

BCG Economy Sustainability

Bioeconomy เศรษฐกิจชีวภาพ

Circular Economy เศรษฐกิจหมุนเวียน

Green Economy เศรษฐกิจสีเขียว





Welcome

CORE VALUE



G **GOAL ORIENTED**
มุ่งสู่เป้าหมาย และ
ความสำเร็จขององค์กร

K **KEEP INSPIRING TEAMWORK**
สรรค์สร้างแรงบันดาลใจ
ร่วมมือร่วมใจ
เพื่อองค์กร

B **BETTER FOR OUR PARTNER**
เป็นพันธมิตรที่ดีกับคู่ค้า

i **INITIATIVE AND PROACTIVE WORK**
กล้าคิดริเริ่ม กล้าทำ
สร้างสรรค์ผลงาน

I. GKBI Overview Phase I

II. Ethanol Product (Fuel Grade) & Quality Control

III. Our Valuable Customers

IV. GKBI Overview Phase II & BCG Model

V. Regulation for visitors

CORE VALUE



Established date
December 24th,
2018



บริษัท จีซี ไบโอบีโอมิกส์ จำกัด
GGC Biochemicals Company Limited





Green Industry

อุตสาหกรรมสีเขียว ระดับที่ 1 ความมุ่งมั่นสีเขียว (Green Commitment) ร.ง. ลำดับที่ 17, ลำดับที่ 88, ลำดับที่ 90

In-Process Certificate



May
2022



ISO 9001:2015

July
2022

MANUFACTURING OF ETHANOL 99.5% AND GENERATION OF ELECTRICAL AND STEAM FROM BIOMASS

2023

Next Certificate



ISCC
International Sustainability
& Carbon Certification



NBC - TISI - TIS 17025
CALIBRATION 0126
CALIBRATION 0305

ISO/IEC17025
Accredited Laboratory

Next
2024



Phase 1 Ethanol

CAPEX
7,500 MB



Crushing Mill
Cane Crushing Mill Capacity 24,000
Tons/Day



Ethanol Plant
Ethanol Plant Capacity 600,000 Liters/day
or 186 M Liters/year



Utility & Waste
Biomass Power Plant Capacity 85 MW
Steam Capacity 475 Tons/hr.



Phase 2 Biochemical / Bioplactic

CAPEX
1,430 MB



Utility Provider and Infrastructure
By Nakhonsawan Biocomplex Phase II



Chemical/ Materials
Bioplastic / Biochemical



Feed
Additive for animal farm food (amino acid) and yeast extract etc.



Food
Xylitol, sweetener, acidity, functional food, beverage and preservation agents etc.



Nutraceutical
Phytosterols Beta-Glucan, Policosanol etc.

PRODUCTS

Ethanol 99.5%



Utilities Providers



Electrical &
Steam



Nakhonsawan Biocomplex Phase I



Biomass Power Plant



Crushing Mill



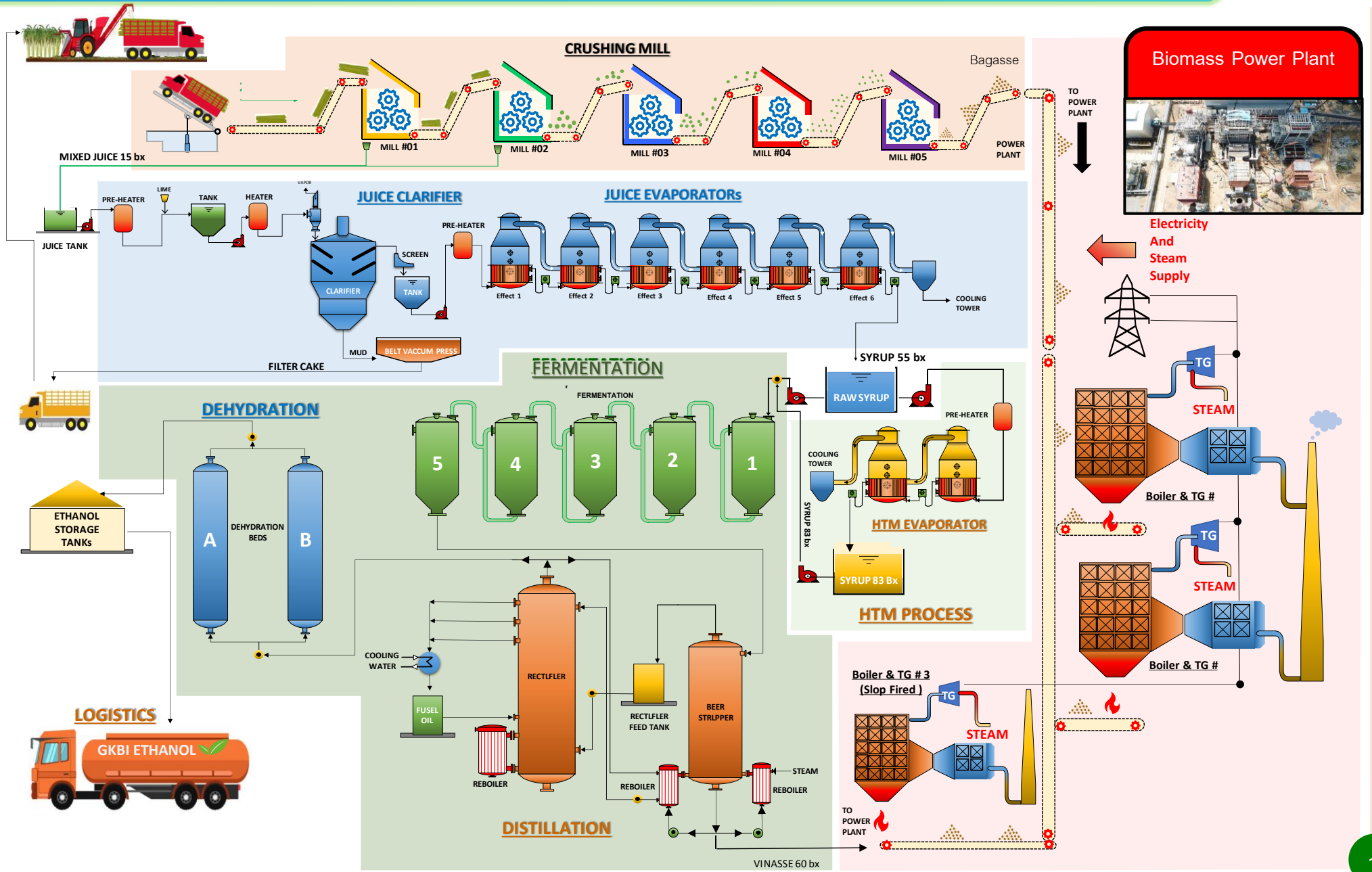
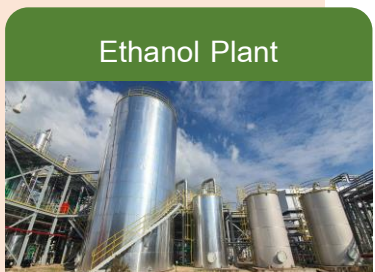
Evaporation



Ethanol Plant



Nakhonsawan Biocomplex Phase I : Process Flow Diagram



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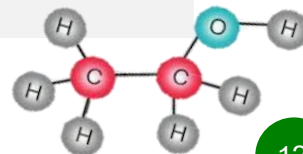
CORE VALUE



Specification of Ethanol 99.5 % (Fuel Grade)

PARAMETER	SPECIFICATION	UNIT	METHOD
Ethanol plus higher saturated alcohol	≥ 99.50	% vol	EC 2870 App II-B
Higher saturated (C ₃ -C ₅) mono alcohols	≤ 2.0000	% vol	ASTM D 5501-20
Methanol	≤ 0.5000	% vol	ASTM D 5501-20
Solvent Washed Gum *	≤ 5.0	mg/100 ml.	ASTM D 381-19
Water	≤ 0.30	% wt.	ASTM E 203-16
Inorganic chloride	≤ 20	mg/l	ASTM D 512-12
Copper *	≤ 0.07	mg/kg	ASTM D 1688-17
Acidity as acetic acid	≤ 30	mg/l	ASTM D 1613-17
pH	6.50 - 9.00	-	ASTM D 6423-20A
Electrical conductivity	≤ 500	mS/m	ASTM D 1125-14
Appearance	Bright and Clear	-	Visual
Additive	-	-	-

Remark : Refer to the industrial standard TIS 640 Volume 3-2553 summarized for use as information and the announcement of the energy business concerning the characteristics and quality of denatured ethanol B.E. 2548



Sampling Test :
Day tank Sampling



Analyst product
in Day Tank :
Lab test

Physical Sample Analysis :

Collect ethanol samples
on the vehicle physical
sample analysis.



Last Cargo :
Cleaning loading truck
before get in loading
station

Last Cargo :
Check loading truck
before loaded



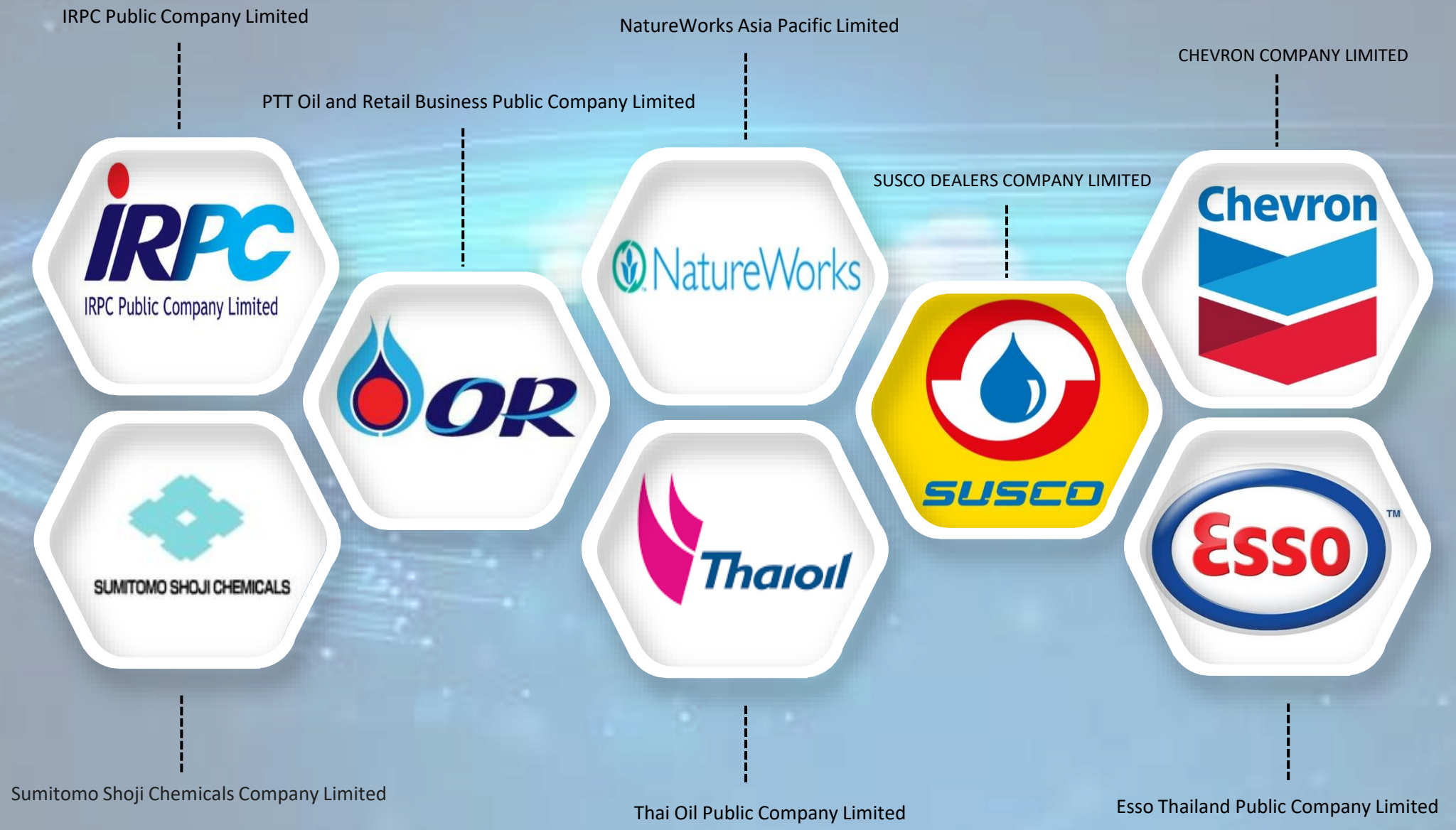
Last Cargo :
After ethanol loading .
Seal of the excise
department.

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Our Valuable Customers



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SUMMARY : OVERVIEW AREA



Nakhonsawan BioComplex (NBC), project is in line with the government's bioeconomy development project to promote Thailand to be a bio hub of Asia and to be the first bio hub in Thailand. The second phase construction of NBC project , a joint venture between GGC and KTIS, after NatureWorks LLC (NatureWorks), the US world-class bioplastic manufacturer, decided to invest in a Polylactic Acid (PLA) bioplastic manufacturing factory. GGC KTIS Bioindustrial Company Limited (GKBI), will be responsible for investment and preparation of PLA bioplastic manufacturing factory utilities, expecting to Commercial Launch Plan in April, 2024.



Utility for NBC2

NBC2



- Steam supply from NBC1, plus backup steam installed at NBC2



- Power transmission from NBC1, plus a backup from PEA

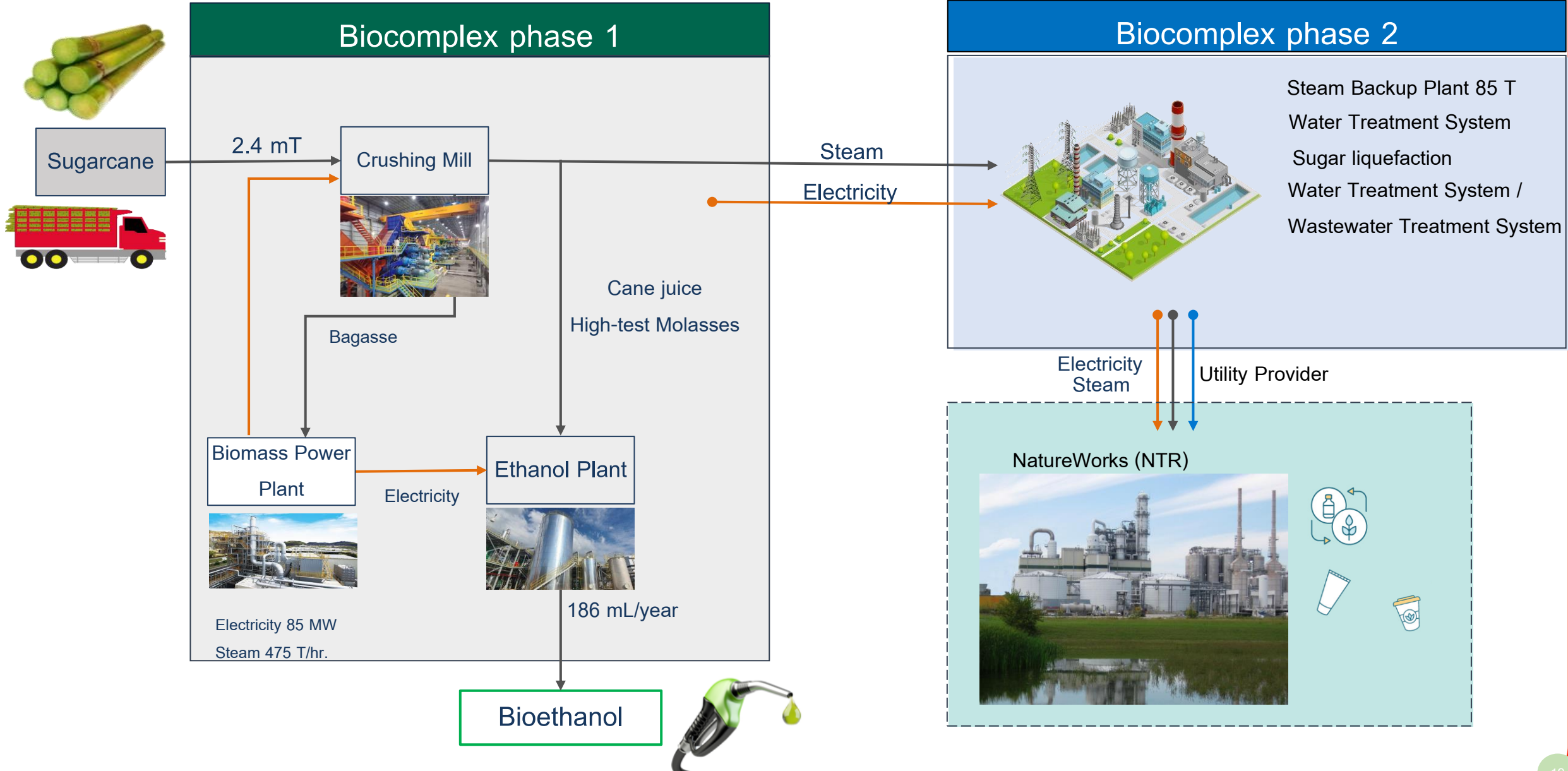


- Water Treatment System
- Wastewater Treatment System
- Water Demineralization System



- Sugar liquefaction

Nakhonsawan Biocomplex Business Plan



Bio Plastic product in Thailand



Polylactic acid (PLA)



Bio cold cup
Bio yoghurt cup
Bio straw



Bio tray



Bio nonwoven (Underdevelopment)



PLA meltblown for face mask filtration



Polybutylene succinate (PBS)



Bio hot cup
Bio Paper tray
Bio straw



Bio nonwoven



Café Amazon uses BioPBS for paper cup lamination. After consumers enjoy their cups of cappuccino, it is within 180 days that the cups...



COMPOSTABLE SPUNBOND BAG

Compostable spunbond bag is soft touch made from 100% BioPBS which is partially bio-based and 100% compostable to be H₂O, CO₂, and soil nutrient.





B Bio Economy **C** Circular Economy **G** Green Economy **GKBi**

B

Modern Farm



Bioethanol



Biocomplex



Biochemicals/ Bioplastics



C

Filter cake as fertilizer



Fly Ash as Concrete Block



G

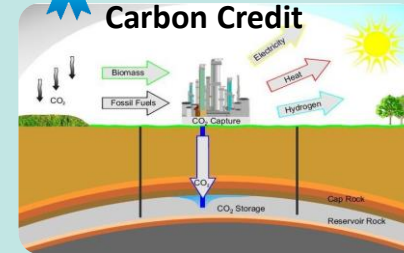
Biomass Power Plant



Biofuel



Carbon Capture/ Carbon Credit



CO₂



Actually incurred.

Has the potential and is in the process of studying the value.

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- Smoking is allow only in designated area only, elsewhere is totally prohibited.



- Mobile phone / electronic devices is not allowed. No touching and photo in processing area and loading station.



- Safety brief and PPE are mandatory in designated area. Return safety helmet, while leaving site tour or factory.



- Safety shoes are mandatory in all production sites, and on-going construction sites.



- Walk on designated path and do not touch machine especially moving parts



- In emergency response, all personal, visitor, contractors shall evacuate and assemble by following exit sign. Do not leave till clean sign is given.



Regulation for Visitors



Contact : Kordchakorn Junmoontree

E-mail : kordchakorn.j@gkbi.co.th



Thank you