CATCHER TECHONOLOGY CO., LTD. VOLUNTARY GHG INVENTORY REPORT-2018 (CATCHER YKIP FACTORY) EXECUTIVE SUMMARY

30ST APRIL 2019

Catcher Technology Co. LTD (Catcher) has realized the potential impacts of the greenhouse gases (GHG) emissions on climate and the environment. Upholding the concept of sustainable operation and corporate social responsibility, Catcher has voluntarily implemented the organizational GHG reporting project for 2018 in the Catcher YKIP Factory (the factory), in order to improve its understanding on GHG emissions from the factory and indentify the reduction opportunities, serving as the foundation of Catcher's GHG management and policies.

1. Boundary Setting

Based on operational control approach, a company accounts for 100% of emissions from operations over which it or one of its subsidiaries has operational control. Catcher's organizational boundary covers all the areas of the factory, including building A and B, the waste water treatment plant, and the dormitories.

2. Emission Sources Identification

The direct GHG (scope 1) emission sources in the factory come from combustion of natural gases used in boilers, lubricants used in the producing processes, the diesels and 95 unleaded petrol used in stackers, emergency generators and lawn mowers, hydrofluorocarbon (R410a, R407c, and R134a) emissions during the use of refrigeration and air conditioning equipment, CO_2 fire extinguishers and the methane fugitive emission from septic tanks. Energy indirect GHG emissions (scope 2) includes purchased electricity.

Indirect GHG emissions (scope 3) mainly come from the outsourcing activities, which are controlled or owned by other organizations, including the

liquid petrol gases applied in the staff cafeteria, the petrol used during the staff's commute. These statistics are difficult to be collected; therefore, merely qualitative inventory is done for scope 3.

It is noted that the refrigerant type of R22 and R123 used in the factory is one of the controlled substances in Montreal Protocol. Accordingly, it should not be included in the GHG inventory. The materials applied in the ABC fire extinguishers used in the factory is ammonium phosphate, which will not emit CO_2; hence, should not be included.

3. Qualification

In order to account the GHG emissions of scope 1 and 2, the statistics which are the closest to the real condition should be prioritized. The sources of the activity data are well kept, including lists of equipment assets, receipts, audit records, or ERP statistics, in order to be tracked if needed in the future.

The "emission factor approach" is mainly adopted to account the GHG emissions in the factory. The emission factors are mostly cited from the guidelines issued by IPCC (2006) and the Environmental Protection Administration (EPA), Taiwan. Among these, the applied electricity factor is cited from the value for 2017 announced by the Bureau of Energy, as the value for 2018 had not been released before this project was finished. The Global Warming Potential (GWP) values are cited from the IPCC Second Assessment Report (1995).

4. Results

The total GHG emission in the factory in 2018 is 19,378.647 tons CO_2e, mainly come from the scope 2 purchased electricity, contributing to 89.68% of the total emission. CO_2 is the major GHG emitted from the factory, contributing to 98.56% of the total emission. The detailed results are shown below:

The GHG emission of each scope in the factory

	SCOPE 1	SCOPE 2	TOTAL
GHG Emission (ton CO_2e/year)	2,000.3322	17,378.3152	19,378.647
Sharing (%)	10.32%	89.68%	100.00%

The emission of each GHG in the factory

Total GHG emission(ton CO_2e/year)							
CO_2	CH_4	N_2O	HFC	PFCs	SF_6	NF_3	Total
19,100.5292	267.2250	1.3112	9.5820	0.0000	0.0000	0.0000	19,378.647
98.56%	1.38%	0.01%	0.05%	0.00%	0.00%	0.00%	100.00%

In terms of the emissions from the biomass combustion, the Bureau of Energy has announced that the biodiesel policy had been terminated since 5th May 2014. Accordingly, the emission from bio fuels in the factory in 2018 is 0.000 ton CO_2e.