



IRPC'S DUAL CHALLENGES

**SET Awards
Sustainability Excellence**

Mr. Kris Imsang

President and Chief Executive Officer

14 September 2023

Content

Framing the Challenges and Strategic Framework

Subsidiary Management

Decarbonization Pathways

Creating Social Value through Corporate Innovation

Impact from Negative Economic Outlook

Sluggish consumption reduces profitability, while hike in interest rate increases cost of fund



Disruption from Climate Change

Declining demand for fossil fuel, coupled with environmental regulations that mandate carbon reduction and green products



Survive

Implement performance uplift and cost saving projects for Core Business



Strive

Harvest quick-win investments and pivot into mineral processing



Thrive

Execute more aggressive investment for growth along market recovery



Prolong: Core Uplift

Operational Excellence

Improve cost competitiveness to maximize profits and prolong cash generation period

Cost Savings

Reduce cost via energy, utility and OPEX spending

Feed Flexibility & Optimization

Increase flexibility of feed intake, and seek alternative sources

Digital Twin

Digital replicas of physical assets to enhance optimization and reliability

Ultra-clean Fuel for Euro V

Product on spec – Dec 2023
COD – Mar 2024



Commercial Excellence

Shift portfolio to high-value products by increasing specialty to **52% in 2026** and **60% in 2030**

Ultra-high molecular weight PE and **Acetylene Carbon Black** for battery components

Develop **PP** for **medical and hygiene** products

Explore **compounding** to upgrade value in electrical appliances

Penetrate pipe market with **PP random copolymer** and trenchless-installation pipe with **PE100RC**



Ignite: Material & Energy Solutions

Vision: To Shape **Material and Energy Solutions**
in Harmony with Life

Focused Areas:



**Health &
Life Science**



**Advance
Materials**



**Green &
Circular**



**Future
Energy**



**Assets &
Services**

**Projects in
Pipeline:**

- Filtration Solutions (ABI: Advance Business Integration within PTT Group)

- Recycling Business
- Carbon Capture, Utilization, and Storage (CCUS)

- Utilization of Land and Assets (e.g. hospital and marine port)

- Carbon Black and Activated Carbon for Anode
- Lithium and Nickel for Cathode

- Solar, Floating Solar, and Wind energy

* Investment decision pending on financial performance

Sustainability in Actions: 3C

Climite Change

Target:

- GHG emissions -20% by 2030
- Carbon Neutrality by 2050
- **Net Zero by 2060**

Actions (ERA):

Eco-Operation & Technology

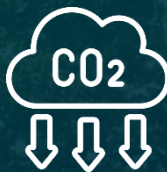
- Energy efficiency
- Blue / Green Hydrogen
- Renewable energy

Reshape Portfolio

- Low-carbon products

Absorption & Offset

- Forestation
- CCUS (Carbon Capture, Utilization, and Storage)



Circular Economy

- Recycle Plastic
- Waste to Energy



Creating Shared Value

- Uplift sustainable value to stakeholder



People



People Readiness

- Talent pool (management, expert, young leader)
- Succession management for business continuity

New Business Acceleration

- Special team to scale up innovation business

Organization Reform

- New Performance Management System (PMS)
- Workforce optimization to enhance competitiveness

Core Value for Future Growth

- Cultural change with G3 behavior (Good, Great, Growth)

Digital



Fully Automated Process

- Improve productivity and substitute retiring employees

Data Driven Organization

- AI Adoption in manufacturing
- Digital Twin to boost reliability and optimization

Cyber Security

- Zero Trust Framework for utmost security

Opportunity for New Business

- Utilize in-house expertise to create digital solution business through partnerships

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Subsidiary & Investment Management Aspiration

Aspiration

To be IRPC's **Arm length** for **mutually uplift** and **synergy value** through **Material** and **Energy Solutions**

Strategic objective



Strategy

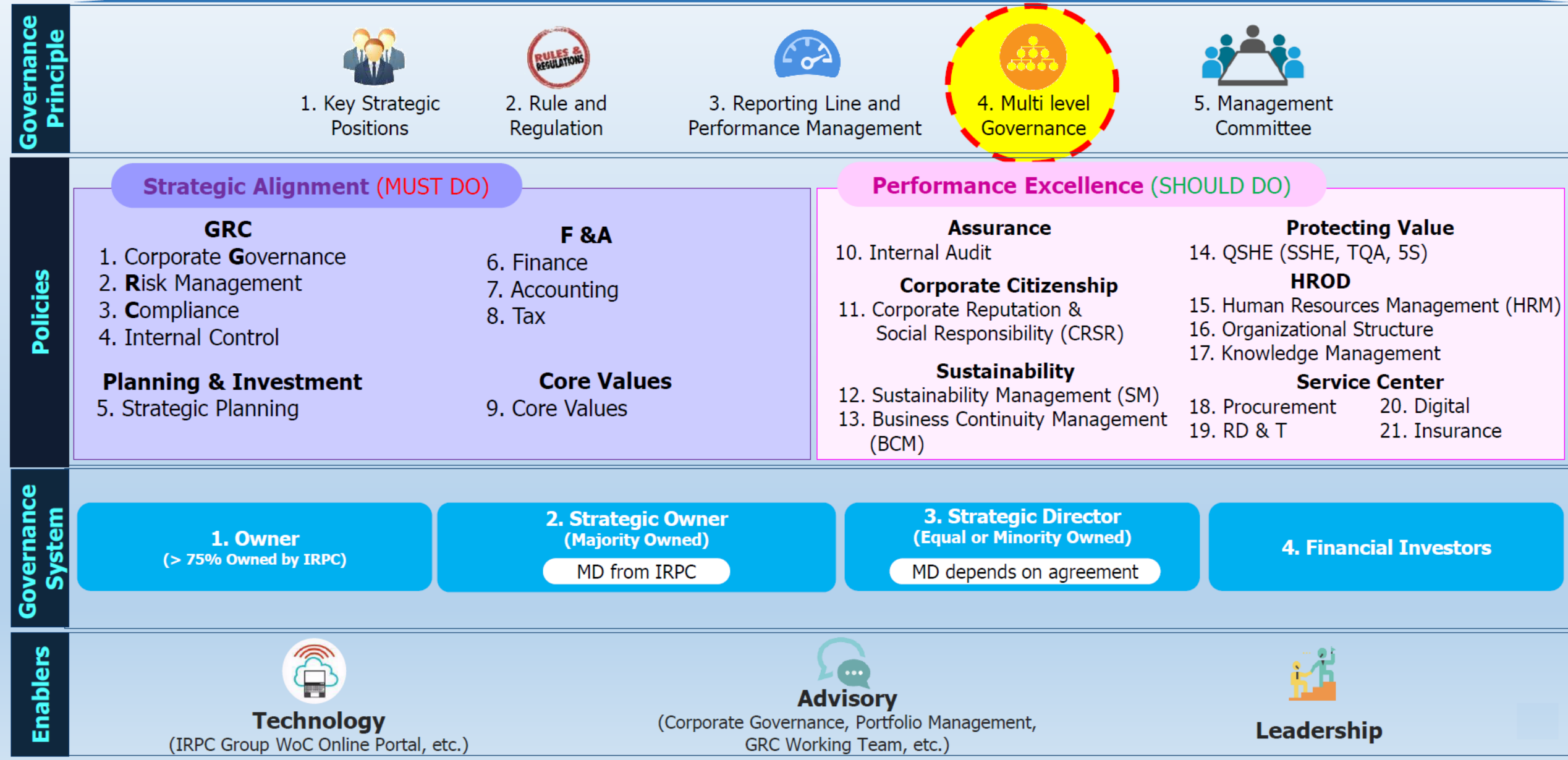
Ensure consistent and reliable of existing benefit to IRPC

Seek synergized and mutual IRPC-Subsidiary's benefit

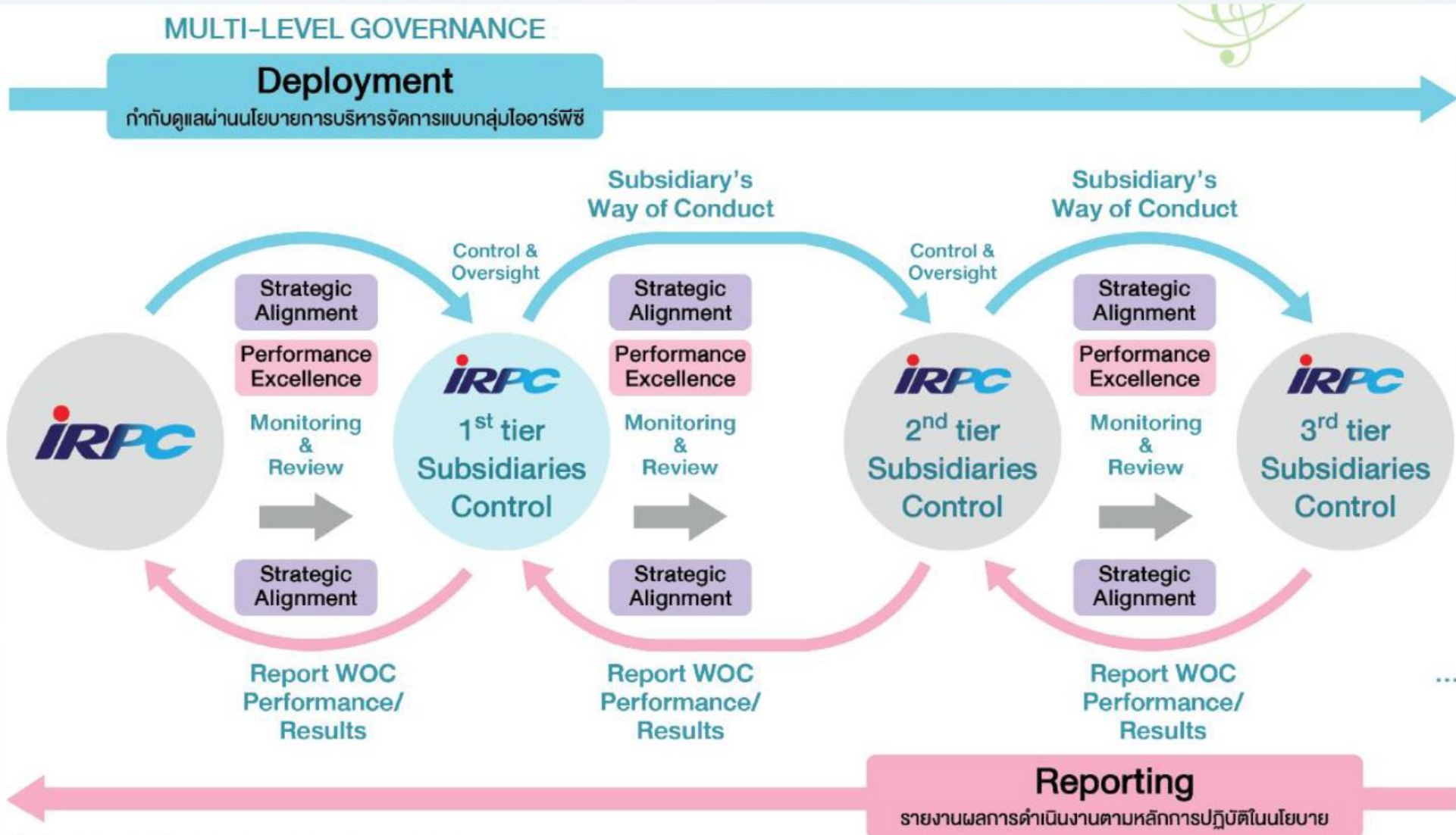
Establish balanced Governance and Compliance process

IRPC Group Way of Conduct

IRPC Group Strategy



Governance Principle



- เงื่อนไขการพิจารณาวิธีการ Deploy IRPC Group Way Conduct:
1. อำนาจในการควบคุมผ่านสัดส่วนการถือหุ้นโดยตรง (Control)
 2. ผู้บริหารที่ดำรงตำแหน่ง MD/CEO จากบริษัทผู้ถือหุ้น (Oversight)
 3. ข้อตกลงในสัญญา

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Climax change management

NET Zero by 2060



Support **low carbon society** and sustainable roadmap to net zero



Circular Economy

Waste utilization & turning into value



Create Living + for all stakeholders through **waste minimization and Eco solution** business and services



Creating Shared Value

+20% of True Value in 2030



Honors and awards from **positively impact** the health and wellbeing of people through our products and business



IRPC Route to Net Zero

ความมุ่งมั่นและตั้งใจของไออาร์พีซี
เพื่อมุ่งสู่องค์กรก๊าซเรือนกระจกเป็นศูนย์ ภายในปี 2060

ECO-OPERATION & Technology

Energy efficiency

การปรับปรุงประสิทธิภาพ
การผลิต

Renewables

เชื้อเพลิงทดแทนและ
พลังงานหมุนเวียน

irpc
FUTURE IS
NET ZERO
2060

RESHAPE PORTFOLIO

ปรับโมเดลธุรกิจเป็น Green Business

Circular economy

การนำหลักเศรษฐกิจ
หมุนเวียนมาประยุกต์ใช้

Green Product

ผลิตภัณฑ์ใหม่เพื่อสิ่ง
แวดล้อมและชีวิตที่ดีขึ้น

Waste Management

การบริหารจัดการของเสีย
จากการผลิตอย่างเป็นระบบ

ABSORPTION AND OFFSET

กิจกรรมชดเชยการปล่อยก๊าซเรือนกระจก

Carbon Capture , Utilization and Storage (CCUS)

ศึกษาเทคโนโลยีการดักจับ
และการกักเก็บคาร์บอน

Community Engagement & Forestation

การมีส่วนร่วมกับ
สังคมและชุมชน

O₂

CO₂

IRPC has initiated and is continuing to explore a range of sustainability solutions, from renewable energy to carbon capture and storage



Renewable energy & circularity



Solar energy

- Installation of a 12.5 MW and 8.5 MWp (Coming in Q4'23) Floating Solar Farm to enhance power stability in IRPC Industrial Zone



Plastic waste platform

- Collection, recycling and upcycling of plastic waste



System & processes



Environmental management accounting system

- Developed system to integrate expenses, income and investment used to enhance environmental management efficiency



Internal carbon pricing

- Adopted ICP in evaluation and decision-making on green projects and investments



Low carbon products



Green products

- Development of eco-friendly products, such as green ABS
- Production of Euro 5-compliant diesel to begin commercial operation in January 2024
- Improve the production process to result in products with low Carbon (CFP reduced).



Energy efficiency & CCS



Energy efficiency

- Rolled out several energy efficiency projects such as reduction in energy use in refrigeration unit, operation of one slurry pump etc.



Carbon Capture and Storage

- Signed MOU on feasibility study on the application of CCS technology

We implemented climate management with ERA the beginning, focusing on energy conservation and studying reforestation



2023



2024



2050

2060

3C



Climate change strategy

- 17 Energy efficiency projects implemented, reduce 44,000 MTCO₂eq
- Solar floating developing
- CFP list by SKUs and roadmap
- Forestation

- Energy efficiency projects implemented, reduce [TBC] MTCO₂eq
- Solar Roof 50 MW
- Solar 100 MW and Wind 50 MW
- Forestation

- The project in the pipeline aims to implement a plan to reduce CO₂ emissions to Carbon neutral and Net Zero



Circular economy strategy

- TPV, TPS and green ABS study
- Sorting polymer waste by product
- Autofit project
- Boonrod project (potential 10 MB)

- CE trading business (study and find out more potential customer) / Plastic recycle partnership
- Collab campaign with educational institutions, Rayong community
- Under waste management 4,000 MT

- Battery
- W2E



Creating shared value strategy

- DJSI
- SET Award
- Human rights
- Social activity

- DJSI
- SET Award
- Human rights
- Social activity

- TBC

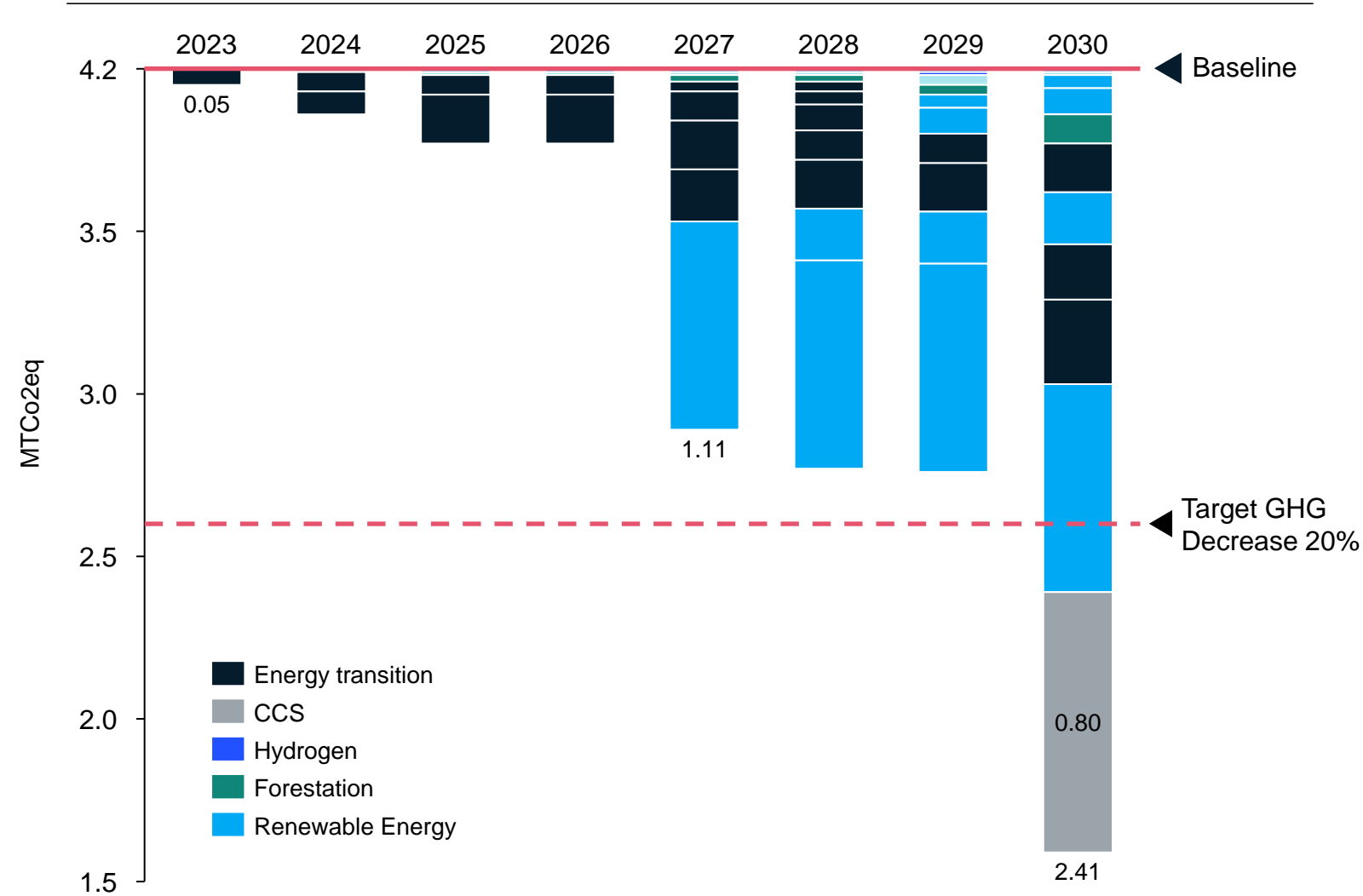
IRPC has set the main levers for Net Zero Transition in 2060 as follows :

	Major levers	GHG reduction potential ¹	Potential solutions
Eco-Operation & Technology (Net Zero Lab)	Energy efficiency	~10%	<ul style="list-style-type: none"> Advanced analytics (AA) to further optimize set points and APC Extensive capability development and change management program to reach EII top quartile and zero routine flaring target
	Blue / Green H2	~20%	<ul style="list-style-type: none"> Liaise with government to support low carbon initiatives Partnership with GPSC / EGAT for RES
	Renewables	~20%	<ul style="list-style-type: none"> Switching operations to renewable energy and alternative fuels: divest coal to NG, solar power, biofuels Seek out opportunity in solar / wind business Partnership with GPSC / EGAT,
Reshape portfolios	New stream product & Circular economy	~10%	<ul style="list-style-type: none"> Portfolio adjustment : Increase new-stream 70% by 2030 including Hygiene & Life Science, Advanced Material, Sustainable Business Circular economy target
Absorption and offset	Forestation	~10%	<ul style="list-style-type: none"> The creation of stakeholder engagement and social impact through community forest development
	CCUS	~30%	<ul style="list-style-type: none"> Partner with PTTEP to secure CCS capacity and gain economies of scale in capture technology acquisition

1. Reduction potential against the baseline

Initiatives pipeline 2023-2030

Total on hand initiatives for GHG reduction target to 20% reduction in 2030



Key messages

- The target for GHG reduction in **2023-2026 is planned to be 7%** from the baseline.
- The amount of GHG reduction will **significantly decrease in 2027** because the main efficiency improvement projects will be undertaken during the turn-around period. The primary factors for this decrease come from improving energy efficiency and renewable energy.
- In 2027 IRPC need to reduce more than 1.1 MTCO₂e (-13% from baseline)
- Next step : Continue and tracking project progress in pipeline and follow up long term strategy in 2030

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Creating Shared Value through Corporate Innovation

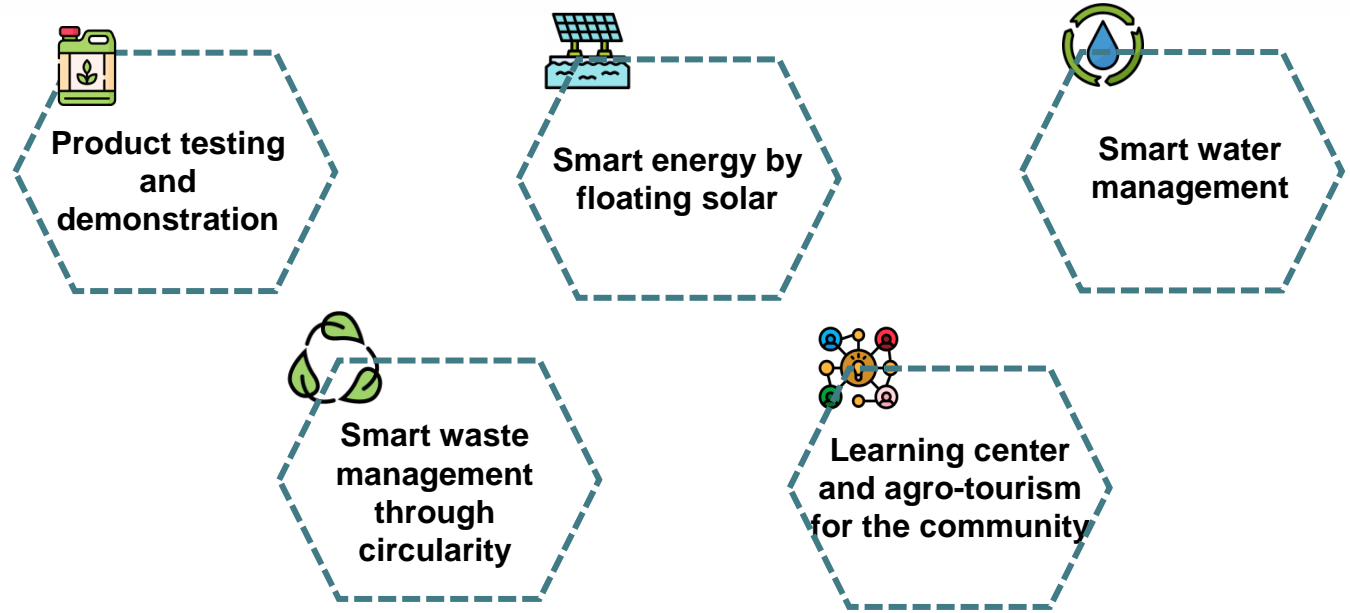
Nano ZnO Micronutrient Product & Smart Farming Project



Nano ZnO micronutrient
To be 1st choice for fertilizer by
Technology and Innovation



- The project was initiated in 2022 under the name Integrated Agro-Tourism and Learning Center Project, Yai Da Garden “Jae Boonchuen” (IRPC SMART FARMING), covering an area of 30 rai.
- An agro-tourism destination, comprising mixed fruit orchard based on the sufficiency economy philosophy of the late King Rama IX



✓ ...Change management through project execution with full passionate teamwork...

IRPC Smart Farming : *Economic Perspective*



Why it is interesting



Thailand is **agricultural country**



Fully **maximize assets**



Product differentiation with innovation technology

Product advantages

Nano technology

- **Only one registered** fertilizer as NANO ZINC in Thailand
- **Harmless** to user
- Both effect of **micronutrient & prevent plant diseases**

Amino chelated

- **3 benefits in 1**
 - Accelerate growth
 - Absolute absorbed
 - Insects/disease protection

Target plant



To be 1st choice of micronutrient by Technology and Innovation



2021

5 Nov 2021 :
First Commercial

- | | |
|---------------------------|------------------------------|
| 2022 : | 2023 : |
| • Marketing | • Expand product portfolio |
| • Customer field test | • Seek OEM customers |
| • Optimize Cost structure | • Propose OR as sale channel |



Total Revenue
6,360,148 THB



Total Volume
16,769 Liters

Market strategy



Expand sale channels

- Expand sale channels by power zone distributors
- Boost volume by affiliate trader
- Appoint online official channel
- OEM micronutrient



Amplify new stream

- Develop & Create New Revenue Streams
- OEM Anti-bac
 - Others



33.5MB

Revenue

2027

IRPC Smart Farming : *Social Perspective*



- ✓ Retail space for products of the local community
 - ✓ Create employment and income for members of the community, such as jobs for local people
 - ✓ Area for study, testing and demonstration of Nano Zinc Oxide by combining with sufficiency economy
 - ✓ Harmless to user product
 - ✓ Improve quality of life for agriculturist and promote agriculture tourism
-
- ✓ Generate incomes for agriculturists total 1,300,000 THB/year
 - ✓ Cost saving for agriculturists total 565,500 THB/year
 - ✓ Reduce cost of chemical / fertilizers
 - ✓ Reduce cost of medical treatment

IRPC Smart Farming : *Environmental Perspective*



- ✓ The product can prevent plant diseases
- ✓ No soil contamination
- ✓ Low carbon and environmentally friendly initiative (solar floating and Nano ZnO product)
 - ✓ 5 MW Solar floating
 - ✓ Water bank
 - ✓ Smart water management by Agcura
 - ✓ Food waste management
 - ✓ Creating value from dry fruit peel



TO SHAPE MATERIAL
AND ENERGY SOLUTIONS
IN HARMONY WITH LIFE

สร้างสรรค์นวัตกรรมการใช้วัสดุและพลังงาน เพื่อชีวิตที่ลงตัว

Thank you

Appendix



TO SHAPE
MATERIAL
AND **ENERGY**
SOLUTIONS
IN HARMONY
WITH LIFE



IRPC Businesses

Integrated Petrochemical Complex & Product Diversification

- Refinery Capacity : 215 KBD (crude distillation unit)
- Petrochemical Capacity : 3,137 KTA (Olefins, Aromatics, Styrenics, Polyolefins, Polystyrenics)

Remarkable Position in ASEAN Polymer Market

- PP's leading producer in South-East Asia: 775 KTA
- HDPE pipe grade 140 KTA
- ABS 179 KTA: The Largest producer in Thailand

The largest lube base oil capacity in Thailand

- Lube base oil : 320 KTA
- Asphalt : 600 KTA

Sustained earnings from facility and utility businesses

- Provides electricity, steam, infrastructure, public utilities
- Stable income from Port and Tank business

Specialty Petrochemical to capture higher margin

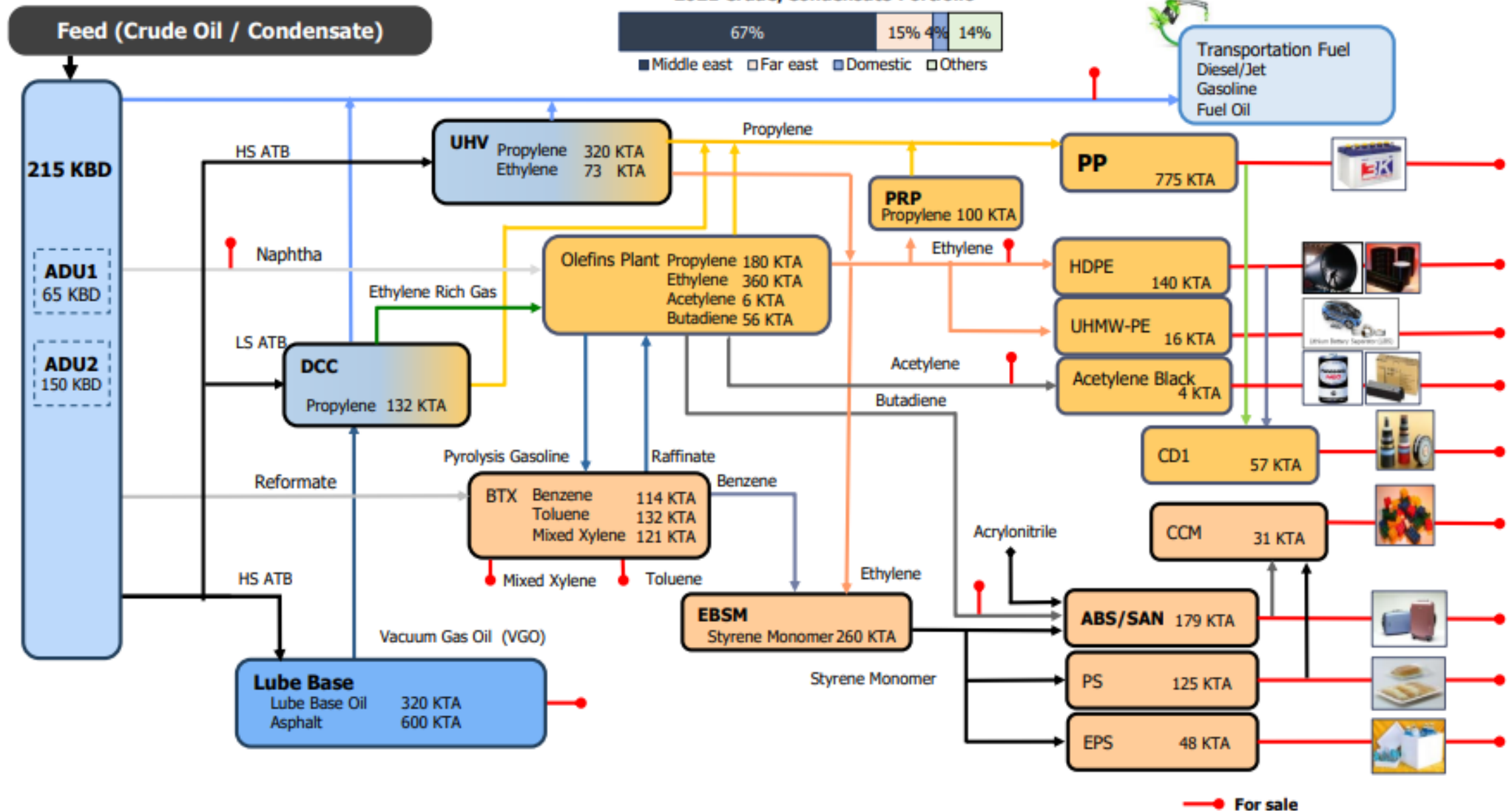
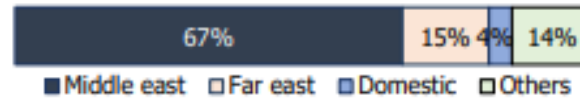
- 22% of specialty products in 2022
- PPC to add more specialty Petrochemical Products



Petroleum and Petrochemical Value Chain

Optimized Configuration & Product Diversification

2021 Crude/Condensate Portfolio



Sustainability Driver Goal Target

Climate change

Commit to reduce emissions

Low Carbon +



IRPC
NET ZERO

20% by 2030*

Carbon Neutrality 2050

Net Zero by 2060

* From Base year 2018

Circular Economy

Build ECO-Solutions

Living +



1. Maintain Zero waste to landfill
2. Waste utilization > 95% in 2040
3. Waste to value

Creating Shared Value

Recognition +



Uplift sustainable values to stakeholder



Increase 20% of
True Value in 2030

Our Aspiration



Commit to reduce emissions by

20% by 2030*

Carbon Neutrality 2050

Net Zero by 2060

* Base year 2018