

ECO_SSOT V1.14 Instruction

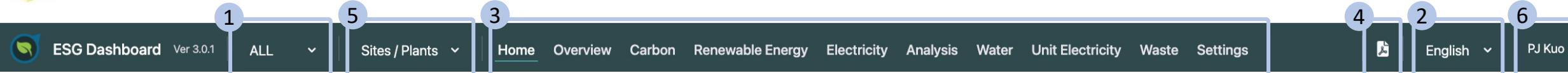


Agenda

- Navigation Bar P.2
- Homepage P.3
- System Functions P.4
- Overview P.5
- Carbon Emission P.6
- Renewable Energy P.7
- Electricity P.8
- Water P.9
- Unit Electricity P.10
- Waste P.11
- Electricity Analysis P.12 – 15
- Settings P.16 – 19

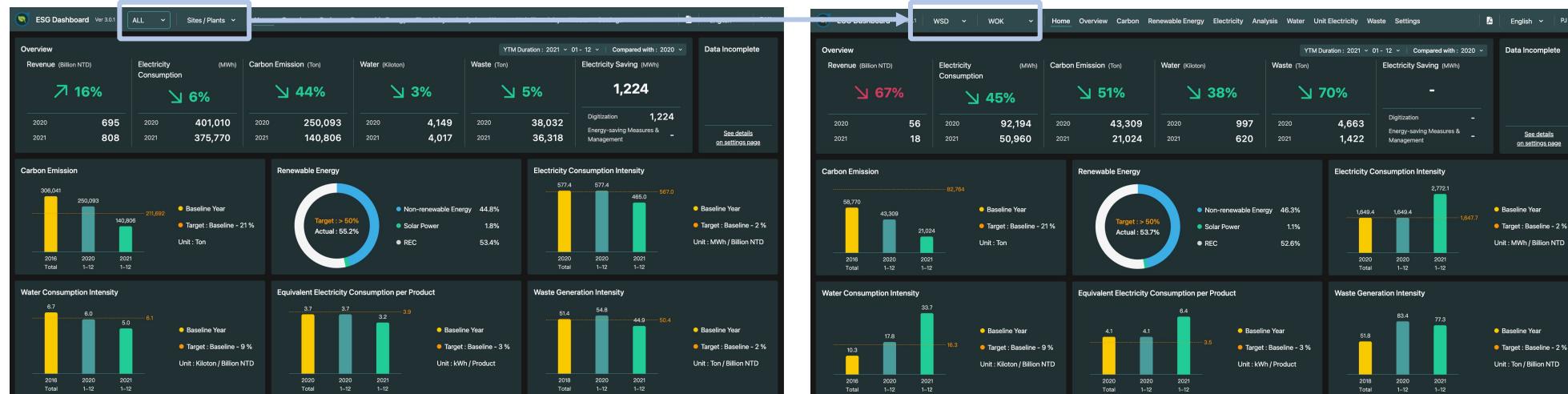


Navigation Bar



- 1 Wistron business group options: select "All", "WT", "WSD" from the navigation bar to adjust sources for all data.
- 2 Language options: Chinese and English are provided.
- 3 System functions: including all energy data and analysis, such as homepage, overview, carbon, renewable energy, electricity, analysis, water, unit electricity, waste, settings.
- 4 Instruction: click the button here to open instruction file.
- 5 By site / By Plant options: select "All", "By site", "By Plant" from the navigation bar to adjust sources for all data.
- 6 User name: current logged-in account is shown at the right side of navigation bar.

Example combining 1 and 5.





Homepage





System functions: Overview, Carbon, Renewable Energy, Electricity, Water, and Unit electricity

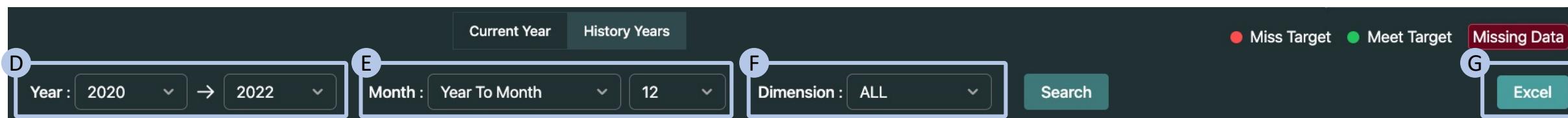


1 Current year / history years: default selection is set as “current year”, “history years” function is detailed in 2 .

A YTM Duration: select year and the end month (start from January) for calculation.

B Target: data trend compared with comparison year.

C Data status: different status is shown in different light / background.



2 History years function:

D Year: select range of years or single year.

E Month: select month for year to month / single month.

F Dimension: select data dimension, such as all, by site, by plant.

G Excel: export all selected data as excel file.



Overview: Electricity Consumption, Water Consumption, Revenue, and ASP

Current year

Electricity, Water, Revenue, and ASP															YTM Duration : 2021 ~ 01 ~ 12 ~			
Site	Electricity Consumption (kWh)				Water Consumption (Ton)				Revenue (Billion NTD)				ASP (Thousand NTD / Product)					
	2020	2021	Percentage	Gap *	2020	2021	Percentage	Gap *	2020	2021	Percentage	Gap *	2020	2021	Percentage	Gap *		
WTZ	23,187,298	34,392,042	9%	48%	484,675	628,227	16%	30%	6.17	10.22	1%	66%	0.41	0.57	9%	40%		
WOK	92,194,094	50,960,229	14%	-45%	996,876	619,542	15%	-38%	55.90	18.38	2%	-67%	1.12	1.06	18%	-5%		
WKS	38,144,958	38,349,022	10%	1%	521,940	473,369	12%	-9%	84.14	89.28	11%	6%	8.68	7.74	129%	-11%		
WZS	125,079,529	127,112,053	34%	2%	1,585,360	1,632,748	41%	3%	123.93	151.01	19%	22%	2.36	2.37	39%	1%		
WMX	34,342,494	44,728,596	12%	30%	96,167	99,237	2%	3%	142.52	144.08	18%	1%	388.58	295.46	4,920%	-24%		
WIH	18,090,312	17,877,724	5%	-1%	120,513	134,489	3%	12%	16.16	18.50	2%	15%	5.92	6.26	104%	6%		
WCZ	5,186,219	6,279,234	2%	21%	4,135	4,973	0%	20%	34.35	39.38	5%	15%	5,716.86	6,849.13	114,048%	20%		
WCQ	14,845,884	16,371,918	4%	10%	80,388	94,370	2%	17%	46.75	58.80	7%	26%	11.53	14.62	243%	27%		
WCD	30,530,402	39,699,209	11%	30%	175,529	253,518	6%	44%	184.64	278.49	34%	51%	14.97	16.75	279%	12%		
WHC	12,510,007	-	-	-	62,980	56,148	1%	-11%	-	-	-	-	-	-	-	-		
WNH	6,898,443	-	-	-	20,134	20,443	1%	2%	-	-	-	-	-	-	-	-		
Total	401,009,640	375,770,027	100%	-6%	4,148,697	4,017,064	100%	-3%	694.55	808.15	100%	16%	4.73	6.01	100%	27%		

History years

Electricity, Water, Revenue, and ASP															YTM Duration : 2021 ~ 01 ~ 12 ~			
Site	Electricity Consumption (kWh)				Water Consumption (Ton)				Revenue (Billion NTD)				ASP (Thousand NTD / Product)					
	2020	2021	Percentage	Gap *	2020	2021	Percentage	Gap *	2020	2021	Percentage	Gap *	2020	2021	Percentage	Gap *		
WTZ	23,187,298	34,392,042	-	48%	484,675	628,227	-	30%	6.17	10.22	-	66%	0.41	0.57	-	40%		
WOK	92,194,094	50,960,229	-	-45%	996,876	619,542	-	-38%	55.90	18.38	-	-67%	1.12	1.06	-	-5%		
WKS	38,144,958	38,349,022	-	1%	521,940	473,369	-	-9%	84.14	89.28	-	6%	8.68	7.74	-	-11%		
WZS	125,079,529	127,112,053	-	2%	1,585,360	1,632,748	-	3%	123.93	151.01	-	22%	2.36	2.37	-	1%		
WMX	34,342,494	44,728,596	-	30%	96,167	99,237	-	3%	142.52	144.08	-	1%	388.58	295.46	-	-24%		
WIH	18,090,312	17,877,724	-	-1%	120,513	134,489	-	12%	16.16	18.50	-	15%	5.92	6.26	-	6%		
WCZ	5,186,219	6,279,234	-	21%	4,135	4,973	-	20%	34.35	39.38	-	15%	5,716.86	6,849.13	-	20%		
WCQ	14,845,884	16,371,918	-	10%	80,388	94,370	-	17%	46.75	58.80	-	26%	11.53	14.62	-	27%		
WCD	30,530,402	39,699,209	-	30%	175,529	253,518	-	44%	184.64	278.49	-	51%	14.97	16.75	-	12%		
WHC	12,510,007	11,043,912	-	-12%	62,980	56,148	-	-11%	0.00	0.00	-	-	0.00	0.00	-	-		
WNH	6,898,443	6,420,678	-	-7%	20,134	20,443	-	2%	0.00	0.00	-	-	0.00	0.00	-	-		
Total	401,009,640	375,770,027	-	-6%	4,148,697	4,017,064	-	-3%	694.55	808.15	-	16%	4.73	6.01	-	27%		



Carbon Emission: Electricity Consumption, Carbon Emission Factor, Carbon Emission, and REC Target

Current year

Carbon Emission										YTM Duration : 2021 ~ 01~12 ~ Target : -21% compared to 2016	
Site	Electricity Consumption (kWh)			Carbon Emission Factor (e)		Carbon Emission (Ton)			REC Target for Carbon Offset		
	Total (a)	Solar Power (b)	REC (c)	Non-renewable (d=a-b-c)	(Ton CO ₂ e/MWh)	Scope1 (f)	Scope2 (g=d*e/1000)	2021 Total (h=f+g)	2016 Total (i)	Gap (h/i-1)	
	WTZ	34,392,042	0	18,163,901	16,228,141	0.7921	2,236	12,854	15,091	22,060	-32%
WOK	50,960,229	582,070	26,786,129	23,592,030	0.7921	3,162	18,687	21,024	58,770	-64%	-35,021,961
WKS	38,349,022	1,329,567	19,009,837	18,009,618	0.7921	-	14,265	14,265	21,650	-34%	-3,583,222
WZS	127,112,053	4,978,650	61,511,384	60,622,019	0.8042	6,364	48,752	55,116	128,411	-57%	-65,521,555
WMX	44,728,596	0	23,431,976	21,296,620	0.5050	-	10,755	10,755	8,047	34%	8,707,755
WIH	17,877,724	0	9,550,922	8,326,802	0.5090	388	4,238	4,626	3,121	48%	-4,080,888
WCZ	6,279,234	0	3,372,709	2,906,525	0.4280	1	1,244	1,245	1,451	-14%	227,816
WCQ	16,371,918	0	7,729,877	8,642,041	0.8587	-	7,421	7,421	31,026	-76%	-19,901,634
WCD	39,699,209	0	20,795,157	18,904,052	0.8587	-	16,233	16,233	22,213	-27%	-1,531,823
WHC	-	-	6,564,824	-	0.5090	200	-3,341	-3,142	6,054	-152%	-15,960,454
WNH	-	-	3,600,284	-	0.5090	4	-1,833	-1,828	3,238	-156%	-5,017,385
Total	375,770,027	6,890,287	200,517,000	168,362,740	-	11,530	129,276	140,806	306,041	-54%	0

History years

Carbon Emission										Target : -21% compared to 2016				
Site	Jan, 2021		Feb, 2021		Mar, 2021		Apr, 2021		May, 2021		Jun, 2021	Jul, 2021	Aug, 2021	Sep, 2021
	Carbon Emission (Ton)	Carbon Emission (Ton)	Carbon Emission (Ton)	Carbon Emission (Ton)	Carbon Emission (Ton)									
WTZ	2,325	2,068	2,435	2,138	2,384	2,725	2,981	2,963	2,963	2,963	2,963	2,963	2,963	2,963
WOK	4,308	3,328	3,037	3,483	3,068	4,693	4,356	4,477	4,477	4,477	4,477	4,477	4,477	4,477
WKS	3,024	2,347	2,769	2,272	2,481	2,823	3,177	3,222	3,222	3,222	3,222	3,222	3,222	3,222
WZS	6,654	5,735	7,890	8,626	8,989	10,093	10,149	10,591	10,591	10,591	10,591	10,591	10,591	10,591
WMX	1,615	1,567	1,960	1,803	2,128	2,219	2,042	2,305	2,305	2,305	2,305	2,305	2,305	2,305
WIH	817	602	907	864	905	999	879	796	796	796	796	796	796	796
WCZ	210	177	206	217	237	234	249	231	231	231	231	231	231	231
WCQ	1,188	678	727	684	1,072	973	1,313	1,280	1,280	1,280	1,280	1,280	1,280	1,280
WCD	1,990	1,956	2,600	2,671	2,912	2,928	3,416	3,638	3,638	3,638	3,638	3,638	3,638	3,638
WHC	18	16	18	17	13	7	12	19	19	19	19	19	19	19
WNH	0	0	0	0	4	0	0	0	0	0	0	0	0	0
Total	22,151	18,474	22,548	22,775	24,193	27,694	28,573	29,522	29,522	29,522	29,522	29,522	29,522	29,522

* REC will only be purchased at the end of the year.
Therefore, REC data will be shown only when December is selected.



Renewable Energy: Electricity Consumption, Percentage, and REC Target

Current year

Renewable Energy			YTM Duration : 2021 - 01 - 12 Target : Percentage > 50 %			
			Current Year	History Years		
Site	Electricity Consumption (kWh)		Percentage ((b+c) / a)	REC Target for Renewable Energy (kWh) (a*50% - b)	Usable Roof Area (M ²)	Roof Structure (RC / Steel Structure)
	Total (a)	Solar Power (b)	REC (c)			
WTZ	34,392,042	0	18,163,901	53%	17,196,021	0
WOK	50,960,229	582,070	26,786,129	54%	24,898,044	0
WKS	38,349,022	1,329,567	19,009,837	53%	17,844,944	0
WZS	127,112,053	4,978,650	61,511,384	52%	58,577,377	0
WMX	44,728,596	0	23,431,976	52%	22,364,298	0
WIH	17,877,724	0	9,550,922	53%	8,938,862	0
WCZ	6,279,234	0	3,372,709	54%	3,139,617	0
WCQ	16,371,918	0	7,729,877	47%	8,185,959	0
WCD	39,699,209	0	20,795,157	52%	19,849,604	0
WHC	-	-	6,564,824	-	-	0
WNH	-	-	3,600,284	-	-	0
Total	375,770,027	6,890,287	200,517,000	55%	180,994,727	0

History years

Renewable Energy													Target : Percentage > 50 %	
													Current Year	History Years
Site	Year : 2021 → 2021 Month : 1 → 12 Dimension : ALL Search Excel												* Percentage = Renewable Energy / Total	
	Jan, 2021 Percentage *	Feb, 2021 Percentage *	Mar, 2021 Percentage *	Apr, 2021 Percentage *	May, 2021 Percentage *	Jun, 2021 Percentage *	Jul, 2021 Percentage *	Aug, 2021 Percentage *	Sep, 2021 Percentage *	Oct, 2021 Percentage *	Nov, 2021 Percentage *	Dec, 2021 Percentage *		
WTZ	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	678%	
WOK	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	859%	
WKS	2%	3%	2%	4%	3%	3%	3%	3%	3%	5%	7%	711%		
WZS	4%	6%	4%	4%	4%	3%	4%	3%	4%	3%	5%	5%	596%	
WMX	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	614%	
WIH	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	795%	
WCZ	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	864%	
WCQ	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	350%	
WCD	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	613%	
WHC	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
WNH	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Total	2%	2%	2%	2%	2%	1%	2%	1%	2%	2%	2%	2%	673%	

* REC will only be purchased at the end of the year.
Therefore, REC data will be shown only when December is selected.



Electricity: Electricity Consumption, Revenue, Electricity Consumption per Billion NTD, and ASP

Current year

Electricity Consumption per Billion NTD												
Site	Electricity Consumption (kWh)			Revenue (billion NTD)			Electricity Consumption per Billion NTD			ASP (Thousand NTD/unit)		
	2020 (a)	2021 (b)	Gap (b/a-1)	2020 (c)	2021 (d)	Gap (d/c-1)	2020 (e=a/c)	2021 (f=b/d)	Gap (f/e-1)	2020 (g)	2021 (h)	Gap (h/g-1)
WTZ	23,187,298	34,392,042	48%	6.17	10.22	66%	3,758,393	3,363,853	-10%	0.41	0.57	40%
WOK	92,194,094	50,960,229	-45%	55.90	18.38	-67%	1,649,359	2,772,145	68%	1.12	1.06	-5%
WKS	38,144,958	38,349,022	1%	84.14	89.28	6%	453,354	429,545	-5%	8.68	7.74	-11%
WZS	125,079,529	127,112,053	2%	123.93	151.01	22%	1,009,254	841,736	-17%	2.36	2.37	1%
WMX	34,342,494	44,728,596	30%	142.52	144.08	1%	240,967	310,442	29%	388.58	295.46	-24%
WIH	18,090,312	17,877,724	-1%	16.16	18.50	15%	1,119,730	966,183	-14%	5.92	6.26	6%
WCZ	5,186,219	6,279,234	21%	34.35	39.38	15%	150,995	159,442	6%	5,716.86	6,849.13	20%
WCQ	14,845,884	16,371,918	10%	46.75	58.80	26%	317,579	278,447	-12%	11.53	14.62	27%
WCD	30,530,402	39,699,209	30%	184.64	278.49	51%	165,349	142,550	-14%	14.97	16.75	12%
WHC	12,510,007	-	-	-	-	-	-	-	-	-	-	-
WNH	6,898,443	-	-	-	-	-	-	-	-	-	-	-
Total	401,009,640	375,770,027	-6%	694.55	808.15	16%	577,366	464,974	-19%	4.73	6.01	27%

History years

Electricity Consumption per Billion NTD											
Site	Jan, 2021		Feb, 2021		Mar, 2021		Apr, 2021		May, 2021		Target : -2% compared to 2020
	Electricity Consumption/Billion NTD (kWh)										
WTZ	3,615,726		3,190,478		3,513,673		3,568,827		4,040,200		
WOK	1,832,878		2,520,578		3,618,212		2,493,214		3,530,200		
WKS	415,714		410,553		317,058		398,090		415,000		
WZS	767,074		899,260		773,861		861,472		881,000		
WMX	288,736		304,801		305,566		274,302		301,000		
WIH	868,504		1,041,872		962,424		1,092,627		1,121,000		
WCZ	182,605		124,046		151,169		123,041		141,000		
WCQ	535,560		362,073		259,793		273,715		444,000		
WCD	134,863		159,937		178,502		143,307		151,000		
WHC	0		0		0		0		0		
WNH	0		0		0		0		0		
Total	522,311		529,283		496,738		480,589		515,000		



Water: Water Consumption, Revenue, Water Consumption per Billion NTD, and Baseline Year

Current year

Water Consumption per Billion NTD												YTM Duration : 2021 - 01 - 12		Target : -9% compared to 2016	
Site	Water Consumption (Ton)				Revenue (billion NTD)				Water Consumption per Billion NTD				Compared to Baseline Year		
	2020	2021	Percentage	Gap *	2020	2021	Percentage	Gap *	2020	2021	Percentage	Gap *	2016	Gap *	
WTZ	484,675	628,227	16%	30%	6.17	10.22	1%	66%	78,560	61,446	1,236%	-22%	69,979	-12%	
WOK	996,876	619,542	15%	-38%	55.90	18.38	2%	-67%	17,834	33,702	678%	89%	10,285	● 228%	
WKS	521,940	473,369	12%	-9%	84.14	89.28	11%	6%	6,203	5,302	107%	-15%	4,100	29%	
WZS	1,585,360	1,632,748	41%	3%	123.93	151.01	19%	22%	12,792	10,812	218%	-15%	10,859	-0%	
WMX	96,167	99,237	2%	3%	142.52	144.08	18%	1%	675	689	14%	2%	-	-	
WIH	120,513	134,489	3%	12%	16.16	18.50	2%	15%	7,459	7,268	146%	-3%	19,576	-63%	
WCZ	4,135	4,973	0%	20%	34.35	39.38	5%	15%	120	126	3%	5%	-	-	
WCQ	80,388	94,370	2%	17%	46.75	58.80	7%	26%	1,720	1,605	32%	-7%	3,914	-59%	
WCD	175,529	253,518	6%	44%	184.64	278.49	34%	51%	951	910	18%	-4%	1,631	-44%	
WHC	62,980	56,148	1%	-11%	-	-	-	-	-	-	0%	-	-	-	
WNH	20,134	20,443	1%	2%	-	-	-	-	-	-	0%	-	-	-	
Total	4,148,697	4,017,064	100%	-3%	694.55	808.15	100%	16%	5,973	4,971	100%	-17%	7,090	-30%	

History years

Water Consumption per Billion NTD							Target : -9% compared to 2016					
Site	Jan, 2021		Feb, 2021		Mar, 2021		Apr, 2021		May, 2021		J1	
	Water Consumption per Billion NTD											
WTZ	70,753	64,148	65,084	619	71,136	79,650	632	619	632	1,021	632	619
WOK	18,648	38,639	39,795	28,685	47,515	47,515	28,685	28,685	28,685	8,105	28,685	28,685
WKS	3,150	5,908	4,068	4,448	5,803	5,803	4,448	4,448	4,448	0	4,448	4,448
WZS	12,159	13,682	8,301	11,244	10,391	10,391	11,244	11,244	11,244	0	11,244	11,244
WMX	555	548	619	632	1,021	1,021	632	632	632	0	632	632
WIH	3,870	10,381	5,504	7,237	8,105	8,105	7,237	7,237	7,237	0	7,237	7,237
WCZ	130	107	125	93	74	74	93	93	93	0	93	93
WCQ	2,470	1,904	1,691	1,818	2,716	2,716	1,818	1,818	1,818	0	1,818	1,818
WCD	890	989	1,118	834	1,070	1,070	834	834	834	0	834	834
WHC	0	0	0	0	0	0	0	0	0	0	0	0
WNH	0	0	0	0	0	0	0	0	0	0	0	0
Total	5,345	6,305	4,667	4,858	5,557	5,557	4,858	4,858	4,858	0	4,858	4,858



Unit Electricity: Electricity Consumption, Production, Equivalent Electricity Consumption per Product

Current year

Equivalent Electricity Consumption per Product									
Site	Electricity Consumption (kWh)			Production (unit)			Equivalent Electricity Consumption per Product (kWh)		
	2020 (a)	2021 (b)	Gap (b/a-1)	2020 (c)	2021 (d)	Gap (d/c-1)	2020 (e=a/c)	2021 (f=b/d)	Gap (f/e-1)
WTZ	23,187,298	34,392,042	48%	7,483,813	14,337,640	92%	3.1	2.4	-23%
WOK	92,194,094	50,960,229	-45%	22,287,649	8,012,900	-64%	4.1	6.4	54%
WKS	38,144,958	38,349,022	1%	11,245,026	14,204,188	26%	3.4	2.7	-20%
WZS	125,079,529	127,112,053	2%	42,721,849	46,716,239	9%	2.9	2.7	-7%
WMX	34,342,494	44,728,596	30%	341,328	622,038	82%	100.6	71.9	-29%
WCZ	5,186,219	6,279,234	21%	377,763	335,464	-11%	13.7	18.7	36%
WIH	18,090,312	17,877,724	-1%	2,737,184	1,964,703	-28%	6.6	9.1	38%
WCQ	14,845,884	16,371,918	10%	5,301,189	6,217,116	17%	2.8	2.6	-6%
WCD	30,530,402	39,699,209	30%	15,066,004	24,680,676	64%	2.0	1.6	-21%
WHC	12,510,007	-	-	-	-	-	-	-	-
WNH	6,898,443	-	-	-	-	-	-	-	-
Total	401,009,640	375,770,027	-6%	107,561,804	117,090,964	9%	3.7	3.2	-14%

History years

Equivalent Electricity Consumption per Product								
Site	Electricity Consumption / Product (kWh)					Equivalent Electricity Consumption per Product (kWh)		
	Jan, 2021	Feb, 2021	Mar, 2021	Apr, 2021	May, 2021	Jun, 2021	Jul, 2021	Aug, 2021
WTZ	3	2	3	3	3	2		
WOK	6	6	10	6	8			
WKS	3	3	2	3	3			
WZS	2	3	3	3	3			
WMX	76	73	46	60	79			
WIH	9	8	8	10	10			
WCZ	16	13	13	13	21			
WCQ	5	3	2	2	4			
WCD	1	2	2	1	2			
WHC	0	0	0	0	0			
WNH	0	0	0	0	0			
Total	3	4	3	3	4			



Waste: Non-recyclable Waste Weight, Recyclable Waste Weight, Total, Revenue, Waste Generation Intensity, and Waste Recycling Rate

Current year

Waste Generation Intensity										YTM Duration : 2021 - 01 - 12 Target : -2% compared to 2018
Site	Non-recyclable Waste Weight (Ton)		Recyclable Waste Weight (Ton)		Total (Ton)	2021.01 - 12 Revenue (Billion NTD)	Waste Generation Intensity (ton/billion NTD)			Waste Recycling Rate
	General *¹	Hazardous	General *²	Recyclable(Compost & Recycling)			2021.01 - 12	2018	Gap ((2021-2018) / 2018)	
WTZ	245.64	-	17.42	2,438.22	2,701.28	10.22	265.56	225.05	● 18.00%	90.44%
WOK	223.89	-	36.80	1,127.57	1,388.25	18.38	77.33	51.84	● 49.16%	81.91%
WKS	273.43	-	238.35	2,078.25	2,590.02	89.28	30.80	33.31	-7.55%	84.25%
WZS	828.91	-	118.14	12,930.08	13,877.13	151.01	94.28	84.25	11.91%	91.64%
WMX	461.13	-	384.07	4,428.69	5,273.89	144.08	36.77	25.62	● 43.50%	90.85%
WIH	70.42	-	27.33	336.26	434.02	18.50	27.48	14.74	● 86.50%	71.50%
WCZ	242.50	-	-	1,212.14	1,454.64	39.38	36.95	25.35	● 45.74%	83.30%
WCQ	36.40	-	58.90	3,198.26	3,293.55	58.80	58.20	64.58	-9.88%	95.19%
WCD	50.01	-	357.60	6,638.49	7,046.10	278.49	26.16	52.75	-50.41%	96.04%
WHC	21.43	-	7.90	83.83	113.16	-	-	-	-	80.16%
WNH	7.00	-	0.24	2.23	9.47	-	-	-	-	21.89%
Total	2,460.76	-	1,246.74	34,474.02	38,181.52	808.15	48.53	51.43	-5.64%	91.08%

History years

Waste Generation Intensity						Target : -2% compared to 2018	
Site	Jan, 2021		Feb, 2021		Mar, 2021		Apr, 2021
	Waste Generation Intensity (ton/billion NTD)						
WTZ	305		250		272		242
WOK	64		130		88		64
WKS	32		32		36		32
WZS	112		123		87		108
WMX	28		67		46		39
WIH	31		40		31		29
WCZ	50		37		47		34
WCQ	52		57		63		63
WCD	24		24		38		33
WHC	0		0		0		0
WNH	0		0		0		0
Total	51		60		55		52



Missing Target Data Analysis

Site	Electricity Consumption (kWh)			Revenue (billion NTD)			Electricity Consumption per Billion NTD			ASP (Thousand NTD/unit)		
	2020 (a)	2021 (b)	Gap (b/a-1)	2020 (c)	2021 (d)	Gap (d/c-1)	2020 (e=a/c)	2021 (f=b/d)	Gap (f/e-1)	2020 (g)	2021 (h)	Gap (h/g-1)
WTZ	23,187,298	34,392,042	48%	6.17	10.22	66%	3,758,393	3,363,853	1 -10%	0.41	0.57	40%
WOK	92,194,094	50,960,229	-45%	55.90	18.38	-67%	1,649,359	2,772,145	1 ● 68%	1.12	1.06	-5%
WKS	38,144,958	38,349,022	1%	84.14	89.28	6%	453,354	429,545	1 -5%	8.68	7.74	-11%
WZS	125,079,529	127,112,053	2%	123.93	151.01	22%	1,009,254	841,736	1 -17%	2.36	2.37	1%
WMX	34,342,494	44,728,596	30%	142.52	144.08	1%	240,967	310,442	1 ● 29%	388.58	295.46	-24%
WIH	18,090,312	17,877,724	-1%	16.16	18.50	15%	1,119,730	966,183	1 -14%	5.92	6.26	6%
WCZ	5,186,219	6,279,234	21%	34.35	39.38	15%	150,995	159,442	1 ● 6%	5,716.86	6,849.13	20%

Electricity Consumption per Billion NTD : Analysis (Plant: WMX)

Back

* ASP Reduction = Current YTM Electricity Consumption / (Current YTM Shipment * Last year YTM ASP) | YTM Duration : 2021.01 - 12



2

Missing Target Data Analysis

● Less than a week from D.D. ● Already passed D.D. + Add New

No.	Missing Target Data Analysis		Impact on Electricity			Edit	
1	Action	Category	Expected Value	Attribution	D.D.	Close Date	PIC
Test			57 %				

3



1 Click to enter Missing Target Data Analysis.

2 Maintain missing target reason and actions.

3 Electricity Consumption Intensity compared with ASP Reduction.



Analysis

- Analysis function is the integration of data science and prediction in ECO system.
- Functions: Baseline, Prediction, and Power Saving of electricity.

Baseline

Electricity Analysis

1 Year : 2021 Plant : WZS-1 Search

2 Basic Electricity (kWh) Air Conditioning Electricity (kWh) Air Compressor Electricity (kWh) Production Electricity (kWh)

Month	Actual			Baseline			Gap			Actual			Baseline			Gap			Actual			Baseline			Gap		
	Actual	Baseline	Gap	Actual	Baseline	Gap	Actual	Baseline	Gap	Actual	Baseline	Gap	Actual	Baseline	Gap	Actual	Baseline	Gap	Actual	Baseline	Gap						
Jan	533,067	345,253	+187,814	414,856	478,620	-63,763	699,793	715,497	-15,704	1,519,127	1,519,127	+0															
Feb	268,312	406,180	-137,869	575,003	596,541	-21,538	699,829	752,525	-52,697	1,392,462	1,392,462	+0															
Mar	292,052	283,470	+8,582	1,043,970	970,943	+73,027	838,640	793,061	+45,579	1,807,885	1,807,884	+1															
Apr	295,005	290,755	+4,250	940,846	947,034	-6,189	794,863	759,513	+35,351	1,633,825	1,633,825	+0															
May	266,123	282,375	-16,252	1,314,733	1,269,091	+45,642	775,260	785,729	-10,469	1,553,673	1,553,673	+0															

A

B

3 Basic Electricity Baseline Model Air Conditioning Electricity Baseline Model Air Compressor Electricity Baseline Model Production Electricity Baseline Model

(MWh) (M) (MWh) (M) (MWh) (M) (MWh) (M)

- 1 Search for Year and Plant.
- 2 Predicted baseline, actual data, and gap of all types of electricity consumption:
Select data of a month from the table: ex. Select A, and all baseline data of the month will be shown in B.
- 3 Monthly trend chart of Electricity Baseline Model:
 - Includes predicted baseline (yellow line) and actual data (green line).
 - Four types: Basic Electricity , Air Conditioning Electricity , Air Compressor Electricity , and Production Electricity.



Prediction

- Electricity prediction: includes shown by plant and search for year and month ; shown by month and search for plant.

Dimension: select “by plant”, and search for year and month.

Dimension : By Plant Year : 2021 Prediction Month : 11 Search

* Prediction was designed for REC purchase calculation.
Therefore, Annual REC Target is only shown for Nov.

Electricity Analysis

Baseline Prediction Power Saving

Dimension : By Plant Year : 2021 Prediction Month : 11 Search

* Predicted Electricity Consumption YTM = Actual + Predicted Electricity Consumption of 2 months

Plant	Monthly Electricity Consumption (kWh)			Annual REC Target (Nov)
	Predicted	Actual	Gap	
WTZ	2,336,201	2,676,036	+339,835	35,392,519
WZS-1	4,131,868	3,912,069	-219,799	50,310,557
WZS-3	1,502,797	1,595,136	+92,339	19,473,264
WZS-6	3,033,782	2,610,947	-422,835	37,400,203

Predicted Baseline Data : WZS-1		
Select month from table on the left	Nov	Dec
PCBA Production (pcs)	1,545,213	1,545,213
FA Production (pcs)	504,109	504,109
Manpower	5,472	4,000
PCBA Lines	52	52
FA Lines	26	26
Revenue (billion NTD)	4	4
Temperature (°C)	22	23

Predicted Annual REC Target Total : All plants
Only calculated in November

163,042,023 kWh



Prediction

Dimension: select “by month”, and search for year and plant.

Dimension : By Month ▾ Year : 2021 ▾ Plant : WZS-1 ▾ **Search**

Electricity Analysis

Baseline Prediction Power Saving

Dimension : By Month ▾ Year : 2021 ▾ Plant : WZS-1 ▾ **Search**

Month	Monthly Electricity Consumption (kWh)			Annual REC Target (Nov)
	Predicted	Actual	Gap	
Nov	-	3,912,069	+3,912,069	77,777
Dec	-	3,830,590	+3,830,590	-

Predicted Baseline Data : Dec

Select month from table on the left	Predicted	Actual
PCBA Production (pcs)	1,801,229	1,801,229
FA Production (pcs)	554,164	554,164
Manpower	4,150	5,874
PCBA Lines	52	52
FA Lines	26	26
Revenue (billion NTD)	4	4
Temperature (°C)	19	16

Electricity Baseline Model

● Predicted ● Actual

Month	Actual (MWh)	Predicted (MWh)
1	3,200	3,100
2	2,900	2,800
3	4,000	4,100
4	3,700	3,800
5	4,000	4,100
6	4,500	4,600
7	4,800	4,900
8	5,000	5,100
9	4,800	4,900
10	4,500	4,600
11	4,200	4,300
12	3,800	3,900

15



Power Saving

Electricity Analysis & Prediction

1

Baseline Prediction Power Saving

Year : 2021 Plant : WZS-1 Search

2

+ Add New

Type	Action	Expected Value												PIC	Calculation	Remark	Edit
		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.				

Power Saving Amount

Type	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total

- 1 Search for year and plant: user can edit, add PIC, and remark. System will send email to new-added email account automatically.
- 2 Add new: once added, users ,except for admin member (Dawin, Alston, and Eric Yang), cannot edit or delete it,



Settings

- Settings page is the integration of new-added user demands and data status monitoring in ECO system..
- Functions: Annual Target Maintain, Carbon Emission Factor, and Renewable Energy Certificate (REC) Purchase.

Annual Target Maintain

- Three functions: Annual Target, Carbon Emission Factor, and Renewable Energy Certificate (REC) Purchase.

The screenshot displays the 'Annual Target Maintain' section of the ECO system settings. It features three main tables:

- Annual Target**: A table showing various performance metrics with their baseline years, target definitions, 2022 targets, and units. The columns include Item, Baseline Year, Target Definition (Compared to Baseline Year), 2022 Target, Unit, and Edit (with a pencil icon). Examples include Electricity Consumption Intensity (Baseline 2021, Target -2%, 2022 Target 509.5 MWh / billion NTD), Water Consumption Intensity (Baseline 2016, Target -9%, 2022 Target 6.1 Kiloton / billion NTD), Carbon Emission (Baseline 2016, Target -21%, 2022 Target 211,692 Ton), Equivalent Electricity Consumption per Product (Baseline 2021, Target -5%, 2022 Target 2.7 kWh / product), Waste Generation Intensity (Baseline 2018, Target -2%, 2022 Target 50.4 Ton / billion NTD), and Renewable Energy (Baseline 2022, Target Percentage > 60%, 2022 Target 0.6 %).
- Carbon Emission Factor**: A table listing sites and their corresponding carbon emission factors. The columns include Site, Carbon Emission Factor, and Edit (with a pencil icon). Examples include WMX (0.5050), WCZ (0.4280), WOK (0.7921), WKS (0.7921), WTZ (0.7921), WIH (0.5090), and WTS (0.5010).
- Renewable Energy Certificate (REC) Purchase**: A table for managing REC purchases. The columns include Date, Total (MWh), Area, Amount (MWh), Price, Currency, Plant, and 緑證 (Green Certificate). The currency column has an edit icon (pencil).

1 Search for year: select year.

2 Edit: table content can be edited.



Data Update Status

- Different lights suggest different status of data from multiple sources (including DPM, OPM, FEM).
- Data of last month is updated automatically in ECO system on the 10th of each month.

Feb. Data Status (Next update: 4/10, CSR next update: 4/30)									
Plant	DPM Auto		OPM Auto		FEM Auto		Benefit Auto		Waste Manual
	Equivalent Production	Revenue	Manpower	Shipment	Smart Meter	Smart Water Meter	Solar Power	Conserved Electricity	Waste Disposal
WCD(WT)	●	●	●	●	●	●	●	●	●
WCQ(WT)	●	●	●	●	●	●	●	●	●
WCZ(WT)	●	●	●	●	●	●	●	●	●
WHC()	●	●	●	●	●	●	●	●	●
WIH(WT)	●	●	●	●	●	●	●	●	●
WKS-1(WT)	●	●	●	●	●	●	●	●	●
WKS-5(WSD)	●	●	●	●	●	●	●	●	●
WKS-6A(WSD)	●	●	●	●	●	●	●	●	●
WKS-6B(WSD)	●	●	●	●	●	●	●	●	●
WMX(WT)	●	●	●	●	●	●	●	●	●
WNH()	●	●	●	●	●	●	●	●	●

1 Search for year and month: click search button after select year and month, all data of the selection will be displayed on the page.

2 Update status light: different light color represents different update status

- White light: No data (no system)
- Green light: Data is up-to-date.
- Red light: Data is not updated.
- Yellow light: Data incorrect.



CSR Comparision

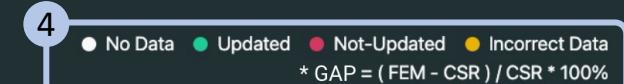
- Different lights suggest different CSR data status.
- Compare FEM data with CSR data. Formula: $(FEM - CSR) / CSR * 100\%$.

CSR Comparison (Updated on the last date of every month)				
Plant	FEM	CSR	GAP *	Description
WIH(WT)	799,043	●	0	-
WKS-1(WT)	157,168	●	0	-
WKS-5(WSD)	484,191	●	0	-
WKS-6A(WSD)	3,523	●	0	-
WKS-6B(WSD)	620,831	●	0	-
WOK(WSD)	3,357,608	●	3,514,446	-4.5%
WTZ(WSD)	1,611,919	●	2,397,567	-32.8%
WZS-1(WT)	●	3,233,492	●	2,735,876
WZS-3(WT)	●	1,376,603	●	1,100,825
WZS-6(WT)	●	2,734,101	●	1,919,507
WCQ(WT)	1,561,554	●	2,832,129	-44.9%

1 Electricity / Water: select to check data of electricity or water consumption.

2 Search for year and month: select year and month

3 Edit description: data description can be edited and added.



4 Update status light: different color represents different update status

- White light: No data (no system)
- Green light: Data is up-to-date.
- Red light: Data is not updated.
- Yellow light: Data incorrect.



Data Maintain PIC

- Setting page of date sources and PIC: after editing or adding email account, system will send emails automatically.
- Include data sources of revenue and waste, more sources will be added in the future.

Data Maintain PIC					
Plant	Revenue (WT) Manual		Waste Manual		Edit
	PIC	Remark	PIC	Remark	
WKS-6A		-	raki_tan@wistron.com	-	
WKS-6B		-		-	
WZS-1	misaki_zeng@wistron.com	-		-	
WZS-3		-	raki_tan@wistron.com	-	
WZS-6		-		-	

- ① PIC, Remark, and Edit: PIC and remark can be edited and added, and system will send emails to these email accounts automatically.



Data Sources

Bo	WT	WT	WSD	WSD	WSD	WSD	WSD	WT	WT	WT	WSD	WT	WT	WT	WT	Corp.	Corp.
Plant	WIH	WKS-1	WKS-5	WKS-6A	WKS-6B	WOK	WTZ	WZS-1	WZS-3	WZS-6	WZS-8	WCQ	WCD	WMX	WCZ	WHC	WNH
Equivalent Production	DPM	DPM	DPM	-	DPM	DPM	DPM	DPM	DPM	DPM	X	DPM	DPM	X	X	X	X
Electricity	FEM	FEM	FEM	FEM	FEM	FEM	FEM	ElasticSearch (PowerMI)	ElasticSearch (PowerMI)	ElasticSearch (PowerMI)	FEM	FEM	FEM	X	X	CSR	CSR
Water	FEM	FEM	FEM	FEM	FEM	FEM	FEM	ElasticSearch (PowerMI)	ElasticSearch (PowerMI)	ElasticSearch (PowerMI)	FEM	FEM	FEM	X	X	CSR	CSR
Renewable Energy	-	FEM	FEM	FEM	FEM	FEM	-	FEM	FEM	FEM	FEM	-	-	-	-	-	-
Revenue	X	WiPBi	OPM	OPM	OPM	OPM	OPM	Manual update by Misaki	WiPBi	WiPBi	V	WiPBi	WiPBi	X	X	X	X
Manpower	X	-												X	X	X	X
Shipping	X	WiPBi	OPM	OPM	OPM	OPM	OPM	Manual update by Misaki	V	V	V	V	V	X	X	X	X
Waste	X	Manual update by Raki	CSR	CSR	Manual update by Misaki	Manual update by Raki	Manual update by Raki	Manual update by Raki	CSR	CSR	X	X	CSR	CSR			



FAQ

Q1: When is data updated?

A1: Data of every month is updated at 8:00 am on the 10th of the next month. Data of waste / scope1, WHC, and WNH is updated according to CSR update time.

Q2: Why does the data seem odd after the 10th of every month?

A2: Data will be updated on the 10th of every month. Missing data or problems of data sources might results in the odd data display (ex. without revenue, unit electricity and waste generation intensity cannot be calculated).

Q3: Why does system suggest missing data while data is not missing?

A3: As long as one of the items (water, electricity, revenue, unit electricity) data is incomplete, system will display missing data. However, you can always go to data update status on settings page to check for the data sources status.

Q4: Why does the data calculated by the system is different from that by myself? Who should I go to when I have suggestions or questions for the system?

A4: Please send emails to Emily Hsieh (CC Vincent Ku, Leo ZY Lin) to explain the questions. You will be contact.

Q5: Does the system backstage collect user data?

A5: Yes, user and usage will be collected by the system.