Development of fuel ammonia combustion technology in glass melting furnaces

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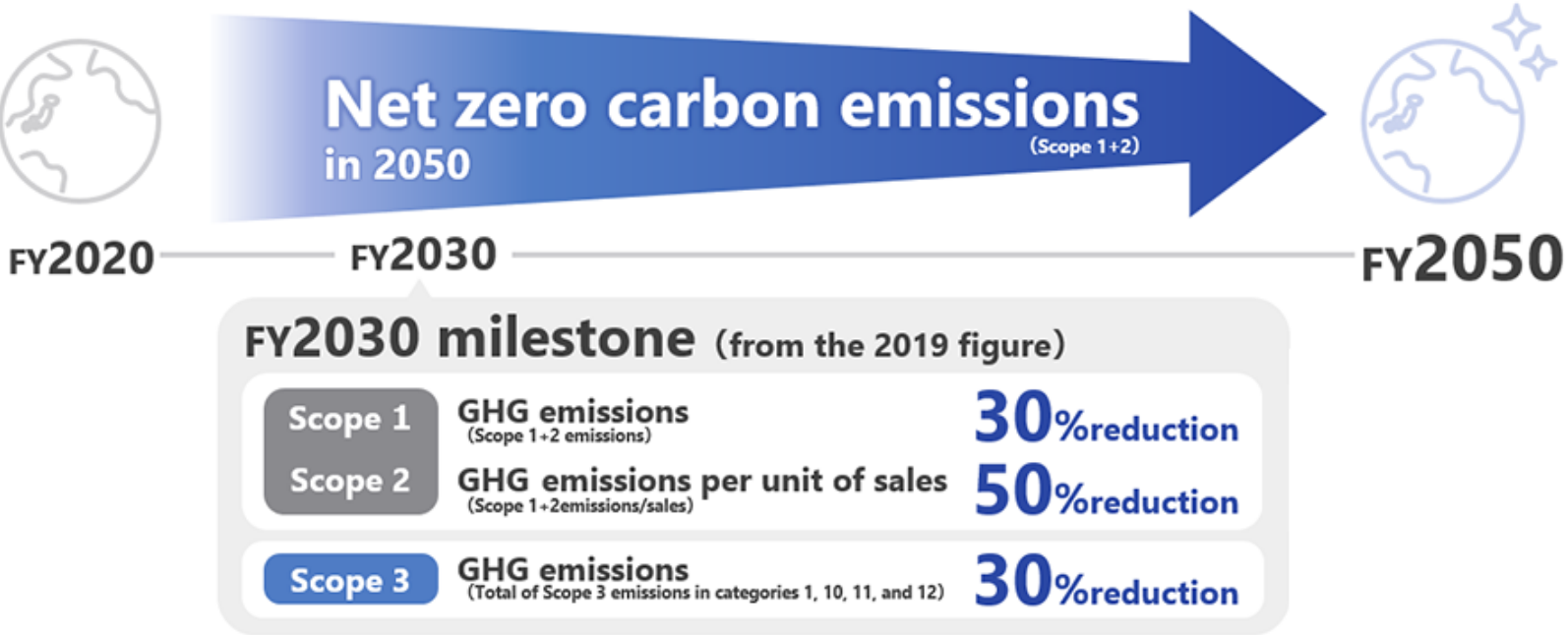
Your Dreams, Our Challenge

Net zero carbon emissions in 2050

AGC has set a goal of achieving net-zero carbon emissions in 2050.
As milestones, a 30% reduction in GHG emissions in Scope1 and Scope2.



Technology Roadmap for Reducing GHG Emissions in Float Glass Melting Process

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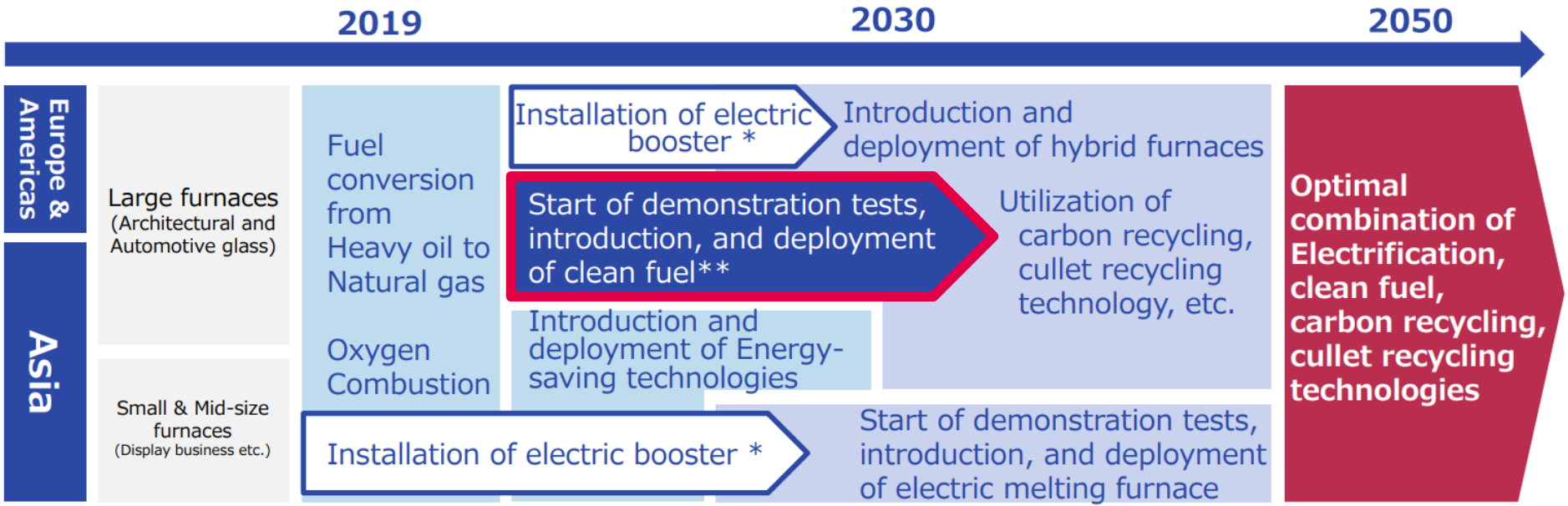
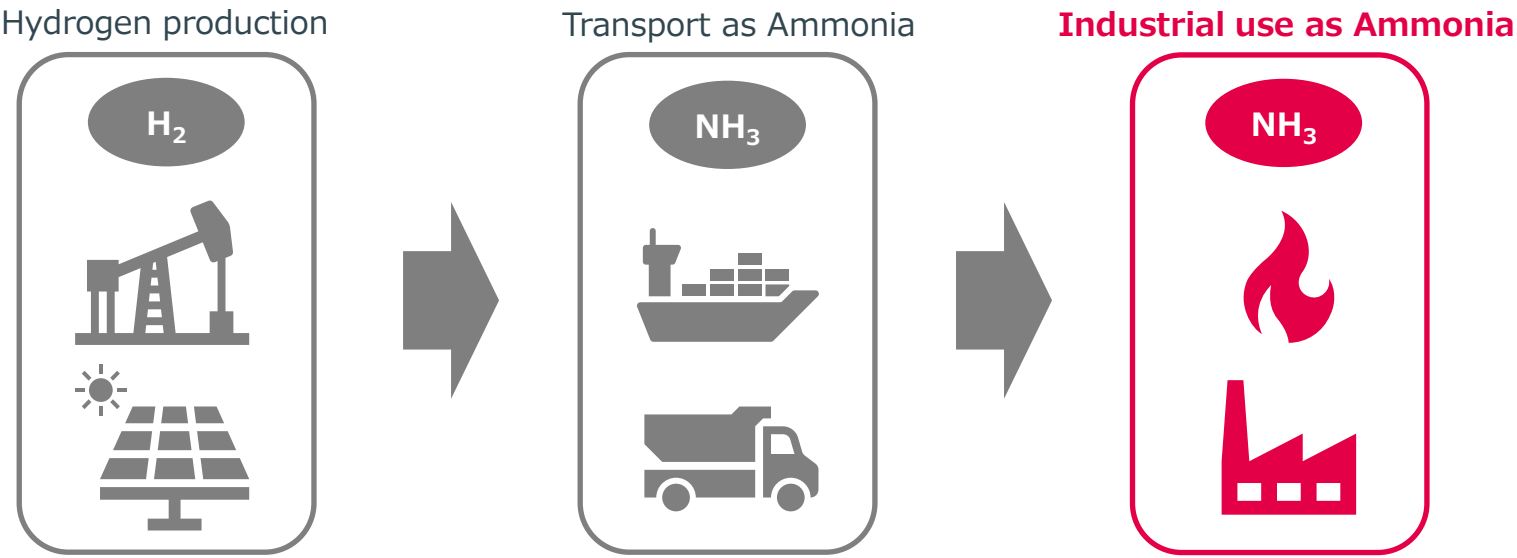
- Toward 2050, AGC aims to achieve the target by combining multiple technologies with a focus on electrification.
- We are focusing on ammonia which does not emit GHG during combustion.



*Energized auxiliary heating **Ammonia, Hydrogen, etc.

Ammonia as Fuel

Ammonia is expected to be a carrier for hydrogen and does not directly generate CO_2 even when burned.
Technology development is necessary to overcome challenges such as low flame temperature and the generation of NOx from the fuel source.



NEDO* project

Development of combustion technology for fuel ammonia in industrial furnaces.

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AGC has been participating NEDO project on fuel ammonia for industrial furnaces.
Attempting to introduce ammonia fuel into glass melting furnaces through the project.

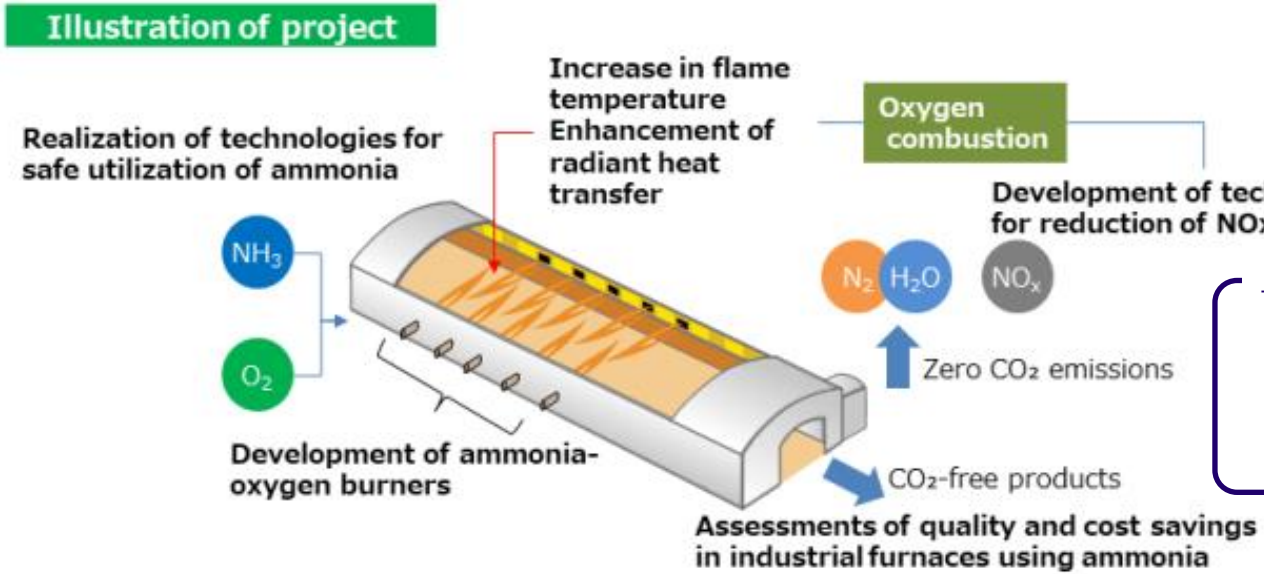


Illustration of industrial glass-melting furnace using ammonia as fuel

Participating Organization

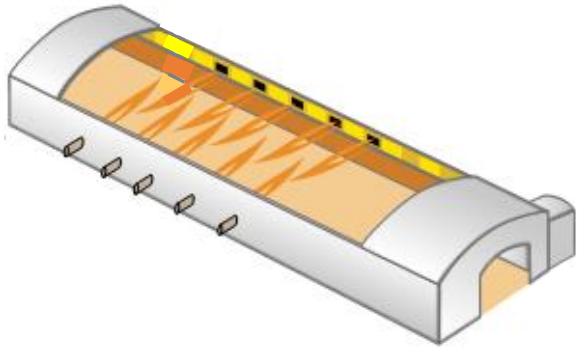
- Taiyo Nippon Sanso Corporation
- National Institute of Advanced Industrial Science and Technology
- Tohoku University
- AGC

Reference: https://www.nedo.go.jp/

*NEDO: New Energy and Industrial Technology Development Organization

Ammonia combustion test in a glass melting furnace

In June of this year, AGC conducted world's first demonstration test of ammonia combustion in a glass melting furnace that produces architectural glass.



Burners commonly used (several pairs)

+

Burners for Ammonia (200kW, one pair)

NOx concentration remained below the regulated value.
We have taken the first step towards introducing ammonia fuel.

Glass melting furnace
in which this demonstration test was conducted

Storage tank for ammonia fuel

Natural gas 100%

Ammonia 100%

Inside a glass melting furnace burning with a specialized burner

Future plan

- Continue 200kW trial to gather essential data on ammonia combustion in our furnace.
- Scale up the burner to 1MW after 200kW trials.

END

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