

# LNG and Clean Ammonia Initiatives in Abu Dhabi

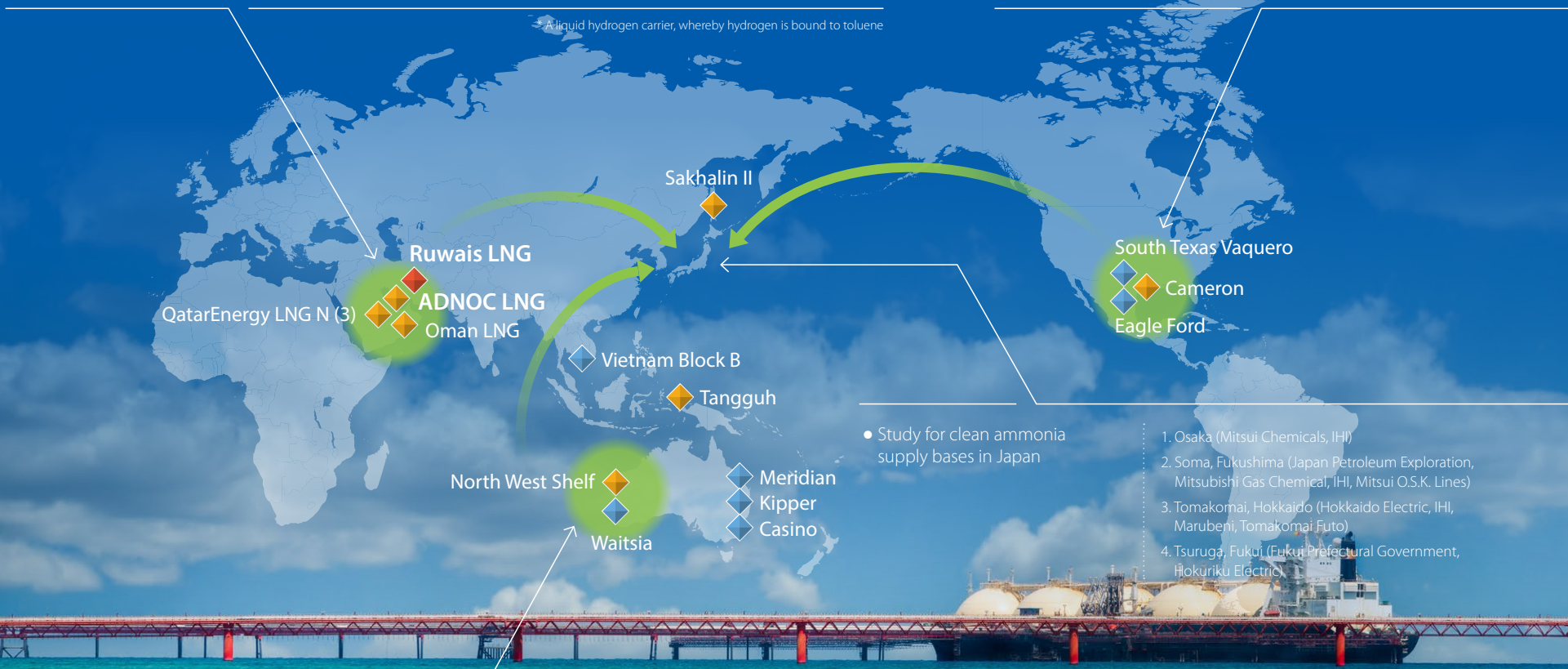
Mitsui is pushing forward the energy transition worldwide with its global partners. The following section presents our LNG initiatives in Abu Dhabi, which span more than 50 years, and our new clean ammonia project. Clean ammonia refers to blue ammonia, where natural gas is used as a feedstock and CO<sub>2</sub> emissions in its production process are reduced through carbon capture and storage (CCS), and green ammonia, where hydrogen produced from renewable energy is used as a feedstock.

## United Arab Emirates (UAE)

- Ruwais LNG project: Invest in 2024, start production in 2028
- Clean ammonia project: Start construction of production facility in 2024, start production in 2027
- Feasibility study with ADNOC and ENEOS completed for hydrogen-methylcyclohexane (MCH)\* supply chain



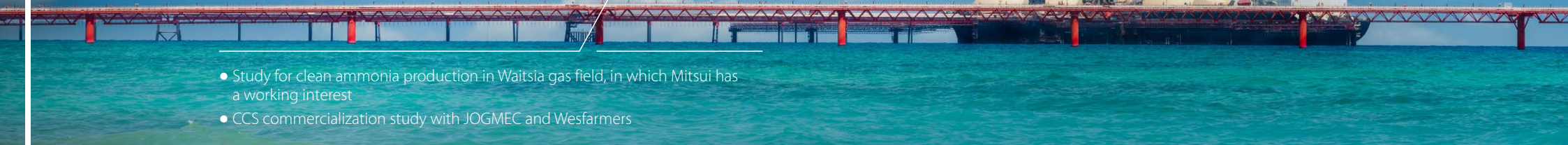
- Collaboration with CF Industries, the world's largest ammonia producer
- Joint development agreement signed in 2022, final investment decision scheduled for 2024



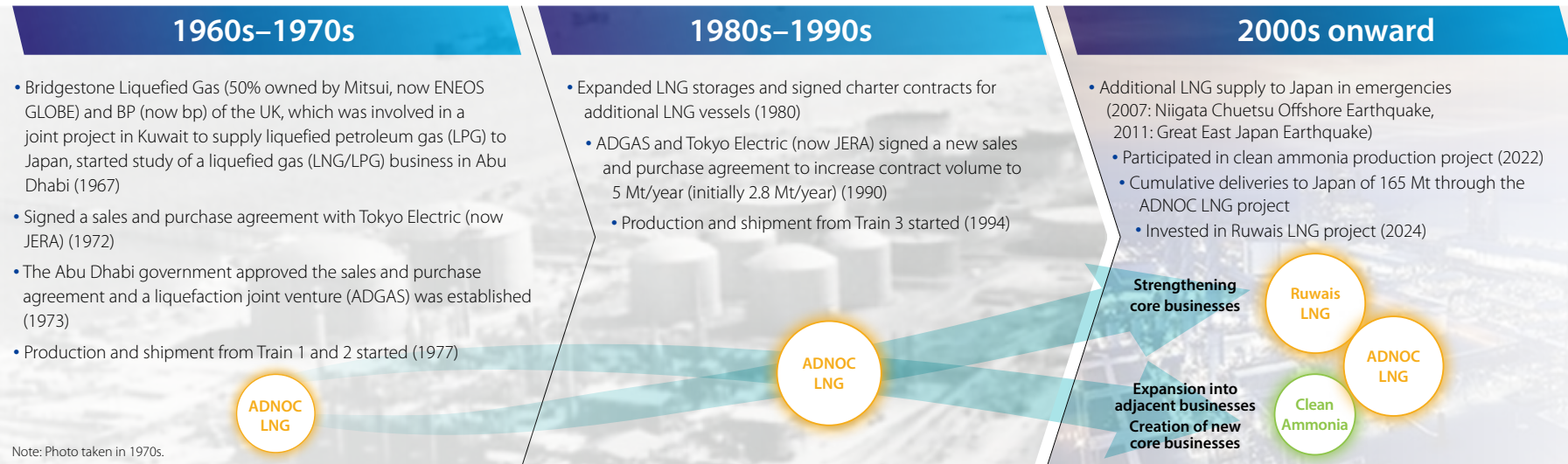
- Study for clean ammonia supply bases in Japan

1. Osaka (Mitsui Chemicals, IHI)
2. Soma, Fukushima (Japan Petroleum Exploration, Mitsubishi Gas Chemical, IHI, Mitsui O.S.K. Lines)
3. Tomakomai, Hokkaido (Hokkaido Electric, IHI, Marubeni, Tomakomai Futo)
4. Tsuruga, Fukui (Fukui Prefectural Government, Hokuriku Electric)

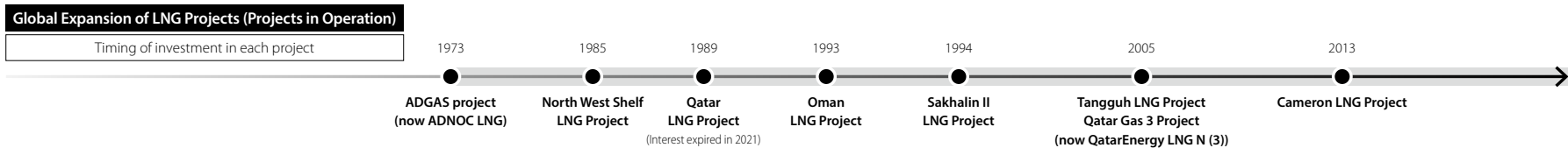
- Study for clean ammonia production in Waitsia gas field, in which Mitsui has a working interest
- CCS commercialization study with JOGMEC and Wesfarmers



## History of Initiatives in Abu Dhabi



Note: Photo taken in 1970s.



Social Issues	1970s-1980s	1980s-2000s	2000s onward
	Ensuring stable energy supply Shifting away from dependence on oil and dealing with pollution associated with rapid economic growth	Expanding and diversifying projects in response to growing demand	Providing <i>real solutions</i> to help achieve a decarbonized society

Mitsui's Initiatives in Abu Dhabi	Create	Grow	Extend
	<ul style="list-style-type: none"> <li>Invested in the LNG business in the 1970s</li> <li>Track record in crude oil and petroleum product offtake</li> </ul>	<ul style="list-style-type: none"> <li>Stable operation and expansion of the LNG business</li> <li>Collaboration in the LNG business spanning 50 years</li> </ul>	<ul style="list-style-type: none"> <li>Leveraging long-term relationships to develop and expand business to achieve a decarbonized society</li> <li>Horizontal expansion into various decarbonization businesses</li> <li>Ammonia offtake</li> </ul>

In an era when Energy Business Unit earnings was dependent on oil trading, Mitsui invested in its first LNG business, which had high barriers to entry. By facilitating an agreement with Tokyo Electric, Japan's largest buyer at the time, and by providing financing, we earned the trust of ADNOC and energy majors, building strong partnerships. These relationships led to our subsequent entry into other LNG projects. Furthermore, the decision was made to invest in Ruwais LNG in 2024, the second LNG project in the country.

### Ruwais LNG

Project Overview		Project Structure							
<b>Location</b>	Ruwais, Abu Dhabi, United Arab Emirates	<ul style="list-style-type: none"> <li>Formation of a robust international consortium with a leading national energy company and global energy majors to run the project. Made final investment decision in short period of time</li> </ul>							
<b>Partners</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Abu Dhabi National Oil Company (ADNOC) Mitsui's subsidiary (wholly owned)</td> <td style="text-align: right;">60%</td> </tr> <tr> <td>bp's subsidiary</td> <td style="text-align: right;">10%</td> </tr> <tr> <td>Shell's subsidiary</td> <td style="text-align: right;">10%</td> </tr> <tr> <td>TotalEnergies' subsidiary</td> <td style="text-align: right;">10%</td> </tr> </table>			Abu Dhabi National Oil Company (ADNOC) Mitsui's subsidiary (wholly owned)	60%	bp's subsidiary	10%	Shell's subsidiary	10%
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<b>Production Volume</b>	9.6 Mt/year (4.8 Mt x 2 trains)	<div style="background-color: #1a3d54; color: white; padding: 5px; text-align: center;">Stable Supply and Earnings</div> <ul style="list-style-type: none"> <li>Expansion of LNG portfolio and regional diversification of the LNG business</li> <li>A competitive project that is expected to contribute stable earnings over the long term</li> <li>Further upgrade trading functions through LNG offtake</li> </ul>							
<b>Schedule</b>	Production to start from 2028 Project period 20 years from production start								
		<div style="background-color: #1a3d54; color: white; padding: 5px; text-align: center;">Decarbonization</div> <ul style="list-style-type: none"> <li>Adoption of electric motors</li> <li>Use of clean power</li> </ul>							

Comments from each company's CEO



**Daisuke Mori**  
Marketing Manager,  
ADNOC Gas Operations and Marketing LLC  
(seconded from Mitsui)

I have been seconded to ADNOC Gas as the Marketing Manager for Ruwais LNG. With a diverse team from the UAE, Europe, the US, and India, I have been leading marketing of Ruwais LNG and achieving key milestones by deploying my trading expertise, industry network, and frontline marketing skills that I have cultivated during my career at Mitsui. For over 50 years since the 1970s, Mitsui has been building solid relationships and conducting interpersonal exchanges with ADNOC, which is an important supplier in the context of Japan's energy policy. Mitsui's investment in this project amid brisk competition among international energy majors is one crystallized outcome of this relationship. Looking ahead to the next 50 years, I will continue this contribution to building and leveraging Mitsui's presence in the Middle East region and the global energy industry.

### Clean Ammonia Project

Project Overview		Combination of Cross-industry Expertise	
<b>Location</b>	Ruwais, Abu Dhabi, United Arab Emirates	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <div style="color: red; font-weight: bold;">Energy</div> <div style="background-color: #f08080; border-radius: 50%; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; color: white; font-size: 8px;">                         Expertise in natural gas and LNG                     </div> </div> <div style="text-align: center;"> <div style="background-color: #8bc34a; border-radius: 50%; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; color: white; font-size: 8px;">                         Generation of a cross-industry premium                     </div> </div> <div style="text-align: center;"> <div style="color: green; font-weight: bold;">Chemicals</div> <div style="background-color: #8bc34a; border-radius: 50%; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; color: white; font-size: 8px;">                         Expertise in ammonia                     </div> </div> </div>	
<b>Partners</b>	TA'ZIZ (ADNOC Group) Fertiglobe Mitsui's subsidiary (wholly owned) GS Energy		
<b>Production Volume</b>	1.0 Mt/year	<ul style="list-style-type: none"> <li>Track record in E&amp;P and LNG projects</li> <li>Partnership with ADNOC cultivated through our existing project over many years</li> <li>Track record of stable energy supply to Japan and the rest of Asia</li> </ul>	
<b>Schedule</b>	Start of commercial production of ammonia in 2027 Start of clean ammonia supply in 2030		



**Koji Amano**  
General Manager, Hydrogen Market Development Department,  
Hydrogen Solutions Business Division,  
Energy Solutions Business Unit

We formed a cross-divisional team that includes members from the Chemicals segment and colleagues assigned overseas, and for the past three years we have been in discussions with ADNOC to launch a clean ammonia project. The UAE has set a national hydrogen strategy and aims to make Abu Dhabi a major hub for hydrogen production. By further developing our long-term relationship with ADNOC and expanding our collaborative efforts in the hydrogen business, we will strive to contribute to the realization of a decarbonized society.