

# Wangchan Valley Aspiration

**Mr. Surachai Laophulsuk**

*Executive Vice President,  
EECi Project Director, EECi Project  
PTT Public company Limited*





## Mr. Surachai Laophulsuk

- *Executive Vice President,*
- *EECi Project Director, EECi Project*
- *PTT Public company Limited*

### Education

- M.Eng, Civil Engineering, Lamar University, USA
- B.Eng., Water Resources Engineering, Kasetsart University

### Experience

- Executive Vice President, EECi Project,
- Vice President, Engineering and Construction Management, EECi Project
- Project Director of Transmission Pipeline Project

### Certification

- Advance Management Program#3 PTT, Class 1
- Young Leadership in Democratic Governance, King Prachadhipok's Institute, Class 1
- Senior Executive Relationship Development, Royal Thai Army, Class 26
- Directors Certification Program (DCP), Class 319/2022
- Role of Chairman Program (RCP) Class 52/2022



# AGENDA

- Overall Information
- Wangchan Valley Smart City
- Decarbonization Initiatives

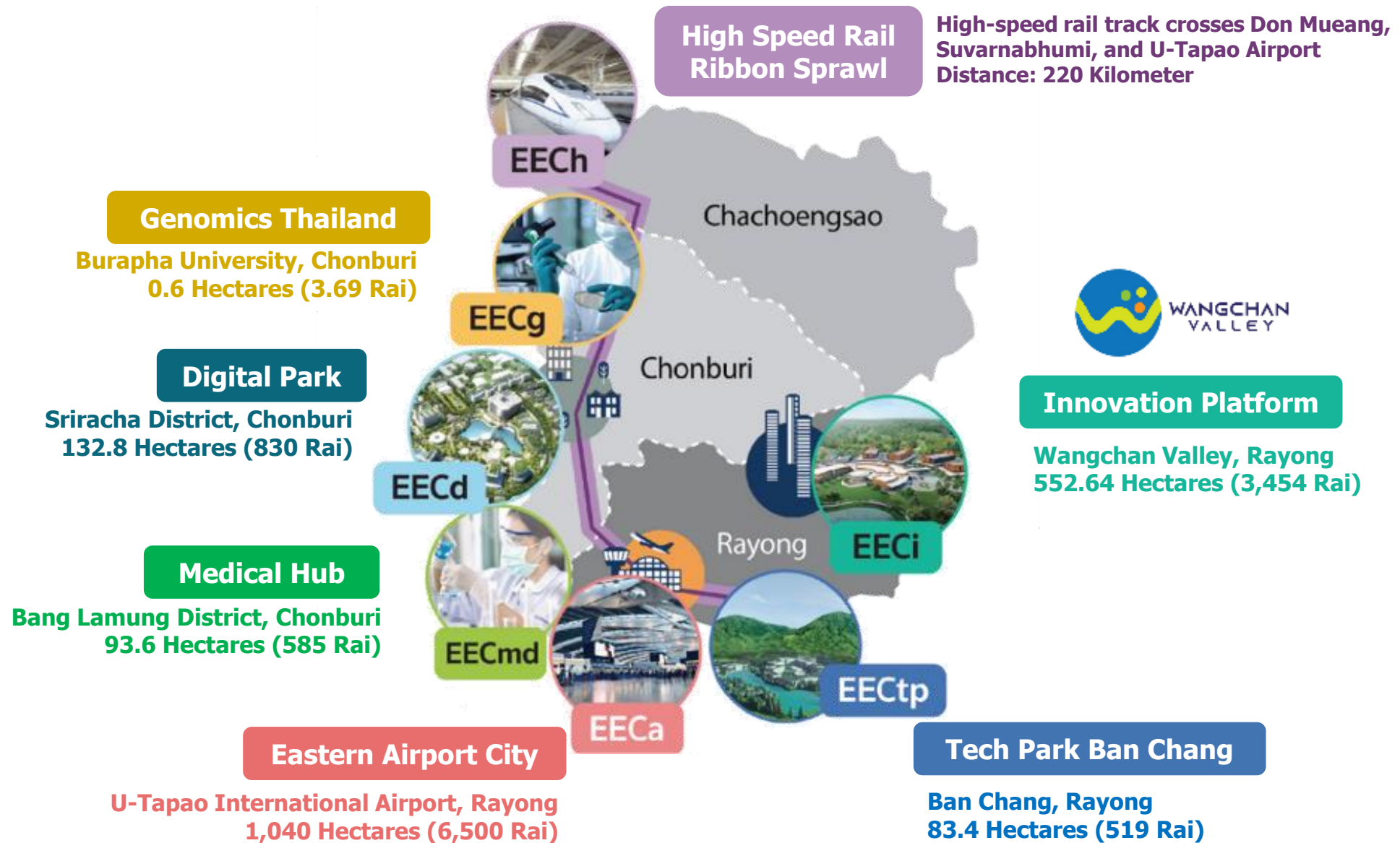


# 01. Overall Information





# EEC : Promoted Zone for Specific Industries





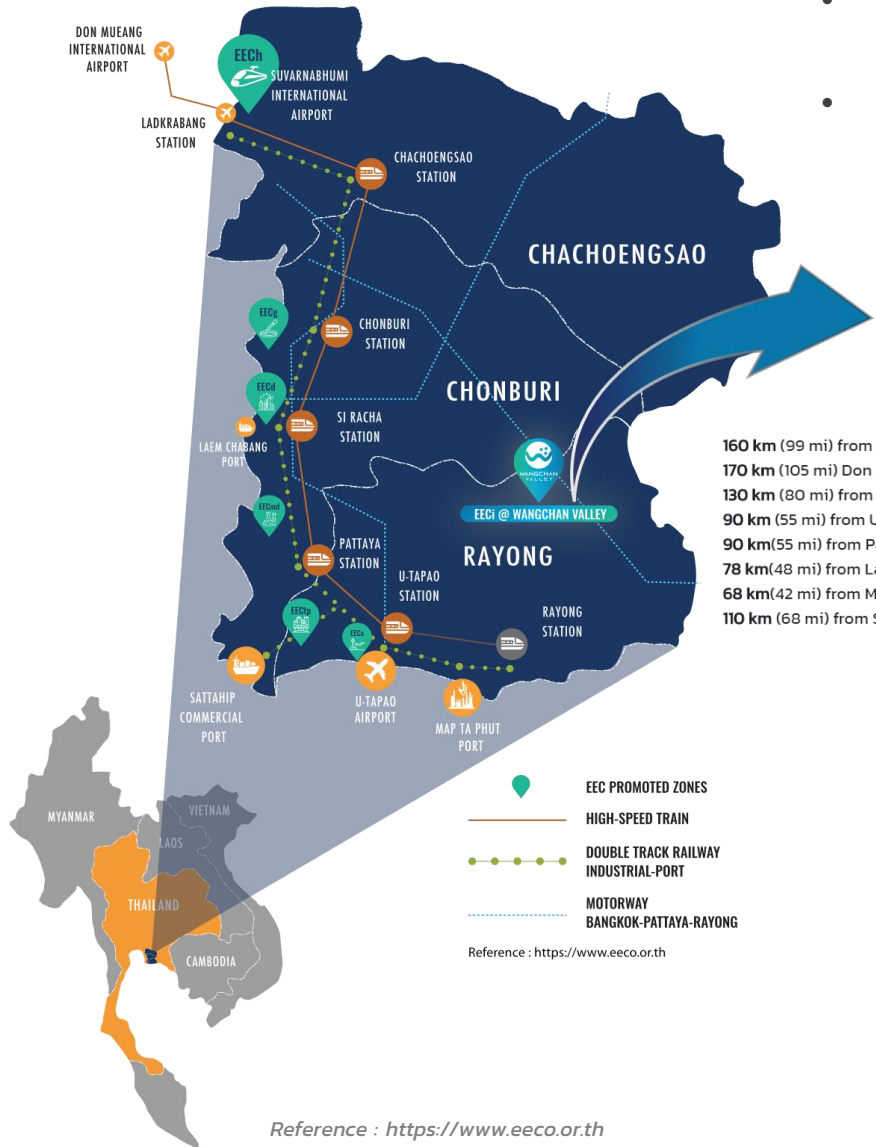
# 02.

## Wangchan Valley Smart City



# Wangchan Valley : Smart City for Innovation Development

- Wangchan Valley is promoted to be based location of **“Eastern Economic Corridor of Innovation – EECi”**.
- In accordance with **Thailand 4.0 policy**, the area is developed under **smart city** concept.



- 160 km (99 mi) from Bangkok
- 170 km (105 mi) Don Mueang Airport
- 130 km (80 mi) from Suvarnabhumi Airport
- 90 km (55 mi) from U-tapao Airport
- 90 km(55 mi) from Pattaya
- 78 km(48 mi) from Laem Chabang Seaport
- 68 km(42 mi) from Map Ta Phut Port
- 110 km (68 mi) from Sattahip Port



EECi



Smart City

- ▶ Located on Highway No.344
- ▶ Distance of 160 km. from Bangkok
- ▶ Total project area = 3,454 Rai (553 Hectares)



# Wangchan Valley : Smart City for Innovation Development



## EECi Research Platforms

Synchrotron 3GeV Facility

- EECi BIO POLIS**
  - Innovative Agriculture
  - Chemical & Bioprocess Technology
  - Functional Ingredient
- FoodInnopolis**
  - Automation & Internet of Food
- EECi ARI POLIS**
  - Sensing Innovation
  - Computing Innovation
  - Manufacturing & Service Innovation
  - Cyber-Physical System Integration
- EECi SPACE INNOPOLIS**
  - High Altitude / UAV Platform (focus on Manufacturing)
  - Location Based Technology (GNSS) (focus on Service)



- Modern Agriculture & Advanced Biotechnology
- Bio-Fuels & Bio-Chemical
- High Performance Battery & Modern Transport
- Automation, Robotics & Smart Electronics
- Aviation & Aerospace
- Medical Device



Laboratory Development

Pilot Plant, Testbed, Sandbox, Tech Demonstration & Localization, Techno-Economic FS

Industrial Applications

## EECi Targeted Industries

➤ Under process of permission request for expanding the scope of land use to enable industrial and commercial operations

\*TRL= Technology Readiness Level



# Wangchan Valley : Overall Research Infrastructures



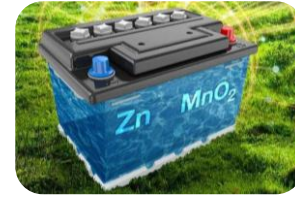
**Biorefinery  
Pilot Plants**

Start Operation 2025



**Sustainable Manufacturing  
Center (SMC)**

Start Operation 2023



**Alternative Battery  
Pilot Plant**

Start Operation 2025



**Phenomics &  
Plant Factory**

Start Operation 2025

EECI | BIO  
POLIS  
Biotechnology Platform



EECI | ARI  
POLIS  
Automation, Robotics and  
Intelligent Electronics Platform



**CAV Proving  
Ground\***

Start Operation 2024



**Smart Farming  
Demo Sites**

Start Operation 2022

F | Innopolis  
an anchor of EECI  
Food Innovation Platform

EECI | SPACE  
INNOPOLIS  
Aviation and Aerospace Technology Platform



**UAV Sandbox\*\***

Start Operation 2021



**Modern Aquaculture  
Facility**

(in planning stage)



**3-GeV Synchrotron  
Facility\*\*\***

Start Operation 2034

SYNCHROTRON  
THAILAND  
CENTRAL LAB

\* by Dept. of Science Service  
\*\* by PTT & PTTEP  
\*\*\* by SLRI

# Wangchan Valley : Innovation Ecosystem



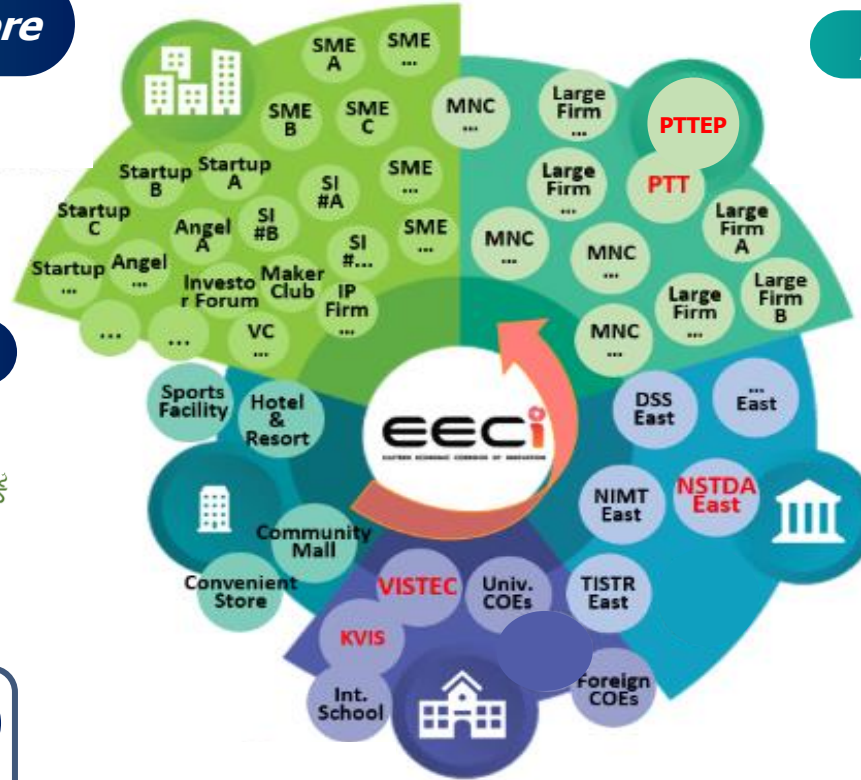
## Startup, SME, SI, Angel, VC & more



## Smart Township



## Key Infrastructure Providers



## School & University



## Large Firms & MNCs



## Research Institutes & Regulators



### NOTE :

- SI = System Integrator
- Angel = Angel Investor
- VC = Venture Capital
- MNC = Multi-National Company



# Wangchan Valley : Development Timeline









# Wangchan Valley :

## Smart City Concept

### Key Design Principles for Infrastructure and Utility Systems

- Smart City + Natural Innovation Park
- Respond to customer needs and insights
- Infrastructure and Utilities must be readily expandable and serve the continued growth of the city for the next 10 years
- Develop City Data Platform for city master plan and future demand forecast
- All controls and operating systems are centralized in Intelligent Operation Center (IOC)



# Wangchan Valley : Smart City Development



- MOU PTT-depa on 1 March 2021 for promote and support for Smart City Development
- Get approval for Smart City Certificate in all 7 categories since August 2021
- Under development of smart systems in the area
- The Leader of Smart City Development in Thailand Smart City Competitiveness Index 2021
- 1<sup>st</sup> Rank of Smart City Development (City-based) in Thailand Smart City Competitiveness Index 2023

SMART ENVIRONMENT	SMART ENERGY	SMART MOBILITY	SMART ECONOMY	SMART GOVERNANCE	SMART LIVING	SMART PEOPLE
<p>Environmental City Database</p> <p>Smart Waste Management System</p> <p>Organic Waste Management</p> <p>Trash Housing</p>	<p>Microgrid</p> <p>Solar Farm (0.5 MW)</p> <p>Smart Meter</p> <p>EV Charging Station</p>	<p>Smart Bus Stop</p> <p>Smart Parking</p> <p>EV Bus Service</p> <p>EV Car</p>	<p>5G</p> <p>Indoor WiFi-6</p> <p>Innovation Center</p>	<p>EEC-OSS</p> <p>Operation Management System</p> <p>O&amp;M SOP/ WI / Forms</p> <p>Standard Handbook &amp; City Manual</p> <p>Hotline &amp; Call Center</p>	<p>Smart Securities</p> <p>Smart Clinic</p>	<p>e-Library</p> <p>e-Learning</p>



# “วังจันทร์วัลเลย์”

ได้รับการจัดอันดับเมืองอัจฉริยะตามพื้นที่ (City-based) ในการประเมินดัชนีเมืองอัจฉริยะประเทศไทย ประจำปี 2566

**อันดับ 1**

สำนักงานเมืองอัจฉริยะประเทศไทย ภายใต้การกำกับดูแลของ สำนักงานส่งเสริมเศรษฐกิจดิจิทัล หรือ depa ได้แถลงรายงานดัชนีชี้วัดความสามารถในการแข่งขันเมืองอัจฉริยะประเทศไทย ประจำปี 2566 (Thailand Smart City Competitiveness Index 2023) จาก 30 เมืองอัจฉริยะใน 23 จังหวัด โดยผ่านการพิจารณาจาก 5 องค์ประกอบของแผนพัฒนาเมืองอัจฉริยะ ได้แก่ การกำหนดวิสัยทัศน์ เป้าหมาย วัตถุประสงค์และลักษณะของเมืองอัจฉริยะ การพัฒนาโครงสร้างพื้นฐานทั้งทางกายภาพและดิจิทัล การพัฒนาระบบข้อมูลและความปลอดภัย การบริการระบบเมืองอัจฉริยะ 7 ด้าน และการระบุแนวทางการลงทุนและการบริหารจัดการอย่างยั่งยืน ซึ่ง **เมืองอัจฉริยะวังจันทร์วัลเลย์** ได้รับคะแนนชี้วัดความสามารถในการแข่งขันสูงที่สุดในการจัดอันดับเมืองอัจฉริยะตามพื้นที่ (City-based)

ทั้งนี้ ภายใต้ศักยภาพของพื้นที่และความร่วมมือจากพันธมิตรในทุกภาคส่วน จะเป็นฟันเฟืองสำคัญในการช่วยยกระดับการพัฒนาด้านวิทยาศาสตร์และเทคโนโลยีของไทยให้ทัดเทียมสากล และก้าวสู่การเป็นศูนย์กลางนวัตกรรมในระดับภูมิภาคได้ในอนาคตต่อไป

## ผลการจัดอันดับ 30 เมืองอัจฉริยะประเทศไทย 2566 (City-based)





# Wangchan Valley : Regulatory Sandbox



## UAV Sandbox

- UAV Testing Field
- UAV Training Center
- UAV Maintenance / Repair Center
- UAV Traffic Management System
- Factory Acceptance Testing Field
- International Drone Competition



## CAV Sandbox

- CAV Proving Ground : Closed Area
- CAV Proving Ground : Semi-Public Road
- CAV Physical & Digital Infrastructures
- HD 3D MAP (Main Road) & RTK



## NBTC Sandbox

- Special Frequency for Innovation and Technology Testing
- Frequency Interference Monitoring



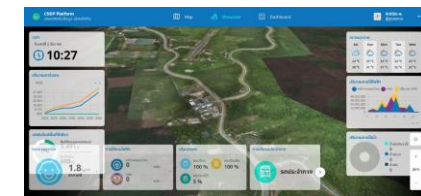
## ERC Sandbox

- Collaborated with PEA for Pilot project : Energy Management
- Energy Trading Platform Demonstration



## City Data Platform

- Go-Live Smart Environment & Smart Energy
- CDP Master Plan & Framework





# Why Wangchan Valley?

## Incentives & Privileges



Exemption of corporate income tax (CIT) for **up to 13 years\***

\* EEC is under consideration to extend CIT exemption period to be **up to 15 years**



Exemption of **import duty** on machinery and raw materials



Smart Visa for Professionals and Families



**17% of personal income tax** which is the lowest rate in Asia  
*for foreign executives / experts working for Regional Headquarter or International trading companies, treasury centers along with regional R&D centers*



**Regulatory Sandbox** for Innovation



**One Stop Service** to facilitate investors



# Why Wangchan Valley?



## Exemption of Corporate Income Tax (CIT)

*(Total CIT exemption period must not exceed 13 years)*

### Standard Tax Package



**Targeted Activities  
(All Area)**

### Additional Tax Incentive



**Human Resource  
Development Program  
(EEC)**



**Promotional Zones  
(EECi, EECa, EECd, EECmd)**

<p><b>A1+</b> Covers upstream industries utilizing advance technology and innovation, and targeted technology development activities</p> <p><b>10-13 Years (No Cap)</b></p>	<p><b>2 Years (No Cap)</b> <i>Attend professional training at least 10% of all staff in the project or not less than 40 people.</i></p> <p><b>3 Years (50% Reduction of CIT)</b> <i>Attend professional training at least 10% of all staff in the project or not less than 40 people.</i></p>	<p><b>1 Year (No Cap)</b></p> <p><b>2 Years (50% Reduction of CIT)</b></p>
<p><b>A1</b> Knowledge Based Activities focusing on R&amp;D</p> <p><b>8 Years (No Cap)</b></p>		
<p><b>A2</b> Infrastructure activities for the country's development</p> <p><b>8 Years</b></p>		
<p><b>A3</b> High technology activities which are important to the development of the country</p> <p><b>3-5 Years</b></p>		
<p><b>A4</b> Activities with lower technology than A1-A3 but which add value to domestic resources and strengthen the supply chain</p> <p><b>3-5 Years</b></p>		

Reference : [www.boi.go.th](http://www.boi.go.th) / [www.eeco.or.th](http://www.eeco.or.th)

**Remarks :**

**A1+ :** Covers upstream industries utilizing advance technology and innovation, and targeted technology development activities (biotechnology, nanotechnology, advanced material technology), with technology transfer in collaboration with academic/ research institutes.

**A1 :** Based Activities focusing on R&D and design to enhance the country's competitiveness

**A2 :** Infrastructure activities for the country's development, activities using advanced technology to create value added, with no or very few existing investment in Thailand

**A3 :** High technology activities which are important to the development of the country, with a few investments already existing in Thailand

# 03.

## Decarbonization Initiatives



# PTT moving forward to achieve "Net Zero Emissions"



## 3P Decarbonization Pathways

### Pursuit of Lower Emissions

Link with Clean Growth target to reduce as much greenhouse gas as possible



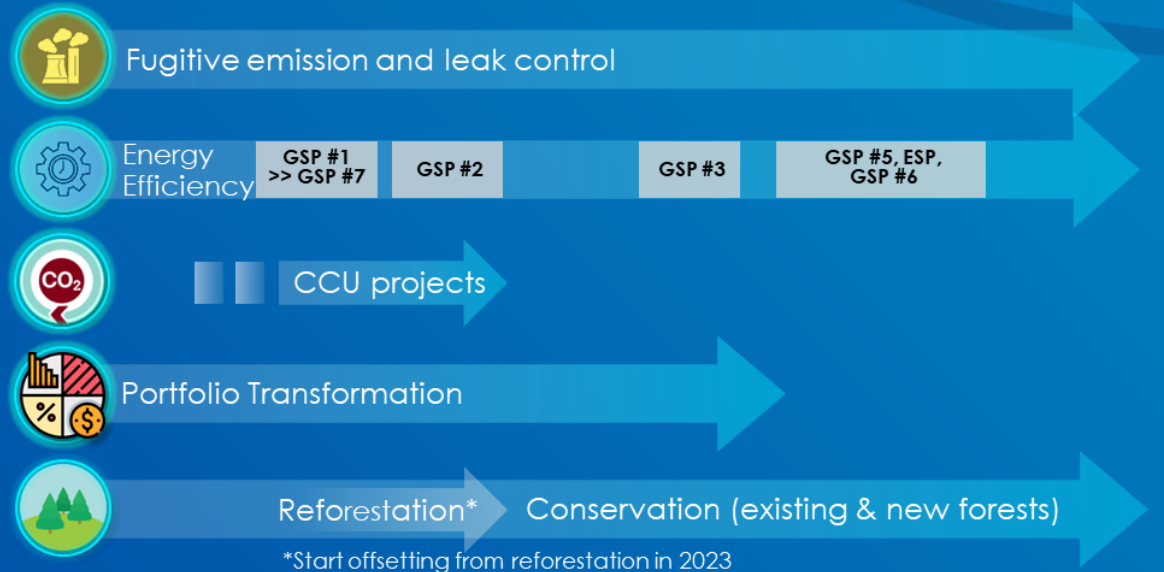
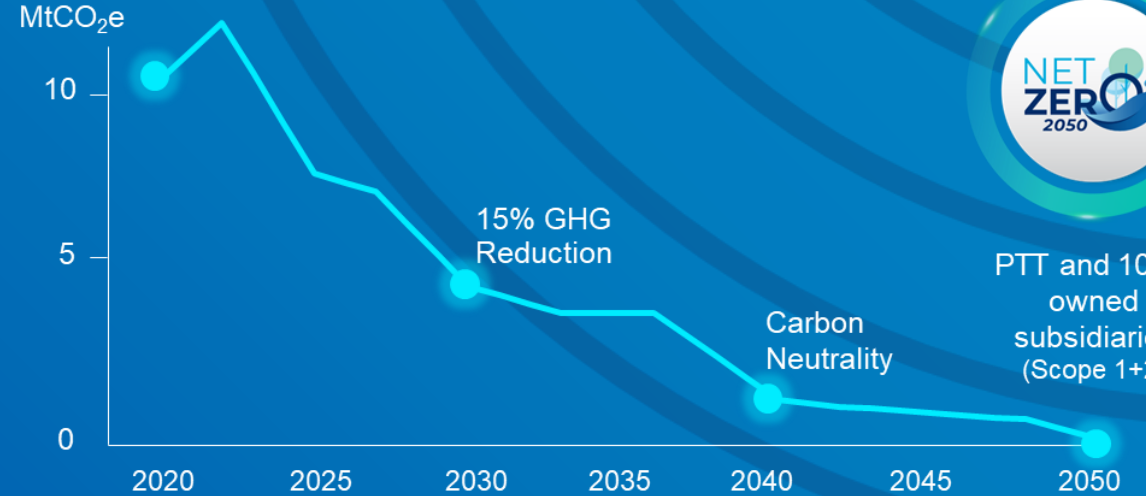
### Portfolio Transformation

Build growth from future energy business, with the increase in green portfolio and hydrocarbon portfolio management



### Partnership with Nature & Society

Increase volume of absorption and storage of carbon dioxide by nature-based solutions, through reforestation, forest protection, and increasing green area

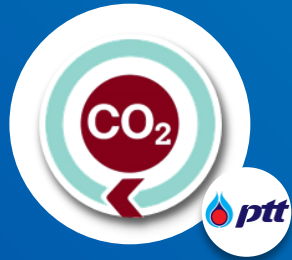




# PTT Group decarbonization initiatives



CCS



CCU

- Select potential Projects for CO<sub>2</sub> utilization**
- Sodium Bicarbonate
  - Animal Protein
  - Methanol
  - Nano Calcium Carbonate
  - Polyketone



Renewable Energy

- Install solar/wind power generators in the building and in/near the operation areas



Hydrogen

- H<sub>2</sub> Turbine & Burner
- Fuel cell electric vehicle (FCEV)
- H<sub>2</sub>/NG blending
- Hydrogen White Paper Activity (Q4 2023)



Reforestation

- Planting additional **2 million rai** of forests and mangroves by 2030, and continuously implementing conservation plans

# Current Activity in Wangchan Valley

□ GHG Inventory has been listed from current activities in Wangchan Valley under work scope following Global Protocol for Community-Scale Greenhouse Gas Inventories (GPC), which is used to control all activities from all parties in the project area.



# GHG emissions from Wangchan Valley

- ❑ GHG Inventory from activities in Wangchan Valley comprises of GHG emissions from 3 groups of activity.
- ❑ In 2022, total GHG emission from Wangchan Valley was 6,098 tCO<sub>2</sub>e.



**Stationary Combustion**  
(Electricity, Direct Combustion)  
6,043 tCO<sub>2</sub>e



**Transportation**  
51 tCO<sub>2</sub>e



**Waste & Wastewater**  
4 tCO<sub>2</sub>e





# Thank you!

## Contact Us



Brochure



Website



Location

