



*Smart Manufacturing, Thursday, November 14 3:10 pm - 5:30 pm*

# ***Roadmap for Semiconductor Exhaust Gas Treatment Equipment Towards Carbon Neutrality***



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## ***01 Introduction of Kanken***



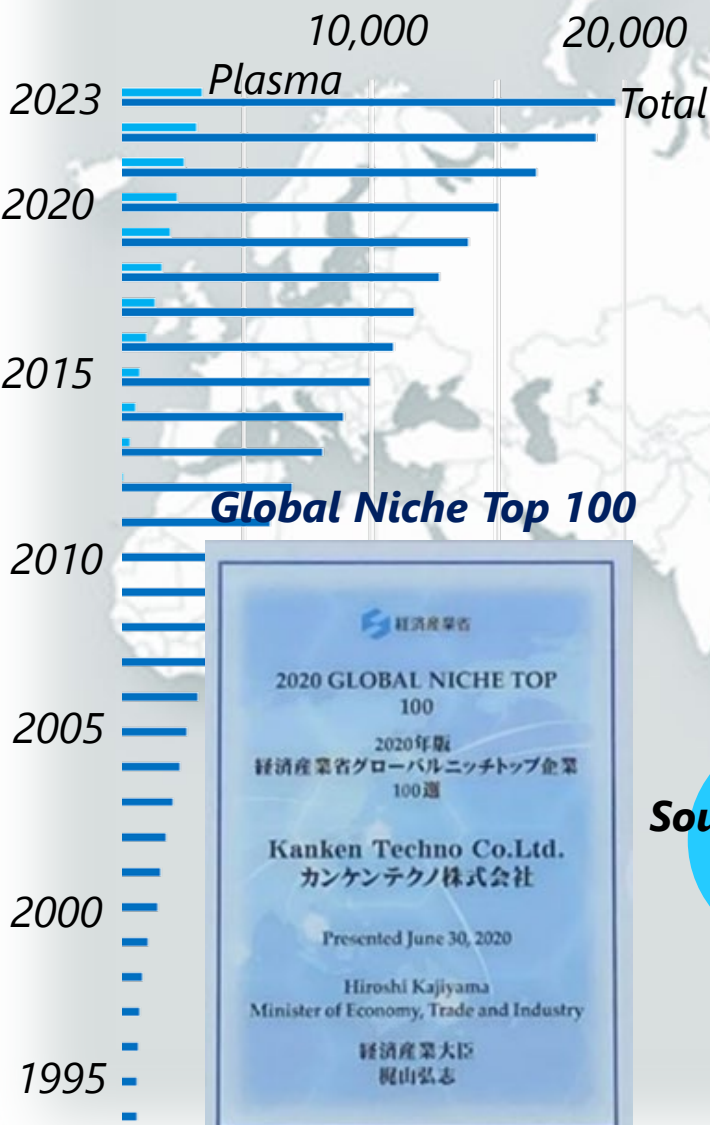
## *02 Roadmap for Carbon Neutral*

## *03 3R for Recycling Society*

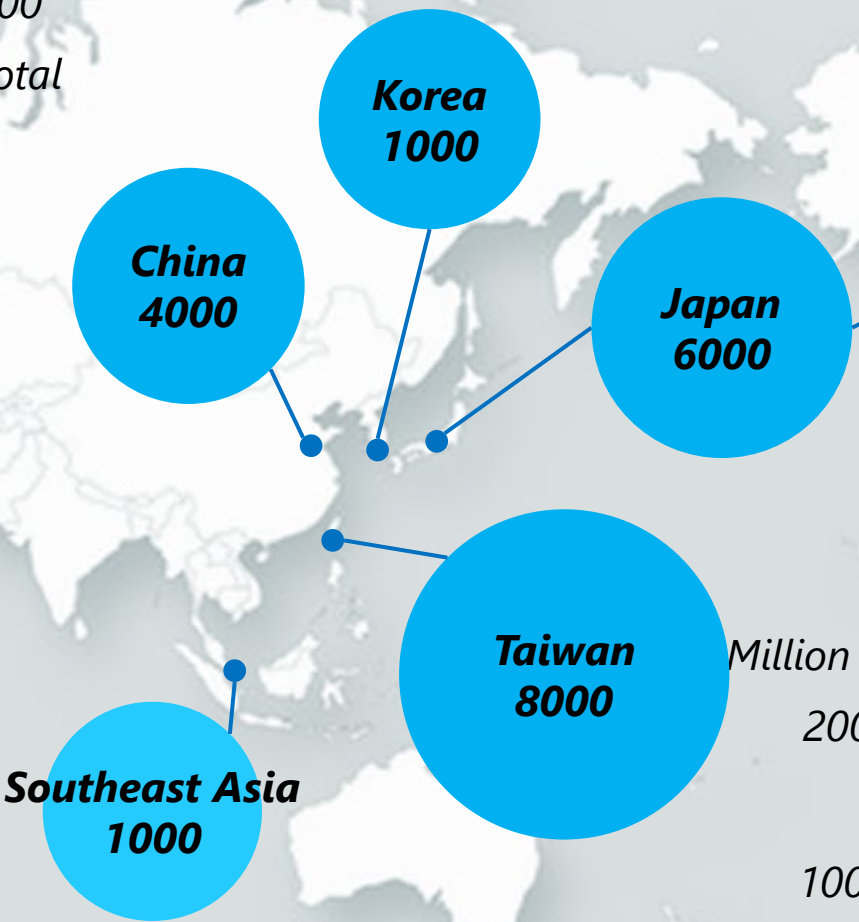
## *04 Conclusion*

# Installation Base & Market Share

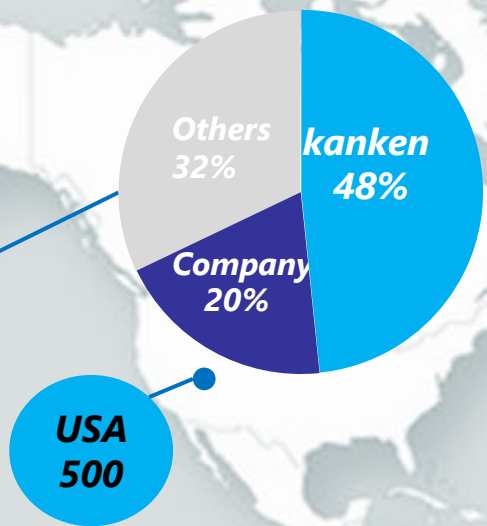
Global Cumulative number of units : over 20,000



Global Niche Top 100

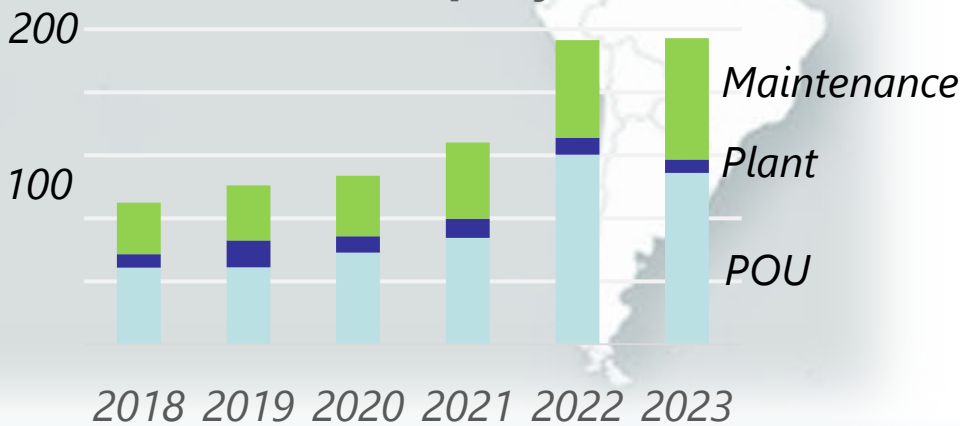


Domestic share



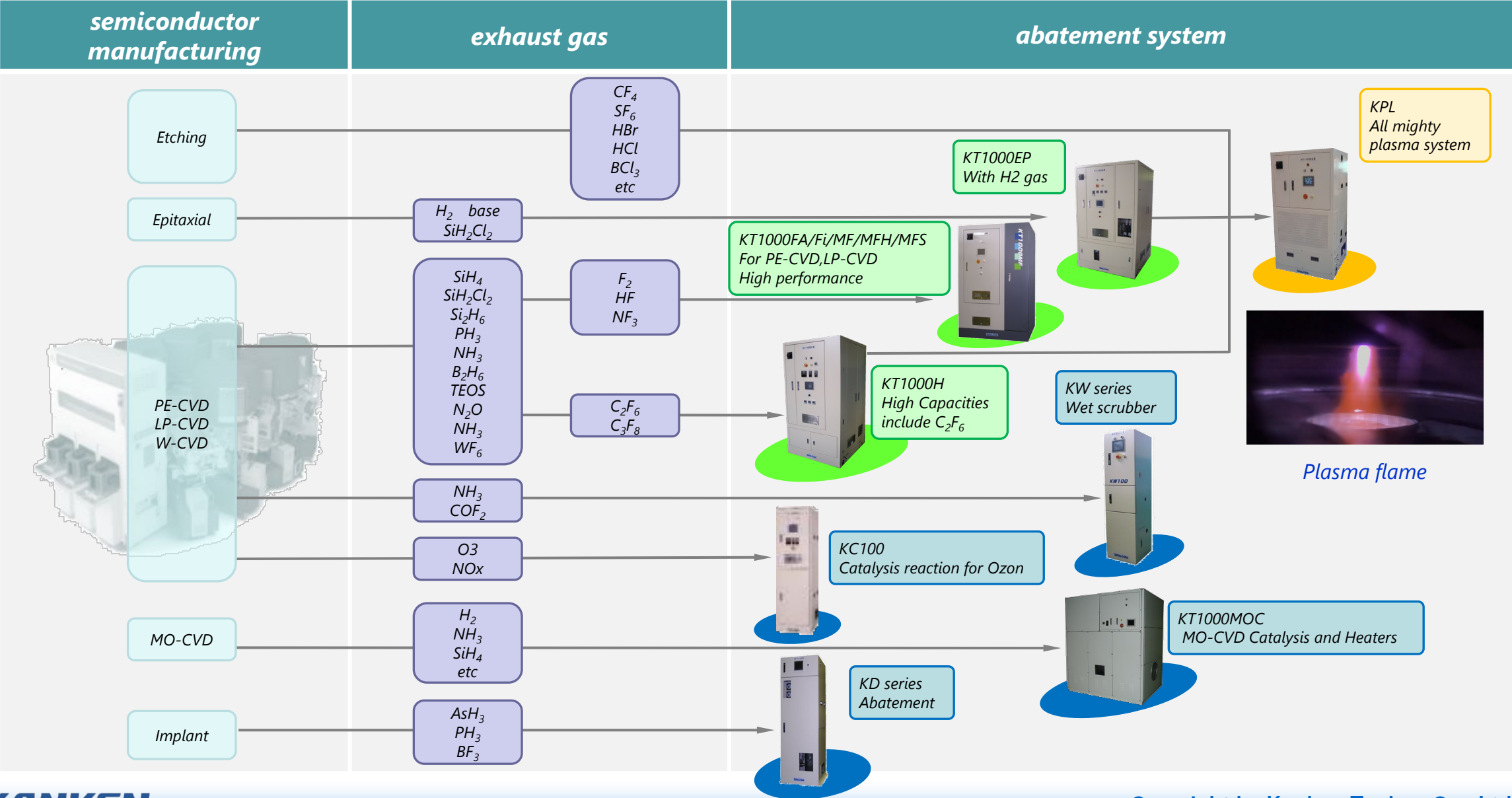
Million USD

Company Revenue



# Line-up of abatement system

Kanken' abatement systems efficiently clean exhaust gases on-site



# Kanken's Global Office Map

**We are going to EU area !**

## USA

- Sales office & Service center  
**Phoenix Arizona**
- Service center  
**Austin Texas**

## China

- Sales office & Service center  
**Beijing, Shanghai**
- Service center  
**Tianjin, Hefei, Nanjing, Wuxi, Wuhan, Chongqing, Chengdu, Fuzhou, Xiamen, Guangzhou**
- Factory  
**Pinghu**

## Taiwan

- Sales office, Service center  
**Hsinchu**
- Sales office, Service center  
**Taichung**
- Sales office, Service center and factory  
**Tainan**

## Southeast Asia

- Sales office & Service center  
**Singapore**
- Sales office & Service center  
**Thailand**
- Sales office & Service center  
**Malaysia**

## Japan

- Head office **Kyoto**
- Sales office & Service center  
**Tokyo**
- Service center  
**Hokkaido, Iwate, Fukushima, Yamagata, Niigata, Chiba, Shizuoka, Nagano, Toyama, Ishikawa, Kyoto, Osaka, Mie, Oita, Kumamoto, Nagasaki, Miyazaki**
- Factory  
**Kyoto, Kumamoto, Daito, Uozu**

## Korea

- Sales office & Service center **Seongnam**
- Sales office & Service center **Icheon**
- Sales office & Service center **Cheongju**
- Sales office & Service center **Gumi**

# Further Expansion

## Penetration to European market

**European Chips Act  
entered into force  
21 September 2023**



*Aiming to increase  
production capacity to  
20% of the global  
market by 2030*



***Kanken Techno  
European Headquarter  
to be considered in  
near future***



***Kanken Techno  
Dresden Office  
to be opened  
in 2025***

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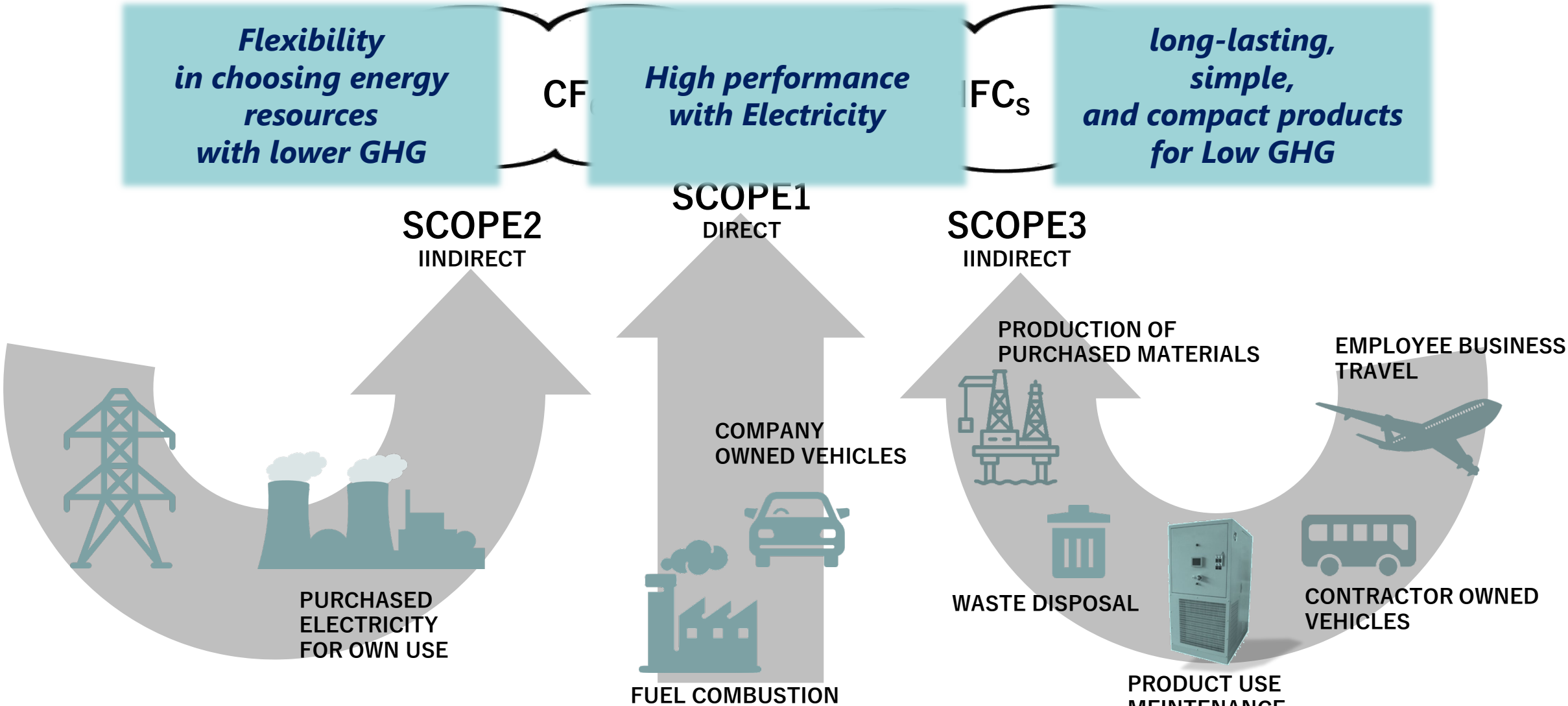
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# Scopes and Emissions Across the Supply Chain

We are dedicated to developing our products with the utmost consideration for contributing to the reduction of greenhouse gas (GHG) emissions throughout our customers' entire supply chains.



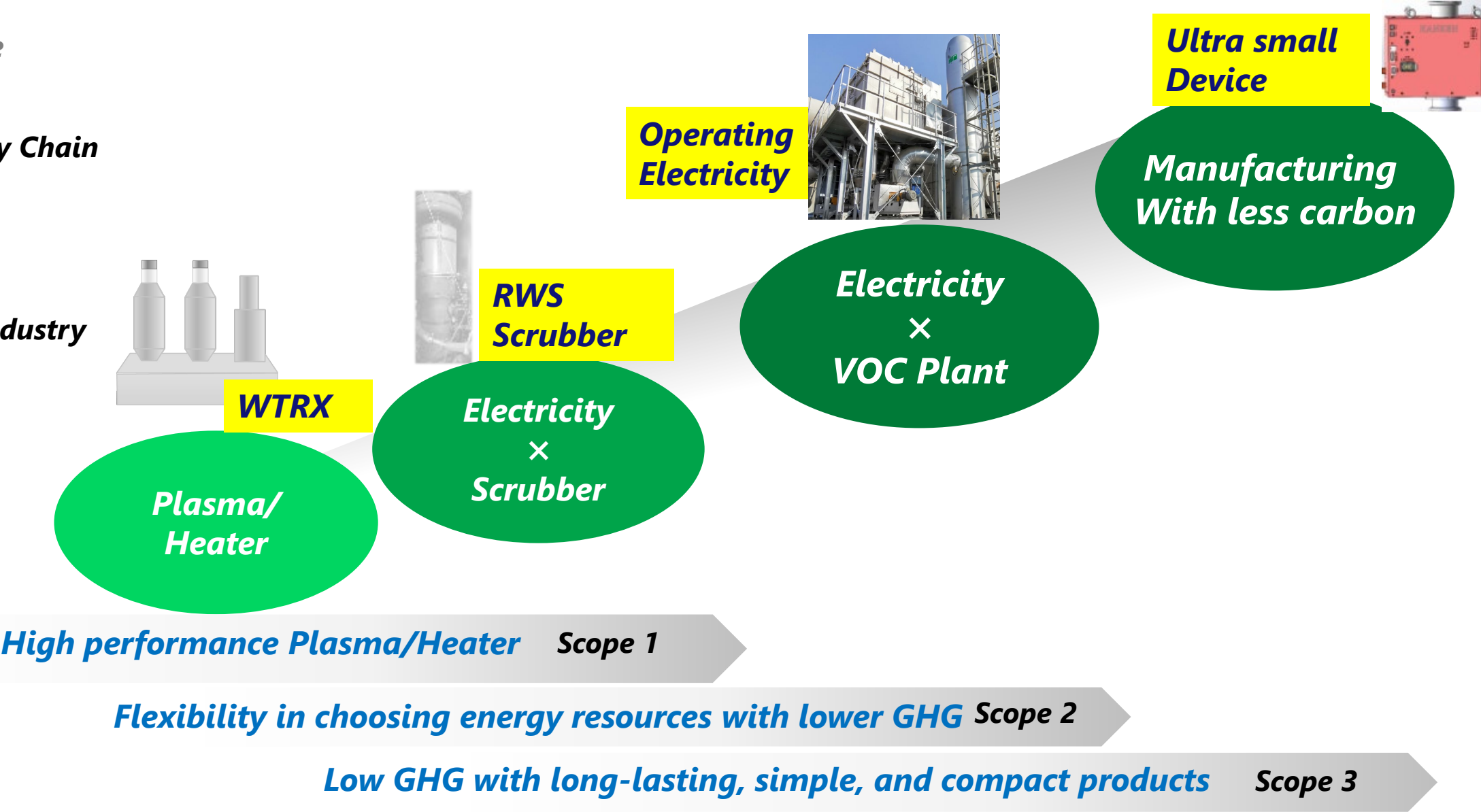
# Road Map of Abatement System for Scope 1,2,3

Impact Range

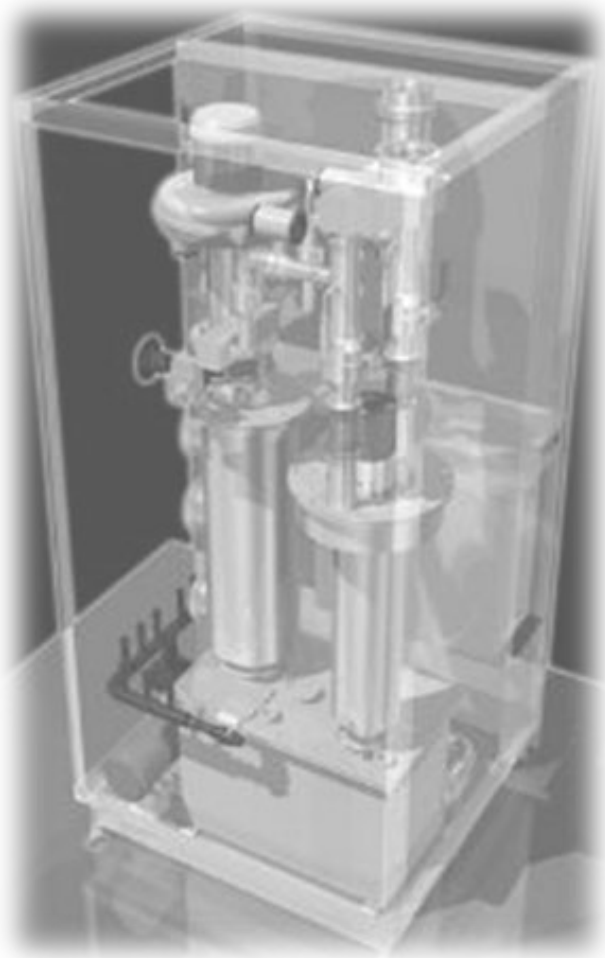
Society & Supply Chain

Customer and Industry

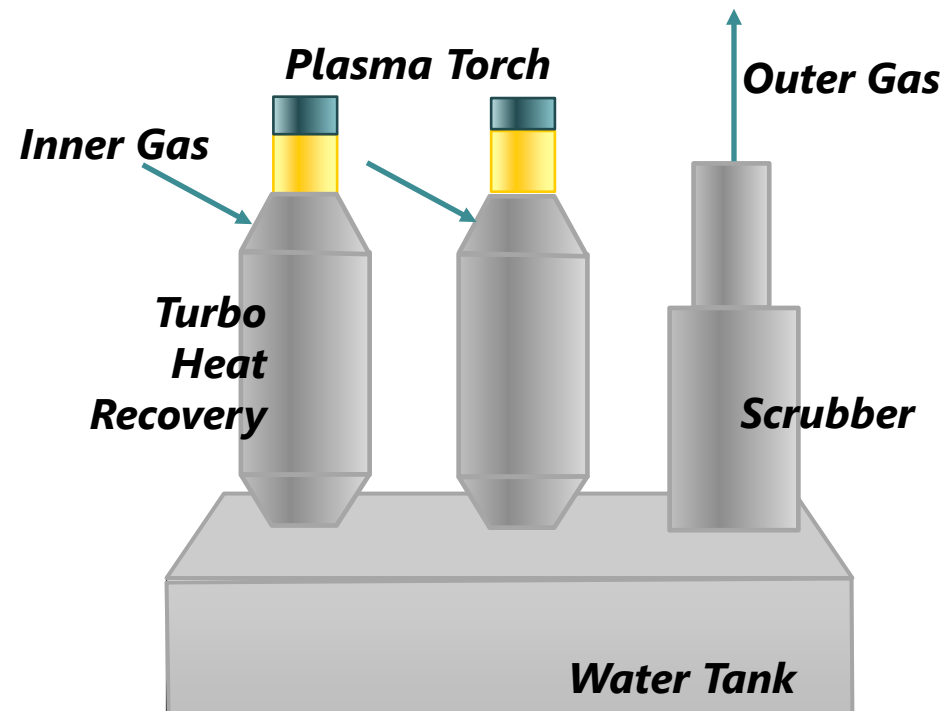
In house



# KPL-WTR features High Flow Rate



- ✓ The Kanken-style plasma reactor features **two torches** and employs a **turbo method** that recovers heat from exhaust gases to preheat the incoming gas.
- ✓ This design allows for **high performance** and **large capacity** in a compact space.



## Twin Turbo Reactor Spec

|                            |                          |
|----------------------------|--------------------------|
| Treatment Flow Rate(L/min) | 600                      |
| Treatment gas              | DRY Etch (CF4, etc.)     |
| Size (mm)                  | W1500<br>×D800<br>×H1970 |

# VOC treatment system

*In KANKEN's VOC treatment system,  
we flexibly handle various gases using a combination of diverse methods.*

## Concentrator



*Furthermore, our lineup  
ranges from large units  
suitable for installation on  
factory roofs  
to **smaller units ideal for  
indoor processing.***

## Thermal recovery Oxidizer



*Our energy-saving performance is unrivaled,  
and in addition to natural gas,  
our systems are also equipped with electric options.*

# K-ILP5000

*K-ILP5000 can plasma reaction in fore line with no foot print*

*Detoxification of gas  
and reduce GHG  
by plasma reaction*



*F and/or O radical source  
afford to cleaning for  
pump/pipe*

***K-ILP5000 has special characteristic***

- ✓ ***High Density Plasma***  
*ICP(Inductively Coupled Plasma) can easily  
decompose hardly decomposable PFC gases*
- ✓ ***Maximum output power=5.5kW***  
*0.5~5500W controllable*
- ✓ ***Fast ramp up time (~30ms)***

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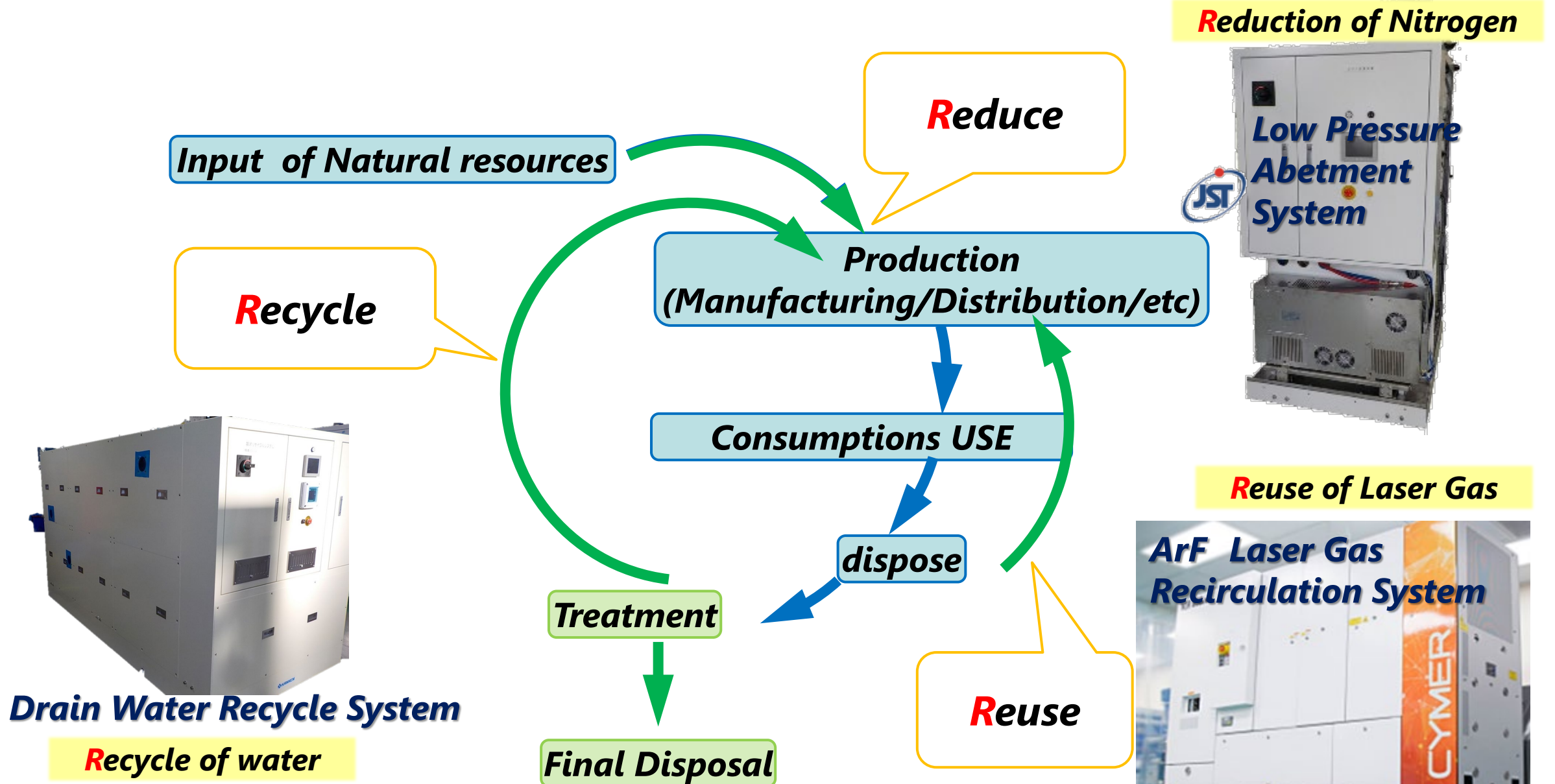


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# The 3R Concept and Waste Minimization

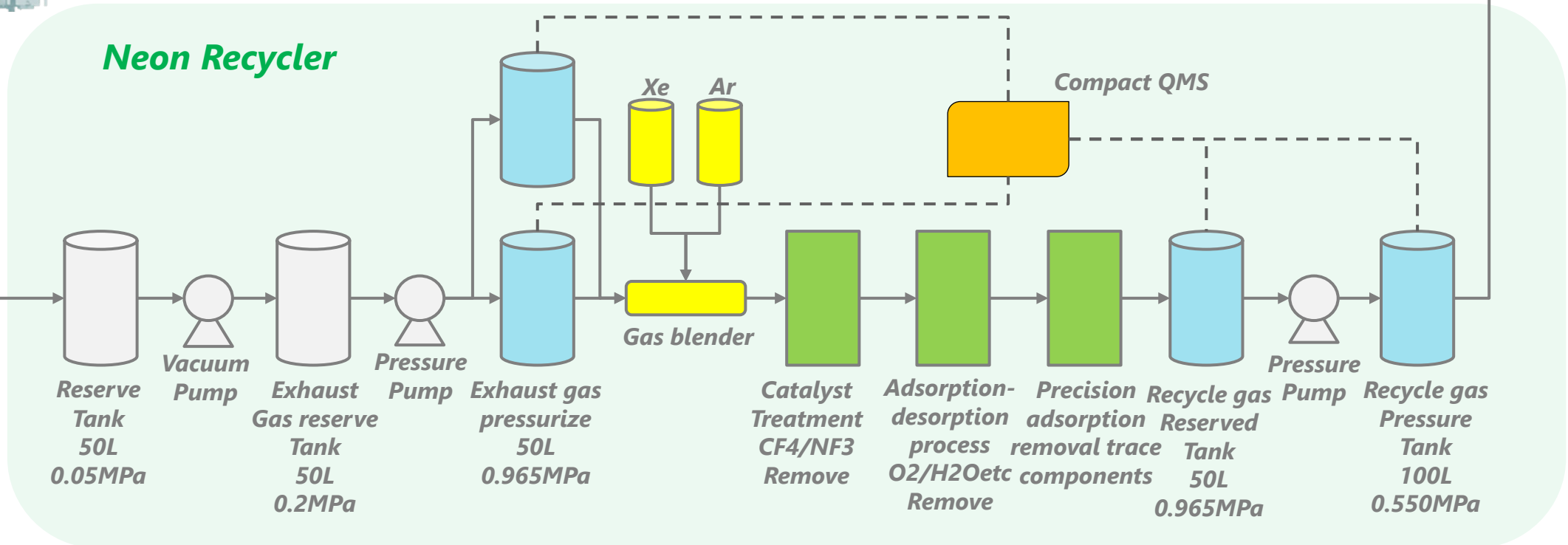


# On-site Neon Gas Recycling System Flow

1) High-performance abatement function combining catalytic and adsorption methods

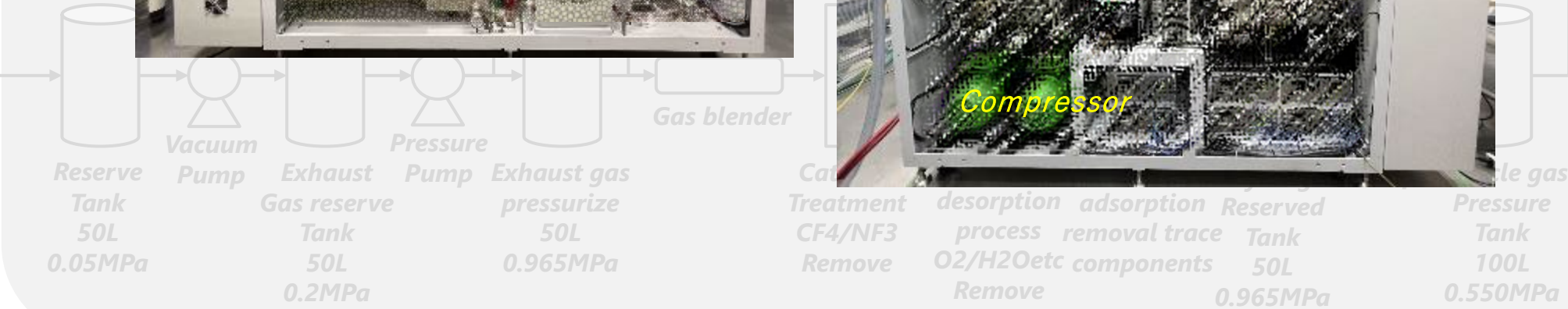
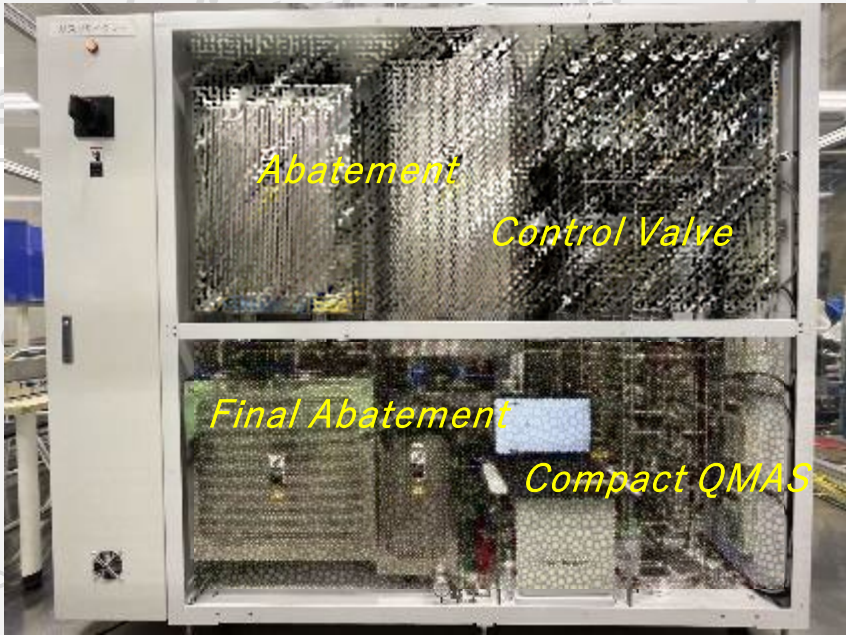
2) Continuously measures components with a compact QMS and adjusts the composition using a gas blender function

3) Compact design achieved by incorporating high-pressure tanks



# On-site Neon Gas Recycling System Flow

- 1) High-performance abatement function combining catalytic and adsorption methods
- 2) Continuously measuring components with a compact QMS and gas blender function
- Operating high-pressure



# Function of Neon Recycler

- ✓ Neon gas is produced as a byproduct in air separation units and is supplied through international shipments, typically via tankers.
- ✓ To produce the amount of gas and transportation are emitted 99%.
- ✓ **A neon recycler can recycle 99% of neon gas with minimal CO2 emissions,.**
- ✓ **Thereby reducing CO2 emissions from production and transportation by 99%.**



**W2250 × D1200 × H1900mm**  
**The gas can be recycled for use in five laser devices.**

**99%  
Recycle**



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## **Conclusion**

- ✓ *The manufacturing of semiconductors utilizes resources such as nitrogen, neon gas, and water;*
- ✓ *enhancing sustainability requires the effective use of these resources through 3R practices (recycling, reuse, reduce).*
- ✓ *Kanken is addressing these challenges with cutting-edge technologies while also meeting the GHG Protocol standards in manufacturing plants.*
- ✓ *Additionally, Kanken proposes new abatement devices that contribute to sustainable manufacturing.*





Thank you for your attention !