

Leading with Science for Sustainability



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History

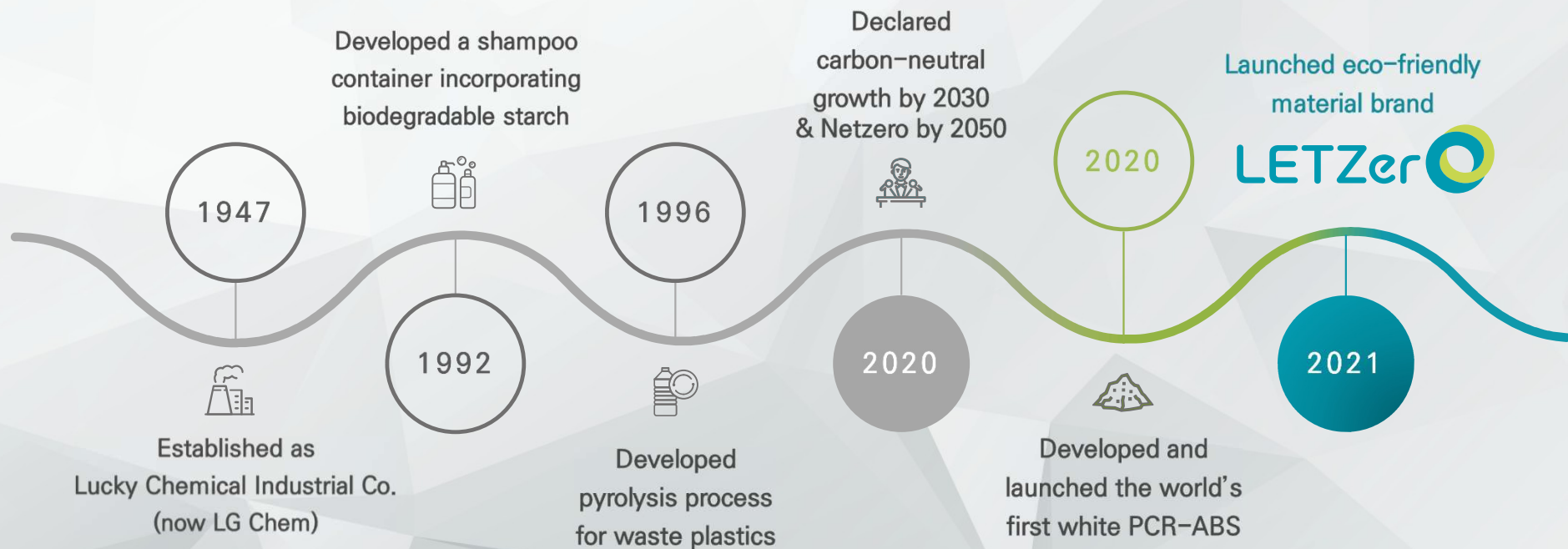
Global No. 2

Brand Value Chemical Company

2050 Net-Zero

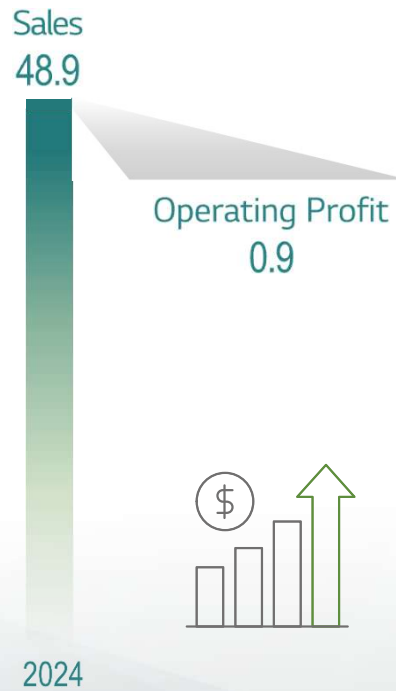
To Achieve Carbon-Neutral

2050
NET-ZERO



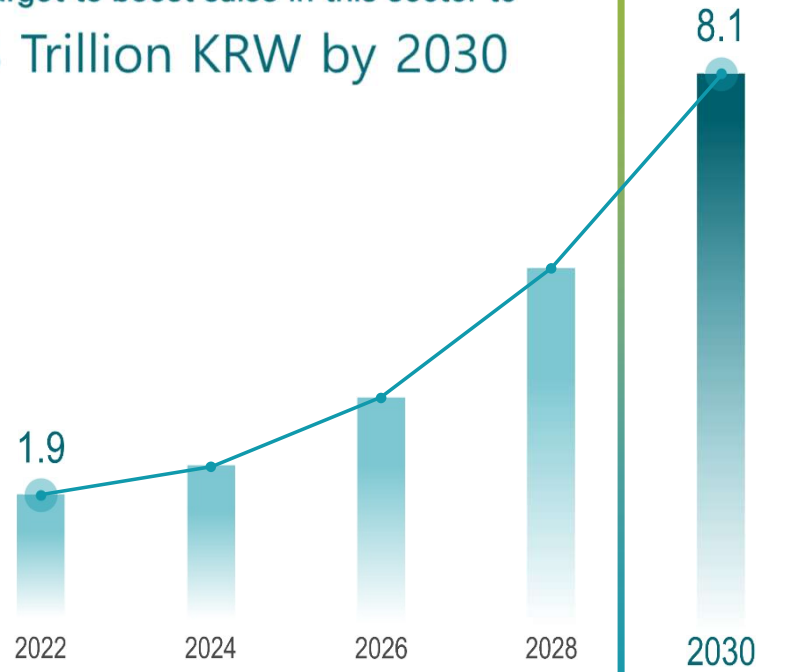
Aiming to Lead the Low-Carbon Business Industry by Strengthening Sustainability Business

LG Chem Financial Results



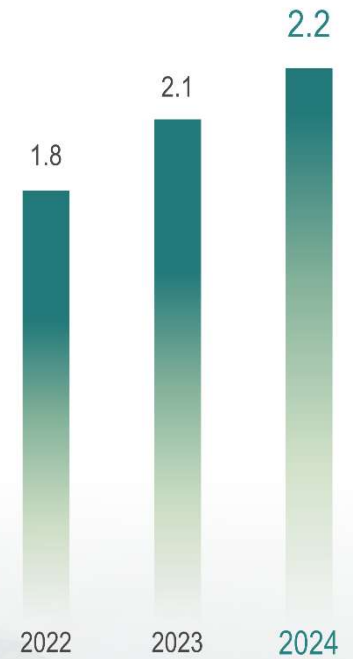
Sustainability Sales Goal

Target to boost sales in this sector to 8 Trillion KRW by 2030



R&D Investment

Unit : Tillion KRW



*Included Subsidiaries / The estimated amount of the business target is based on business plan and may differ from the actual amount due to changes in the business environment and strategy

Decarbonization Efforts

Not only measuring its carbon footprint, but reshaping the landscape of sustainable practices



LCA
(Life Cycle Assessment)

- Completed **LCA** for all products produced in South Korea('20) and overseas('21) to measure the carbon reduction effects
 - *Developing a platform for data collection and calculation for performing LCA
- **LCA evaluates environmental impacts throughout entire Life cycle** from raw material extraction to manufacturing



RE Conversion
(Renewable Energy 100%)

- **Renewable energy conversion plan aims to transition all of our overseas facilities to renewable energy by 2030**
- **Plan to convert all of our domestic facilities to renewable energy by 2050**



DRM Facility
(Dry Reforming of Methane)

- Construct a DRM facility which can produce plastics using **carbon dioxide captured at the plant and byproduct gas, methane with our own technology**
- The DRM facility is constructed as a pilot plant, and will be continuously expanded and utilized until 2026

The whole world is implementing plans to reduce environmental impact.

The U.S. Department of the Interior has announced its plan to phase out disposable plastic products on public lands within the next few decades.

States such as Maine, Oregon, Colorado, and California have enacted Extended Producer Responsibility (EPR)¹ legislation at the end of 2022, which holds producers accountable for the entire lifecycle of products.

In California, through Senate Bill 1383 in 2006, it has been mandated that 75% of all food waste must be composted by 2025. Additionally, the Plastic Pollution Prevention and Packaging Producer Responsibility Act (SB 54) mandates that 100% of packaging materials must be made from biodegradable or recyclable materials by 2032.

The European Parliament has adjusted the targets for the Packaging and Packaging Waste Regulation (PPWR) regarding plastic, reusable, and refillable packaging. The reduction targets for plastic packaging waste are set at 10% by 2030, 15% by 2035, and 20% by 2040.

The regulation specifies that in member states equipped with appropriate collection systems and waste treatment facilities, 'ultra-light' plastic carrier bags can only be used if they are made from biodegradable plastics that can be processed in bio-waste treatment facilities.

Institutions that have joined the United Nations-supported Principles for Responsible Investment (PRI) have stated that, as producer responsibility recycling (EPR) policies have been enacted in the United States, Canada, and the EU, and have been adopted in several states and regions in India, there is a high likelihood that EPR policies will be implemented in more regions.

1) EPR (Extended Producer Responsibility): A system that mandates producers to take responsibility for the recycling of both the products and packaging they manufacture.

Innovation in Sustainable Material Portfolio Towards Sustainability



PCR materials recycled through mechanical means from waste plastics and Circular Balanced materials recycled back to the raw material state through chemical means

Certified biodegradable plastics that naturally decompose into water and carbon dioxide within months due to the action of microorganisms

Eco-friendly materials made from bio-based raw materials obtained from plants, reducing carbon emissions and minimizing environmental impact

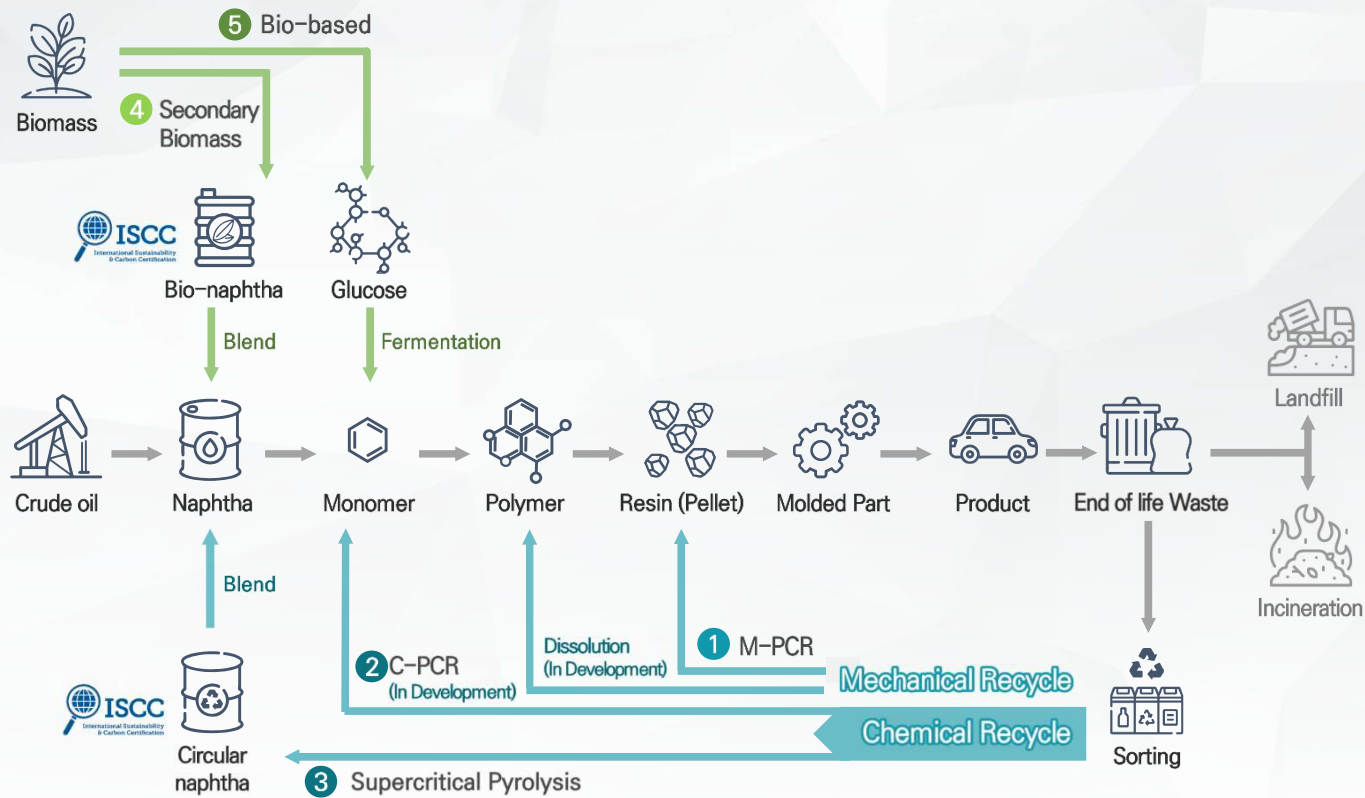
Partners



Partners



LG Chem's Diverse Eco-friendly Portfolio



Recycle

Mechanical Recycle

- 1 M-PCR
 - ABS, ASA, PC, PC/ABS, PC/ASA
 - PA6, PA66, PBT
 - PO(PE/PP), PVC

Chemical Recycle

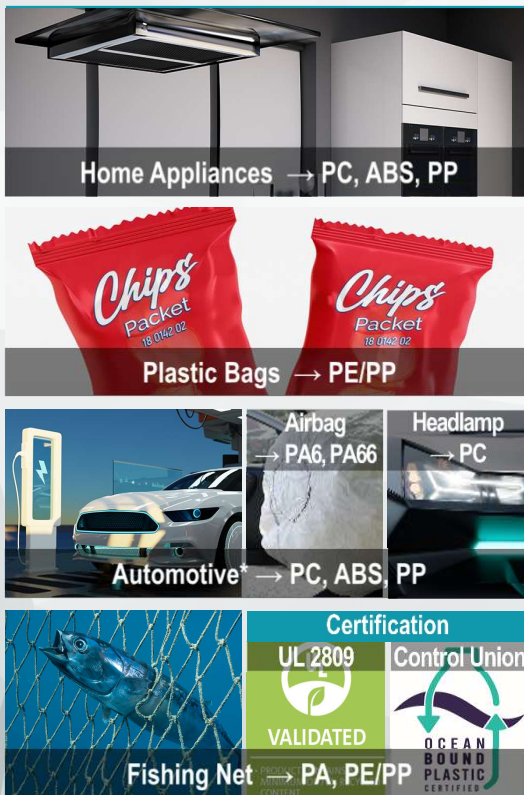
- 2 C-PCR (Depolymerization)
 - PC, ABS, PC/ABS, PC/ASA
 - PBT, TPEE
- 3 Circular Balanced **Mass Balanced**
 - All LG Chem's products

Bio

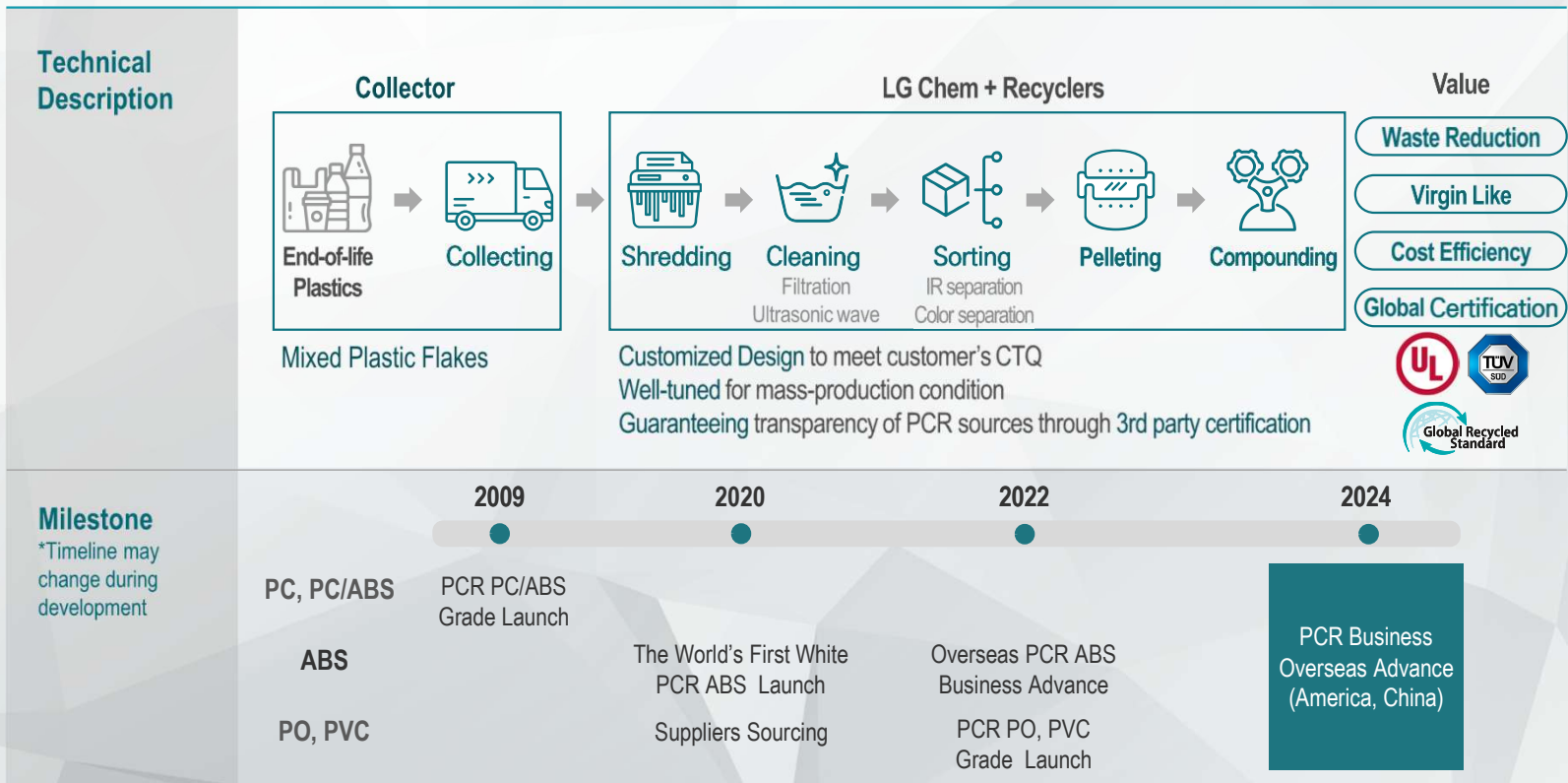
- 4 Bio-Circular Balanced **Mass Balanced**
 - All LG Chem's products
- 5 Bio-based
 - 3HP

M-PCR (Mechanical Recycle)

Extract from end-of-life products and mechanically reproduces plastics that have equivalent level properties as virgin materials

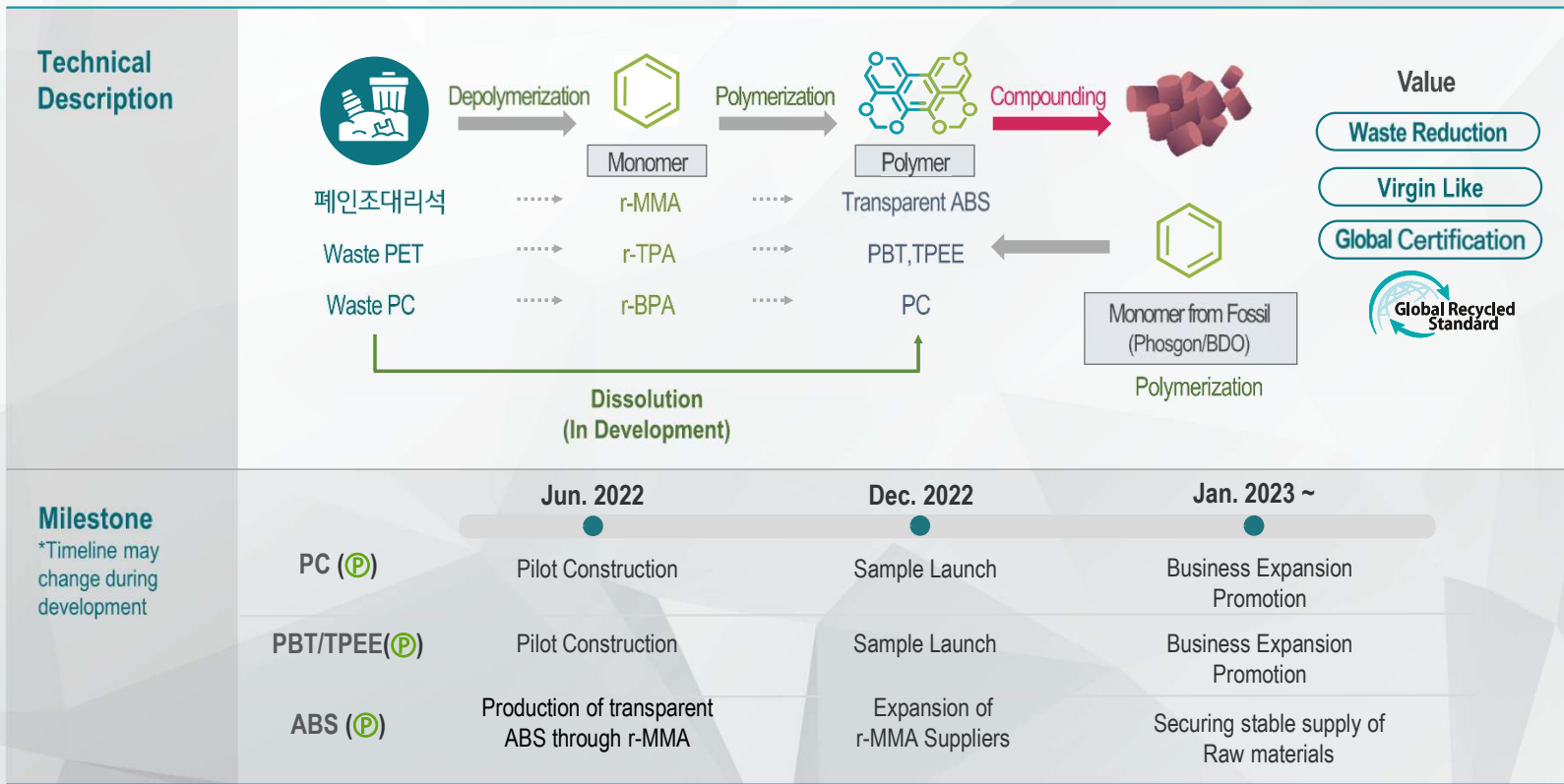


*Under Development



C-PCR (chemical Recycle)

LG Chem's chemically recycled products are not only **almost identical to virgin products**, but they also help build a true **circular economy** by enabling the use of contaminated materials

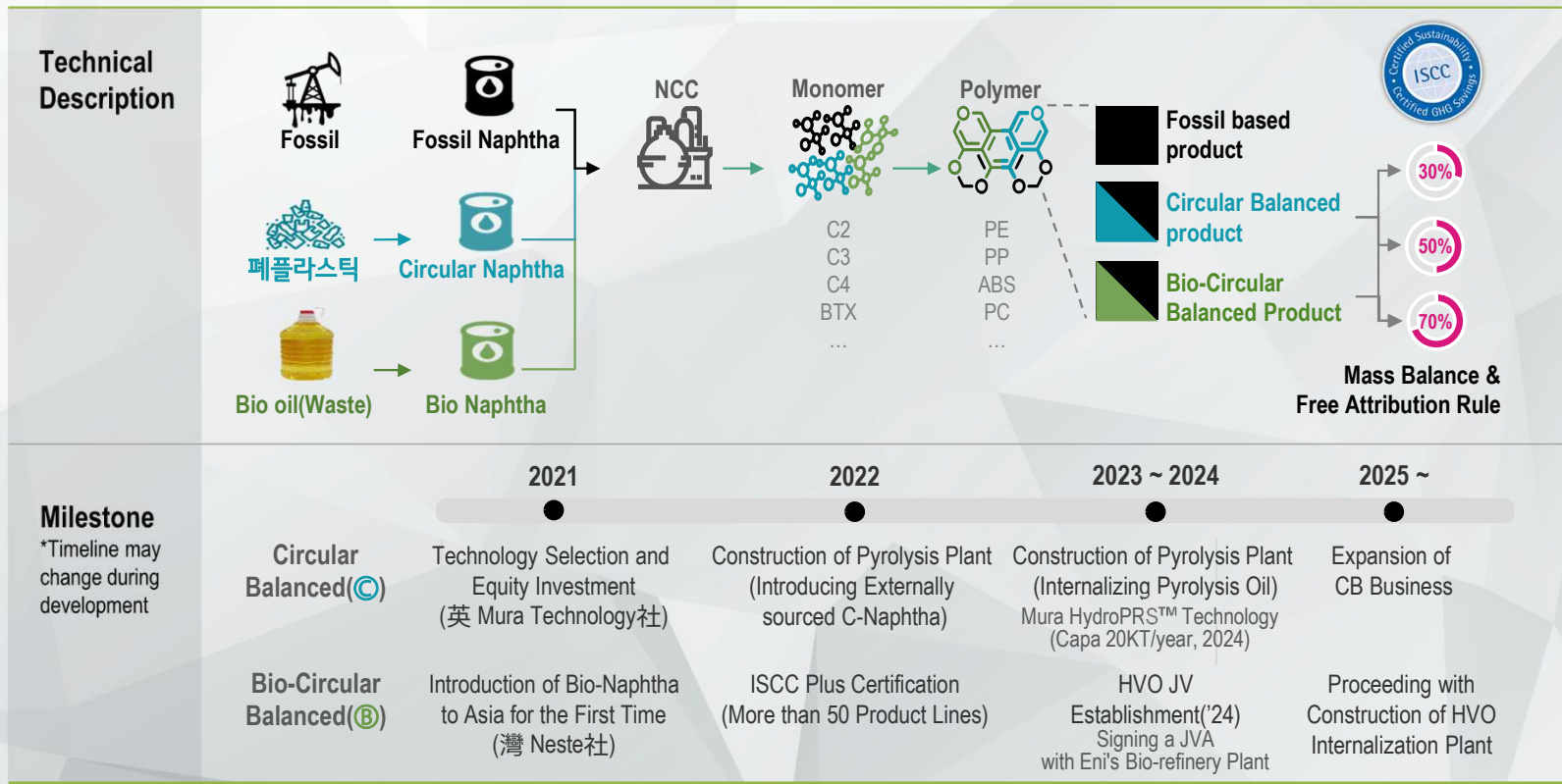


(P) Depolymerization

Milestone
*Timeline may change during development

Circular Balanced / Bio Circular Balanced

Circular Balanced / Bio-Circular Balanced materials, produced from renewable feedstock¹⁾, is a drop-in solution that reduces carbon emissions and waste while having the same properties as traditional fossil fuel-based materials, allowing it to be applied without changes to process conditions.



ⓑ Bio-Circular Balanced Ⓒ Circular Balanced

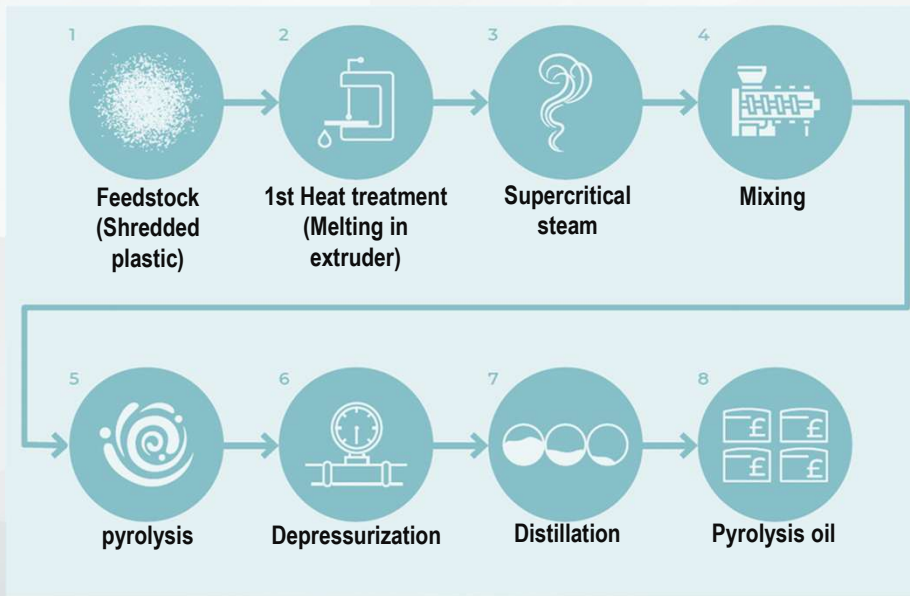
1) Renewable feedstock : Renewable resources such as used cooking oil and bio-based materials, as well as recyclable materials like waste plastic

LG Chem Supercritical Steam Pyrolysis Process



Technology (Mura HydroPRS)

LG Chem realizes circular economy for waste plastics through chemical recycling based on supercritical pyrolysis¹⁾ technology in addition to mechanical recycling



Pyrolysis Technology Specific Features

Category	LG Chem (Mura Tech)	A Company (General Pyrolysis)	B Company (General Pyrolysis)
Pyrolysis Medium	Supercritical Steam	No Reaction Medium (Direct heating)	No Reaction Medium (Direct heating)
Reactor Type	Continuous	Batch	Continuous
Process conditions (Temp./Pressure)	Temp 400~500°C 200~300bar	Temp 400~500°C < 1bar	Temp 400~500°C < 1bar
Yield	80% <	70% <	80% <
Char	Nearly Zero	~10%	~10%

Feedstock SCM

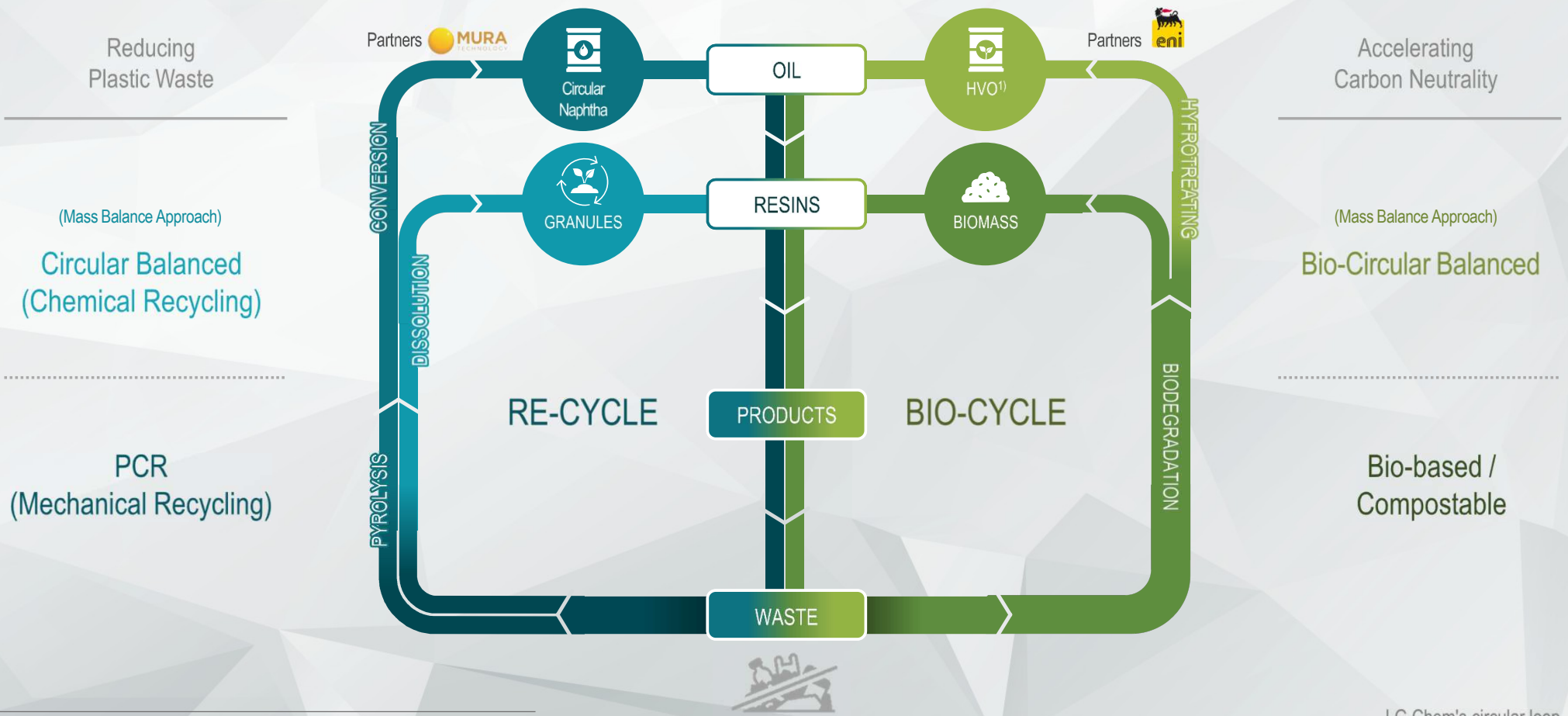
LG Chem is building a closed loop by diversifying raw material suppliers and locking-in with local governments to ensure a stable supply of feedstock for chemical recycling.

- Binding through signing contracts with top-tier candidates for waste plastics
- Cooperation with local governments, which play a key role in the domestic waste value chain

1) Char not created using supercritical teams
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Global Business Leader

Driving sustainable innovation to practice the circular economy



1) HVO : Hydro-treated Vegetable Oil
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A scenic landscape featuring a dense forest of green trees along a calm body of water. The sky is a mix of warm orange and yellow tones, suggesting a sunset or sunrise, with several birds flying in the distance. The text is centered over the middle of the image.

**Together, We can Create a Leadership
Focused on Sustainability for Our Future**