

Canvest Environmental Protection Group

Initiation of Coverage

Star on the rise

Initiate with Buy rating: Star on the rise, with ROE expansion

Canvest Environmental Protection Group is the largest non-state-owned waste-to-energy (WTE) incineration treatment provider in Guangdong Province, by municipal solid waste (MSW) treatment capacity. It is one of the fastest rising players in China's WTE space, with revenue and net income growing at 67%/61% CAGR respectively during 2011-2015; we forecast a further 23%/28% CAGR in adjusted revenue/ adjusted earnings in 2016e-2019e, as operational capacity rises from 7,900 to 15,740 tons/day. We estimate Canvest's adjusted ROE will expand to 12.4% in 2019e (up from 7.5% in 2015) due to the commencement of operations of its new WTE plants, with more advanced technology and superior operating efficiency.

Exponential sector growth in 2016-2020

According to targets set in the 13th Five-Year Plan, Guangdong's waste incineration treatment capacity will quadruple in size by the end of 2020, compared to the 2015 year end level. With its strong track record and partnership in Guangdong, we believe Canvest will be a key beneficiary.

Additional funding and business development support from government-backed shareholder and strategic partners

On 17 Feb 2017, Canvest entered into a conditional new shares subscription agreement with Shanghai Industrial Holdings Limited (SIHL), a company controlled by the Shanghai Municipal government. If this completes successfully, SIHL would become Canvest's 2nd largest shareholder with a 15.3% stake. Together with the recently formed strategic partnership with government-backed strategic partners Guangdong Finance Investment International and BOC&UTRUST, Canvest is set to gain strong funding and new project acquisition support in and outside of Guangdong.

Price target HK\$5.19, 27% upside

Our PT of HK\$5.19 is derived with the DCF method, assuming 7.58% WACC, and 3% long-term growth rate. This implies 22.2x/17.6x 2017e/2018e PE. The stock is currently trading at 17.4x/13.8x 2017e/2018e PE, which is undemanding given the strong growth prospect, in our view.

Catalysts: Strong reported earnings expected for 2016e-2019e; potential new project announcements would provide upside surprise

We estimate Canvest will complete construction for 5 WTE projects by 2017e, and another 5 by 2019e. Our project forecast is conservative and currently only includes the ones already announced, as illustrated in Figure 7; any announcement of new quality projects and management fee income from managed projects (asset-light model) could provide upside surprise.

2016 results: Positive profit alert; new asset-light operating model

Canvest will report full year results for 2016 in late March 2017. On 16 Feb 2017, the company issued a positive profit alert of 45% yoy increase in 2016 earnings, due to expanded waste treatment capacity, increasing construction revenue and income from managed project. This beats the consensus estimate by 9%, and we expect the upward revision of consensus estimates.

Stock code: 1381.HK

Rating: Buy

Price target (HK\$)	5.19
Current price (HK\$, 20 Feb 2017)	4.07
Upside/downside %	27%
Market cap (HK\$ m)	8,279
Market cap (US\$ m)	1,068
Avg daily turnover (HK\$ m)	14.5

Source: Bloomberg, AMTD Equity Research

Key forecasts

(HK\$ m)	2016e	2017e	2018e	2019e
Reported net profit	391	535	677	845
yoy %	44%	37%	26%	25%
Reported revenue	1,701	2,312	2,566	3,062
yoy %	44%	36%	11%	19%
Adj. net profit	257	310	438	539
yoy %	66%	21%	41%	23%
Adj. revenue	846	1,036	1,370	1,592
yoy %	46%	22%	32%	16%
EBITDA margin	40%	39%	45%	45%
Net debt	1,631	1,294	1,760	1,924
EPS	0.19	0.23	0.29	0.36
BPS	1.33	1.80	2.05	2.37

Source: Company data, AMTD Equity Research

Valuation

	2016e	2017e	2018e	2019e
P/E	21.2x	17.4x	13.8x	11.0x
P/BV	3.1x	2.2x	1.9x	1.7x
ROE	15.5%	15.5%	15.1%	16.4%
ROA	8.0%	8.4%	8.7%	9.7%

Source: Bloomberg, AMTD Equity Research

Share price performance



Source: Bloomberg

Kate Xiao
 Analyst

+852 3163 3384

Kate.Xiao@amtd.com.hk

Michelle Li
 Analyst

+852 3163 3383

Michelle.Li@amtd.com.hk

Table of content

Executive summary	3
Valuation	4
Risk analysis	5
Competitive strengths	6
Strategy	9
Sources of revenue.....	10
Waste treatment operations and power generation.....	12
BOT accounting - construction revenue, finance income.....	13
Adjusted operating results ex. BOT accounting	13
Growth prospects.....	14
Support from new strategic partners	14
Incineration in Guangdong – where are the opportunities?.....	14
Development in other provinces.....	16
Financial forecast.....	17
Key assumptions and sensitivity analysis	17
2016 results: Positive profit alert; new asset-light operating model.....	18
Industry overview	22
Appendix	25
The WTE process explained.....	25
Company background	27
Board of directors and management team profile	28

Executive summary

Initiate with Buy rating: Star on the rise

Canvest Environmental Protection Group is the largest non-state-owned waste-to-energy (WTE) incineration treatment provider in Guangdong Province, by municipal solid waste (MSW) treatment capacity. It is one of the fastest rising players in China's WTE space, with revenue and net income growing at 67%/61% CAGR respectively during 2011-2015; we forecast a further 22%/24% CAGR in adjusted revenue/ adjusted earnings in 2016e-2019e, as operational capacity rises from 7,900 to 15,740 tons/day. We estimate Canvest's adjusted ROE will expand to 12.4% in 2019e (up from 7.5% in 2015) due to the commencement of operations from its new WTE plants, with more advanced technology and superior operating efficiency.

Price target HK\$5.19, 27% upside

Our PT of HK\$5.19 is derived with the DCF method, assuming 7.58% WACC, and 3% long-term growth rate. This implies 22.2x/17.6x 2017e/2018e PE. The stock is currently trading at 17.4x/13.8x 2017e/2018e PE, which is undemanding given the strong growth prospect, in our view.

Exponential sector growth in 2016-2020; differentiated players set to outperform

According to targets set in the 13th Five-Year Plan, Guangdong's waste incineration treatment capacity will quadruple in size by the end of 2020, compared to the 2015 year end level. We believe Canvest has the potential to be a key beneficiary, thanks to its (1) proven operational track record and expertise of quality projects; (2) capable management; (3) continuous project acquisition and funding support from the government-backed strategic partners.

Additional funding and business development support from government-backed shareholder and strategic partners

On 17 Feb 2017, Canvest entered into a conditional new shares subscription agreement (at HK\$ 3.5 per share) with Shanghai Industrial Holdings Limited (SIHL), a company controlled by the Shanghai Municipal government. If this completes successfully, SIHL would become Canvest's 2nd largest shareholder with a 15.3% stake. Together with the recently formed strategic partnership with government-backed strategic partners Guangdong Finance Investment International and BOC&UTRUST, Canvest is set to gain strong funding and new project acquisition support in and outside of Guangdong.

Catalysts: Strong reported earnings expected for 2016e-2019e; potential new project announcements would provide upside surprise

We estimate Canvest will complete construction for 5 WTE projects by 2017e, and another 5 by 2019e. Our project forecast is conservative and currently only includes the ones already announced, as illustrated in Figure 7; any announcement of new quality projects in Guangdong and other regions would provide surprise to the upside.

2016 results: Positive profit alert; new asset-light operating model

Canvest will report full year results for 2016 in late March 2017. On 16 Feb 2017, the company issued a positive profit alert of 45% yoy increase in 2016 earnings, due to expanded waste treatment capacity, increasing construction revenue and income received from managed project. This beats the consensus estimate by 9%. Canvest currently has one project on which it charges fee income under management contract. This asset-light business model is new and we have not factored in management fee income 2017e onwards for lack of clarity on detailed revenue booking method, which leaves potential upside in our forecasts as well as consensus forecast.

Valuation

Our price target of HK\$5.19 is derived using a discounted cash flow method, assuming 7.58% WACC, 3% long-term growth rate. This implies 22.2x/17.6x 2017e/2018e PE, which is roughly in line with HK-listed peers in the Chinese environmental protection sector. We believe Canvest should be one of the names in the sector that deserve relatively higher valuation because of its (1) strong growth in new project acquisition supported by government-backed shareholder and strategic partners; (2) proven track record of sound operations and management; (3) key focus on opportunities in selected cities in and outside Guangdong Province that offer good IRR thus relatively high profitability.

Cost of equity assumption

Our cost of equity estimate is 8.9%, which is based on a beta of 0.79, a long-term risk-free rate of 4.2%, and an equity risk premium of 6.0%.

Figure 1: Canvest Environmental Protection Group valuation comparison

	Ticker	Price	Market Cap (US\$ m)	EPS	Earnings	P/B		P/E		ROE		Adjusted P/E (ex. construction)		Adjusted ROE (ex. construction)	
				CAGR 15-18e	CAGR 15-18e	2016e	2017e	2016e	2017e	2016e	2017e	2016e	2017e	2016e	2017e
Yonker Environmental	300187 CH	CNY 12.54	1,184	33%	33%	5.3x	4.6x	50x	36x	10%	13%	n.a.	n.a.	n.a.	n.a.
China Tianying	000035 CH	CNY 7.26	1,310	25%	27%	3.1x	3.2x	32x	24x	12%	14%	n.a.	n.a.	n.a.	n.a.
Dynagreen Environmental	1330 HK	HKD 3.74	504	26%	27%	1.3x	1.1x	11x	8x	12%	14%	n.a.	n.a.	n.a.	n.a.
Dongjiang Environmental	895 HK	HKD 13.16	2,135	28%	31%	3.2x	2.4x	22x	18x	16%	16%	n.a.	n.a.	n.a.	n.a.
China Everbright International	257 HK	HKD 10	5,776	23%	23%	2.4x	2.1x	17x	14x	14%	16%	26x	21x	9.4%	11.3%
CT Environmental Group	1363 HK	HKD 1.6	1,302	17%	19%	2.5x	2.1x	13x	11x	21%	21%	14x	10x	19.5%	23.1%
Beijing Enterprises Water	371 HK	HKD 5.64	6,351	23%	22%	2.7x	2.4x	16x	13x	18%	19%	28x	22x	11.8%	13.3%
Average				25%	26%	2.9x	2.6x	23x	18x	15%	16%	23x	18x	13.6%	15.9%
Canvest	1381 HK	HKD 4.07	1,067	29%	33%	3.1x	2.2x	21x	17x	16%	16%	32x	30x	11.1%	10.2%

Priced as of 20 February; Source: Bloomberg, AMTD Equity Research

Risk analysis

Reduction in government subsidies

Canvest operates in the WTE industry, which enjoys preferential tax policies and government subsidies. Our forecasted 2017e adjusted earnings would drop by 1.2% for a 1 cent decrease in on-grid power tariff subsidy. Though in the long run the on-grid power tariff subsidy should be gradually reduced and eventually eliminated, we believe in the next 3-5 years favorable government policies and pricing incentives will still be in place to boost the MSW incineration treatment rate in China and accomplish the targets set in the 13th Five Year Plan.

Fiercer competition driving down waste treatment fee

Canvest currently enjoys gross margin of over 50% in its waste treatment and power sales business. If the competition significantly intensifies, there could be pressure on waste treatment fee charged. However, the WTE industry has significant barriers of entry due to the high requirement in initial investment, operational expertise and technology know-how.

We believe Canvest as one of the established players with proven track record should continue to show strength in profit margins and lead the market. Canvest strategically plans its projects in more affluent areas, mostly in Guangdong Province and some selected cities in other provinces. We believe these local governments should have the financial capability to grant reasonable waste treatment fee, avoid pure price competition among bidders for new projects, and value the good management and operational expertise of a WTE company.

Public opposition due to environmental concern

Due to the short history of MSW incineration in China and the pollution that happened with some plants, there has been some environmental concern in the general public against the building of WTE plants.

A number of Canvest's plants are publicized by the local governments as "garden-like" industrial areas where one does not see black chimney and hazardous smog, which were associated with a typical waste treatment factory in the past. These Canvest plants even offer regular plant visit tours to the general public for environmental education purposes. We believe Canvest's good operational track record and public education efforts should greatly alleviate environmental concerns from the general public.

The reliance on sole incinerator provider

Currently Canvest sources all of its moving grate incinerators from Chongqing Sanfeng Environmental Industrial Group. There are currently a few incinerating equipment providers in China. Chongqing Sanfeng also operates downstream WTE plants, and currently has 2 such plants in Shanwei and Meizhou in Guangdong Province. However, Canvest operates on a much larger scale in Guangdong's WTE industry and we believe its core competitiveness is intact with its proven track record, established scale and good reputation and management.

Funding need

In order to speed up its expansion in the golden 13th five-year period, Canvest would need to fund possible new projects in forms including but not limited to new debt, equity, or setting up independent funds.

Competitive strengths

We believe Canvest is an industry leader given its (1) proven management and technology expertise; (2) operating efficiency and best-in-breed profitability level; (3) recently announced strategic cooperation with government-backed capital and the introduction of SIHL as the second largest shareholder bringing strong support in future project acquisition and funding.

Proven management and technology expertise

Canvest has an experienced and stable management team. The chief engineers Mr. Song and Mr. Chen both have more than 10 years' experience in the WTE industry. Canvest adopts the moving grate technology in all of its WTE plants. Moving grate technology is generally deemed to be more efficient, producing less incineration residue and suitable for building larger-capacity incinerators. Please see detailed analysis of the incinerator technology in Box 1.

Box 1: Comparisons of incineration technologies – moving grate vs. fluidized bed

The mainstream incinerator types adopted in China are moving grate and fluidized bed.

Geographically, incinerators in municipalities and eastern provinces are mostly moving grate incinerators with imported technologies, and those in central and Northern provinces are mostly domestically made fluidized beds incinerators.

Due to the complexity of waste incineration technology, large-scale moving grate incinerators currently in use in China are mostly imported, hence the high cost of investment, but imported grate incinerators enjoy advantages in operation stability and simple waste pre-treatment.

	Moving Grate	Fluidized Bed
Description of process	Waste is introduced by a waste crane through the "throat" at one end of the grate, from where it moves down the descending grate (sectioned as drying, combustion and complete combustion) to the ash pit on the other end.	The furnace is filled with a bed of quartz sand that is heated to over 600°C. A strong airflow heated to over 200°C is supplied through the bottom of the furnace, separating the sand particles to let the air through, and then the waste is introduced. The waste and sand will then be mixed and churned to combust the waste.
Heating Value of Waste	1,200 kcal/kg (5,040 kJ/kg) and above	800 kcal/kg (3,360 kJ/kg) and above
Auxiliary Fuel	nil (Diesel to ignite incinerator)	Coal (Diesel to ignite incinerator)
Initial investment	~ RMB 500,000 - 600,000 per ton	~ RMB 300,000 per ton
Gross margin	>50%	~20%-30%
Waste pretreatment	<ul style="list-style-type: none"> • Lower requirements of waste's composition and solid mass • Lower requirement for waste pretreatment 	Higher requirement on waste pretreatment
Utilized hours	8,000 hours/year	6,000 hours/year
Maintenance	Once every 6 months	Once every 1.5-2 months
Incineration residues	<ul style="list-style-type: none"> • 1.5%-2% fly ash produced • Less flue gases produced, meeting EU standard 	<ul style="list-style-type: none"> • 8%-10% fly ash produced • More flue gases produced
Operation	<ul style="list-style-type: none"> • Easier to operate • More stable in operation • Higher heat resistance requirement on incinerator • Lower waste combustion efficiency • Larger volume of facility 	<ul style="list-style-type: none"> • More difficult to operate • Shorter duration of full load operation • Higher waste combustion efficiency • Longer service life • Higher heat efficiency

(Source: Company data)

Canvest is one of the few operators in the WTE industry that would upgrade a plant from fluidized bed technology to moving grate technology, which require extensive operating experience and technological know-hows. It has successfully done so with its Eco-Tech and China Scivest plants. Canvest aims to continue to explore potential target plants that currently utilize fluidized bed technology and take over with technological upgrade into moving grate facilities.

Thanks to the good operation and 100% adoption of moving grate technology, a number of Canvest’s plants are publicized by the local governments as “garden-like” industrial areas where one do not see black chimney and hazardous smog, which were associated with a typical waste treatment factory in the past. These Canvest plants even offer regular plant visit tours to the general public for environmental education purposes.

Figure 2: Canvest’s garden-like WTE plant

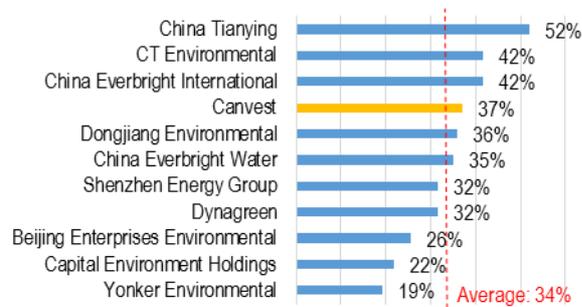


Source: Canvest

Best-in-breed operating efficiency and profitability

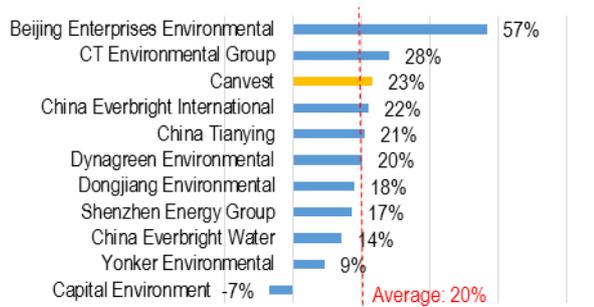
Canvest’s gross profit and net profit margins are higher than sector average. In 1H16, Canvest recorded gross profit margin of 37%, higher than the sector average of 34%; net profit margin of 23%, compared to the sector average of only 20%. Moreover, this was achieved while Canvest used conservative gross margin assumption of 16.7% (and actual gross margin booked was 15.5% due to over-budget construction of one project) to record its construction revenue. We believe the high margin is due to Canvest’s (1) higher-than-average operating efficiency; (2) focus on high quality, high return projects.

Figure 3: 1H16 gross profit margin of listed environmental protection companies in China



Source: Company data; Bloomberg

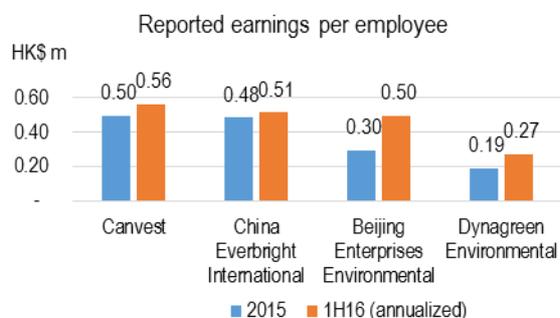
Figure 4: 1H16 net profit margin of listed environmental protection companies in China



Source: Company data; Bloomberg

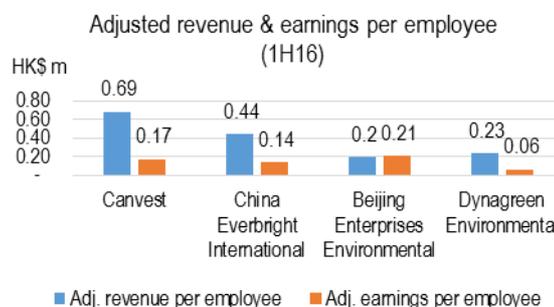
Canvest also generates one of the highest per employee earnings, on both reported and adjusted basis, compared with WTE peers. This indicates outstanding management and superior operating efficiency of Canvest.

Figure 5: Canvest generates the highest reported earnings per employee among listed WTE peers, in 2015 and 1H16



Source: Company data; Bloomberg; AMTD Equity Research

Figure 6: Canvest’s adjusted revenue and earnings per employee also tops peer comparison, 1H16



Source: Company data; Bloomberg; AMTD Equity Research

Strategic partnership and shareholder support in funding and project acquisition

On 4 January 2017, Canvest announced that it had entered into a strategic cooperation agreement with Guangdong Finance Investment International Co., Limited, a financial holding group directly under the People’s Government of Guangdong Province; and BOC & UTRUST Private Equity Fund Management (Guangdong) Co., Ltd., a joint venture company established by Utrust Holdings and Bank of China Group Investment Limited.

According to the announcement, Canvest intends to establish an industrial fund for clean environmental projects jointly with the strategic partners to support future business development. Ideally, Canvest would need to commit very limited capital into the fund but form strategic alliance with the fund to win future WTE projects, then act as the EPC contractor in the project construction phase and the hired operator in the operation phase. This will provide strong funding and new project acquisition support for Canvest to boost its operating scale to the next level.

On 17 Feb 2017, Canvest announced issuance of new shares to Shanghai Industrial Holdings Limited (SIHL), a company held by the Shanghai Municipal government. If the share subscription completes successfully, SIHL and its associates will become Canvest’s second largest shareholder with a 15.3% stake. This could provide additional support to Canvest in funding and new project acquisition with nationwide coverage.

Strategy

Focus on new projects in Guangdong to boost growth

With its established operations and proven track record, Canvest continues to put strategic focus on Guangdong Province. The partnership with Guangdong Finance Investment International Co., Limited and BOC & UTRUST Private Equity Fund should provide strong support to Canvest in acquiring and funding new WTE projects in Guangdong Province.

We believe the key opportunities for Canvest in Guangdong are within the tier 2 and tier 3 cities. With the right acquisition and execution of new projects, we believe Canvest has the potential to more than double its operations in Guangdong by 2020e.

New fund structure could significantly boost scope of projects and cash inflow

Canvest intends to establish an industrial fund for clean environmental projects jointly with its strategic partners to support future business development. Ideally, Canvest would need to commit very limited capital into the fund but form strategic alliance with the fund to win future WTE projects, then act as the EPC contractor in the project construction phase and the hired operator in the operation phase. We believe this will provide strong support for Canvest to significantly boost its operational scale.

Riding the secular trend

We believe the 2017-2020 period will be vital for Canvest. In the 13th Five Year Plan for Municipal Solid Waste Treatment Facilities, the Chinese government sets the target that national incineration treatment rate of MSW reaches 53.5% (60% for eastern provinces) by the end of 2020, up from 29% in 2015. With established market position and key focus in Guangdong Province, Canvest is at the forefront to scale up its operations as the entire WTE industry benefits.

Technological upgrade opportunity

Canvest is one of the few operators in the WTE industry that would upgrade a plant from fluidized bed technology to moving grate technology, which requires extensive operating experience and technological know-how. Moving grate technology is generally deemed to be more efficient, producing less incineration residue and suitable for building larger-capacity incinerators. Canvest aims to continue to explore potential target plants that currently utilize fluidized bed technology and take over with technological upgrade into moving grate facilities with improved operational efficiency and overall profitability.

Expansion into other provinces, leveraging on Guangdong experience

Canvest should also leverage on its project experience and good reputation to continue expanding into other provinces in China, like it did successfully with 3 locations in Guangxi and Guizhou Provinces. With support from potential shareholder Shanghai Industrial Holdings Limited (SIHL), we believe Canvest will be able to speed up its expansion nationally.

Sources of revenue

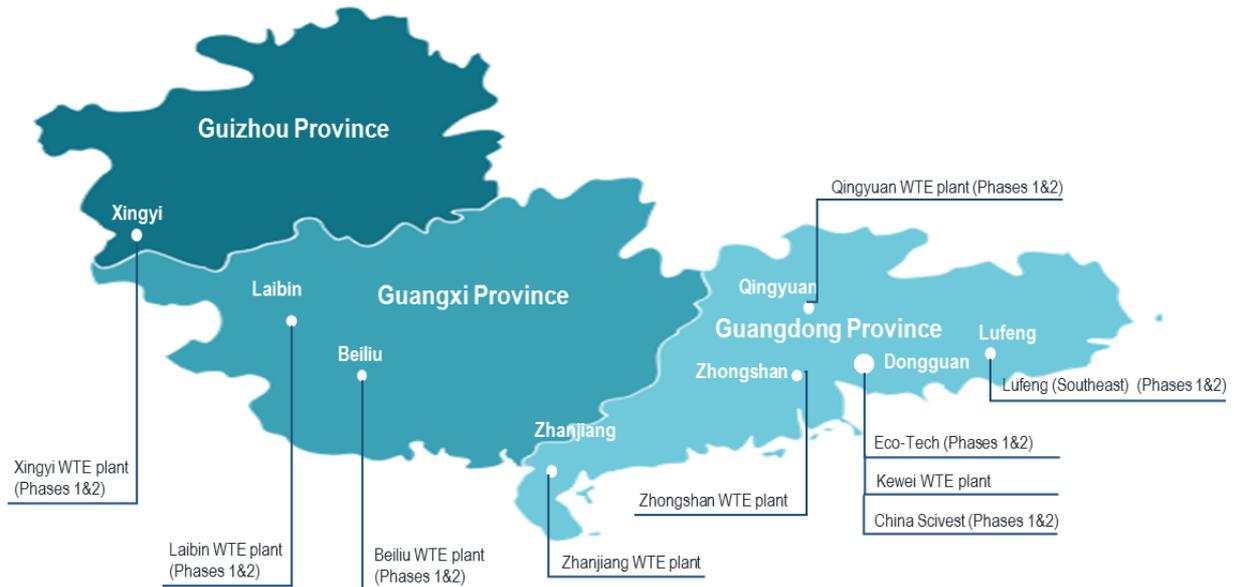
In the 2011-2015 period, Canvest's reported revenue and profit grew at CAGR of 67% and 61% respectively. Canvest started operating its first WTE plant in Dongguan in 2007; by January 2017 it had 9 WTE plant projects in Guangdong Province, 2 in Guangxi Province and 1 in Guizhou Province. Please see Figure 7 for the latest list of Canvest's WTE plants.

Figure 7: List of Canvest WTE plants (including plants in operation/under construction/planned/under management)

Plant	Location	Combustion technology	Business model	Concession period	Status	Operating since	Daily MSW processing capacity (tons)	Installed power generation capacity (MW)	Waste treatment fee (RMB/ton)
Eco-Tech WTE plant (Phase 1)	Dongguan, Guangdong	Moving grate	BOO	N/A	Commercial operation	2015	1,800	36	110
Eco-Tech WTE plant (Phase 2)	Dongguan, Guangdong	Moving grate	BOO	N/A	Under construction	n.a.	1,500	50	110
Kewei WTE plant	Dongguan, Guangdong	Moving grate	BOO	N/A	Commercial operation	2011	1,800	30	110
China Scivest WTE plant (Phase 1)	Dongguan, Guangdong	Moving grate	BOT	24 years	Commercial operation	2013	1,800	42	110
China Scivest WTE plant (Phase 2)	Dongguan, Guangdong	Moving grate	BOT	Under negotiation	Under construction	n.a.	1,200	Planning	110
Zhanjiang WTE plant	Zhanjiang, Guangdong	Moving grate	BOT	28 years	Commercial operation	2016	1,500	30	81.8
Qingyuan WTE plant (Phase 1)	Qingyuan, Guangdong	Moving grate	BOT	30 years	Planning	Planning	1,500	Planning	Under negotiation; guidance 90-110
Qingyuan WTE plant (Phase 2)	Qingyuan, Guangdong	Moving grate	BOT	30 years	Planning	Planning	1,000	Planning	Under negotiation; guidance 90-110
Zhongshan WTE plant (under management contract)	Zhongshan, Guangdong	Moving grate	BOT	22 years	Under construction	2017	1,040	30	93
Lufeng (Southeast) WTE plant (Phases 1&2)	Lufeng, Guangdong	Moving grate	BOT	30 years	Planning	2019	1,600	Planning	91.5
Laibin WTE plant (Phase 1)	Laibin, Guangxi	Moving grate	BOT	Until Apr 2042	Undergoing technological upgrade	2015; Technology upgrade since Mar 2016	1,000	24	95
Laibin WTE plant (Phase 2)	Laibin, Guangxi	Moving grate	BOT	Until Apr 2042	Planning	Planning	500	Planning	95
Beiliu WTE plant (Phase 1)	Beiliu, Guangxi	Moving grate	BOT	30 years	Planning	Planning	700	Planning	83
Beiliu WTE plant (Phase 2)	Beiliu, Guangxi	Moving grate	BOT	30 years	Planning	Planning	350	Planning	83
Xingyi WTE plant (Phase 1)	Xingyi, Guizhou	Moving grate	BOT	30 years	Trial operation	2015	700	12	80
Xingyi WTE plant (Phase 2)	Xingyi, Guizhou	Moving grate	BOT	30 years	Planning	Planning	350	6	80

Source: Company data; as of January 2017

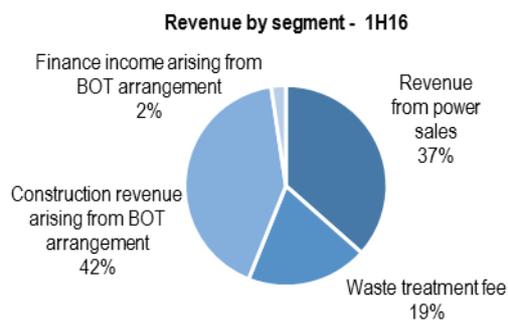
Figure 8: Canvest's WTE plants by location (including plants in operation/under construction/planned)



Source: Company data

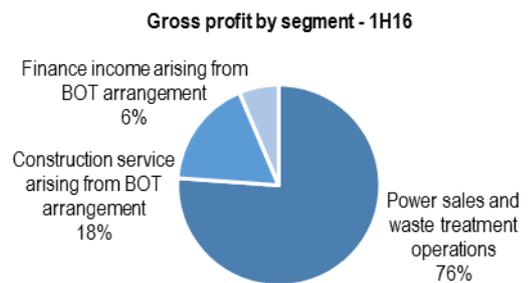
During 1H16, Canvest recorded total revenue of HK\$670 million, comprising of (1) HK\$130 million waste treatment fees and HK\$245 million power sales revenue; (2) accounting revenue of HK\$295 million arising from BOT project construction and finance income. Waste treatment operations and power sales contributed 56% of total revenue, and 76% of gross profit, with a gross margin of 50.2%; construction revenue was booked under the BOT accounting method, at the assumed gross margin of 16.7% (due to over-budget construction of one plant, 1H16 actual construction revenue was recorded at gross margin of 15.5%); finance income was 2% of total revenue booked. The reported overall net profit was HK\$154 million, representing reported net profit margin of 23%.

Figure 9: Canvest's reported revenue – 1H16



Source: Company data

Figure 10: Canvest's reported gross profit – 1H16



Source: Company data

Waste treatment operations and power generation

Waste treatment fee

Canvest typically enters into waste treatment contracts with MSW providers (principally local government entities). Under these contracts, MSW providers commit to provide and deliver their respective contracted amounts of MSW to Canvest's WTE plants for processing.

The standard MSW treatment fee is normally published and adjusted from time to time by the Guangdong Provincial Price Bureau and the Development and Reform Commission of Guangdong Province after taking into consideration the changes to the costs of MSW treatment and incineration, the quality of waste treatment by the WTE plants, the policy requirements and the local economic and price levels.

In 2010, the Guangdong Provincial Price Bureau published MSW treatment fee guidance (for plants utilizing moving grate incinerators) of RMB110 per ton for the Pearl River Delta region, and RMB90 per ton for the rest of Guangdong.

In Dongguan where Canvest first started and now manages 5 plant projects, the unit price for waste treatment fees (RMB per ton) applicable to WTE plants was set at RMB89 per ton in 2011, then raised to RMB110 per ton since 2013.

Utilization rate

Key factors affecting the waste treatment utilization rate of the WTE plants are the thermal efficiency of the plants' incinerators, the amount, moisture and heat value of the MSW received, and the capabilities of the production management team. For example, if the actual heat value of the MSW processed is higher than designed, a WTE plant may not be able to process up to its designed processing capacity, but could have a similar level of power output, due to the higher heat value.

Power sales revenue

The WTE plants incinerate MSW to generate power, which is then sold to the local power grid companies. The PRC government has established preferential purchasing policies for power output from WTE plants. In particular, power grid companies must enter into grid connection agreements with WTE plants and must purchase the full amount of the on-grid power of the WTE plants within the coverage of their grids. All of Canvest's projects enjoy or are entitled to enjoy mandatory power purchase and grid connection privileges.

The generated power is sold at tariff levels determined by the National Development and Reform Committee and the local price bureau. The on-grid tariffs charged by Eco-Tech Plant were RMB0.58 per kWh (inclusive of VAT) up until its suspension of operations due to its Technological Upgrade in April 2014. Plants approved since 2006 enjoy subsidized on-grid tariff of RMB0.65 per kWh (VAT inclusive) for the first 280 kWh of power generated by every ton of MSW processed; any additional power output is charged at the same rate as that for coal power projects in neighboring areas.

In 1H16, Canvest WTE plants had 12.2% of power generated for self-use (plant operations), and sold all of the rest to the power grid. Over the past few years Canvest has generally maintained the power self-use rate at around 10%-15%.

BOT accounting - construction revenue, finance income

Except for the Eco-Tech and Kewei plants, all of Canvest's WTE plants are operated on a BOT (Build-Operate-Transfer) basis. During the construction phase of a BOT project, Canvest usually books construction revenue at 16.7% gross profit margin, reflecting a 20% mark-up on paper.

The construction revenue relating to the service concession arrangement is recognized as gross amounts due from customers for contract work (to the extent that there are guaranteed payments from the concession grantor under the relevant concession agreement for WTE services), and/or intangible assets (if there is no such guaranteed payments or where the guaranteed payments do not cover the whole of the estimated consideration receivable for the BOT project). Finance income is charged periodically on gross amounts due from customers for contract work.

Adjusted operating results ex. BOT accounting

Construction revenue and finance income are pure accounting incomes and do not result in any cash inflows in the year when construction revenue and finance income are booked. Thus we have come up with adjusted revenue and profit figures to get a better sense of the profitability of the underlying waste treatment and power generation business.

On an adjusted basis, Canvest has consistently maintained its gross margin above 50%, EBITDA margin above 60%, EBIT margin above 40%, and net margin above 25%.

Figure 11: Adjusted key profitability metrics

Adjusted key profitability metrics, HK\$ m	2013	2014	2015	2016e	2017e	2018e	2019e
Adjusted revenue (excl. BOT construction and finance income)	390	542	581	846	1,036	1,370	1,592
Adjusted gross profit (excl. BOT construction and finance income)	203	297	322	443	544	733	876
<i>Adjusted gross margin</i>	51.9%	54.8%	55.4%	52.3%	52.5%	53.5%	55.0%
Adjusted depreciation and amortization	46	94	111	160	196	257	301
Adjusted EBITDA	220	346	375	542	663	897	1,065
<i>Adjusted EBITDA margin</i>	56.4%	63.8%	64.6%	64.0%	64.0%	65.4%	66.9%
Adjusted EBIT	174	251	264	382	467	639	764
<i>Adjusted EBIT margin</i>	44.6%	46.4%	45.4%	45.1%	45.1%	46.7%	48.0%
Adjusted PBT	148	189	213	305	376	522	643
<i>Effective tax rate on adjusted PBT</i>	11%	14%	19%	16%	18%	16%	16%
Adjusted net profit	131	162	172	257	310	438	539
<i>Adjusted net profit margin</i>	33.6%	30.0%	29.5%	30.4%	29.9%	32.0%	33.8%
Adjusted attributable profit	131	145	155	257	310	438	539
<i>Adjusted ROAE</i>	26.4%	10.4%	7.5%	11.1%	10.2%	11.3%	12.5%
<i>Adjusted ROAA</i>	11.7%	6.5%	4.3%	5.5%	5.2%	6.1%	6.8%

Source: Company data, AMTD Equity Research

Growth prospects

Future growth of Canvest's business depends on continuous winning of new WTE plant projects.

Support from new strategic partners

As mentioned, Canvest recently announced that it had entered into a strategic cooperation agreement with Guangdong Finance Investment International Co., Limited, a financial holding group directly under the People's Government of Guangdong Province; and BOC & UTRUST Private Equity Fund Management (Guangdong) Co., Ltd., a joint venture company established by Utrust Holdings and Bank of China Group Investment Limited.

Though not legally-binding, we believe the agreement marks the first step of deepening cooperation between Canvest and the strategic partners. Under the agreement, the strategic partners shall assist Canvest in acquiring new WTE projects in Guangdong Province, and provide funding support to Canvest's new project and technological upgrade needs with relevant policy funds (including relevant funds for public-private partnerships projects and Guangdong Silk Road Fund, etc.).

Incineration in Guangdong – where are the opportunities?

Price war unlikely in Guangdong

Guangdong is one of the most affluent provinces in China. As far as we are aware, the announced WTE projects in Guangdong normally have waste treatment fee that is higher than CNY 80/ton. Rather than just price quotations, we believe the local governments in Guangdong focus more on the track record and management of a WTE project bidder.

In 2010, the Guangdong Provincial Price Bureau published MSW treatment fee guidance (for plants utilizing moving grate incinerators) of RMB110 per ton for the Pearl River Delta region, and RMB90 per ton for the rest of Guangdong.

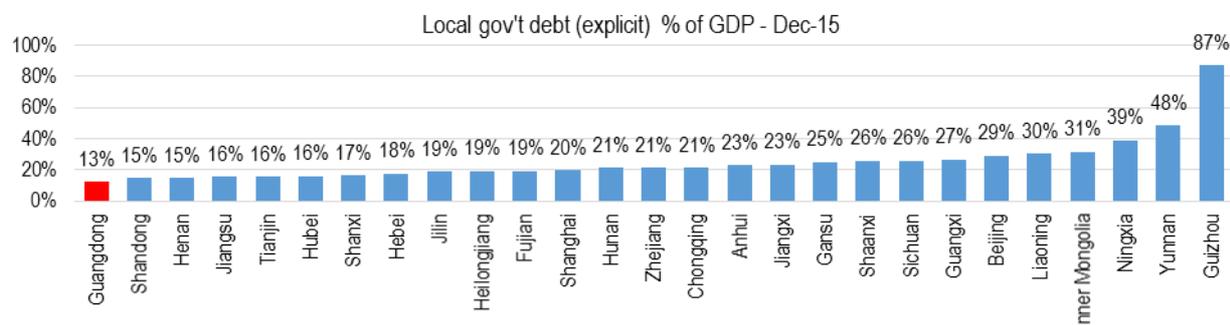
There have been a few WTE projects announced with very low waste treatment fee level (e.g. below CNY 50/ton) in other provinces where the local governments showed a strong preference for companies with low price quotation in the bidding process regardless of the bidders' experience and capability. We do not believe such low waste treatment fee level would be sustainable to run profitable yet high quality waste treatment operations.

Strong local government balance sheet may indicate higher willingness to pay for environmental protection service

The local government's strong balance sheet, together with one of the best-developed provincial economies in China and thus high land cost, position Guangdong as a leading province that would likely highly value environmental protection service and more importantly, be willing to pay for it.

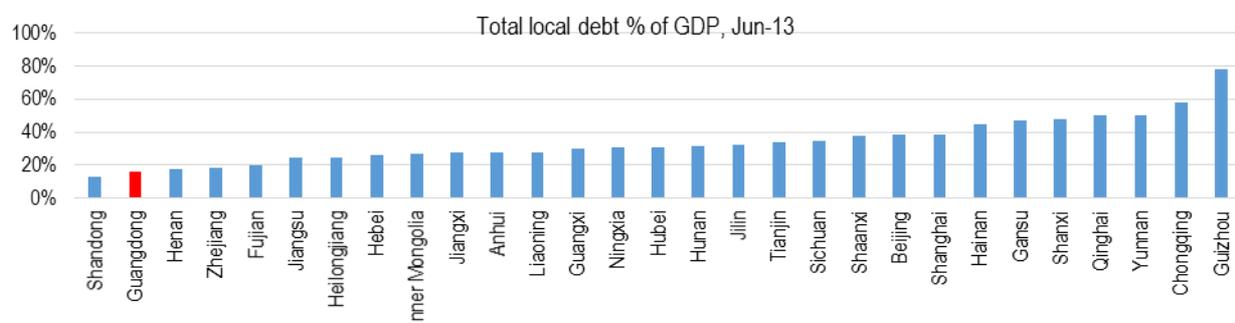
Guangdong government's debt level as measured by local debt to GDP is one of the lowest among all provinces. As of December 2015, Guangdong government's explicit debt (mainly in the form of local government bond) was only 13%. Even if we include the implicit debt (the debt that is guaranteed by local government, or local government may have the responsibility to bail out the debt), Guangdong's local debt at 16% as of June 2013 was still the second lowest in China.

Figure 12: Guangdong's local government debt at the low end among all the provinces - explicit debt



Source: National Audit Office, Guangzhou Government website

Figure 13: Guangdong's local government debt at the low end among all the provinces - total debt



Source: National Audit Office, Guangzhou Government website

Growth potential by city

Given its proven track record in Guangdong Province and recognition from local governments, we believe Canvest's future expansion should focus within Guangdong Province.

We believe the opportunities in Guangdong Province lie in mainly the tier 2 and tier 3 cities, where Canvest has the potential to more than double its operations:

- The two tier 1 cities Guangzhou and Shenzhen are on track to realize close to 100% incineration rate of MSW by 2020. In Guangzhou, a state-owned company Grantop Group owns 7 WTE projects, with total treatment capacity of 14,290 tons per day; in Shenzhen, another giant Shenzhen Energy (000027 CH) dominates with over 14,000 MSW treatment capacity in operation or planned. It is unlikely for Canvest to have significant presence in these two cities.
- Out of the tier 2 and tier 3 cities, Canvest already has presence in a few: Dongguan (heading for 100% incineration target, where Canvest is the dominant player), Zhanjiang, Qingyuan, Zhongshan, Shanwei (Lufeng WTE plants). Should the existing plants operate well, and with the newly formed government-backed partnership, we believe it is very likely for Canvest to win more projects in these cities.
- Canvest should also actively seek to expand into the rest of the tier 2 and tier 3 cities in Guangdong Province, especially those where the local government has high willingness to pay for quality environmental protection service.

Development in other provinces

Given its established reputation in Guangdong and success in expanding into Guangxi and Guizhou provinces, we believe Canvest also has the potential to win projects in other provinces. We believe good opportunities should arise from cities with high population concentration, and where the local government is willing to provide reasonable waste treatment fee for quality environmental protection service.

Following the announced new share issuance to Shanghai Industrial Holdings Limited (SIHL), Canvest could gain competitive advantage in new project acquisition nationwide.

Financial forecast

We forecast reported net profit and adjusted net profit to grow at CAGR of 27%/24% respectively in 2016e-2019e.

This will be driven by:

- 1) **Reported revenue to grow at CAGR of 22% during 2016e – 2019e.** This will be driven by the construction and operations of new WTE plants.
- 2) **Power sales revenue/ waste treatment fee/ construction revenue to grow at CAGR of 24%/19%/18% respectively during 2016e-2019e.** The 2016e-2019e period will see the construction and completion of more than 10 new WTE projects, boosting both construction and waste treatment operation revenues. The reported waste treatment fee grows at 19% CAGR as only the unguaranteed portion of waste treatment fee collected is recorded as revenue in the operating phase of a BOT plant.
- 3) **Gross margins are 52-55% and 16.7% respectively for waste treatment/power generation operations and BOT construction during 2016e -2019e.** We estimate gross margin to trough at 52.3% in 2016e for waste treatment operations, as the existing plants age and thus requiring more maintenance. However, starting from 2017e with the completion of a number of new WTE plants, we estimate the gross margin to gradually climb up to 55% by 2019e. The overall reported gross margin (including construction revenue and finance income) fluctuates every year as the level of construction revenue booked varies.
- 4) **Net profit margin to expand over the 2017e-2019e period, with the margin-accretive new WTE plant operations added.** Both the reported and adjusted net margins will see an expansion in the 2017e-2019e period, reflecting improved profitability of the waste treatment and power generation business.
- 5) **12% dividend payout ratio.** Our understanding is that management intends to maintain the 10-15% dividend payout ratio in the foreseeable future.
- 6) **Net gearing to peak at 60% in 2016e, but come down to 35% in 2019e.** With the strong equity funding provided by the recently announced new share issuance, starting 2017e the net gearing should drop significantly.

Key assumptions and sensitivity analysis

Our forecasts on newly built WTE plants are based on the following assumptions. For existing plants, we refer to past operation records for assumptions on utilization rate, power generation capacity and power self-use. This is because we believe the level of waste collected and operational efficiency should be reasonably stable once a plant is set to full operation in its service area.

Our forecasts are sensitive to future changes in on-grid tariff policies, waste treatment fees, plant utilization rate, actual construction cost, etc. Please refer to Figure 15 for a sensitivity analysis of key factors including power tariff and waste treatment fee on our forecasted earnings.

Figure 14: Key assumptions (update)

	2016e	2017e	2018e	2019e
Operational capacity by year end (ton/day)	7,900	11,640	12,340	15,740
Utilization rate	97%	97%	97%	97%
Waste treatment fee (CNY/tonne)	95.0	95.0	95.0	95.0
Unit construction cost (CNY million per ton)	0.45	0.45	0.45	0.45
Power generation capacity (kWh per ton)	420	420	420	420
Power self-use %	12.2%	12.2%	12.2%	12.2%
On-grid power sales (kWh per ton)	369	369	369	369
On-grid tariff (CNY per kWh)	0.523	0.523	0.523	0.523
CNYHKD	1.129	1.129	1.129	1.129

Source: AMTD Equity Research

Figure 15: Sensitivity analysis on 2017e adjusted earnings

Utilization rate (% deviation) / Power tariff (% deviation)	-15%	-10%	-5%	0%	+5%	+10%	+15%
-15%	-12.89%	-12.31%	-11.74%	-11.18%	-10.63%	-10.08%	-9.54%
-10%	-9.22%	-8.62%	-8.03%	-7.45%	-6.88%	-6.32%	-5.76%
-5%	-5.56%	-4.94%	-4.33%	-3.73%	-3.13%	-2.55%	-1.97%
0%	-1.89%	-1.25%	-0.62%	0.00%	+0.61%	+1.22%	1.82%
+5%	+1.77%	+2.44%	+3.09%	+3.73%	+4.36%	+4.99%	5.61%
+10%	+5.44%	+6.12%	+6.79%	+7.45%	+8.11%	+8.75%	9.39%
+15%	+9.11%	+9.81%	+10.5%	+11.18%	+11.85%	+12.52%	+13.18%

Source: AMTD Equity Research; Note: for WTE plants already in operation, we use do not factor in any change in utilization rate in this sensitivity analysis, because it is unlikely for established plants to have significant changes in the near future, given that changes in waste treatment facility location and demographics would need longer time to take place.

2016 results: Positive profit alert; new asset-light operating model

Canvest will report full year results for 2016 in late March. On 16 Feb 2017, the company issued a positive profit alert of 45% yoy increase in 2016 earnings, due to expanded waste treatment capacity, increasing construction revenue and income received from managed project. This beats the consensus estimate by 9%.

The asset-light business model of managed projects is new and we have not factored in management fee income 2017e onwards for lack of clarity on detailed revenue booking method, which leaves potential upside in our forecasts.

Figure 16: Canvest – PnL

PnL, HK\$ m	2013	2014	2015	2016e	2017e	2018e	2019e
Revenue	390	794	1,185	1,701	2,312	2,566	3,062
Cost of sales	(188)	(452)	(745)	(1,124)	(1,542)	(1,594)	(1,880)
Gross profit	203	342	439	577	769	972	1,182
<i>Gross profit margin</i>	52%	43%	37%	34%	33%	38%	39%
General and administrative expenses	(42)	(97)	(112)	(129)	(147)	(166)	(186)
Other income	14	51	49	64	66	68	70
Other gains, net	(1)	-	4	4	4	4	5
EBITDA	220	402	500	687	901	1,152	1,392
<i>EBITDA margin</i>	56%	51%	42%	40%	39%	45%	45%
EBIT	174	297	381	516	693	878	1,071
<i>EBIT margin</i>	45%	37%	32%	30%	30%	34%	35%
Net interest expenses	(26)	(62)	(51)	(77)	(91)	(118)	(121)
<i>Effective interest rate</i>			6.27%	7.30%	7.00%	6.50%	6.00%
Profit before income tax	148	236	330	439	602	760	949
Income tax expenses	(17)	(27)	(41)	(48)	(66)	(84)	(104)
<i>Effective tax rate</i>	11%	11%	12%	11%	11%	11%	11%
Net profit	131	208	289	391	535	677	845
<i>Net profit margin</i>	34%	26%	24%	23%	23%	26%	28%
Minorities		17	17	-	-	-	-
Attributable profit	131	191	272	391	535	677	845
PER SHARE DATA, HK\$	2013	2014	2015	2016e	2017e	2018e	2019e
EPS	0.087	0.127	0.136	0.195	0.233	0.290	0.362
Adjusted EPS	0.087	0.097	0.077	0.128	0.135	0.188	0.231
DPS				0.01	0.03	0.03	0.04
BVPS	0.45	1.54	1.17	1.35	1.83	2.05	2.37
KEY RATIOS	2013	2014	2015	2016e	2017e	2018e	2019e
ROAE	26%	13%	12%	15.5%	15.5%	15.1%	16.4%
ROAA	12%	8%	7%	8.0%	8.4%	8.7%	9.7%
Gross debt (HK\$ m)	382	1,029	1,420	2,020	2,239	2,476	2,617
Net debt (cash) (HK\$ m)	153	(432)	814	1,631	1,294	1,760	1,924
Net gearing	20%	-18%	35%	60%	31%	37%	35%

Source: Company data, AMTD Equity Research

Figure 17: Canvest – Balance Sheet

BALANCE SHEET, HK\$ m	2013	2014	2015	2016e	2017e	2018e	2019e
ASSETS							
Non-current assets	851	2,201	3,665	4,690	6,072	6,924	7,987
Land use rights	171	167	154	150	147	144	140
Property, plant and equipment	472	530	965	1,286	1,591	1,480	1,350
Intangible assets	181	1,271	1,915	1,969	2,072	2,119	2,184
Long-term deposits and prepayments	27	113	120	120	120	120	120
Gross amounts due from customers for contract work		120	512	1,164	2,142	3,061	4,193
Current assets	389	1,566	803	663	1,340	1,269	1,326
Trade and other receivables	158	103	197	186	233	321	316
Gross amounts due from customers for contract work			38	88	162	231	317
Restricted deposits	6	6	157	157	157	157	157
Cash and cash equivalents	50	1,328	449	232	788	560	536
Total assets	1,241	3,767	4,468	5,353	7,412	8,192	9,313
EQUITY							
Share capital		20	20	20	23	23	23
Reserves	676	2,295	2,315	2,684	4,170	4,766	5,510
Attributable shareholders' equity	676	2,315	2,334	2,704	4,193	4,789	5,533
Minorities	86	103	-	-	-	-	-
Total equity	762	2,418	2,334	2,704	4,193	4,789	5,533
LIABILITIES							
Non-current liabilities	324	882	1,348	1,605	1,906	2,083	2,204
Deferred income tax liabilities	31	104	209	225	249	272	299
Long-term borrowings	294	776	1,099	1,298	1,575	1,729	1,823
Current liabilities	154	468	785	1,044	1,313	1,321	1,576
Trade and other payables	64	213	461	714	1,041	966	1,175
Short-term borrowings	88	253	321	330	272	355	401
Total liabilities	479	1,349	2,134	2,649	3,218	3,404	3,780

Source: Company data, AMTD Equity Research

Figure 18: Canvest – Cash Flows

Adjusted cash flows, HK\$ m	2013	2014	2015	2016e	2017e	2018e	2019e
Profit before tax	148	236	330	439	602	760	949
Adjustments for:							
Finance income arising from BOT arrangement		(4)	(20)	(25)	(57)	(105)	(150)
Profit from BOT construction	-	(41)	(97)	(148)	(220)	(204)	(248)
Waste treatment fee allocated as deduction of gross amounts due from customers	-			74	98	132	167
Depreciation of property, plant and equipment	42	36	47	69	84	111	131
Amortisation of land use rights	4	4	4	4	3	3	3
Net interest expenses	26	61	51	77	91	118	121
Income tax paid	(7)	(20)	(14)	(32)	(42)	(61)	(77)
FCF before movement of working capital	192	308	312	457	560	754	896
Changes in working capital	29	36	75	264	280	(162)	213
CFFO	221	344	387	721	840	592	1,109
BOT construction	-	(206)	(486)	(756)	(1,097)	(1,018)	(1,238)
Amortisation of intangible assets		65	68	98	121	160	187
Payments for purchase of property, plant and equipment	(33)	(207)	(367)	(390)	(390)	-	-
FOCF	13	(65)	(682)	(326)	(525)	(267)	58
Interest paid	(27)	(69)	(80)	(77)	(91)	(118)	(121)
Dividends paid	-	-	-	(22)	(64)	(81)	(101)
FCF	(14)	(134)	(762)	(425)	(681)	(465)	(164)
New borrowings		71	758	208	219	237	140
Issuance of ordinary shares		1,165		-	1,018	-	-
Net (decrease)/increase in cash and cash equivalents	4	1,279	(858)	(217)	556	(228)	(24)
Cash and cash equivalents at beginning of year	45	50	1,328	449	232	788	560
Cash and cash equivalents at end of year	50	1,328	449	232	788	560	536

Source: Company data, AMTD Equity Research

Industry overview

We believe the MSW incineration treatment industry is going to experience exponential growth in the next 3 years. As visioned in China's 13th Five Year Plan for Municipal Solid Waste Treatment Facilities, by the end of 2020, national incineration capacity is to increase by as much as 1.5 times from the 2015 year end level; 53.5% of the country's MSW is to be incinerated, up from only 32% in 2015.

MSW innocuous treatment and three main methods

The innocuous treatment of MSW is to dispose of MSW using advanced waste management technologies and methods to reduce negative environmental impact, and at the same time facilitate material recycling and reuse. Primary methods of this process include landfilling, composting and incineration.

Box 2: Three MSW innocuous treatment methods

Landfilling (填埋)



To bury the waste in a designated lot of land with post-treatment methods such as anti-leaking, leveling and compaction. A modern landfill usually has designs to treat gas, liquid leachate and vermin and prevent polluting underground water.

Composting (堆肥)



To stack waste into a pile and let it ferment at constant 70°C. Microbes inside the pile would decompose the organic matter into mulch or compost. After composting, waste would be turned into hygienic, odorless humus. Ideally a compost pile should not be too large, in order to prevent damages to the soil and underground water.

Incineration (焚烧)



To combust organic matter in waste and reduce the volume of waste. Incinerators convert combustible waste materials into ash, steam and gas. Ash produced by incineration is mostly inorganic matter in the forms of solid residue or fine particles. Incineration plants need to remove gaseous pollutants and particulates from flue gas produced before emitting it to the atmosphere, while the rest of residual product can be used for other means such as building materials or can be disposed of in a landfill. The heat produced in the process of incineration can be used to generate electricity. Therefore incinerators are considered as an application of waste-to-energy (WTE) technology.

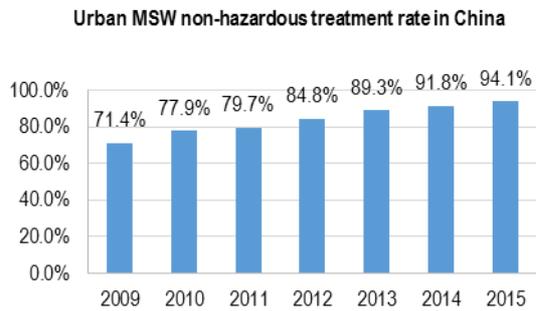
(Source: Company prospectus)

MSW innocuous treatment rate steadily improving

China's MSW innocuous treatment infrastructure has been catching up with the country's rapid economic and population growth. The MSW innocuous or non-hazardous treatment rate is a key performance indicator for local governments in China. The urban MSW non-hazardous treatment rate in China has been steadily climbing, reaching 94.1% in 2015, up from only 71.4% in 2009.

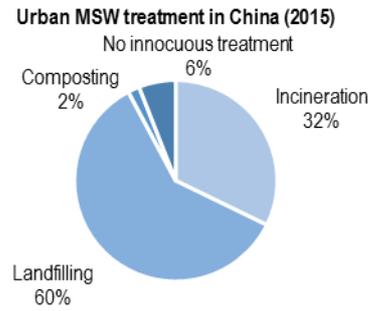
The most widespread innocuous treatment of MSW is currently landfilling, due to its simplicity and low initial investment requirement. Landfilling, incineration and composting treatment methods made up 60%/32%/2% of total urban MSW in 2015, respectively.

Figure 19: Urban MSW innocuous treatment rate in China steadily improving, reaching 94.1% in 2015...



Source: National Bureau of Statistics of China

Figure 20: ...however, incineration treatment rate is still low, indicating great growth potential



Source: National Bureau of Statistics of China

Incineration is the favored method in China’s urban MSW innocuous treatment

Among the three types of innocuous treatment methods, the Chinese government has a clear preference towards incineration treatment. In the 13th Five Year Plan for Municipal Solid Waste Treatment Facilities, the Chinese government sets the national target that incineration treatment rate of MSW reaches 53.5% (60% for eastern provinces) by the end of 2020, compared with 32% in 2015. The planned total investment for MSW treatment facilities during the 2016-2020 period is RMB 170 billion, 32% higher than the RMB 129 billion investment completed in the five years ended 2015.

Incineration makes socioeconomic sense in today’s China

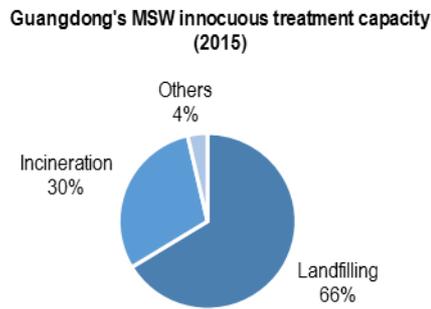
The time is ripe for widespread MSW incineration treatment in the urban areas of China. As urbanization deepens in China, land resources become more and more scarce and thus expensive; on the other hand, condensed population means increasing amount of waste is generated every day.

Out of the three types of MSW innocuous treatment methods, landfilling requires the least initial investment but takes up significant land resources, with the highest risk of soil and underground water contamination. Composting is suitable for the treatment of organic waste, and also requires a lot of land. Incineration does not require extensive land resources as the waste is burnt instead of filled underground. An MSW incineration project requires considerable initial investment on plant and equipment, and relies on the stable supply of MSW in the operation phase to collect waste treatment fees and generate power sales revenue. Normally the operation period of an incineration plant is at least 20-30 years.

MSW treatment in Guangdong Province

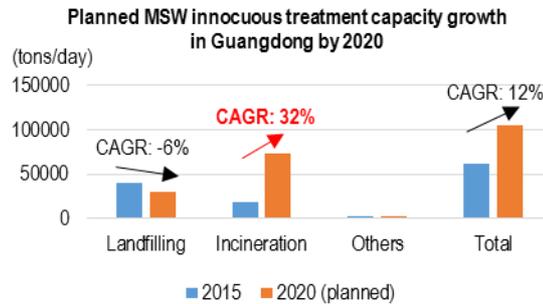
As one of the most affluent province in China, Guangdong has been a pioneer in MSW innocuous treatment. As of 2015, Guangdong had total MSW innocuous treatment capacity of 61,100 tons per day, of which only 30% (18,400 tons per day) was by incineration. The 13th Five-Year Plan sets the capacity target of 73,000 tons per day for incineration treatment in Guangdong (accounting for 69% of total MSW treatment), indicating CAGR of 32% in the 2016-2020 period.

Figure 21: Only 30% of Guangdong Province’s MSW innocuous treatment capacity is by incineration in 2015...



Source: National Bureau of Statistics of China

Figure 22: ...whereas the government plans to boost incineration treatment to 69% of total MSW treatment capacity by 2020, indicating CAGR of 32% in 2016-2020



Source: National Bureau of Statistics of China; the 13th Five Year Plan for Municipal Solid Waste Treatment Facilities

Competitive landscape – two layers of WTE operators in Guangdong Province

Per our understanding, there are two layers of WTE operators in Guangdong Province. The first layer is SOE giants like Grantop Group and Shenzhen Energy, who cover the majority of incineration capacity in Guangzhou and Shenzhen respectively. The second layer is other listed environmental protection companies that have presence in Guangdong’s WTE industry, including Canvest, Dynagreen, China Tianying, Chongqing Sanfeng, etc.

According to the planned capacity increase in the 13th Five-Year Plan, the overall WTE market in Guangdong will quadruple in size by the end of 2020, compared to 2015. We believe Canvest as an established leader with outstanding operations track record and quality management should outperform the overall market.

Appendix

The WTE process explained

Canves's WTE plants generally adopts the following steps to process waste and generate power: (a) waste reception and feeding; (b) incineration; (c) heat exchange and power generation; (d) wastewater treatment; and (e) flue gases / bottom ash / fly ash treatment.

During the WTE process, the energy stored in MSW is converted to thermal energy through combustion. The high temperature steam generated from such thermal energy then drives the steam turbines and eventually generates power via electricity generators.

The Canvest plants currently employ moving grate incinerators, which were manufactured domestically and utilise technology designed and licensed by Germany based MARTIN GmbH.

(a) Waste reception and feeding

MSW is brought in by waste collection vehicles and weighed at the WTE plants. Waste collection vehicles transporting waste to the WTE plants need to comply with pre-agreed rules (e.g. sealed and installed with auto-dumping systems, not exceeding the maximum designated weight and not bringing in prohibited waste). The weight data of incoming waste collected from the weighing station is transmitted to and monitored by the government authorities and is used for the calculation of the waste treatment fees to be collected. The MSW is then transported by these waste collection vehicles to the discharge platform, where it is discharged into the storage pool for fermentation. Waste in the storage pool is then transferred by a crane into the feeding system for incineration.

(b) Incineration

Moving grate incinerators do not require any auxiliary fuel for general combustion. Auxiliary fuel such as diesel would only be required for incinerator start-up after an outage or an overhaul for maintenance. During the incineration process, waste passes through a downward inclined moving grate as it is being incinerated and is continuously turned during incineration to maximize its contact with air to achieve full combustion. This process makes moving grate technology suitable for the incineration of Chinese domestic waste, which generally has high moisture and low heat value. The advantages for incineration of waste with moving grate technology are, amongst others, high reliability, large capacity and its ability to incinerate waste without auxiliary fuel and pre-treatment of waste.

(c) Heat exchange and power generation

The heat recovery steam generator recovers the heat produced during the incineration process and generates high temperature steam. The high temperature steam drives the steam turbines which in turn drive the generators to produce power. Boilers, steam turbines and generators are all managed and monitored by the central control unit. The power output is then transmitted to the local power grid company.

(d) Wastewater treatment

Comprehensive wastewater treatment systems are installed in WTE plants to process leachate (generated in the process of fermentation of MSW in the storage pool) and other wastewater produced by the incinerator and general sewages. Wastewater is processed according to the national standard. The treated wastewater is either reused or discharged to local municipal sewage treatment plants for further treatment. Concentrate produced during the treatment process is transferred back to the storage pool or the incinerator.

(e) Flue gases/bottom ash/fly ash treatment

Flue gases produced from waste incineration are processed by the flue gas treatment system to meet applicable environmental protection standards before being released through the smokestack. Gases and fly ash generated in the process of incineration will

undergo a comprehensive flue gas treatment process, including de-nitrification, de-acidification, activated carbon absorption and ash removal by bag filtering process, in order to separate and remove ash, vapour and hazardous components in the flue gases.

Processed gases are then released through a smokestack. To ensure emission levels comply with national regulatory standards, electronic monitoring equipment is placed at the gas emission window of each incinerator. Fly ash is collected and transported by contractors for further processing. Canvest pays these contractors to provide further processing by reference to the tonnage of fly ash collected. Bottom ash produced in the incineration process is ejected from the base of the incinerator and then transported to Independent Third Parties for further treatment, such as for conversion into construction materials. Scrap metal in the cooled bottom ash is collected and sold to third party contractors.

Figure 23: The incineration process



Source: Company data

Company background

Canvest Environmental Protection Group’s history traces back to 2003 when the first principal subsidiary Eco-Tech was established in Dongguan. Since then, Canvest has been rapidly growing its MSW incineration treatment business. The group was listed on the HKEx in December 2014. Canvest is the largest non-state-owned WTE company in Guangdong Province, by MSW treatment capacity. As of November 2016, the group had 9 projects in 5 cities in Guangdong Province, 2 projects in Guangxi Province, and 1 in Guizhou Province.

Figure 24: Shareholding structure – current and pro forma, following the 17 Feb 2017 subscription agreement

(Prior to the SIHL placement)

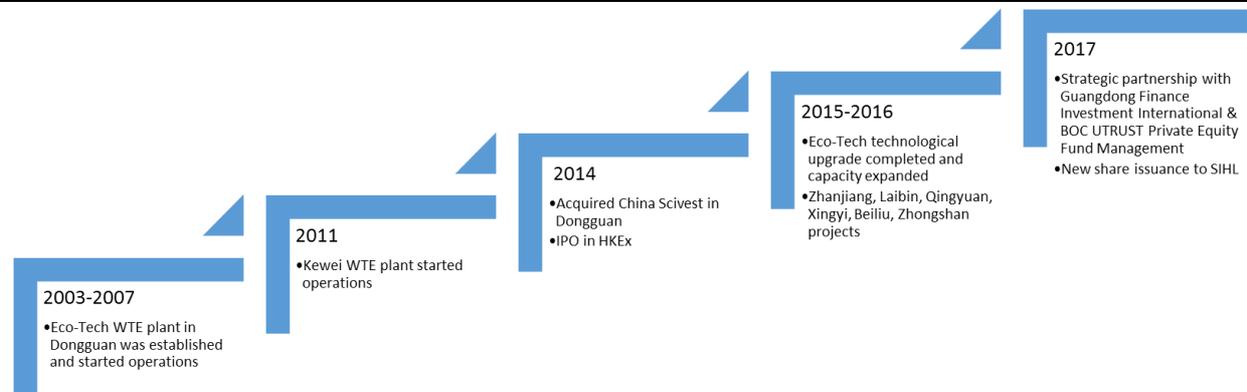


(After the SIHL placement)



Source: Company data; Bloomberg

Figure 25: Corporate milestones



Source: Company data

Board of directors and management team profile

Figure 26: Board of directors and management team profile

Name	Position	Age	Experience
Ms. Lee Wing Yee Loretta (李詠怡)	Executive Director, Chairlady	42	Ms. Loretta Lee joined the Group in November 2011 and is currently responsible for formulating the Group's overall strategies, and making major corporate and operational decisions of the Group. She served as an officer of the finance and human resource department of Dongguan Sanyang Industrial Development Co., Ltd from September 1997 to September 2012 and the last position she held was manager of the finance and human resource department. The principal business of Dongguan Sanyang Industrial Development Co., Ltd included the trading of heavy oil. Ms. Lee is the wife of Mr. CT Lai, and a cousin-in-law of Mr. KM Lai.
Mr. Lai Kin Man (黎健文)	Executive Director, Deputy Chairman	37	Mr. Lai has been a director of Eco-Tech since June 2003 and a director of Kwei since October 2011. He is, alongside with the chairlady, responsible for formulating the Group's overall strategies and making major corporate and operational decisions of our Group. Before founding our Group, Mr. KM Lai worked at Dongguan Sanyang Industrial Development Co., Ltd from September 1998 to October 2002 and was responsible for business development. He served as the legal representative, chairman and general manager of Guangdong Canvest Investments Company Limited from November 2002 to September 2011. Mr. KM Lai is a cousin of Mr. CT Lai and Ms. Guo Huilian, and a cousin-in-law of Ms. Loretta Lee.
Mr. Yuan Guozhen (袁國楨)	Executive Director, Chief Executive Officer	51	Mr. Yuan is responsible for executing the overall strategies and managing the daily operation of the Group. He is a director of Eco-Tech since June 2003 and a director and general manager of Kwei since October 2011. He is also the legal representative and director of Zhanjiang Yuefeng and Canvest Consultancy since their respective establishment. He served as the executive deputy general manager of Dongguan Sanyang Industrial Development Co., Ltd from September 1995 to July 2004 and was mainly responsible for assisting the general manager in the operation and management of the company. Mr. Yuan served as general manager of Dongguan Dongcheng Dongxing Thermal Power Company Limited from July 2004 to September 2008. He served as the general manager of Yunnan Shuang Xing Green Energy Company Limited from November 2007 to December 2008.
Mr. Lai Chun Tung (黎俊東)	Executive Director	42	Mr. CT Lai is the legal representative, general manager and a director of Eco-Tech since August 2007, a director of Kwei since February 2009, and a director of Zhanjiang Yuefeng since its establishment in April 2013. He is responsible for overseeing the overall strategies of the Group, and making major corporate and operational decisions of the Group. Mr. CT Lai is a member of the 10th and the 11th Guangdong Committee of Chinese People's Political Consultative Conference, and a standing member of the 12th Dongguan Committee of Chinese People's Political Consultative Conference. Mr. CT Lai has worked at Dongguan Sanyang Industrial Development Co., Ltd since September 1997 and is currently its general manager. He has been a director of Dongguan Rural Commercial Bank Co., Ltd since December 2009. Mr. CT Lai is the husband of Ms. Loretta Lee, and a cousin of Mr. KM Lai.
Ms. Wong Ling Fong Lisa (王玲芳)	Chief Financial Officer, Company Secretary	43	Ms. Wong is primarily responsible for the financial management of our Group. She is a member of the Hong Kong Institute of Certified Public Accountants. She was in charge of the investment department of Ng's International Investment Co. Ltd. from March 2009 to January 2012 and left Ng's International Investment Co. Ltd. as chief operation officer in the investment department. Ms. Wong was the financial controller responsible for financial planning and daily management of accounting department of Wah Yuet (Ng's) Group Holdings Limited from February 2005 to March 2009. She worked at KPMG from September 1998 to January 2004 and her last position held was manager.

Source: Company data

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Overweight	Industry sector expected to outperform the market over the next 12 months
Neutral	Industry sector expected to perform in-line with the market over the next 12 months
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Buy	Stock with potential return of over 20% over the next 12 months
Hold	Stock with potential return of -20% to +20% over the next 12 months
Sell	Stock with potential loss of over 20% over the next 12 months

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AMTD Asset Management Limited

Address: 23/F & 25/F, Nexus Building, No. 41 Connaught Road Central, Central, Hong Kong
Tel: (852) 3163-3288 **Fax:** (852) 3163-3289

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