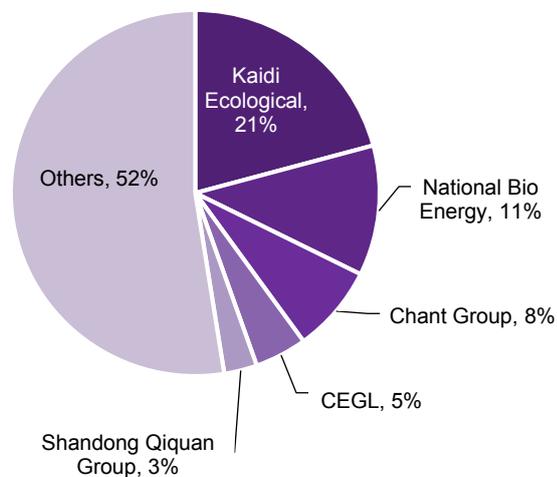


Source: Frost & Sullivan

Since 2010, the number of biomass projects has been increasing. Due to the aggressive expansion of the leading biomass companies, the market concentration has increased. According to Frost & Sullivan, China’s biomass power market is currently led by Kaidi Ecological Environment Technology Co., Ltd. and National Bio Energy Co., Ltd., followed by numerous smaller players.

The following chart sets forth the market shares in terms of aggregate power generation designed capacity for all biomass projects in operation, under construction and under planning as of Dec 31, 2016.

Fig.12: 2016 Biomass power generation in China – market share of companies by designed capacity



Source: Frost & Sullivan

Overview of China’s HWT industry

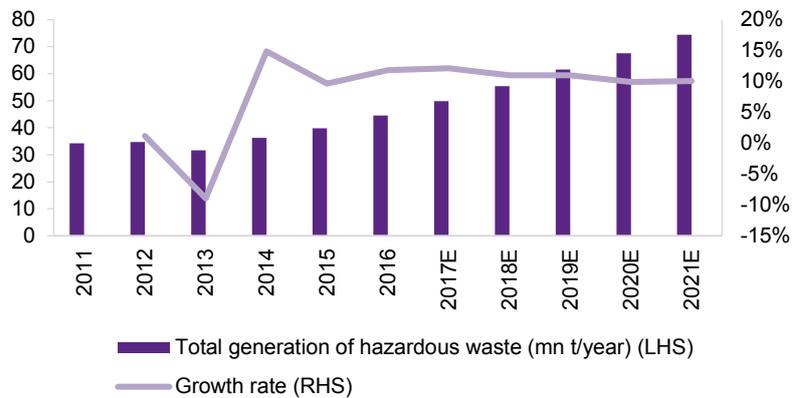
Hazardous waste are solid and liquid wastes, including industrial and medical wastes, that have one or more hazardous characteristics such as corrosiveness, toxicity, ignitability, reactivity, infectivity, and others that are likely to be harmful to the environment or human body. The National Catalog of Hazardous Wastes promulgated by the MEP and the NDRC in 2016 classified hazardous wastes into 46 categories.

In China, there are 2 major final HWT methods: resource utilization and disposal. Resource utilization treatment recycles and extracts valuable components, such as precious metals, from the hazardous waste. Disposal is used for useless waste or waste for which no other treatment method is available. Its aim is to eliminate or reduce the hazardous characteristics of the waste to minimize its environmental impact. Landfill and incineration are the 2 most common disposal methods in China. Before final treatment, hazardous wastes may require various pretreatment procedures such as physico-chemical method, solidification procedures, or stabilization procedures, depending on the waste nature.

The enormous output volume of hazardous waste in China, which results in huge demand for treatment, is the primary driver for the hazardous waste industry. Hazardous waste output in China reached 44.5mn tons in 2016, and is expected to increase at a CAGR of 10.5%

from 49.9mn tons in 2017 to 74.4mn tons in 2021.

Fig.13: China's hazardous waste generation in 2011-2021E (mn ton/year)

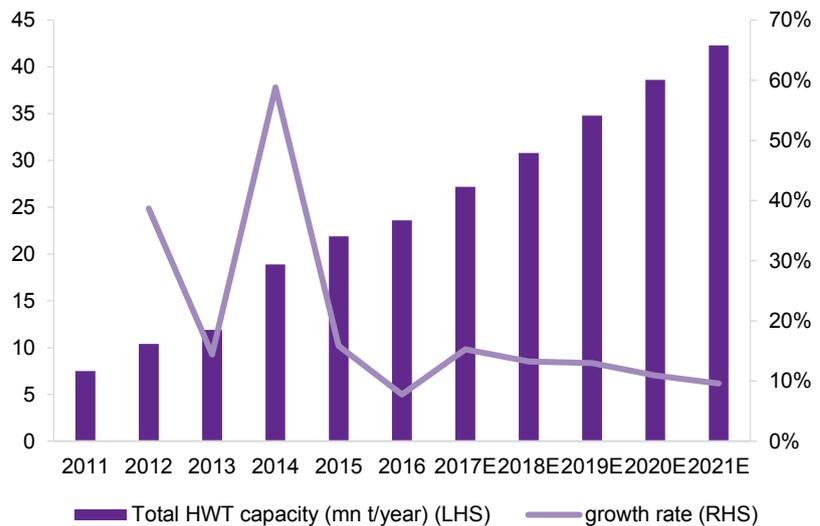


Source: MEP, Frost & Sullivan

The volume of hazardous waste treated is smaller than the waste volume produced in China. Treatment volume was 37.3mn tons in 2016. Despite increase in treatment volume, the treatment rate remained at 83.7% in 2016, indicating insufficient treatment capacity. According to Frost & Sullivan, the actual treatment rate may be lower considering the large volume of hazardous waste illegally disposed of.

According to Frost & Sullivan, the distribution of hazardous waste output and treatment capacity is uneven across China, which presents growth opportunities for the HWT industry in regions with a shortage of relevant treatment facilities. Economically developed regions like eastern China and southern China have a large share of HWT capacity.

Fig.14: 2011-2021E China expected HWT capacity (mn ton/year)



Source: Frost & Sullivan

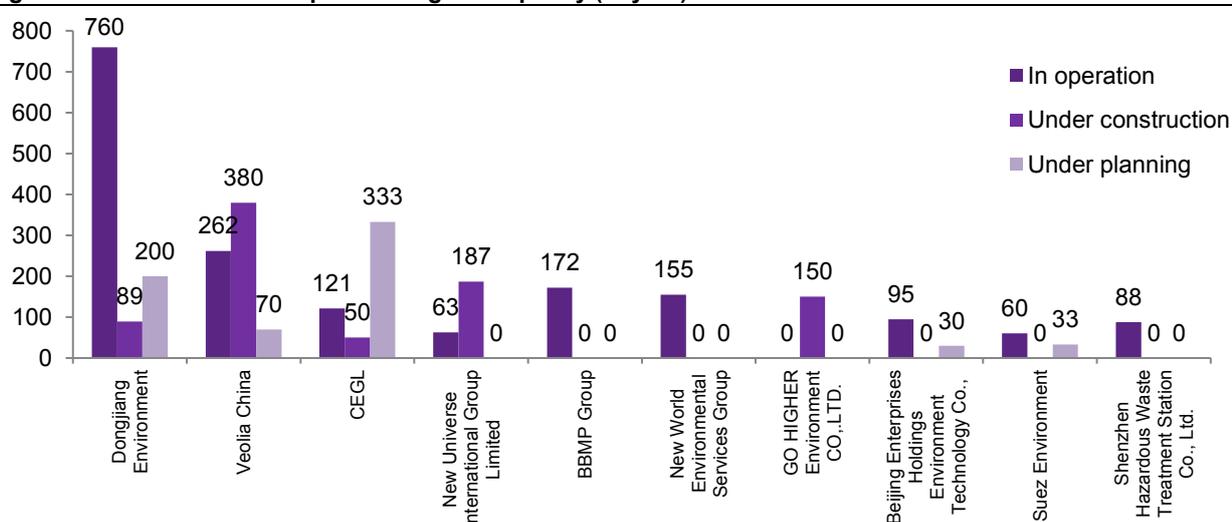
According to Frost & Sullivan, the PRC government is expected to continue to increase investment on EP during the 13th FYP (2016-2020), and the HWT industry would maintain a rapid growth. According to Frost & Sullivan, higher EP standards and more rigorous enforcement across China should further increase HWT, reduce illegal services.

According to Frost & Sullivan, the hazardous waste disposal industry in

China is highly fragmented. The number of HWT facilities in China has increased from 644 in 2011 to 993 in 2016, representing a CAGR of 9.0%. The 10 largest companies accounted for only 7.9% of the total disposal designed capacity in 2016. At the same time, the HWT industry has been consolidating gradually. The average treatment capacity per facility expanded significantly from 54.7 tons/day in 2011 to 140.7 tons/day in 2016, representing a CAGR of 20.8%.

In 2016, CEGL was ranked 3rd in China in terms of total hazardous waste disposal designed capacity, including projects in operation, under construction and at the planning stage, according to Frost & Sullivan. The following table sets forth the market shares in terms of total hazardous waste disposal designed capacity of centralized hazardous waste facilities as of Dec 31, 2016.

Fig.15: Hazardous waste disposal designed capacity (kt/year) of centralized hazardous waste facilities in China



Source: Frost & Sullivan

Overview of China’s solar energy and wind power industry

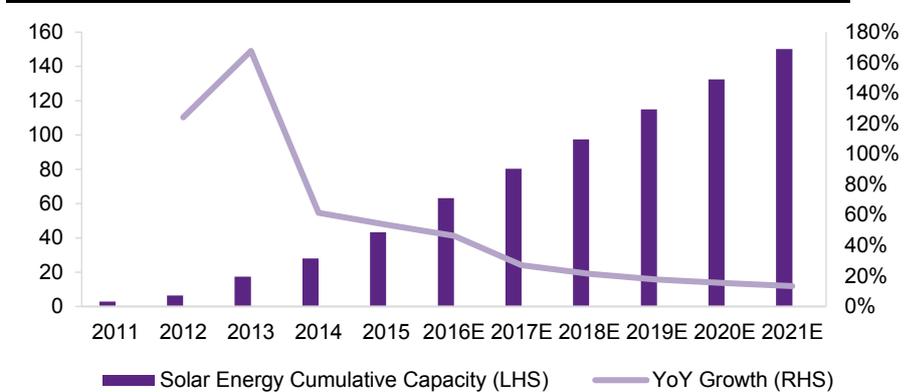
China’s cumulative solar and wind energy generation capacity has experienced rapid growth. According to Frost & Sullivan, at end-2016, China’s cumulative solar energy generation capacity reached 63.2GW, representing ~3.8% of the total power generation capacity in operation in China, and is expected to continue to grow at a CAGR of 16.9% from 2017 to 2021. According to Frost & Sullivan, China’s cumulative wind power generation capacity reached 150.0 GW at end-2016, representing ~9.1% of the total power generation capacity in operation in China, and is expected to continue to grow at a CAGR of 10.8% from 2017 to 2021.

According to Frost & Sullivan, a favorable regulatory environment, advancement in technology, and the growing awareness of the need and government support for, EP in China will continue to contribute to the growth in solar energy industry. E.g., in 2015, the NEA issued guidance to install additional solar energy facilities with a total capacity of 17.8 GW. Under the Strategic Plan of Energy Development (2014-2020) issued by the State Council in June 2014, China targets to install a cumulative solar energy generation capacity of 100 GW by 2020.

Local governments also provide subsidies to solar energy projects. The maturity of photovoltaic technology in China has led to a decrease in manufacturing cost and has contributed to the sustainable development of the whole photovoltaic industry value chain. As photovoltaic technology is environment-friendly and pollution-free, it also contributes to China’s objective to reduce carbon emissions.

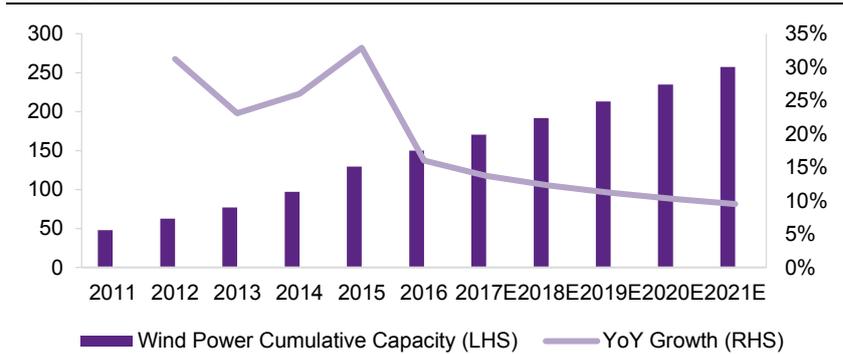
In the 13th FYP on Development of Renewable Energy issued in 2016, China targets to install a cumulative wind power capacity of 210 GW by 2020. Wind power facilities also enjoy preferential on-grid tariffs based on their resource region. As wind power is environment-friendly and pollution-free, it also contributes to China’s drive to reduce carbon emission. In addition, China has abundant offshore wind resources, which is expected to drive the growth of wind power industry with the development of technology.

Fig.16: Solar Energy Cumulative Capacity (GW) and growth (YoY %) in China (2011-2021E)



Source: Frost & Sullivan

Fig.17: Wind Energy Cumulative Capacity (GW) and growth (YoY %) in China (2011-2021E)



Source: Frost & Sullivan

A leader in the fast-growing EP industry

CEGL is well prepared for arising opportunities in environment protection and alternative energy industries

Against the backdrop of favorable industry trends, CEGL has built a diversified portfolio of biomass, HWT, solar energy and wind power projects. As at Apr 2017, CEGL has a diversified portfolio of 68 projects, including 37 in biomass, 22 in HWT, 7 in solar power generation and 2 in wind power generation. Aggregate power generation designed capacity reaches 935.9MW and aggregate hazardous waste disposal designed capacity reached 504.15k tons p.a.

In our view, CEGL's innovation has led its fast development in the industry. From simple power generation to integrated heat and power generation, integrated biomass and WTE projects, HWT and diversified treatment, CEGL managed to develop quickly and lead the market. According to Frost & Sullivan, in terms of aggregate power generation designed capacity in operation, construction, and planning, CEGL's number of biomass projects is ranked 4th in China as of Dec 31 2016. HWT projects were ranked 1st in eastern China and 3rd nationally in terms of hazardous waste disposal designed capacity for all projects in operation, under construction and at the planning stage among all centralized hazardous waste treatment facilities as of Dec 31 2016, according to Frost & Sullivan.

Fig.18: CEGL's overall projects portfolio

Project list	As of Jan 1		As of Dec 31	
	2014	2014	2015	2016
In operation	11	13	15	24
-Biomass	1	2	2	7
-HWT	3	4	4	8
-Solar and wind power	7	7	9	9
Under construction	2	5	9	14
-Biomass	1	—	5	12
-HWT	1	3	4	2
-Solar and wind power	—	2	—	—
Under planning	7	11	21	25
-Biomass	—	6	16	13
-HWT	5	5	5	12
-Solar and wind power	2	—	—	—

Source: Company data

In our view, backed by the company's parent company, CEIL, which is highly experienced in project enhancement and management, CEGL has been able to expand its number of projects by 10 to 15 annually.

Strong policy support

China's economy has been developing swiftly since the reform and opening-up policy in late-1970s, but it came at the price of environmental pollution. Heavy haze in northern China, rising urbanization ratio, and growing demand for waste and sewage treatments have led to more emphasis on EP. Although investment in the EP sector has constituted 1-2% of China's GDP since 2000, environmental quality in China remains troubling. In 2H16, the 13th FYP (2016-2020) for EP and alternative energy sectors were promulgated. The 13th FYP has officially included the concept of "Beautiful China" in

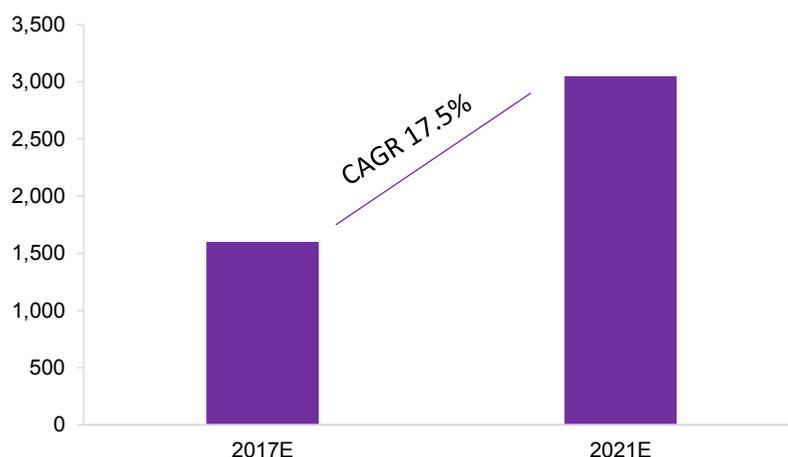
its EP context, elevating the significance of environmental and ecological civilization construction to the national strategic level. In the coming years, EP industry is expected to be supported by the PRC government as one of its development priorities. Various laws, regulations and policies on environment protection were recently adopted by different levels of the PRC government. According to Frost & Sullivan, supported by favorable policy environment, growing public awareness and heavy investment from the PRC government, investment in the PRC environmental protection industry is expected to grow at a CAGR of 17.5% from Rmb1,600 bn in 2017 to Rmb3,049.4 bn in 2021.

Fig.19: Relevant laws and regulations and their promulgated date

Policies	Date issued
the Action Plan to Prevent and Control Air Pollution	Sep 2013
the amended Environmental Protection Law	Jan 2015
the Action Plan for Prevention and Control of Water Pollution	Apr 2015
the Guidance on Promoting Agricultural Waste Control and Utilization in Rural Areas	Nov 2015
the Action Plan to Prevent and Control Soil Pollution	May 2016

Source: Company data

Fig.20: Expected investment in environment protection sector in China (Rmb bn)



Source: Frost & Sullivan

Unique biomass business model

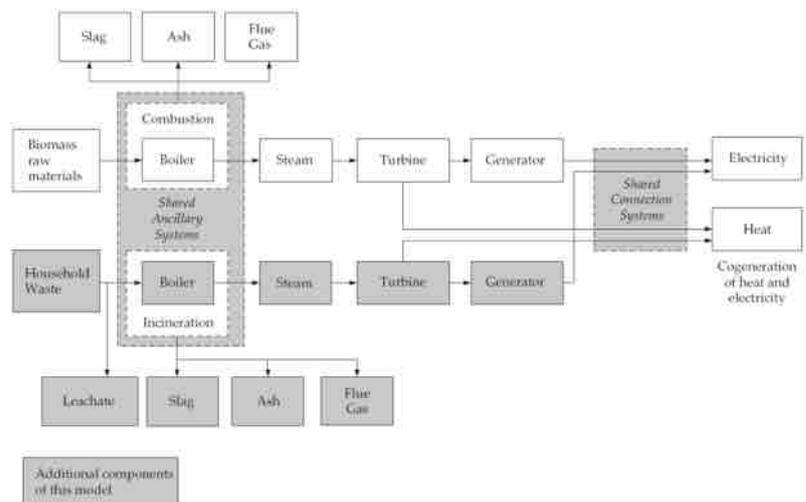
Unique biomass business model of integrated biomass and WTE projects

According to Frost & Sullivan, CEBL is the only company to employ a business model that integrates biomass and WTE projects in China as of Dec 31, 2016. Such business model provides one-stop services for local governments to process both biomass waste and household waste at the same location. We believe that by sharing the grid connection systems, water drainage systems, and other ancillary systems between the biomass facility and the household waste-to-energy facility, this business model is expected to maximize environmental service output and achieve lower overall costs of development and operation than projects on a standalone basis. We believe that in this way, the overall investment returns of these integrated projects could be raised, improving CEBL's competitiveness. In our view, the integrated model presents a sensible alternative in

places where investment return of standalone WTE projects is deemed unattractive.

CEGL has also benefited from its experience in operating WTE projects as part of the Everbright platform prior to the spin-off. The company is able to select, implement and integrate different technologies into its biomass and WTE projects. As at Apr 2017, CEGL had 12 pairs of integrated biomass and waste-to-energy projects, accounting for 23 of its projects. The WTE system of the first pair of integrated projects located in Dangshan has been integrated with its existing biomass power generation systems and started generating revenue in Apr 2016. The remaining 21 projects are currently under construction or at the planning stage.

Fig.21: Simplified process of integrated biomass and WTE projects



Source: Company data

Prudent location selection to control execution risk

NDRC’s policy prohibits the establishment of more than 1 biomass project in an area within a radius of 100km or within a county. CEGL selects the site of each project by evaluating the biomass resources under a conservative estimate, and conducts geographic surveys to ensure the availability of convenient transportation networks and sufficient biomass supply throughout the catchment area. In our view, due to the exclusive nature of such projects, establishment of the 1st plant in one area is crucial for an operator’s profitability. CEGL is experienced in strategic location selection, focusing on regions with severe air pollution, abundant biomass supply, and convenient access. Provinces such as Anhui, Jiangsu, Sichuan, Hubei, Tianjin, Henan and Jiangxi, with severe air pollution and abundant biomass resources, become the key regions for expansion.

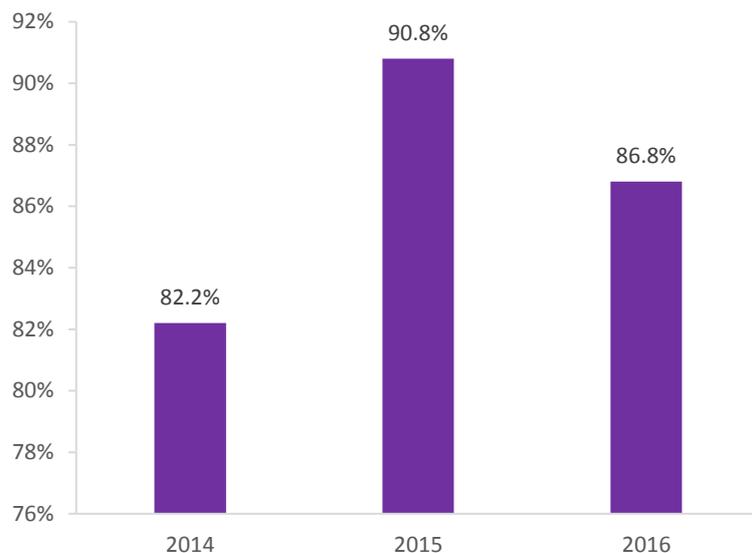
In order to support efficient utilization, CEGL has established a robust supply network to cover collection, storage, transportation, management and utilization of biomass materials. In our view, as the one of first movers in Anhui and Jiangsu provinces, CEGL is leveraging economies of scale and operating efficiency to gain competitive advantages over other market participants.

High utilization ratio supported by robust supply chain management and strong technical capabilities

By keeping a robust supply network, CEGL is able to reach a large number of individual farmers primarily through a network of biomass brokers who handle collection and storage and transportation, hence achieving the economies of scale. CEGL provides incentives to its suppliers in the form of quality-based price adjustments and timely payment. CEGL also allocates raw materials among its biomass projects based on estimate of the available biomass supply and inventory data of each project, which helps realize the efficient management of, and synergies among projects throughout the different stages of its supply chain. CEGL matches the supply of and demand for biomass raw materials and lower the transportation cost by locating biomass collection points near its facilities to shorten the transportation distance. It centrally manages its biomass projects and biomass suppliers through the relevant regional management center to share resources and coordinate among projects to achieve efficiency. In our view, all these lead to higher utilization hours than most of its biomass competitors in Anhui.

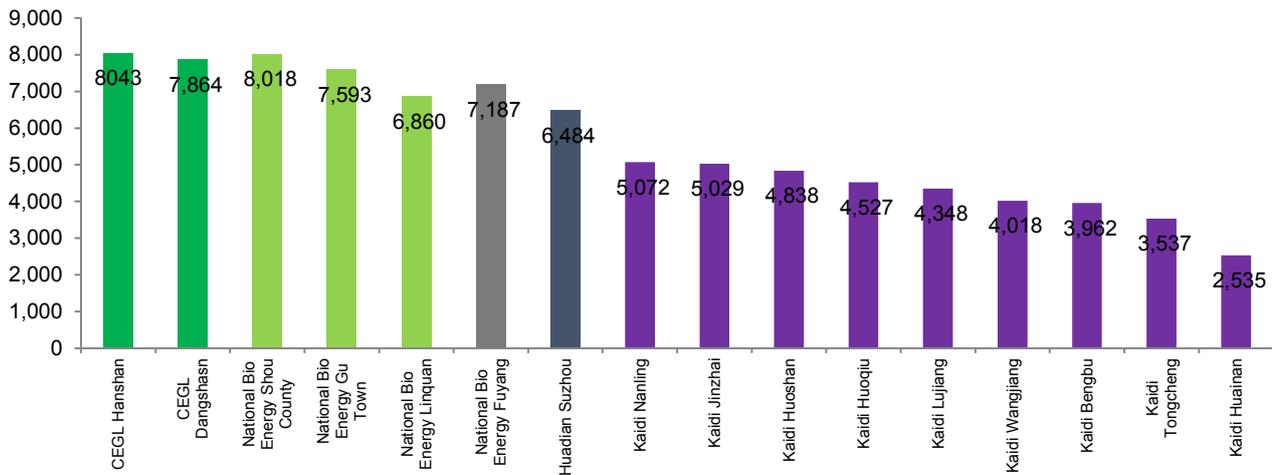
According to Anhui Energy Administration, in 2015, utilization hours of CEGL's facilities in Anhui exceeded 8,000 hours, which is higher than main competitors such as National Bio Energy (6,000-8,000 hours), Huadian Suzhou (6,484 hours), and Kaidi (2,500-5,100 hours).

Fig.22: utilization rate of CEGL's biomass power plants (2014-2016)



Source: Company data

Fig.23: Utilization hour of major biomass power plants in Anhui (2015)



Source: Anhui Energy Administration

Leading HWT business in strategic locations with strong technical capability

Competitive advantages in HWT industry

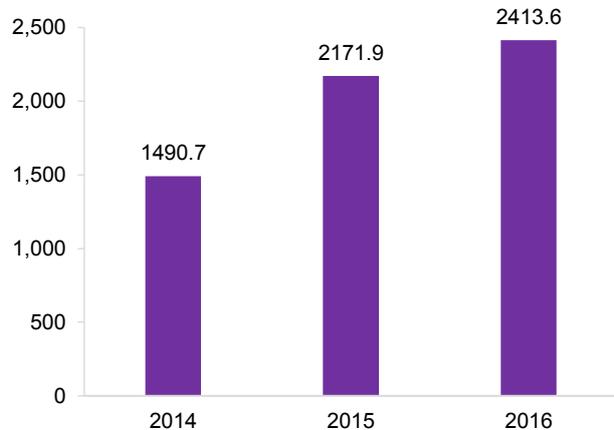
In our view, the company is cautious when selecting projects, and targets for regions that have a high degree of industrialization and waste production. It seeks to build waste treatment facilities in or close to industrial zones to ensure stable demand for its services. According to Frost & Sullivan, CEGE is ranked 1st in terms of hazardous waste disposal designed capacity for projects in operation, under construction and at the planning stage in Eastern China, which had the highest hazardous waste output volume in China in 2016.

In our view, CEGE has a strong technical capability. Its waste treatment technology encompasses the entire process covering landfill construction, pretreatment sorting and repackaging, waste incineration, landfill storage, salvage, and treatment of sewage and sludge. It has the ability to safely treat 42 out of the 46 categories of hazardous waste listed in the National Catalog of Hazardous Waste.

CEGE has a clean safety track record. The company has established an ESHS department to oversee matters related to the environment, safety, health and social responsibility. It adopts quality control measures on construction and operation procedures. CEGE closely monitors the heavy metal content of underground and aboveground water at its facilities to detect leakage of pollutants and comply with all relevant laws and regulations through its stringent internal standards and specifications relating to discharge. In our view, CEGE cooperates with business partners who comply with its safety principles. These elevated quality and safety standards contributed to its clean safety track record in its HWT facilities.

Fig.24: Market leader in eastern China (designed capacity in 2016) (k ton/year)

Source: Frost & Sullivan

Fig.25: Average treatment fee CEGL's hazardous waste average in 2014-2016(Rmb/ton)

Source: Company data

Selected solar energy and wind power projects taking advantage of policy-driven investment opportunities

Taking advantage of the timing and local variation in government policies for the solar energy and wind power industries, CEGL has assembled a portfolio of 7 solar energy projects and 2 wind power projects. In our view, the company chooses projects based on return-oriented criteria through case-by-case evaluation of natural resources and government policies, and has achieved a track record of prudent investment.

For solar energy, all 6 PRC solar energy projects were developed in 2010 and 2011 when the solar energy industry in China was at an early stage of development and enjoyed strong policy support. CEGL secured long-term preferential on-grid tariffs for these projects, with an average on-grid tariff of Rmb2.23/kWh during the Track Record Period, which is higher than the highest on-grid tariff of Rmb1.00/kWh available to solar energy projects built in China after August 2013. In addition, most of its six solar energy projects in China are located near its projects in other business segments, enabling the company to achieve synergies in management and customer coverage.

For wind power, according to NDRC, on-grid tariffs are determined by reference to resource zones in China, and a higher on-grid tariff is applicable to a zone with a lower level of wind resources in general. We believe that CEGL seeks high-return opportunities by exploring locations with high wind resource levels in a resource zone that on average has a lower level of wind resources. In Dec 2010, CEGL secured its first 2 wind power projects in Ningwu, Shanxi Province, a wind-rich region in a resource zone that has the highest price bracket of on-grid tariff for wind power in China at Rmb0.61/kWh.

Strong project sourcing track record founded on the Everbright brand

CEGL is part of the China Everbright Group (“CEG”). CEG is a large-scale conglomerate among the Fortune Global 500 and has a well-recognized brand image. We believe the recognition of the “Everbright” brand has also allowed CEGL to establish national reach and selectively target different regions in China. In our view, CEGL has the ability to explore opportunities based on the availability of resources, strength of government support, and expected returns. The Controlling Shareholder, CEIL, is a market leader in the environmental protection industry in China and has established a leading position in the WTE business. We believe CEGL is able to achieve synergies by lowering management and operational overhead and centrally managing customer relationships for multiple projects.

In our view, CEGL’s diversified projects have gradually become an integral part of the “Everbright” environmental protection platform, complementing CEIL’s municipal waste-to-energy business and water treatment business, and helped CEIL become one of the leading one-stop integrated environmental solution providers in China. We believe after the spin-off, CEGL will continue to benefit from as well as contribute to the influential “Everbright” brand and achieve sustainable growth as part of this leading platform.

CEGL executed market-oriented business strategies. The senior management team comprises a group of experts with an average of over 10 years of experience in the environmental protection industry in assessing, developing and managing environmental protection projects. Most of them have a tenure of over 10 years at CEIL. The project management team is composed of seasoned managers who bring along a wide array and depth of experience in project sourcing, planning, construction, operation, and research and development.

Valuation

While the company’s business includes biomass power generation, HWT, solar and wind power generation, it focuses mainly on biomass and HWT projects. Revenue from biomass and HWT constitutes 81.6% and 11.2% respectively of its total revenue for the year of 2016.

In consideration of the operation model of EP companies and overall industry growth, we believe the Discounted Cash Flow Model (DCF) can most appropriately reflect CEGL’s fair value.

Prediction of revenue and profit

Our prediction of revenue and profit are based on following assumptions:

Fig.26: Key assumptions- biomass and WTE

	2014	2015	2016	2017E	2018E	2019E
Power capacity-Biomass (MW)	60	60	145	265	475	669
Effective Utilization (Based on average capacity)	69%	84%	66%	61%	56%	51%
Electricity Sold-Biomass (MWH)	271,460	440,640	592,249	1,094,707	1,813,753	2,554,265
Tariff (Rmb/KWH)	0.75	0.75	0.75	0.75	0.75	0.75
Cash Revenue from biomass power (k HK\$)	236,781	384,348	516,589	954,858	1,582,046	2,227,958
Power capacity-WTE (MW)	-	-	6	24	48	71
Waste treatment capacity-WTE (kt/year)	-	-	146	438	876	1,309
Effective Utilization (Based on average capacity)	-	-	50%	50%	50%	50%
Electricity Sold-WTE (MWH)	-	-	26,469	66,173	158,816	261,385
Tariff (Rmb/KWH)	-	-	0.65	0.65	0.65	0.65
Waste treatment fee (Rmb/t)	-	-	65	65	65	65
Cash Revenue from WTE power (HK\$ k)	-	-	20,010	50,024	120,057	197,594
Cash Revenue from waste treatment (HK\$ '000)	-	-	5,558	11,116	25,012	41,600
Steam capacity (kt/year)	-	-	526	526	964	1,280
Steam sold (kt)	-	-	-	265	375	565
Effective Utilization (Based on average capacity)	-	-	0%	50%	50%	50%
Price (Rmb/t)	-	-	230	230	230	230
Cash Revenue from steam supply (HK\$ '000)	-	-	-	70,803	100,304	151,086

Source: CEBI

Fig.27: Key assumptions-HWT

	2014	2015	2016	2017E	2018E	2019E
Capacity (t/year)	61,650	63,650	132,980	172,980	215,980	422,223
HWT treated	60,740	52,341	99,639	139,742	167,927	259,579
Effective Utilization (Based on average capacity)	99%	82%	101%	91%	86%	81%
Treatment fee (Rmb/t)	1,491	2,172	2,414	2,414	2,414	2,414
Cash Revenue from HWT treatment (HK\$ '000)	105,304	132,208	279,688	392,259	471,374	728,641

Source: CEBI

Fig.28: Key assumptions-Solar and wind power

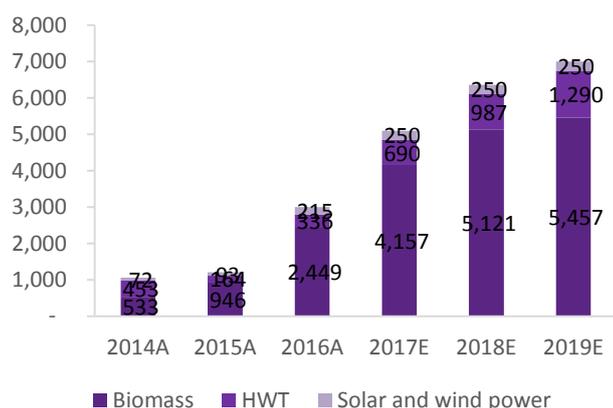
	2014	2015	2016	2017E	2018E	2019E
Solar and Wind Power						
Capacity (MW)	30	126	126	126	126	126
Electricity Sold (MWH)	29,740	68,330	272,690	272,690	272,690	272,690
Effective Utilization (Based on average capacity)	11%	10%	25%	25%	25%	25%
Cash Revenue (HK\$ '000)	77,822	102,513	250,179	250,179	250,179	250,179

Source: CEBI

Most CEGL's revenue comes from biomass and HWT segments, where the growth is highest in the overall EP industry. In 2H16, the 13th Five-Year Plan (FYP, 2016-20) for EP sector were promulgated. The 13th FYP has officially included the concept of "Beautiful China" in its EP context, elevating the significance of environmental and ecological

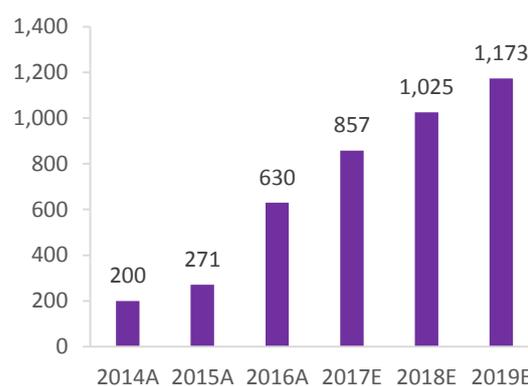
civilization construction to the national strategic level. The biomass and HWT sectors are also strongly supported by both central and local governments. We expect more supporting policies to be promulgated during the 13th FYP. With strong demand on biomass and hazardous waste treatment, we expect CEGL to maintain high growth. Prediction of revenue and profit is based on bottom-up methods, with consideration of expected projects in operation and construction for the corresponding year. We forecast profit to grow at a 23.0% CAGR from 2016A to 2019E (2014A to 2016A: 77.6%).

Fig.29: CEGL's projected revenue in 2014A-2019E (HK\$ mn)



Source: Company data, CEBI

Fig.30: CEGL's projected profit in 2014A-2019E (HK\$ mn)



Source: CEBI

DCF model assumption

Assumptions of our valuation are based on current market performance and overall environmental sector performance. Cost of equity is calculated based on capital asset pricing model (CAPM).

Fig.31: Beta estimate

Company	Beta
CEI (257.HK)	1.2
BEW (371.HK)	1.4
Dongjiang Env(895.HK)	1.0
Average	1.2

Source: Bloomberg, CEBI

Fig.32: WACC calculation

WACC Calculation	
Capital Structure	
Target Debt-to-Total Capitalization (D/V)	50.0%
Target Equity-to-Total Capitalization (E/V)	50.0%
Cost of Debt	
Cost of Debt	4.3%
Effective Tax Rate	20.0%
After-tax Cost of Debt	3.5%
Cost of Equity	
Risk-free Rate	3.0%
Market Risk Premium	7.5%
Unlevered Beta	0.7
Levered Beta	1.2
Cost of Equity (CAPM)	12.0%
WACC	7.7%

Source: CEBI

For the components of CAPM, we apply China's 10-year government

bond yield at 3% as the risk-free rate and adopt a risk-premium of 7.5%. Our beta estimate is based on market leaders in 3 sub-sectors, including CEI in WTE, BEW in sewage treatment, and Dongjiang in HWT. 2-year average beta of 1.2 for the three leading listed companies versus Hang Seng Index are applied in our valuation. Based on these assumptions, we use a WACC of 7.7% in our DCF valuation.

Fig.33: FCF (2017E-2027E) (HK\$ '000)

	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Unlevered Free Cash Flow	-3,985,726	-3,680,981	-3,172,970	-1,550,013	-927,829	649,770	1,255,128	1,509,412	1,773,498	2,097,278	2,413,995
Discount Factor	1.00	0.93	0.86	0.80	0.74	0.69	0.64	0.59	0.55	0.51	0.47
PV of Free Cash Flow	-3,985,726	-3,416,751	-2,733,793	-1,239,609	-688,759	447,722	802,762	896,099	977,303	1,072,764	1,146,131

Source: CEBI

Fig.34: Terminal value (HK\$ '000)

Terminal Value - Perpetuity Growth Method	
Terminal Year FCF (2027E)	2,413,995
Perpetuity Growth Rate	1.5%
Terminal Value	39,307,924
Discount Factor	0.47
PV of Terminal Value	18,662,851

Source: CEBI

Fig.35: EV calculation(HK\$ '000)

Cumulative Present Value of FCF	-2,736,130
Plus: Present Value of Terminal Value	18,662,851
Enterprise Value (2017end)	15,926,720

Source: CEBI

We forecasted CEGL's FCF for the next ten years and calculated a terminal value based on a WACC of 7.7% and terminal growth rate of 1.5%. By summing up its FCF for 2018E-2027E and the terminal value. We derived a 2017end EV of HK\$15.9bn.

Fig.36: EV calculation (HK\$ '000)

Implied Equity Value and Share Price	
Enterprise Value (2017end)	HK\$15,926,720
Less: Net Debt	(2,101,276)
Less: Non-controlling Interest	(13,770)
Implied Equity Value (Post-money)	HK\$13,811,675
Number of shares ('000)	2,066,078.4
Target price	HK\$6.68

Source: CEBI

By deducting the net debt and non-controlling interest, we arrived at a fair value for CEGL at HK\$ 13.8bn, corresponding to HK\$ 6.68 on a per share basis. This implies a 2017E and 2018E P/E multiple of 16.1x and 13.5x.

We believe the company's share is trading at an attractive valuation at 12.5x 2017PE relative to China Everbright international (257 HK, 12.6x) and Dongjiang Environment (895 HK, 18.2x), corresponding to a discount of 1% and 31% respectively. Therefore, with 24% upside based on the 5 July 2017 closing price, we give a BUY rating on CEGL.

Fig.37: Sensitivity analysis

		Growth Rate					Growth Rate							
		1.30%	1.40%	1.50%	1.60%	1.70%								
WACC	7.4%	HK\$7.11	HK\$7.28	HK\$7.45	HK\$7.62	HK\$7.81	WACC	7.4%	17.1x	17.5x	17.9x	18.4x	18.8x	17.1x
	7.6%	HK\$6.74	HK\$6.89	HK\$7.06	HK\$7.22	HK\$7.39		7.6%	16.2x	16.6x	17.0x	17.4x	17.8x	16.2x
	7.7%	HK\$6.39	HK\$6.53	HK\$6.68	HK\$6.84	HK\$7.00		7.7%	15.4x	15.7x	16.1x	16.5x	16.9x	15.4x
	7.9%	HK\$6.05	HK\$6.19	HK\$6.33	HK\$6.48	HK\$6.63		7.9%	14.6x	14.9x	15.3x	15.6x	16.0x	14.6x
	8.0%	HK\$5.73	HK\$5.86	HK\$6.00	HK\$6.14	HK\$6.28		8.0%	13.8x	14.1x	14.5x	14.8x	15.1x	13.8x

Source: CEBI

Source: CEBI

Fig.38: Key Financials

	2014A	2015A	2016A	2017E	2018E	2019E
ROA	7.0%	5.9%	9.7%	8.0%	6.4%	5.9%
ROE	36.8%	15.3%	17.7%	13.7%	11.6%	11.8%
Current ratio	1.3x	2.1x	1.2x	2.1x	1.4x	0.8x
Quick ratio	1.2x	2.0x	1.2x	2.1x	1.3x	0.8x
Asset-liability ratio	82.4%	47.5%	43.7%	40.1%	48.0%	52.0%
Gearing ratio	91.0%	39.6%	46.9%	50.8%	77.4%	95.1%
NET Gearing ratio	0.4%	3.8%	25.8%	25.2%	65.7%	93.6%
Interest coverage ratio	11.7x	10.7x	14.5x	9.6x	7.0x	5.8x
Capex to sales ratio	75.4%	95.4%	51.6%	72.7%	61.8%	57.1%
Debt to EBITDA	186.6%	261.8%	200.3%	299.3%	389.2%	439.1%

Source: CEBI

Fig.39: Comparable table (Data as of July 5, 2017)

Company	Ticker	Market cap USD mn	Price (local)	TTM	PE (x)		ROE (%)			Dividend yield (%)
					2017E	2018E	TTM	2016E	2017E	
CHINA EVERBRIGHT Biomass	1257 HK	1,427	5.39	17.69	12.52	10.10	17.74	14.56	12.87	0.00
KAIDI ECOLOGIC-A	000939 CH	3,040	5.26	60.53	22.87	29.55	3.47	NA	NA	NA
GUANGDONG CHAN-A	002616 CH	1,309	11.98	53.31	32.91	20.31	9.12	10.17	15.40	0.50
Average				56.92	27.89	24.93	6.29	10.17	15.40	0.50
HWT										
DONGJIANG ENV-H	895 HK	2,034	12.14	25.31	18.17	14.79	17.67	14.15	14.73	1.15
New Universe ENV	436 HK	194	0.50	24.36	16.13	10.00	9.00	12.20	16.40	1.20
Average				24.83	17.15	12.39	13.34	13.18	15.57	1.17
Sewage water										
BJ ENT WATER	371 HK	6,674	5.95	15.78	13.11	10.68	19.75	20.73	21.85	2.02
GUANGDONG INVEST	270 HK	8,810	10.52	16.24	14.01	13.47	13.23	13.86	13.17	3.99
SOUND GLOBAL LTD	967 HK	575	2.98	NA	5.11	4.41	NA	13.85	13.95	NA
CHINA WATER AFFA	855 HK	872	4.46	12.26	7.73	6.37	12.94	13.85	14.45	2.24
CT ENVIRONMENTAL	1363 HK	1,084	1.34	13.87	10.47	8.59	17.00	19.33	19.58	1.39
TIANJIN CAP-H	1065 HK	3,504	5.26	52.51	13.08	12.38	9.69	10.10	10.10	2.05
CHINA WATER INDU	1129 HK	350	1.71	86.83	NA	NA	2.43	NA	NA	NA
KANGDA ENV	6136 HK	403	1.52	7.99	6.01	4.92	9.92	11.39	12.66	NA
YUNNAN WATER I-H	6839 HK	527	3.45	9.02	6.45	5.54	9.35	10.80	11.40	3.33
CAPITAL ENV	3989 HK	476	0.26	72.10	NA	NA	1.39	NA	NA	NA
Average				31.84	9.50	8.29	10.63	14.24	14.64	2.50
WTE										
CHINA EVERBR INT	257 HK	5,455	9.50	15.21	12.63	10.64	16.10	17.71	18.41	2.16
DYNAGREEN ENVI-H	1330 HK	533	3.98	9.93	7.90	6.67	13.84	15.13	15.20	1.73
CANVEST ENV	1381 HK	1,280	4.07	24.84	16.82	13.48	15.82	16.07	15.66	0.39
Average				16.66	12.45	10.26	15.25	16.30	16.43	1.43
Average				30.46	13.49	11.37	11.67	14.26	15.06	1.70

Source: Bloomberg, CEBI

Risk factors

Project risk

The government may reduce or even remove tariff subsidy for the biomass power plants when the industry becomes mature. This will pose pressure on the returns of new biomass projects.

As for HWT projects, the waste treatment fees are generally determined based on the fee guidance set by the local governments with consideration of the market conditions. In our view, when capacity of HWT enhances over time, competition for HWT may lead to decrease in treatment fee, which will adversely affect the IRR of both current and future HWT projects.

Policy risk

The company's projects enjoy various economic incentives. Preferential electricity prices represent the primary economic incentives for the biomass, solar energy and wind power projects, without which its project profitability may be impacted.

The average on-grid tariffs for electricity generated from its biomass, solar energy and wind power projects were Rmb0.75/kWh, Rmb2.23/kWh and Rmb0.61/kWh, respectively, which are much higher than the on-grid tariffs for electricity generated from conventional sources (Rmb0.3-0.5/kWh) according to Frost & Sullivan. In addition, some of CEG's projects enjoy additional government subsidies pursuant to the investment or concession agreement for the relevant project. For the years ended December 31 2014, 2015 and 2016, the government grants amounted to HK\$1.7mn, HK\$5.4mn and HK\$15.8mn, respectively.

Accounting standard risk

The determination of whether BOT and BOO models can be accounted for as service concession agreement involves substantial subjective judgment by the government. Therefore, CEG's financial results may fluctuate due to the accounting treatment with respect to service concession arrangements.

Raw material supply risk

CEGL's biomass projects in operation rely on a stable supply of high-quality biomass raw materials. Biomass raw materials used include agricultural waste such as straw and husks, and forestry residues such as waste wood and debris, tree trimmings and other manufacturing wood waste.

Availability of biomass raw materials depends on a variety of factors that are beyond control, including local climate conditions, farming conditions, crop mix, the amount of local farming area and labor, and seasonal factors. In addition, biomass raw materials are mainly collected and transported to biomass facilities by ground transport, which may be subject to various uncertainties, including the location of source points, road conditions, transportation infrastructure and weather conditions. Any shortage of biomass raw materials will lower

the electricity or steam output of the affected facility, and in turn lower its revenue.

CEGL relies on local 3rd-party biomass brokers to obtain biomass materials. Fluctuations in the price of biomass raw materials are a key factor affecting the operational cost of all biomass projects, since material cost constitutes approximately 53.4-55.7% of the company's direct costs and operating expenses (excluding construction costs). In our view, sudden rise in the price of biomass raw materials can negatively affect the profitability of CEGL's projects.

Environmental risk

CEGL is exposed to environmental risks due to the nature of its operations. Despite pollutant control efforts, its operation of biomass facilities and HWT facilities still produce air, water and ash pollutants. The type and amount of pollutants may increase unexpectedly due to a number of factors, including variations in the quality of biomass raw materials, the mix of hazardous waste, downtime at its facilities or occurrence of accidents or natural disasters. In the event that CEGL is unable to adequately and efficiently operate its facilities in compliance with the relevant environmental requirements, the company may be subject to penalties, liabilities or administrative actions, and reputation may be damaged.

Financial Information

Fig.40: Income statement (HK\$ '000)

	2014A	2015A	2016A	2017E	2018E	2019E
Revenue	1,057,784	1,203,198	3,000,131	5,096,321	6,358,563	6,996,842
Direct cost and operating expenses	(764,720)	(768,662)	(2,008,620)	(3,592,347)	(4,483,376)	(4,753,911)
Gross Profit	293,064	434,536	991,511	1,503,974	1,875,187	2,242,932
Other revenue	21,693	37,858	67,897	93,966	114,475	121,196
Other Losses	(54)	(1,275)	(9,684)	0	0	0
Administrative cost	(63,425)	(101,710)	(197,747)	(383,360)	(448,710)	(510,038)
Operating Profit	251,278	369,409	851,977	1,214,580	1,540,952	1,854,090
Finance cost	(26,228)	(41,202)	(67,715)	(147,598)	(265,434)	(394,717)
Share of loss of a joint venture	0	(461)	(867)	0	0	0
Profit before taxation	225,050	327,746	783,395	1,066,982	1,275,517	1,459,373
Income tax	(25,373)	(56,302)	(153,873)	(209,575)	(250,535)	(286,647)
Profit for the period	199,677	271,444	629,522	857,407	1,024,982	1,172,725
EPS (HK\$)	0.10	0.13	0.30	0.41	0.50	0.57
EBIT	251,278	368,948	851,110	1,214,580	1,540,952	1,854,090
EBITDA	306,430	441,849	982,617	1,416,710	1,864,102	2,282,662
Operating ratio						
Gross margin	28%	36%	33%	30%	29%	32%
Operating margin	24%	31%	28%	24%	24%	26%
Profit margin	19%	23%	21%	17%	16%	17%

Source: Company data, CEBI

Fig.41: Balance sheet (HK\$ '000)

	2014A	2015A	2016A	2017E	2018E	2019E
Current assets						
Other current assets	294,099	560,160	698,353	1,203,427	1,513,310	1,686,064
Cash and cash equivalents	569,142	1,044,475	886,210	2,138,818	1,099,664	154,832
Total current assets	863,241	1,604,635	1,584,563	3,342,245	2,612,974	1,840,896
Non-current assets						
Property, plant and equipment	773,298	1,599,605	1,713,858	3,118,891	4,293,670	5,874,321
Intangible assets	1,358,802	1,661,629	2,975,814	5,280,673	7,879,240	10,095,804
Others	565,146	701,057	1,189,312	2,188,868	3,239,624	4,168,308
Total non-current assets	2,697,246	3,962,291	5,878,984	10,588,432	15,412,534	20,138,433
Total assets	3,560,487	5,566,926	7,463,547	13,930,677	18,025,508	21,979,329
Current liabilities						
Bank loans	117,312	79,394	270,265	490,099	784,937	1,055,936
Others	558,658	696,245	1,024,515	1,075,340	1,128,706	1,139,913
Total current liabilities	675,970	775,639	1,294,780	1,565,439	1,913,644	2,195,850
Non-current liabilities						
Bank loans	454,393	1,077,535	1,698,062	3,749,996	6,469,635	8,968,104
Others	1,802,023	792,617	270,123	272,032	274,036	274,457
Total non-current liabilities	2,256,416	1,870,152	1,968,185	4,022,028	6,743,671	9,242,561
Total liabilities	2,932,386	2,645,791	3,262,965	5,587,466	8,657,315	11,438,411
Total equity	628,101	2,921,135	4,200,582	8,343,211	9,368,193	10,540,918
Total liabilities and equity	3,560,487	5,566,926	7,463,547	13,930,677	18,025,508	21,979,329

Source: Company data, CEBI

Fig.42: Cash flow statement (HK\$ '000)

	2014A	2015A	2016A	2017E	2018E	2019E
Operating activities						
Profit before taxation	225,050	327,746	783,395	1,066,982	1,275,517	1,459,373
Adjustments for:						
Depreciation	31,432	39,868	85,600	103,627	175,990	232,403
Amortization of intangible assets	23,132	32,484	41,668	91,059	139,716	188,725
Amortization of interest in leasehold land held for own use under operating leases	588	549	4,239	7,444	7,444	7,444
Finance costs	26,228	41,202	67,715	147,598	265,434	394,717
Interest income	-3,229	-7,105	-5,615	-2,165	-4,898	-2,631
Net loss on disposal of property, plant and equipment	54	1,275	9,684	0	0	0
Share of loss of a joint venture	0	461	867	0	0	0
Effect of foreign exchange rates changes	10,000	2,869	-13,959	0	0	0
Changes in working capital	-9,040	-456,083	-439,656	-1,460,971	-1,312,712	-1,097,255
Cash generated from/(used in) operations	304,215	-16,734	533,938	-46,426	546,492	1,182,776
Interest received	3,229	7,105	5,615	2,165	4,898	2,631
"PRC" income tax refunded/(paid)	6,079	-20,241	-39,098	-209,575	-250,535	-286,647
Net cash generated from/(used in) operating activities	313,523	-29,870	500,455	-253,835	300,855	898,759
Investing activities						
Payment for purchase of PPE and interest in leasehold land held for own use under operating leases and increase in non-current portion of prepayments	-436,181	-614,865	-325,248	-1,508,660	-1,350,769	-1,813,053
Payment for additions of intangible assets	-483,417	-546,695	-1,263,335	-2,395,917	-2,738,284	-2,405,289
Other Investing activities	-99,226	61,844	-29,049	0	0	0
Net cash used in investing activities	-1,018,824	-1,099,716	-1,617,632	-3,904,578	-4,089,053	-4,218,342
Financing activities						
Net Increase in bank loans	137,509	624,690	928,807	2,271,767	3,014,478	2,769,468
Interest paid	-26,228	-50,508	-73,508	-147,598	-265,434	-394,717
Dividend paid to equity shareholders	0	(172,188)	0	0	0	0
Other Financing activities	852,725	1,222,090	141,305	3,286,852	0	0
Net cash generated from financing activities	964,006	1,624,084	996,604	5,411,021	2,749,044	2,374,750
Cash and cash equivalents						
Net increase/(decrease)	258,705	494,498	(120,573)	1,252,608	(1,039,154)	(944,832)
Cash and cash equivalents at the beginning of the year	318,433	569,142	1,044,475	886,210	2,138,818	1,099,664
Effect of foreign exchange rates changes	(7,996)	(19,165)	(37,692)	0	0	0
Cash and cash equivalents at the end of the year	569,142	1,044,475	886,210	2,138,818	1,099,664	154,832

Source: Company data, CEBI

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