



2021-2023
EPS 1.47/2.04/2.62 2022 3.23/4.48/5.75
60xPE " " 120 2022

S1010513110001

" " + "
CO₂ " "
2025 60 1
2
1.05-1.1
2030 20

1/3

2030

PLA

PLA
340

PLA

16

PBAT

PLA+PBAT
BDO

" "

3300 /

2050

CCUS
Seplite-CT

CCUS

300487

	96.19						
	120.00	1		2		3	
	220						
	128	"	"				
	211						
	333						
52 /	110.0/38.0						2021-2023
1	12.02%	3.23/4.48/5.75		EPS	1.47/2.04/2.62		2022
6	16.27%	120	2022	60xPE			
12	114.64%	"	"				

<i>I</i>	2019	2020	2021E	2022E	2023E
()	1,012	923	1,211	1,539	1,958
YoY	60.1%	-8.8%	31.2%	27.1%	27.3%
()	251	202	323	448	575
YoY	75.4%	-19.6%	59.8%	38.8%	28.4%
EPS()()	1.14	0.92	1.47	2.04	2.62
	49.8%	46.6%	47.4%	48.3%	48.8%
ROE	19.9%	12.2%	15.1%	17.8%	19.2%
	5.74	7.51	9.73	11.46	13.65
PE	84.4	104.6	65.4	47.2	36.7
PB	16.8	12.8	9.9	8.4	7.0
PS	20.9	22.9	17.5	13.7	10.8
EV/EBITDA	65.9	60.3	49.6	37.3	29.7

Wind

2022 1 27

	.....	1
21	.....	1
	.....	1
	.....	2
+	.....	2
	.....	8
	.....	10
	.....	10
	.....	12
	.....	13
	.....	15
	.....	15
	.....	17
	.....	22
CO2	.....	23
	.....	26
	.....	27
	.....	27
	.....	27
	.....	28

1	1880-2020	.....	1
2		.....	2
3		.....	2
4		.....	3
5		.....	3
6		.....	3
7	2016-2020	.....	4
8	2019	.....	4
9	2019	LCE	4
10		.....	8
11	iPad Pro	mini-LED	9
12		.....	10
13		.....	11
14		.....	11
15		.....	12
16		.....	12
17	2020	.....	13
18		.....	14
19		GDP	15
20		GDP	15
21	PLA	.....	18
22	PLA	.....	19
23		/	20
24	2018-2024	.....	22
25	2017-2024	.....	22
26		.....	22
27		.....	24
28		.....	24
29		.....	24
30	CCUS	.....	25
31	CO2	.....	25
32	2016	PE(TTM)	29
1		.....

6					7
7					7
8					9
9					10
10					12
11					13
12					15
13					16
14					17
15					17
16					19
17	PBAT	2021	11		20
18	BDO		2021	12	21
19					23
20					26
21	2019~2023				27
22	2019-2023				28
23					
.....					28

" " " "

" " 21

" "

1880 1

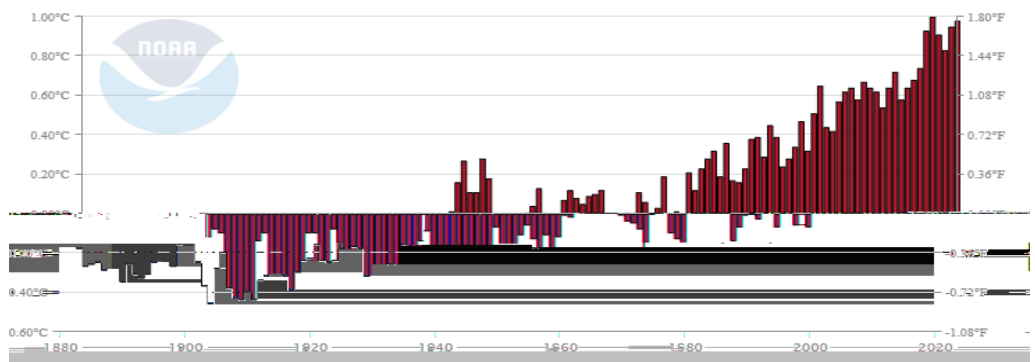
NOAA

2050

3

1 1880-2020

Global Land and Ocean
January-December Temperature Anomalies



NOAA

" " 1992

1997

2050 0.02-0.28 2015 178

2 2021 11 1

26 CPOP26

1.5

2060 " "

"

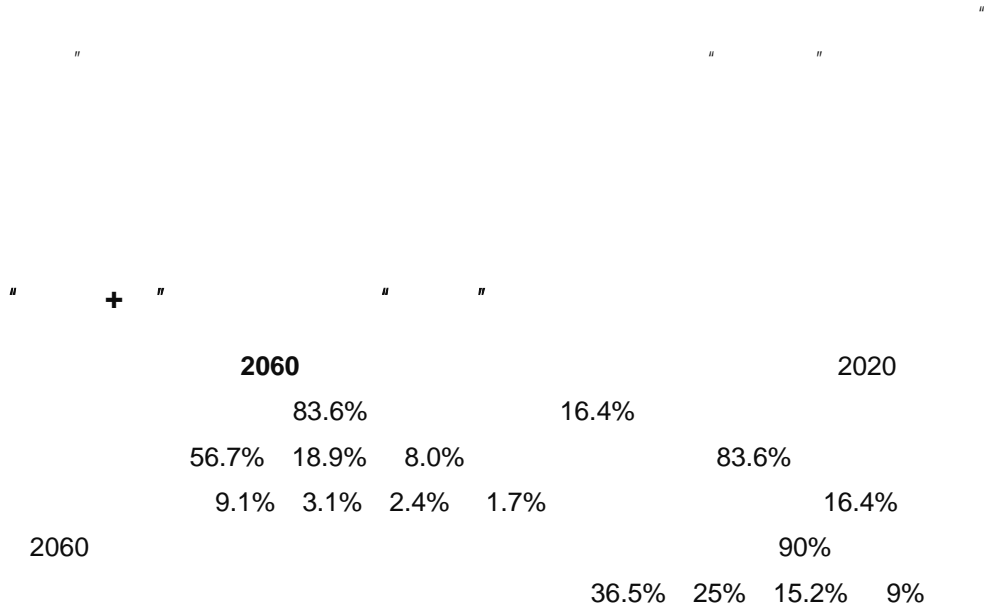
2030 2060 " " " "

"

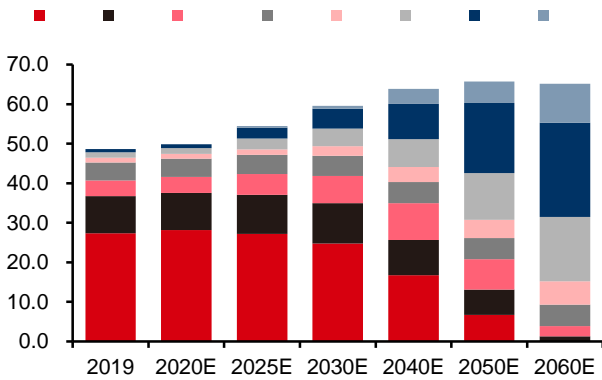
" " 1 2

3 " "

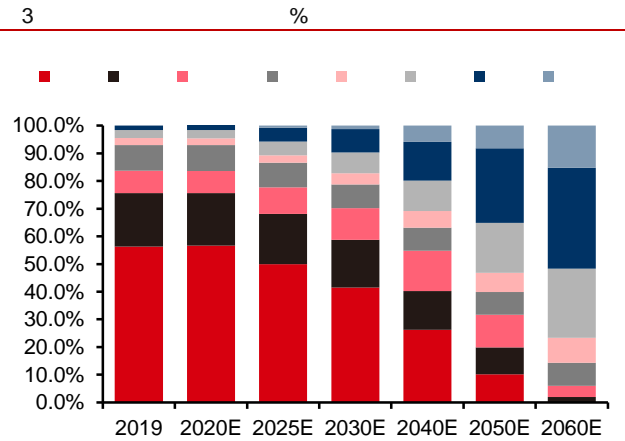
PLA



2



3

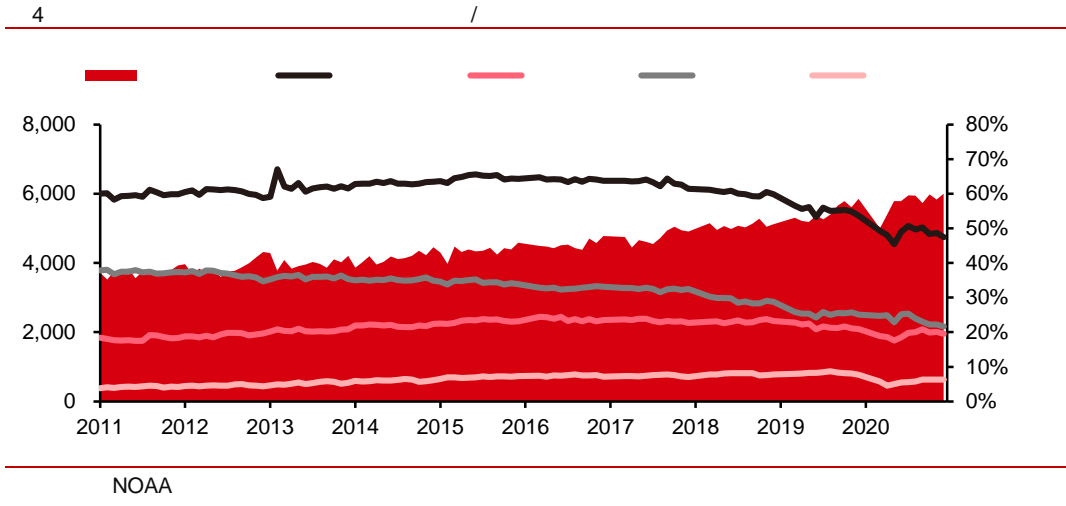


90%

15%

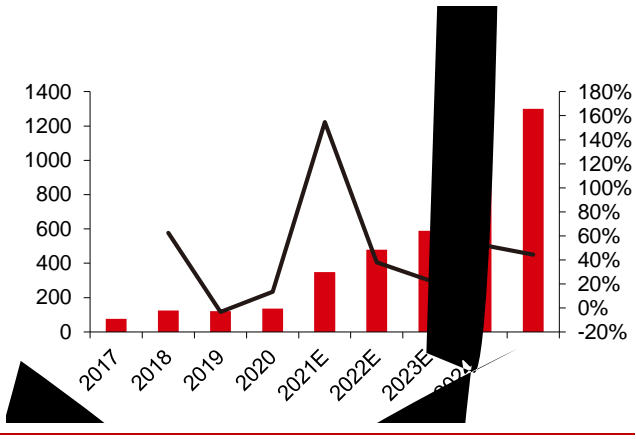
2030

18.9%



	2021-2035		2025		2030	
	20%	40%	2025	2030	20%	
30%			2030		50%	
	2021	2025				
348/1300	2025				775	65GWh
2020	12.3	5.0				
137GWh	2020	10.1	4.7	1.6	3C	1380 132

5



6

GWh

	2020	16.7	21
	24%		SMM
2019	78.6%	USGS	2019
	12.56%		
	30%		

7 2016-2020

8 2019

%

68% 50%

USGS

USGS

Roskill

2019

2-4 /

2 /

4 /

1

CO2 2.7-3.1t CO2/t
30000-36000 MJ/t
15.5-32.8 m3/t

CO2 20.4t CO2/t
218000 MJ/t
77 m3/t

CO2 6.9-7.3t CO2/t
76600-82900 MJ/t
31-50 m3/t

CO2 15.7t CO2/t
187200 MJ/t
69 m3/t

Resources, Conservation & Recycling Ming Xu

9 2019

/ LCE

Roskill

" "

43.4% 31.1% 10.6%

20 40

1577.4

2

	Li %	Mg %	Mg/Li
Uyuni	0.032	0.65	20.3
Atacama	0.157	0.97	6.4
DongTaijinaier	0.085	2.99	35.2
XiTaijinaier	0.022	1.99	90.5
Chaerhan	0.0031	4.89	157.7
Yiliping	0.021	1.28	60.9
Zabuye	0.08	0.002	0.025
Silver Peak	0.016	0.019	1.2
Hombre Muerto	0.076	0.12	1.6
Tincon	0.037	0.37	10
Olaroz	0.066	0.19	2.9
Cauchari	0.051	0.15	2.9
mariana	0.026	0.359	14.1
Sal de Vida	0.063	0.14	2.2

" + "

3

SQM ALB
 Orocobre

2025

50

" + "

2018

100

/

0.075g/L

1300:1

2021

1 /

3000+4000 /

1000 +4000 /

10000 /

EPC

15

15

+ "

" + "

+

6

 10
 3000t
 4000t

600

7000t

1000 4000

4.39%

3000 / 10000 / 10000 / 10000 / - -

4000 / 5000 / 20000 / 10000 / 10000 /

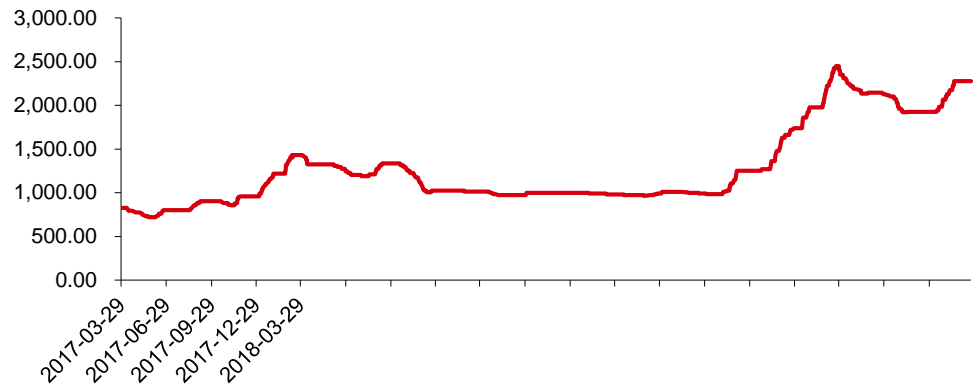
+ " + " + +

7

+

8

12 99.99% /



Wind

9

4000

2022

“ ”

TOC

2019

18MQ

TOC<1-5ppb

ppt

DOW

purolite

90%

2%

1.2
1.06-1.08 1.05-1.1

10

AmberTec™UP6040		Monojet®6040U	
H	OH	H	OH

2020-6-4
1.6
3.84
2030
4

2021
10%
1

2030
1/4

mini-LED
micro-LED

11

	2017	2018	2019	2020	2021E	2022E	2025E	2030E
	11810	12732	11810	12407	14350	15758	21174	33837
	0.1013	0.1013	0.1013	0.1013	0.1013	0.1013	0.1013	0.1013
	1196.35	1289.75	1196.35	1256.83	1453.66	1599.02	2144.93	3427.64
10-6	7.716	7.716	7.716	7.716	7.716	7.716	7.716	7.716
/	9231.06	9951.72	9231.06	9697.69	11216.40	12338.04	16550.25	26447.69
/	1.35	1.45	1.35	1.41	1.63	1.79	2.41	3.84

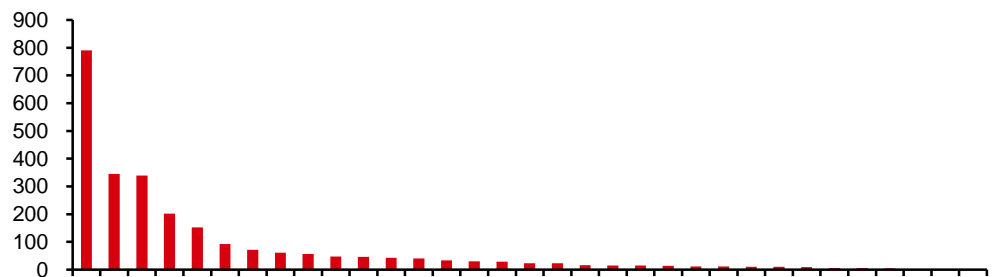
SEMI SUMCO

15.3%

2020

8000

17 2020

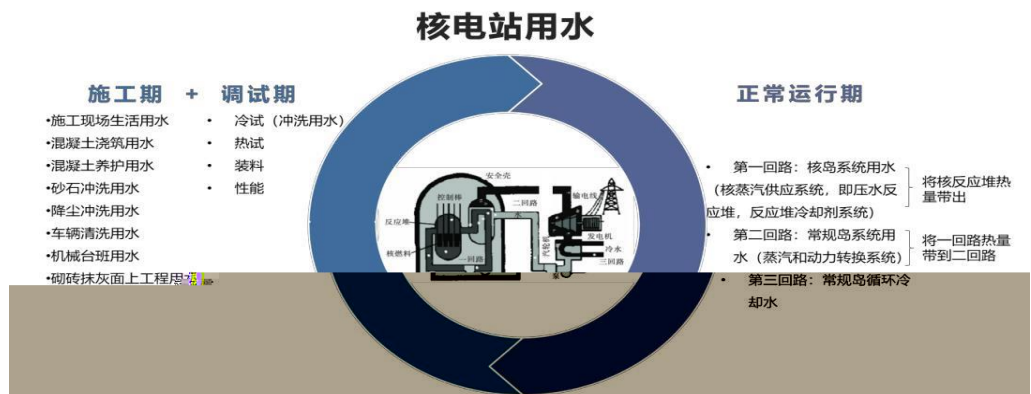


Wind

	2020	2020	2011-2020	2020	2020
"	5103	16	5800	3000	8800
"				49	
			1738	3	361

									7202
	1600								
2030	"	"							2030
25%			15			4.5			
2030			12					15	
					2.3			1.4	
		8000						7300	
83%			1.1						
2025	3800								
2030			2025					3800	
			800		8				
		80%							
	71					202	10	31	
			71		52		1		2
	49		19						

18



2030

18

2020-6-4

2030

1.1

12

18

12

	2018	2019	2020	2030E
	45	47	51	110
10 ⁸ W	459	487	510	1100
m ³ /s*GW	0.0037	0.0037	0.0037	0.0037
106 m ³ /	5.35	5.69	5.94	12.82
m ³	0.012	0.012	0.012	0.012
m ³ /	64200	68280	71333	153856
/	3	3	3	3
10 ⁸ /	7.55	8.0	8.38	18.09

2001

20

BDO

GDP

GDP

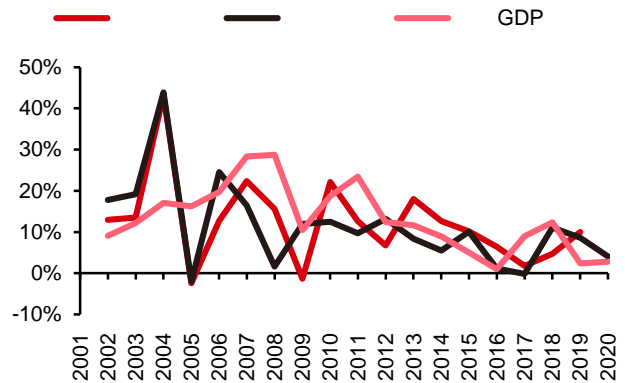
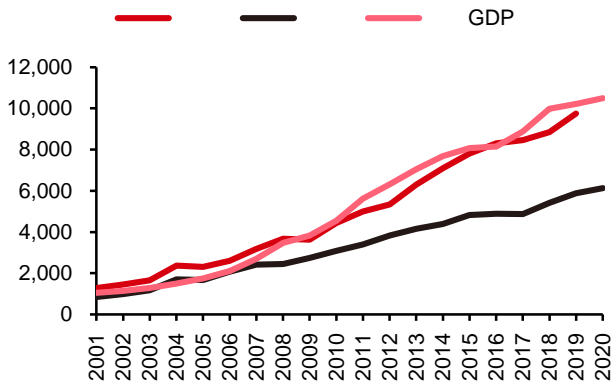
5-6%

19

GDP

20

GDP



Wind

Wind

2020 2022 2025

0.025

0.01

2022

2025

13

0.025

0.01

2020

2022

2020

2022

2025

2020

2022

2025
30%

2022

2025

2022

2025

0.025

0.01

0.01

2030

700

-
2025 2030
324.6 682.1

2020-11-26
50% 80%

14

	2017	2018	2019	2020		2021E	2025E	2030E
/	143.7	140.9	137.9	140	0%	140	140	140
/	198	308	402	450	10%	495	724	1167
/g	25	25	25	25	-	25	25	25
/	49.5	77	100.5	112.5	-	123.75	181	291.75
/	-	160	170	180	6%	190	240	322
/	-	-	-	30	5%	31.5	38.3	48.9
/	50	50	50	50	-	50	50	50
/	-	-	-	512.5	-	535.2	649.3	852.6
	-	-	-	3%	-	5%	50%	80%
/	-	-	-	15.4	-	26.8	324.6	682.1

PLA

PLA

PLA

CO2

15

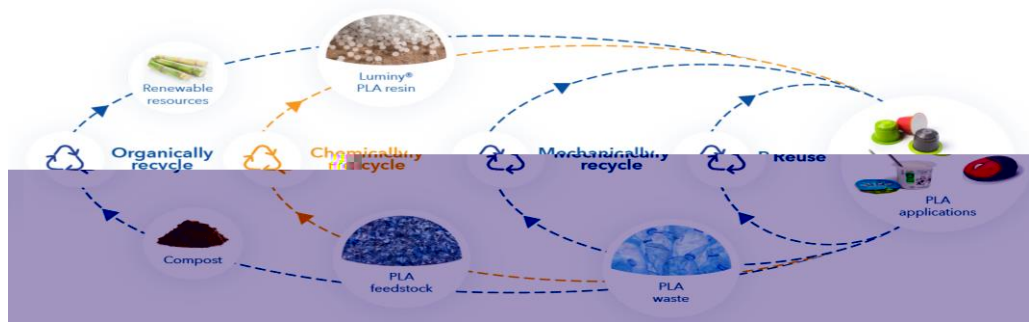
PLA

PHAs

-

PBS	
-	PBS
PBSA	
-	
PBAT	
PCL	

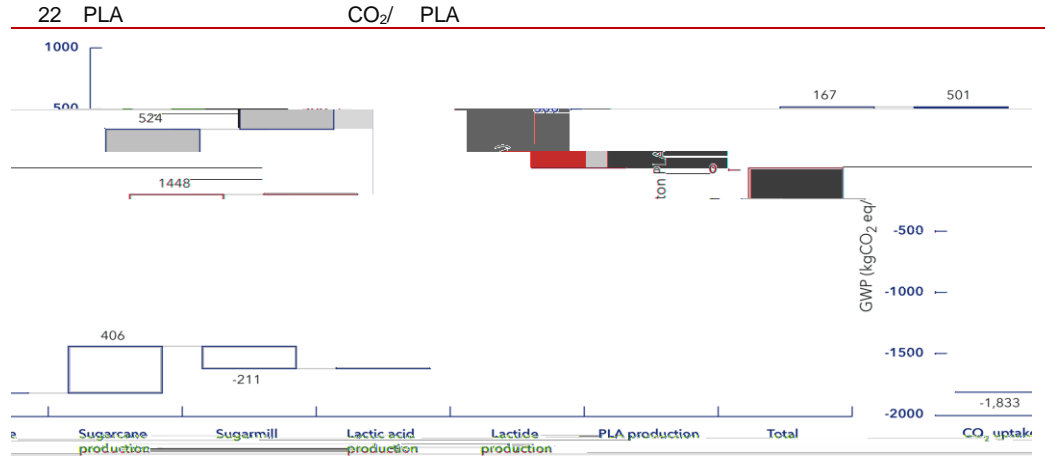
21 PLA



Total-Corbion

12 3 " "

PLA 1/3 Ana Morao Francois de Bie
 PLA 0.5 PLA
 1.833 CO₂ PC 5
 PP PE 2 PLA
 PLA



Life Cycle Impact Assessment of Poly(lactic acid) (PLA) Produced from Sugarcane in Thailand Ana
Morao Francois de Bie

	50	150
16	/	
	12.8	15
	1	10
	0.1	6.5
	3	3
	5	50
	1	30
	15	10

	2025	2030	PLA
40%	130	340	
50%			
40m ³		80	2025
6	2030	16	
PLA+PBAT			PLA
PBAT			
	2025		PLA PBAT
			60% 2030

23

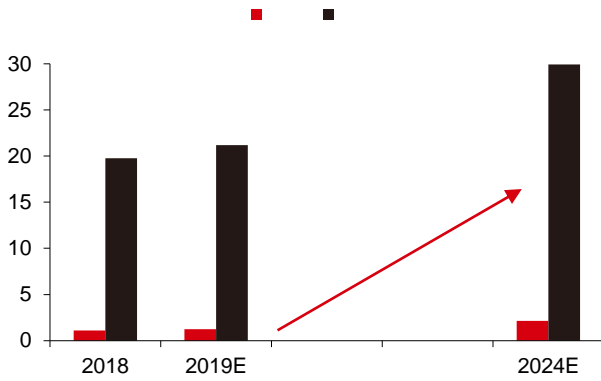
/

		PBAT		BDO			2020
		PBAT	29.3	2021-2023		400	PBAT
						PTA	AA
		1 4-	BDO	PBAT	BDO	0.5~-0.6	0.55
		2021-2023		PBAT	BDO	230	
17	PBAT	2021	11				
/							
		13				2020	24
		3.3			90	2020	90
		2				2020	
		1				2020	2
PBSA		6			6	2021	6
		3			12	2021	
		1				2021	
					10	2021	20
					10	2021	50
					10	2021	20
					6	2021	
					6	2021	30
					12	2022E	
					10	2022E	
					6	2022E	
					20	2022E	50
					6	2022E	

	/	
	12	2023E
	-	2023

2024	30	Markets and Markets	
		2018	19.78
		2024	
2019		7.16%	
29.93	2019-2024		
9.39%	2018	22.4%	2024
			25.39%

24 2018-2024



Markets and Markets

25 2017-2024

Markets and Markets

2018	22.4%	2018-2023	2014
19.6%	2023-2030	10.9%	
2030	1.3		
GE Healthcare	Tosoh	Bio-Rad	CR3
			50%

26

			1	CPC	7-
7-ACA	2	CBD	3		
LX-MC-dex1			4B		Seplife G50SF
CM Seplife C50		DAEA Seplife A50			

19

7-ACA

2021 7 16

27

/

Wind

43 /

80-100 /

60 /

28

/

29

/

Wind Erustat

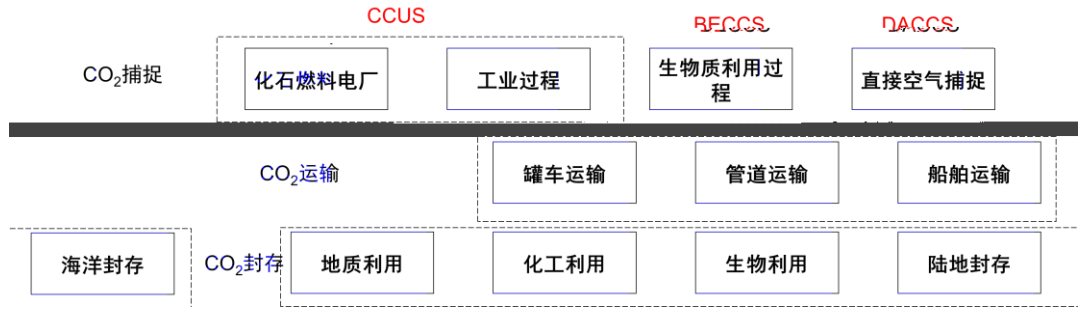
Wind

CCUS

CCUS

IEA 2060 14% CCUS CCUS
CCUS
2050 CCUS
3300 /

30 CCUS



CCUS 2021

150 / CCUS CCUS CO2 CCUS

Spelite-CT

CO2

Seplite-CT

31 CO2

ION EXCHANGE RESIN & ADSORBENTS EXPERT



	VOCs	"	VOCs	"	CO ₂
	Sepsolut®	VOCs			Seplite®LXQ
	99.9%				VOCs
			2019	6	3.4
				1.5	2.5
				4	/
			2020		
			5	/	
			20	/	

2020

22 2019-2023					
/	2019	2020	2021E	2022E	2023E
()	1,012	923	1,211	1,539	1,958
YoY	60.1%	-8.8%	31.2%	27.1%	27.3%
()	251	202	323	448	575
YoY	75.4%	-19.6%	59.8%	38.8%	28.4%
EPS	1.14	0.92	1.47	2.04	2.62
() ()	49.8%	46.6%	47.4%	48.3%	48.8%
ROE	19.9%	12.2%	15.1%	17.8%	19.2%
	5.74	7.51	9.73	11.46	13.65
PE	94.5	104.6	65.4	47.2	36.7
PB	18.8	12.8	9.9	8.4	7.0
Wind		2022	1	27	

1 PE

2022

57xPE

Wind

2022

PE

57

23

		EPS				PE			
		2020	2021E	2022E	2023E	2020	2021E	2022E	2023E
301092	34.00	1.27	1.00	1.21	1.58	-	34.0	28.1	21.5
300631	33.56	0.76	0.70	1.02	1.36	22.74	49.0	33.7	25.4
688690	63.55	0.20	0.35	0.57	0.85	-	174.3	110.0	73.7
							85.8	57.3	40.2
300487	96.19	0.94	1.47	2.04	2.62	92.9	65.4	47.2	36.7
Wind				2021	1	27	EPS		Wind

2 PE

5 PE

50

2016

PE TTM

50x

±1

PE 34~67x

2-3

PE +1

2022 67xPE

32 2016

PE(TTM)



Wind

PE 57x-67x

"

"

	PE	60x	2021-2023	3.23/4.48/5.75
EPS	1.47/2.04/2.62		2022 120	2022 60xPE

"

"

	2019	2020	2021E	2022E	2023E		2019	2020	2021E	2022E	2023E
	1,012	923	1,211	1,539	1,958		401	605	952	1,318	1,657
	508	493	637	796	1,002		316	332	412	515	657
	49.8%	46.6%	47.4%	48.3%	48.8%		233	286	323	413	551
	9	12	12	14	18		118	160	218	196	231
	29	24	29	34	39		1,068	1,383	1,905	2,442	3,096
	2.9%	2.6%	2.4%	2.2%	2.0%		672	673	649	619	584
	84	83	97	123	157		2	3	3	3	3
	8.3%	9.0%	8.0%	8.0%	8.0%		172	167	164	161	158
	4	41	2	1	0		341	327	329	331	333
	0.4%	4.4%	0.1%	0.1%	0.0%		1,186	1,170	1,144	1,114	1,078
	62	55	70	86	110		2,253	2,553	3,049	3,556	4,174
	6.2%	5.9%	5.8%	5.6%	5.6%		0	71	0	0	0
	1	1	1	1	1		302	200	339	407	484
EBITDA	324	354	430	573	719		288	423	370	437	510
	28.09%	23.28%	29.00%	31.56%	31.74%		590	695	709	844	994
	284	215	351	486	622		50	23	23	23	23
	0	3	1	1	2		333	163	163	163	163
	1	1	1	1	1		383	186	186	186	186
	284	217	351	486	622		973	880	894	1,030	1,180
	36	21	34	48	61		207	215	220	220	220
	12.6%	9.8%	9.8%	9.8%	9.8%		366	615	817	817	817
	(3)	(7)	(6)	(10)	(14)		1,261	1,650	2,138	2,519	3,001
	251	202	323	448	575		19	22	16	7	-7
	24.8%	21.9%	26.7%	29.1%	29.4%		1,280	1,673	2,155	2,526	2,994
							2,253	2,553	3,049	3,556	4,174

	2019	2020	2021E	2022E	2023E		2019	2020	2021E	2022E	2023E
	248	196	317	439	561						
	33	90	71	76	82	%					
	-393	-104	-110	-44	-186		60.1%	-8.8%	31.2%	27.1%	27.3%
	65	79	21	7	19		73.0%	-24.4%	63.4%	38.3%	28.0%
	-47	260	298	478	477		75.4%	-19.6%	59.8%	38.8%	28.4%
	-236	-53	-43	-43	-43	%					
	1	1	1	1	1		49.8%	46.6%	47.4%	48.3%	48.8%
	-31	-6	-1	-1	-2	EBITDA Margin	32.0%	38.4%	35.5%	37.3%	36.7%
	-265	-58	-43	-44	-44		24.8%	21.9%	26.7%	29.1%	29.4%
	54	1	208	0	0	%					
	32	41	-71	0	0		19.9%	12.2%	15.1%	17.8%	19.2%
	-30	-52	-43	-67	-94		11.2%	7.9%	10.6%	12.6%	13.8%
	242	-40	-2	-1	0	%					
	298	-50	92	-69	-94		43.2%	34.5%	29.3%	29.0%	28.3%
	-14	152	347	366	339		12.6%	9.8%	9.8%	9.8%	9.8%
							20.6%	21.2%	20.9%	20.9%	21.0%

