



## 기후변화협약(UNFCCC) 당사국총회(COP28) 결과 및 녹색해운항로(GSC)

COP28 Agreement Signals “Beginning of the End” of  
the Fossil Fuel Era

13 December 2023

UN Climate Press Release

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# 1-1 당사국총회(COP 28) 회의결과(UNFCCC)

## 기후변화협약의 탄생, 리우회의(1992)

1992년 6월 브라질의 리우데자네이루에서 세계 185개국의 대표단과 114개국 정상이 참여해 지구환경 보전 문제를 논의했으며, 여기에서 바로 '기후변화에 관한 유엔기본협약'이 탄생했다. 이는 ▷각국의 온실가스 배출, 흡수 현황에 대한 국가통계 및 정책이행에 관한 국가보고서 작성 ▷온실가스 배출 감축을 위한 국내 정책 수립 및 시행 ▷온실가스 배출량 감축 권고 등을 주요 내용으로 하고 있다. 이에 따르면 모든 당사국은 온실가스를 줄이기 위한 국가 전략을 수립·시행하고, 이를 공개해야 하며, 통계자료와 정책이행에 대한 보고서를 협약 당사국총회(COP, Conference of the Parties)에 제출해야 한다. (자세히 보기)

Source : KMI

# 1-2 당사국총회(COP 28) 회의결과(UNFCCC)

## 교토의정서 발효(2005)

1992년 6월 리우 유엔환경회의에서 채택된 기후변화협약(UNFCCC)을 이행하기 위해 1997년 만들어진 국가 간 이행협약으로, '교토기후협약'이라고도 한다. 1997년 12월 일본 교토에서 열린 기후변화협약 제 3차 당사국총회(COP 3)는 선진국으로 하여금 2008~2012년 온실가스 배출량을 1990년 기준으로 5.2% 감축하기로 하는 교토의정서를 만들어냈다.

하지만 개도국의 대표주자인 중국이 온실가스 감축 의무에서 빠지고 미국과 일본 등 선진국은 자국 산업 보호를 이유로 이탈하면서 교토의정서는 반쪽짜리 규약이라는 한계를 갖게 됐다. 이에 교토의정서를 대체할 구속력 있는 새로운 협정의 필요성이 대두되었고, 이에 대한 합의가 지속적으론 이뤄진 끝에 2015년 파리총회에서 새로운 기후변화협약이 탄생하게 되었다. ([자세히 보기](#))

공동이행제도	선진국이 A국이 선진국인 B국에 투자하여 발생된 온실가스 감축분의 일정분을 A국의 감축 실적으로 인정하는 제도
청정개발체제(CDM)	선진국인 A국이 개발도상국인 B국에 투자하여 발생된 온실가스 배출 감축분을 자국의 감축 실적에 반영할 수 있도록 하는 제도
배출권거래제	온실가스 감축의무가 있는 국가에 배출쿼터를 부여한 후, 국가 간 배출 쿼터의 거래를 허용하는 제도

# 1-3 당사국총회(COP 28) 회의결과(UNFCCC)

## 파리기후변화협약 발효(2016)

2015년 12월 프랑스 파리에서 열린 제21차 유엔기후변화협약(UNFCCC) 당사국총회(COP21)에서 채택된 것으로, 2020년 만료 예정인 교토의정서를 대체해 2020년 이후의 기후변화 대응을 담은 국제협약이다. 2016년 11월 발효된 협약은 장기목표로는 산업화 이전 대비 지구 평균기온 상승을 '2℃보다 상당히 낮은 수준으로 유지'키로 하고, '1.5℃ 이하로 제한하기 위한 노력을 추구'하기로 했다. 또 국가별 온실가스 감축량은 각국이 제출한 자발적 감축목표(INDC)를 그대로 인정하되 2020년부터 5년마다 상향된 목표를 제출하도록 했다. 이와 함께 정기적인 이행 상황 및 달성 경과 보고를 의무화하고, 이를 점검하기 위한 국제사회의 종합적 이행 점검 시스템을 도입해 2023년에 최초로 실시한다는 원칙에 합의했다. 특히 파리협약은 선진국에만 감축 의무를 부과했던 교토의정서와 달리 195개 당사국 모두가 지켜야 하는 첫 합의이면서, 교토의정서를 대체하는 신(新)기후변화 체제를 마련했다는 데서 그 의의가 있다. 다만 각국의 기여방안 제출은 의무로 하되, 이행은 각국이 국내적으로 노력키로 합의함에 따라 국제법적 구속력은 결국 부여하지 못했다. (자세히 보기)

Source : KMI

# 1-4 당사국총회(COP 28) 회의결과

## Outcomes of the Dubai Climate Change Conference - Advance Unedited Versions (AUVs) and list of submissions from the sessions in Dubai.

The advance unedited versions of the decisions taken at the Dubai Climate Change Conference are listed below by governing body. The full reports will be published in due course. The list of submissions from the sessions in Dubai can be found [here](#)

### UAE consensus

COP	CMA
2f Presidency youth climate champion	2c Presidency youth climate champion
8g Operationalization of the new funding arrangements, including a fund, for responding to loss and damage referred to in paragraphs 2-3 of decisions 2/CP.27 and 2/CMA.4	4 Outcome of the first global stocktake
	5 UAE Just Transition work programme
	6 Sharm el-Sheikh mitigation ambition and implementation work programme referred to in decision 4/CMA.4
	8a Glasgow-Sharm el-Sheikh work programme on the global goal on adaptation referred to in decision 7/CMA.3

Source : UNFCCC & KMI

# 1-5 당사국총회(COP 28) 회의결과

UN Climate Change News, 13 December 2023 – The United Nations Climate Change Conference (COP28) closed today with an agreement that signals the “beginning of the end” of the fossil fuel era by laying the ground for a swift, just and equitable transition, underpinned by deep emissions cuts and scaled-up finance.

In a demonstration of global solidarity, negotiators from nearly 200 Parties came together in Dubai with a decision on the world's first 'global stocktake' to ratchet up climate action before the end of the decade – with the overarching aim to keep the global temperature limit of 1.5°C within reach.

“Whilst we didn't turn the page on the fossil fuel era in Dubai, this outcome is the beginning of the end,” said UN Climate Change Executive Secretary Simon Stiell in his closing speech. “Now all governments and businesses need to turn these pledges into real-economy outcomes, without delay.”

The global stocktake is considered the central outcome of COP28 – as it contains every element that was under negotiation and can now be used by countries to develop stronger climate action plans due by 2025.

The stocktake recognizes the science that indicates global greenhouse gas emissions need to be cut 43% by 2030, compared to 2019 levels, to limit global warming to 1.5°C. But it notes Parties are off track when it comes to meeting their Paris Agreement goals.

The stocktake calls on Parties to take actions towards achieving, at a global scale, a tripling of renewable energy capacity and doubling energy efficiency improvements by 2030. The list also includes accelerating efforts towards the phase-down of unabated coal power, phasing out inefficient fossil fuel subsidies, and other measures that drive the transition away from fossil fuels in energy systems, in a just, orderly and equitable manner, with developed countries continuing to take the lead.

In the short-term, Parties are encouraged to come forward with ambitious, economy-wide emission reduction targets, covering all greenhouse gases, sectors and categories and aligned with the 1.5°C limit in their next round of climate action plans (known as nationally determined contributions) by 2025.

# 1-6 당사국총회(COP 28) 회의결과



United Nations



Framework Convention on  
Climate Change

## REVISED ADVANCE VERSION

FCCC/PA/CMA/2023/L.17

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### Conference of the Parties serving as the meeting of the Parties to the Paris Agreement Fifth session

United Arab Emirates, 30 November to 12 December 2023

Agenda item 4

First global stocktake

### First global stocktake

### Proposal by the President

### Draft decision -/CMA.5

### Outcome of the first global stocktake

*The Conference of the Parties serving as the meeting of the Parties to the Paris Agreement,*

*Recalling Article 2, paragraph 1, of the Paris Agreement, which provides that the Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty,*



# 1-7 당사국총회(COP 28) 회의결과

27. *Also recognizes* that limiting global warming to 1.5 °C with no or limited overshoot requires deep, rapid and sustained reductions in global greenhouse gas emissions of 43 per cent by 2030 and 60 per cent by 2035 relative to the 2019 level and reaching net zero carbon dioxide emissions by 2050;

28. *Further recognizes* the need for deep, rapid and sustained reductions in greenhouse gas emissions in line with 1.5 °C pathways and *calls on* Parties to contribute to the following global efforts, in a nationally determined manner, taking into account the Paris Agreement and their different national circumstances, pathways and approaches:

(a) Tripling renewable energy capacity globally and doubling the global average annual rate of energy efficiency improvements by 2030;

(b) Accelerating efforts towards the phase-down of unabated coal power;

(c) Accelerating efforts globally towards net zero emission energy systems, utilizing zero- and low-carbon fuels well before or by around mid-century;

(d) Transitioning away from fossil fuels in energy systems, in a just, orderly and equitable manner, accelerating action in this critical decade, so as to achieve net zero by 2050 in keeping with the science;

(e) Accelerating zero- and low-emission technologies, including, inter alia, renewables, nuclear, abatement and removal technologies such as carbon capture and utilization and storage, particularly in hard-to-abate sectors, and low-carbon hydrogen production;

(f) Accelerating and substantially reducing non-carbon-dioxide emissions globally, including in particular methane emissions by 2030;

(g) Accelerating the reduction of emissions from road transport on a range of pathways, including through development of infrastructure and rapid deployment of zero- and low-emission vehicles;

(h) Phasing out inefficient fossil fuel subsidies that do not address energy poverty or just transitions, as soon as possible;

Source : UNFCCC & KMI

# 1-8 당사국총회(COP 28) 회의결과

ORGANISATION  
MARITIME  
INTERNATIONALE



INTERNATIONAL  
MARITIME  
ORGANIZATION

ORGANIZACIÓN  
MARITIMA  
INTERNACIONAL

МЕЖДУНАРОДНАЯ  
МОРСКАЯ  
ОРГАНИЗАЦИЯ

المنظمة البحرية الدولية

国际海事组织

Note by the International Maritime Organization to the fifty-ninth session of the UNFCCC Subsidiary Body for Scientific and Technological Advice (SBSTA 59) Dubai, United Arab Emirates, 30 Nov - 12 Dec. 2023

Agenda item 12(b)  
"Emissions from fuel used for international aviation and maritime transport"

## UPDATE ON IMO'S WORK TO ADDRESS GHG EMISSIONS FROM INTERNATIONAL SHIPPING

### SUMMARY

The International Maritime Organization (IMO) contributes to international action to address climate change by regulating GHG emissions from international shipping.

This note is an update of the IMO submission to SBSTA 58 and focusses on the latest developments on the various GHG-related workstreams at IMO, in particular the historic adoption of the **2023 IMO Strategy on reduction of GHG emissions from ships** by the Marine Environment Protection Committee at its eightieth session (MEPC 80) in July 2023.

### Context

1 In July 2023, IMO Member States, at the eightieth session of the Marine Environment Protection Committee (MEPC 80), unanimously adopted resolution MEPC.377(80) on the **2023 IMO Strategy on reduction of GHG emissions from ships** (2023 IMO GHG Strategy) enhancing IMO's contribution to global efforts by addressing GHG emissions from international shipping containing, inter alia, the following elements:

1. The vision of the 2023 IMO GHG Strategy states that IMO remains committed to reducing GHG emissions from international shipping and, as a matter of urgency, aims to phase them out as soon as possible, while promoting, in the context of this Strategy, a just and equitable transition.
2. Enhanced levels of ambition include to reach at least 5%, striving for 10%, of the energy used by international shipping to be zero or near-zero GHG emission technologies, fuels and/or energy sources by 2030, and to reach net-zero GHG emissions by or around, i.e., close to, 2050, taking into account different national circumstances, whilst pursuing efforts towards phasing them out as called for in the Vision consistent with the long-term temperature goal set out in Article 2 of the Paris Agreement.

## Development of mid- and long-term GHG reduction measures

5 As presented in previous IMO submissions to SBSTA, considerable work is ongoing on the **development** of mid- and long-term GHG reduction measures. The 2023 IMO GHG Strategy states that by the autumn of 2025 a basket of candidate measure(s), delivering on the reduction targets, should be developed and finalized comprised of both:

1. a technical element, namely a goal-based marine fuel standard regulating the phased reduction of the marine fuel's GHG intensity; and
2. an economic element, on the basis of a maritime GHG emissions pricing mechanism.

6 Consequently, MEPC 80 initiated a comprehensive assessment of possible impacts on States of the various combinations of the candidate technical and economic elements with a view to facilitating the finalization of the basket of measures.

7 Preliminary results of the comprehensive impact assessment will be presented to MEPC 81 (March 2024), to be considered in combination with other updated proposals on candidate mid-term GHG reduction measures. The comprehensive impact assessment of the basket of candidate mid-term GHG reduction measures is funded by the [IMO GHG TC Trust Fund](#).

## Life cycle GHG/carbon intensity assessment (LCA) of marine fuels

8 **Life cycle GHG intensity assessment (LCA) of marine fuels** is a key element supporting the uptake of alternative marine fuels for international shipping by adequately calculating the overall GHG footprint of those fuels.

9 MEPC 80 adopted the **Guidelines on life cycle GHG intensity of marine fuels (LCA guidelines)** ([Resolution MEPC.376\(80\)](#)). The LCA guidelines allow for a Well-to-Wake calculation, including Well-to-Tank and Tank-to-Wake emission factors, of total GHG emissions related to the production and use of marine fuels. MEPC 80 established a Correspondence Group on the Further Development of the LCA Framework to continue this important work.

10 MEPC 80 also requested the Secretariat to undertake a review of existing practices on sustainability aspects/certification and third-party verification issues and to organize an expert workshop on the life cycle GHG intensity of marine fuels, which will take place in December 2023. The review of existing practices is undertaken by the [IMO Future Fuels and Technologies project](#).

11 The further development of the LCA framework will be discussed at MEPC 81 to be held in March 2024.

# 1-9 당사국총회(COP 28) 회의결과

## Development of the necessary safety regulatory framework allowing safe handling of the future marine fuels on board of ships

12 The Marine Safety Committee at MSC 107 (June 2023) agreed to include in its biennial agenda for 2024-2025 a continuous output on "Development of a safety regulatory framework to support the reduction of GHG emissions from ships using new technologies and alternative fuels" and established a correspondence group to progress the work intersessionally.

13 The IMO Sub-Committee on Carriage of Cargoes and Containers (CCC 9), which met in September 2023, made significant progress on the development of draft interim guidelines for the safety of ships using hydrogen and ammonia as fuel. Taking into account the urgency of providing guidance to Administrations, shipowners and the industry at large on the safe use of hydrogen and ammonia as fuel, and in support of the Organization's emission targets, the Sub-Committee agreed to convene an intersessional working group in 2024 to finalize the guidelines.

## Capacity-building, technical cooperation and other supporting activities

14 IMO is scaling up its technical cooperation and capacity-building initiatives to support shipping decarbonization in developing countries, in particular SIDS and LDCs, ensure a just and equitable transition to low-carbon shipping and seize development opportunities arising from the decarbonization of the sector. Overview of IMO initiatives in this area is set out in our previous submission to SBSTA 58: IMO submission to SBSTA 58. The main new initiatives since SBSTA 58 are listed in the paragraphs below.

## IMO-UNEP-Norway Innovation Forum

15 On World Maritime Day, the IMO-UNEP-Norway Innovation Forum 2023 took place on 28 September at IMO Headquarters, London, and online. The Forum promoted innovation to accelerate the transition of the marine sector towards a zero- and low-emission future. Topics addressed through high-level panel discussions included: environmental performance; reducing plastic litter from ships; supporting innovation in marine fuel production; decarbonizing the maritime sector; unlocking green finance; and partnerships and collaboration. This was the third annual Forum supported by the Government of Norway, the IMO Secretariat and the United Nations Environment Programme (UNEP) in order to promote innovation by providing a global platform to exchange best practices and fill necessary gaps by gathering ideas and latest developments from all competent international policy makers.

## GreenVoyage2050 project extended

16 The Government of Norway has confirmed 210 million NOK (US\$19.4 million) of funds for Phase Two of the IMO GreenVoyage2050 project, in an agreement between Norway and IMO that was signed on 28 September, World Maritime Day, during the IMO-UNEP-Norway Innovation Forum.

## 0. 의제 12(b) : 협약 하 방법론 이슈 - 국제해운 및 항공 연료 배출량

SBSTA 12 Methodological issues under the Convention - (b) Emissions from fuel used for international aviation and maritime transport

- (개요) 국제해사기구(IMO)와 국제민간항공기구(ICAO)는 UNFCCC의 당사국은 아니지만 유엔 산하 전문기구로 각 기구에서의 온실가스 감축 활동을 SBSTA에 보고함
- (주요 논의 사항) 일부국(중국, 이집트 등 개도국)이 국제해사기구(IMO)와 국제민간항공기구(ICAO)의 온실가스 감축 활동 보고서를 채택할 수 없으며 결론문에 CBDR-RC 추가를 주장하는 등 쟁점 요소가 있었으며, SBSTA 59에서는 결론문을 도출하지 못하고 차기 회의에서 계속 논의하기로 함
- (Submission 채택 여부) 사우디아라비아(아랍그룹)는 IMO 및 ICAO 보고서 일부가 COP28 개최 전일인 11월 29일 등록되어 충분히 검토할 시간이 없었으므로 이번 회의에서 ICAO Submission과 결론문을 채택할 수 없음을 주장
- (결론문 내 "CBDR-RC" 반영) 중국은 IMO와 ICAO의 감축목표에 대해 국가마다 상황과 역량이 다르므로 모든 국가가 같은 정량적 목표를 설정하기보다 CBDR-RC 원칙에 따라 국가 역량에 맞추어 추진할 것을 주장하였으며, CBDR-RC가 포함된 문구를 사무국에 전달하였으나 결론문 초안에 반영되지 않은 것에 불만을 표시하며 결론문 채택에 반대

# 1-10 당사국총회(COP 28) 회의결과

## 1 COP28 성과 총평(정부 일동)

### 1 정상회의 주요 성과

- 160개 이상 정상급 대표, UN 사무총장, UNFCCC 사무총장 등이 참석하여 **기후재원 확대 모멘텀**을 형성하고 **에너지 전환 노력 가속화**에 합의
  - \* **영** 찰스 3세, **미** 해리스 부통령, 인도 모디 총리, 브라질 룰라 대통령 등 참석
- 정상회의 직전 **손실과 피해** 기금 운영방안에 합의하고, 다수 선진국이 **공여 계획**을 발표 및 기금 초기기재원으로 총 42억불 이상 조성 합의
- 적응기금, GCF 기후 기금 등 기존 기후재원 채널에 대한 신규 공여 발표, 신규 기후기금 조성계획 발표를 포함하여 총 850억불 조성
- \* UAE 1억불, 독일 1억불, 이태리 1억 유로, 영국 4천만 파운드, 노르웨이 2500만불, 아일랜드 2500만 유로, 미국 1750만불(협의중), 일본 1천만불, 핀란드 300유로 등

### 2 당사국 총회 주요 결과

- COP28의 핵심의제인 GST(전지구적 이행점검) 결과문서에서 **화석연료로부터의 전환**(transitioning away from fossil fuels in energy systems) 명시
  - \* 화석연료의 단계적 퇴출(phase out)에 이르는 못하고 전환으로 절충
  - \*\* 재생에너지 외 원자력, 저탄소수소, 탄소 포집 활용 및 저장 등 저탄소기술 가속화 합의

### \* COP 28 UAE 컨센서스(Consensus) 내 태양 권연 결정사항.

- 전지구적 이행점검(GST) 결과
  - (서문) 모든 생태계(숲, 해양, 산악지대 및 빙산) 중요성 강조
  - (35쪽) 당사국들은 해양 및 연안 생태계를 모전하고 복원하며, **해양기반** 완화 조치를 확대하도록 요청
  - (56쪽) 해양 기반 적응 및 회복탄력성 조치를 포함한 **생태계기반**완전근본은 여러 기후변화 위험을 감소시키고, 혜택을 제공할 수 있다는 사실을 주목함
  - (180쪽) 2023년 해양 및 기후변화 대화의 결과 및 비공식 요약보고서를 환영하며, **해양기반** 조치를 더욱 강화하도록 권장함

## 1. 녹색에너지 분야

### 1 녹색에너지목표 선언

- (선언 개요) COP28 정상세션 중 **美·노르웨이** 주관 행사인 “**녹색 에너지목표 정상급 행사**(12.1, 1530 - 1630)”에서 참여국별 이행현황 발표
  - \* **美**(존 케리 통사), **노르웨이** 및 덴마크 총리, 피지 총리, 프랑스 해양부장관 등 각국 지도자급 참석 우리나라는 **조용식 대통령 특사 발표** 및 우리부 해양정책실장 박석
- (선언 내용) 한-미 녹색에너지목표 구축 현황 및 향후 계획
 

◇ (주요내용) 양국 주요 항만 간 화물 흐름, 재생에너지 가용성, 선박, 정책 등을 평가하는 사전 타당성 조사를 완료하였고, 2024년에 세부 타당성 조사를 거쳐 1~3개의 최종 항로를 선택하고 항로 구축을 지속할 계획

### 2 부대행사 개최

- (일시/장소/참석) '23.12.6. / 한국홍보관 / 한국, 미국, IMO
  - \* **韓**(우리부, 해양교통안전공단, 해양플랜트연구소, 한국해양수산개발원), **美**(국무부, IMO(해양환경부서, Marine Environment Division))
- (행사내용) 한-미 간 녹색에너지목표 협력 및 국제사회의 녹색에너지목표 논의 동향을 발표하고, 이에 대한 전문가 토론회 진행

### 3 한-성 양자 실무 간담회

- (일시/장소) '23.12.2. / 한국대표단 사무소
- (참 석 자) **(韓)** 해사산업기술과 한지섭 주무관, 해운정책과 양서정 주무관 / **(성)** New Wei Siang 과장 외 1
- (논의내용) 양국에서 추진 중인 녹색에너지목표로 구축 정보 공유 및 **해운 탈탄소 정책** 관련 협력 방안 모색
  - 양국은 **신세적으로 탈탄소화 정책을 추진 중인 국가**로서 긴밀한 소통을 통해 지속적으로 정보·정책 등을 교류해 나가기로 함

## 2-1 녹색해운항로(Green Shipping Corridors) 구축

Green Corridors between  
The Republic of Korea and the United States of America  
Pre-Feasibility Study  
2023



## 2-2 녹색해운항로(Green Shipping Corridors) 구축

### 1.1.3 Project Consortium

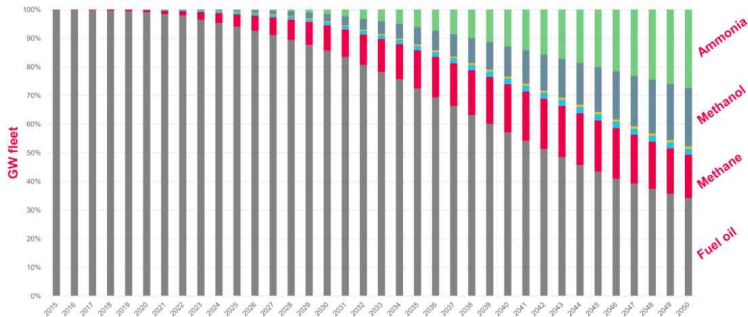
The project was initiated by the Republic of Korea's Ministry of Oceans and Fisheries (MOF), the United States Department of Energy (DoE), and the Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping (MMMCZCS). During the scoping phase in Q1 2023, it became apparent that additional parties/entities were required to conduct the study. As a result, the Pre-Feasibility Consortium Formation Methodology by MMCZCS (refer to Appendix 1) was employed. The resulting consortium, which includes a dozen project partners, is depicted in Figure 1.1.3.1.



Figure 1.1.3.1 Consortium partners

## 2-3 녹색해운항로(Green Shipping Corridors) 구축

### 2.1.2.3 Clean Methanol as marine fuel



Assumptions: Scenario is based on known factors such as world trade growth, EEDI, EEXI, expected CO2 regulation (currently unspecified), etc.

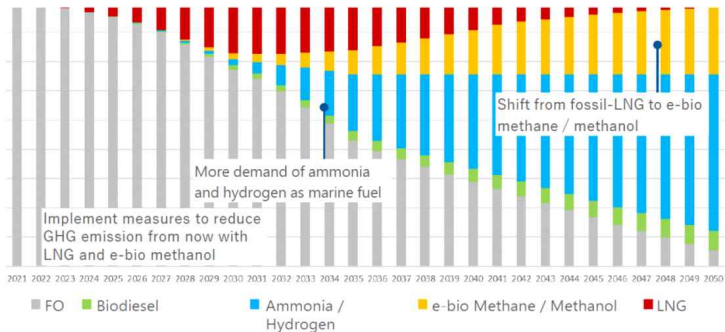
**Figure 2.1.2.3.1** Two-stroke fuel mix forecast towards 2050 (MAN engine)<sup>15</sup>

## 2-4

## 녹색해운항로(Green Shipping Corridors) 구축

## Alternative Fueled Fleet Roadmap

(Vertical axis: Number of vessels operated by MOL)

Figure 2.1.2.3.2 Alternative Fueled Fleet Roadmap (MOL)<sup>16</sup>



## 2-5 녹색해운항로(Green Shipping Corridors) 구축

**Table 2.2.2.1** Fuel capacity summed by fuel type and projected year online. Capacities list in tons per year

Fuel Type	2023	2024	2025	2026	2027	2028	2029	2030
Biodiesel	834,501	834,501	834,501	834,501	834,501	834,501	834,501	1,021,926
Ammonia	735,000	735,000	735,000	735,000	1,500,347	1,500,347	2,382,195	2,382,195
Hydrogen	10,735	614,250	614,250	614,250	629,668	960,668	960,668	1,008,668
Methanol	2,200	2,200	2,200	2,200	2,331,243	2,331,243	4,094,939	4,214,939
Renewable								
diesel	1,490,057	6,322,135	7,353,248	7,468,969	7,501,765	7,501,765	7,501,765	7,501,765
BioLNG	101,863	161,471	256,811	256,811	256,811	256,811	256,811	256,811
SAF	511,233	2,593,870	4,216,663	4,398,790	4,501,433	4,501,433	4,501,433	4,501,433

Source : MMMCZ & MOF & KMI

## 2-6 녹색해운항로(Green Shipping Corridors) 구축

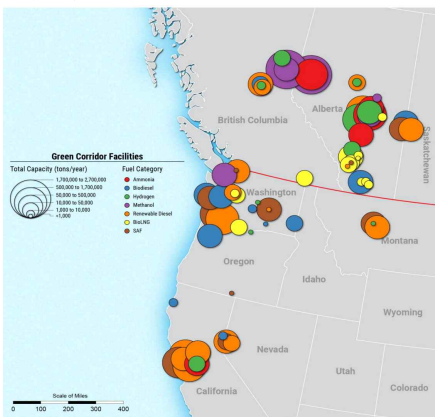


Figure 2.2.2.2.4 Map of existing and proposed fuel production facilities by fuel type and size

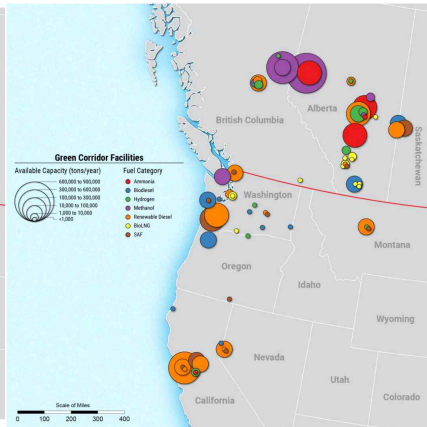


Figure 2.2.2.2.5 Map of available fuel capacity by fuel type and size

# 2-7 녹색해운항로(Green Shipping Corridors) 구축

## Criteria for green corridor selection

				
<b>Criteria sub-set 1 - "Primary Trade Routes – Direct – 2028"</b> Direct calling between ROK Ports* and USA Ports* on shipping string for Container carrier on e-/bio-methanol as fuel from 2028	 ROK <sub>3</sub> – US <sub>3</sub> 			
<b>Criteria sub-set 2 - "Primary Trade Routes – Direct – 2033"</b> Direct calling between ROK Ports* and USA Ports* on shipping string for Container carrier on green-/blue-ammonia as fuel from 2033.	 ROK <sub>3</sub> – US <sub>3</sub> 			
<b>Criteria sub-set 3 - "Primary Trade Routes – Indirect – 2028"</b> Any ports calling between ROK** and USA** on shipping string for Container carriers and e-/bio-methanol as fuel from 2028.	 			
<b>Criteria sub-set 4 - "Primary Trade Routes – Indirect – 2033"</b> Any ports calling between ROK** and USA** on shipping string for Container carriers and green/blue ammonia as fuel from 2033.	 			
<b>Criteria sub-set 5 - "Earliest Corridor"</b> Any ports calling between ROK** and USA** for any type of vessel and any type of clean fuel, which can start using as early as possible.	 			As early as possible
<b>Criteria sub-set 6 - "Transport of top 10 specific cargo (Value) - 2028"</b> Any ports calling between ROK** and USA** on shipping string for PCTC and any clean fuel from 2028.	 			
<b>Criteria sub-set 7 - "Transport of top 10 specific cargo (Value) - 2033"</b> Any ports calling between ROK** and USA** on shipping string for PCTC and green/blue ammonia as fuel as early as possible.	 			
<b>Criteria sub-set 8 - "Emerging Market"</b> Any ports calling between ROK** and USA** for new businesses not currently part of an existing business model. Could be related to the green transition	 			As early as possible

\* Directly connecting one of the three ROK Ports (ROK<sub>3</sub>) with one of the three US Ports (US<sub>3</sub>) as outlined in this study.

\*\* One of the three ROK Ports and one of the three US Ports (as outlined in this study) are on the same string, but not directly connected



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# Thank you

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