

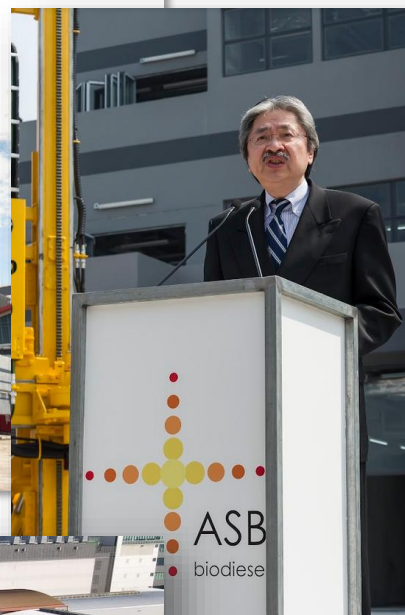
Lower Carbon Fuel For A Better Hong Kong

Green Innovation, Turning Waste to Energy



ESTABLISHMENT OF ASB BIODIESEL

ASB生物柴油的成立



Hong Kong government was devoted to renewable energy implementation and promotion since 2000.

Overseas investor was invited by InvestHK to invest in a project of collecting waste cooking oil and recycling to sustainable biofuel for Hong Kong.

自2000年，香港政府大力推廣再生能源的生產及使用。

推廣署邀請了海外投資者參與InvestHK的項目，投資並於香港興建ASB生物柴油廠，加強廢置食用油回收以及轉廢為能，製造成新一代可再生的綠色能源。

2007 Aug 2 – Company incorporated

2011 Nov 8 – ASB plant work commenced

2013 Oct 23 – Inauguration ceremony

2014 Apr 11 – Start production

ASB BIODIESEL (HONG KONG) LTD.

ASB生物柴油(香港)有限公司



Investor 投資者	: Partner Energy Group 鉅極能源集團
Location 位置	: Hong Kong 香港
Production capacity 總生產量	: 100,000 tons / year 100,000 噸/年
Technology 生產技術	: Enzymes Catalyze Reactions 酶催化反應
Infrastructure 基礎設施	: Plant size 200,000 ft ² Biodiesel storage capacity 4,700 m ³ , Wharf 3,200 D.W.T. 廠房面積200,000 平方英尺 生物柴油儲存容量4700立方米, 自設碼頭載重噸位達3,200D.W.T.
Feedstock 原料	: Used Cooking Oil (UCO), Food waste Oil, Animal Fat, Etc. 廢食油, 餐廚廢油, 動物脂肪
Fuel Quality 產品品質	: EN14214 / ASTM 6751 ISCC certified / Registered in EPA

ASB BIODIESEL (HK) LTD. - PRODUCTION PLANT

ASB生物柴油(香港)有限公司 – 廠房全景



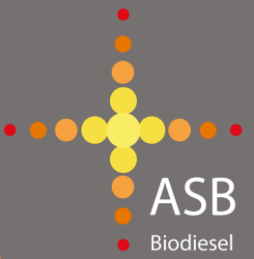
WHAT IS BIODIESEL? 生物柴油是什麼?



- Biodiesel is a renewable fuel produced by processing vegetable oil, animal fat, or waste cooking oil through different simple reactions.
- By using Enzymes Catalyze Reaction, not only we can speed up the chemical reaction, but also lower our activation energy required, thus reducing our product cost.
- 生物柴油是以菜油、動物脂肪、煮食廢油等油脂通過不同的化學反應製備出來的可再生燃料。
- 透過使用酵素催化反應，我們不僅可以加速化學反應，還可以降低所需的活化能，從而降低我們的產品成本。

ASB PRODUCT

ASB 的產品



生物柴油 (B100)



EN14214

混合生物柴油 (B5-30)



硫最多含量 10ppm
Sulfur up to 10ppm

生物取暖油 Bio Heating Oil



硫最多含量 750 ppm
Sulfur up to 750 ppm

粗甘油 Crude Glycerine



甘油 最少含量 60%
Glycerine Min. 60%

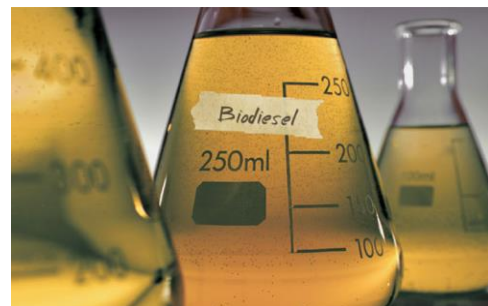
OUR LABORATORY

我們的化驗室



- 設立“質量保證”和“質量控制”的化驗系統。
- Implements "quality assurance" and "quality control" testing systems.
- 模擬整個生物柴油的生產線
- Simulates the full Biodiesel production line
- 確保生物柴油達到國際標準，即歐洲標準EN14214
- Ensures our Biodiesel meets international standards - European standard EN14214

ASB BIODIESEL USAGE 生物柴油的應用



70-95%
Diesel
柴油

5-30%
Biodiesel
生物柴油



100%
Biodiesel
生物柴油



B100 Genset
純生物柴油發電機



Marine fuel
海上燃油



Construction Site
工程設施



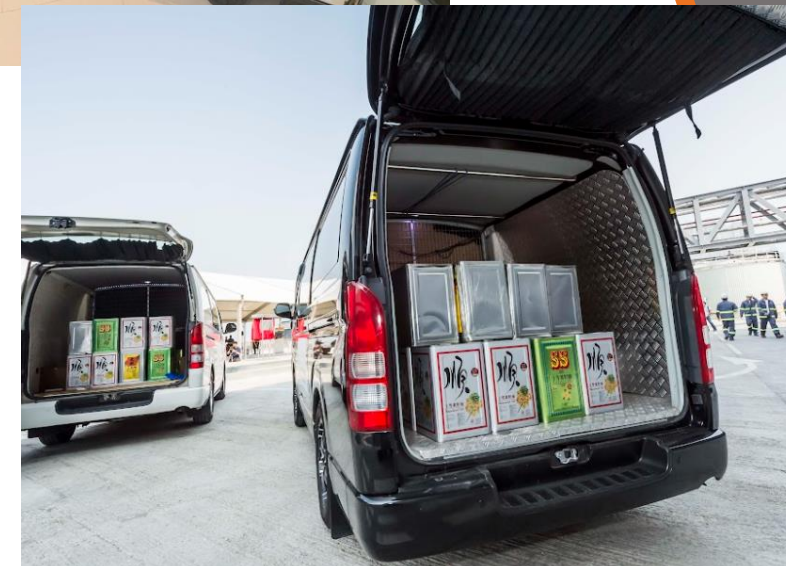
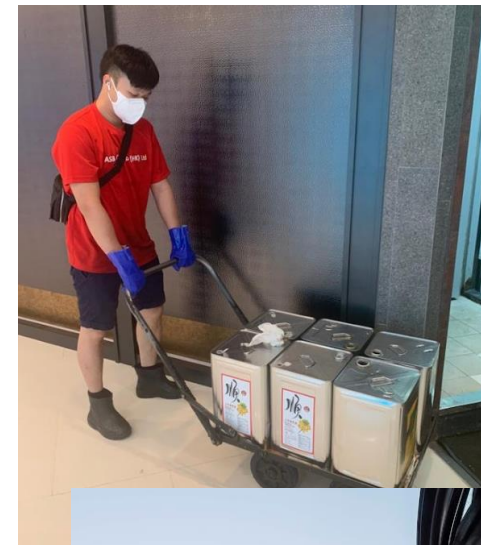
Diesel Engine
汽車柴油引擎



Used Cooking Oil Collection - Introduction

廢食油回收 - 簡介

- 成立了客戶服務部門專門去與廢食油供應商們進行溝通，並提供協助
- 每天分配了數輛收油車和派出最少8位工作人員外出收油
- 擴展了我們的服務覆蓋地點，除了香港九龍新界之外，離島也納入了我們的服務範圍，包括愉景灣，長洲，南丫島等等
- 超過1,000 個廢油收集點，佔了香港市場約 20%的廢食油
- ASB 生物柴油已登記為環境保護署授權的廢置食用油收集者
- Set up a CS Team to connect with our vendors.
- Invested several trucks with 8+ drivers for UCO Collection
- Expanded our operation area to Discovery Bay, Cheung Chau, Sha Tau Kok, and more!
- We've collected Used Cooking Oil from more than 5,000 outlets, which is estimated around 30% of the market share
- ASB Biodiesel is one of the EPD authorised Waste Cooking Oil Collectors



Used Cooking Oil Collection – EPD Certification 廢食油回收 - 環保署認證

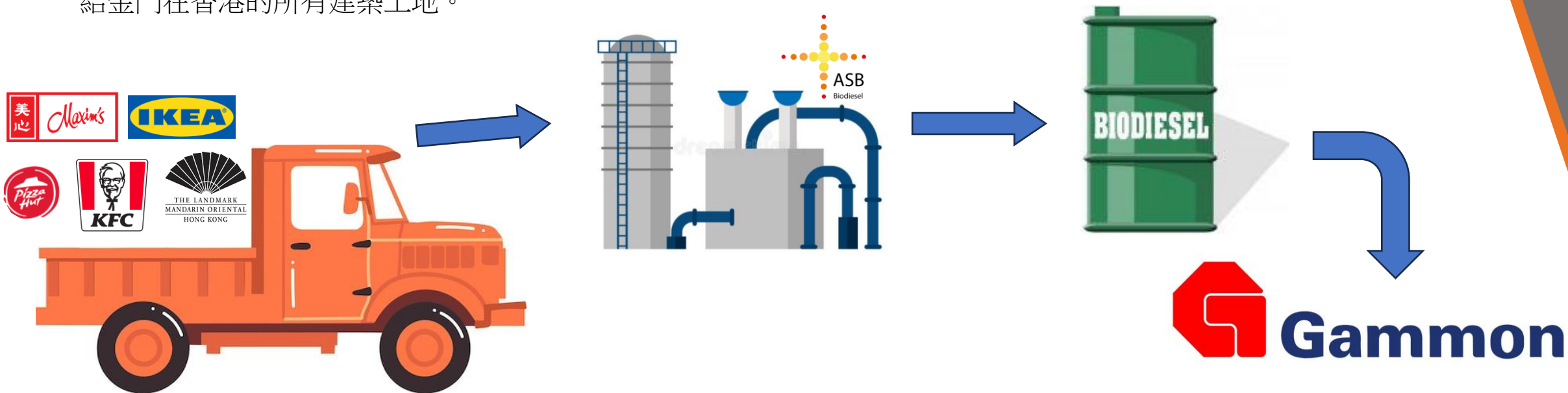
- ASB 生物柴油登記為環保署授權的廢食油收集商, 處理商, 和出口商
- ASB Biodiesel is EPD authorized UCO Collectors, Processors, and Exporter



Case Study – Circularity Project with Jardine

案例研究 – 怡和集團的循環項目

- In June 2023, Jardine selected ASB to play an important role in their Circularity Project. In which ASB will provide Used Cooking Oil collection service for all the F&B Group under Jardine’s management, including Maxim’s, KFCs, Pizza huts, MOHK, etc., we then use the waste oil to produce Biodiesel and supplying B5 to all the Gammon’s construction site in Hong Kong.
- 2023年6月，怡和集團選擇了ASB在其循環項目中飾演重要的角色。其中ASB將為怡和管理下的所有餐飲集團，包括美心、肯德基、必勝客、MOHK等提供廢食油收集服務，然後利用廢油生產生物柴油，並供應B5給金門在香港的所有建築工地。



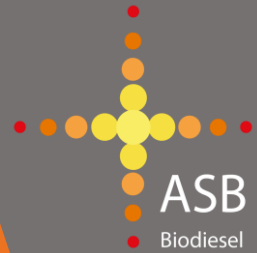
Case Study – Circularity Project with Jardine 案例研究 – 怡和集團的循環項目

- Since June 2023, we've already collected over 1,400MT of Used Cooking Oil from this circularity project and we produced and supplied more than 1,200MT of biodiesel to Gammon's construction sites, truly achieving "Turning Waste into Energy" internally.
- Moreover, all the empty tins we collected during our service will also be recycled by a third-party recycle company, minimizing any potential waste that might end up in landfills.
- 自2023年6月以來，我們已從這個循環項目中收集了超過1,400公噸的廢食油，並為金門的建築工地生產和供應了超過1,200公噸的生物柴油，真正實現了內部「變廢為能」。
- 此外，我們在服務期間收集的所有空罐也將由第三方回收公司回收，以最大限度地減少最終進入堆填區的潛在廢棄物。



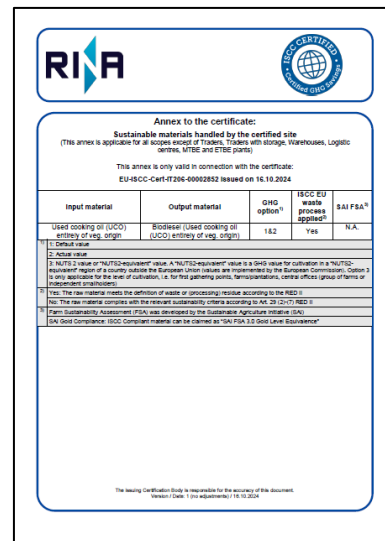
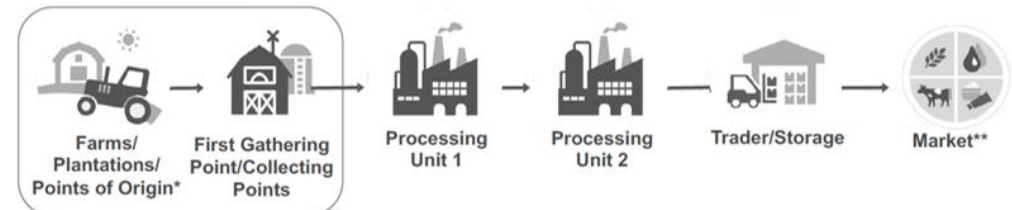
ASB BIODIESEL - SUSTAINABILITY CERTIFICATIONS

ASB生物柴油 - 可持續發展認證



Compliance with sustainability requirements specified in the Renewable Energy Directive (RED II) of the European Commission, the Fuel Quality Directive (FQD) and United States Environmental Protection Agency (EPA) for biodiesel made from UCO, Brown Grease and POME.

從各樣原料如廢食用、地溝油和棕櫚油軋機的廢水等收集以至到成品生物柴油的生產，都遵守歐盟委員會可再生能源指令(RED); 燃料質量指令(FQD); 美國環境保護局 (EPA) 對可持續性要求的法律規定。



BIODIESEL - A GREEN BIOFUEL

生物柴油 - 綠色能源

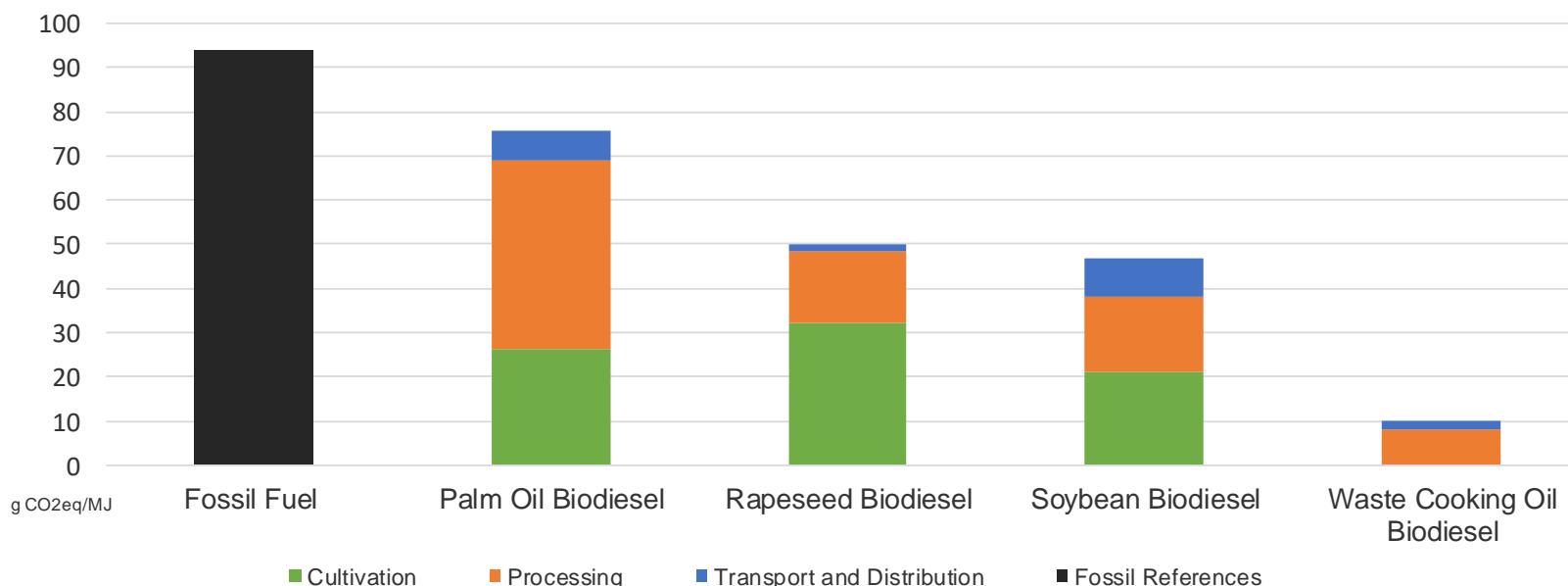


ASB's Biodiesel provides an 89.42% reduction in GHG emissions compared to fossil fuel

- 9.95 gCO_{2eq}/MJ total emissions from the biodiesel supply chain

**與化石燃料相比, 由ASB生產的生物柴油可減少 89.25% 溫室氣體排放量
-生物柴油供應鏈的總排放量為 9.95 gCO_{2eq}/MJ**

g CO₂ EQUIVALENT PER UNIT OF ENERGY (MJ)



*Source: EU Renewable Energy Directive (RED II), Annex V

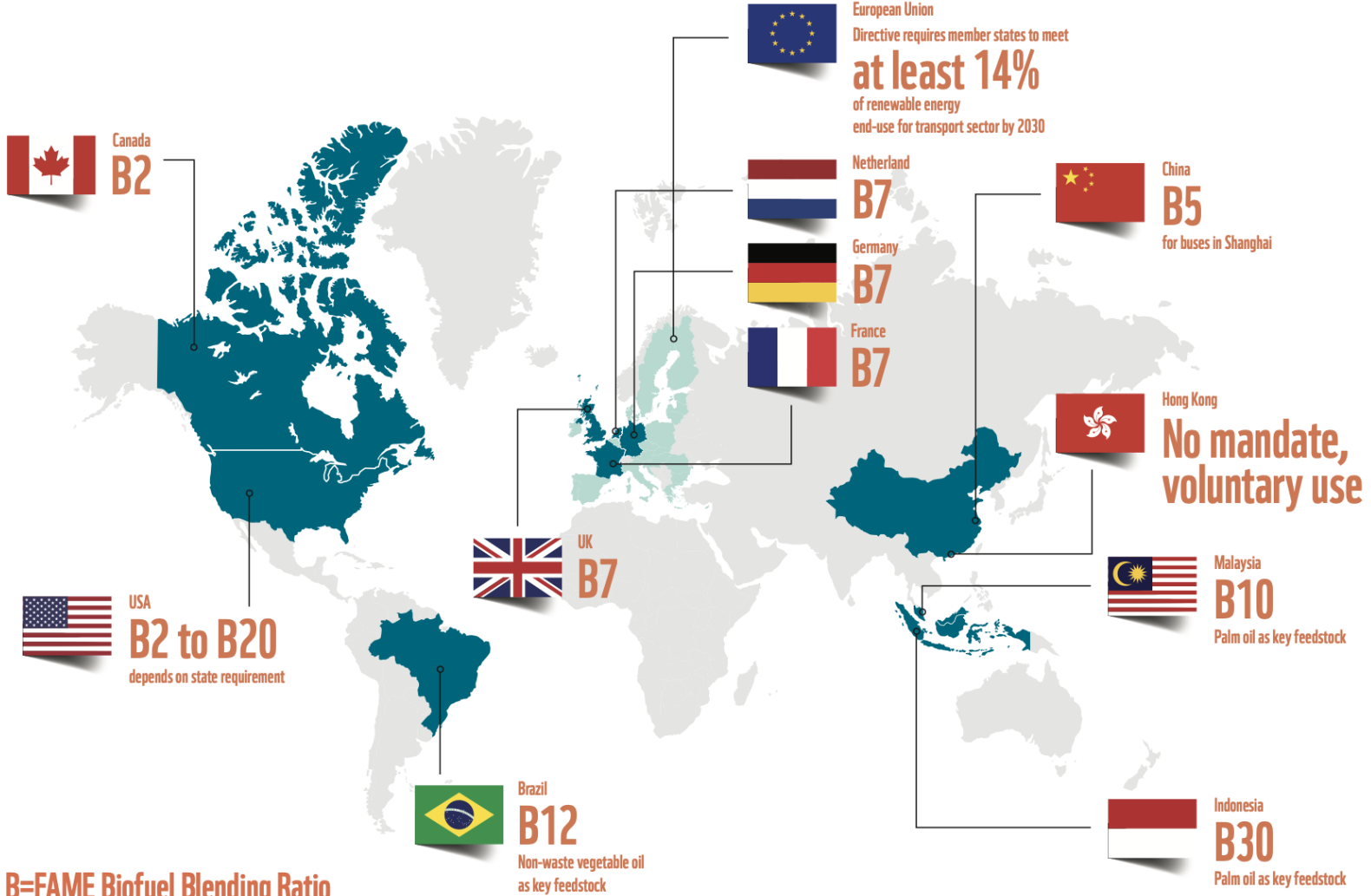
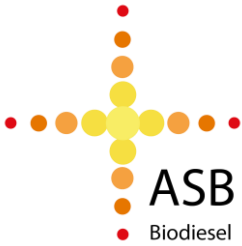
ASB Biodiesel's GHG emission in the supply chain

(Recognized by the European Commission - International Sustainability and Carbon Certification)

*Total emissions from the fossil fuel comparator 94 gCO_{2eq}/MJ *Not included the fuel in use

GLOBAL BIODIESEL MANDATE

生物柴油使用規定



B=FAME Biofuel Blending Ratio
 *Selected regions for demonstration purposes

SOURCE: WWF, 2021. BROADER APPLICATION OF BIOFUEL IN HONG KONG. AVAILABLE AT: https://www.epd.gov.hk/epd/sites/default/files/epd/english/environmentinhk/air/prob_solutions/files/Final_report_emain.pdf ACCESSED 3RD OCT 2022

Green Innovation, Turning Waste to Energy



Thank You