

Preface

Brunei Darussalam is famous for producing oil and natural gas, which are mainly exported to neighbouring countries as well as Japan and the Republic of Korea. Natural gas is defined as a transition fuel, such as coal to gas currently, and thus Brunei will be able to produce and export natural gas continuously in the coming decades. However, natural gas emits carbon dioxide (CO₂) amounting to half that of coal, so after 2040, gas will be phased out of the energy market in Asia due to the region becoming carbon neutral. In this regard, hydrogen is now being highlighted as a combustible fuel like natural gas, but which has no CO₂ emissions.

There are two types of hydrogen, blue hydrogen and green hydrogen. Blue hydrogen is produced from fossil fuels, such as coal and gas, with carbon capture and storage to reduce CO₂ emissions. On the other hand, green hydrogen is produced by applying electrolysis technology using electricity from renewable power sources, such as solar photovoltaic (PV). Brunei is rich in natural gas resources so it can produce lots of blue hydrogen. However, the country has limited renewable energy resources, and only solar PV is available for producing green hydrogen by applying electrolysis technology. Nonetheless, Brunei pays attention to the maintenance of its green areas (tropical rain forests), and whilst potential areas to set up solar PV are limited, they include bare ground without trees, reservoirs, rivers, and the sea in Brunei Bay. Consequently, floating type solar PV can be expected to be installed in the country. Based on electricity generation by solar PV systems, this project forecasts the potential production of green hydrogen in Brunei. Comparing hydrogen demand both inside and outside the country, green hydrogen production will be insufficient, and thus blue hydrogen will also be needed. Hydrogen will be a strategic fuel, similar to natural gas, and this report provides thoughts on hydrogen production policies in Brunei.

Shigeru Kimura

Special Advisor to the President on Energy Affairs

Economic Research Institute for ASEAN and East Asia