

# Legal Framework of EEXI

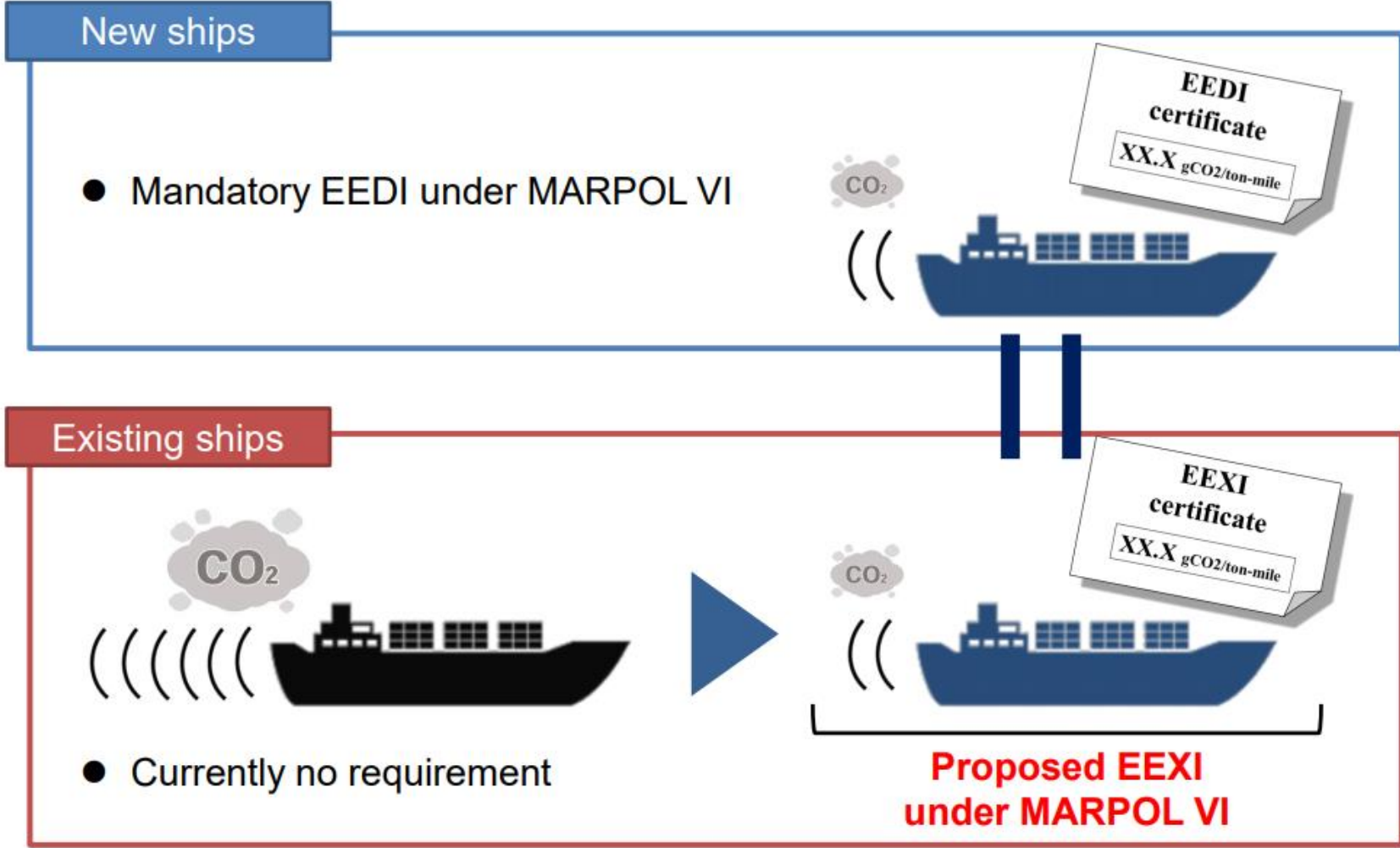
\* 본 자료는 한국선급 및 연구자의 지적 자산으로 무단 도용을 금합니다.

한국선급  
협약업무팀  
이태훈 책임

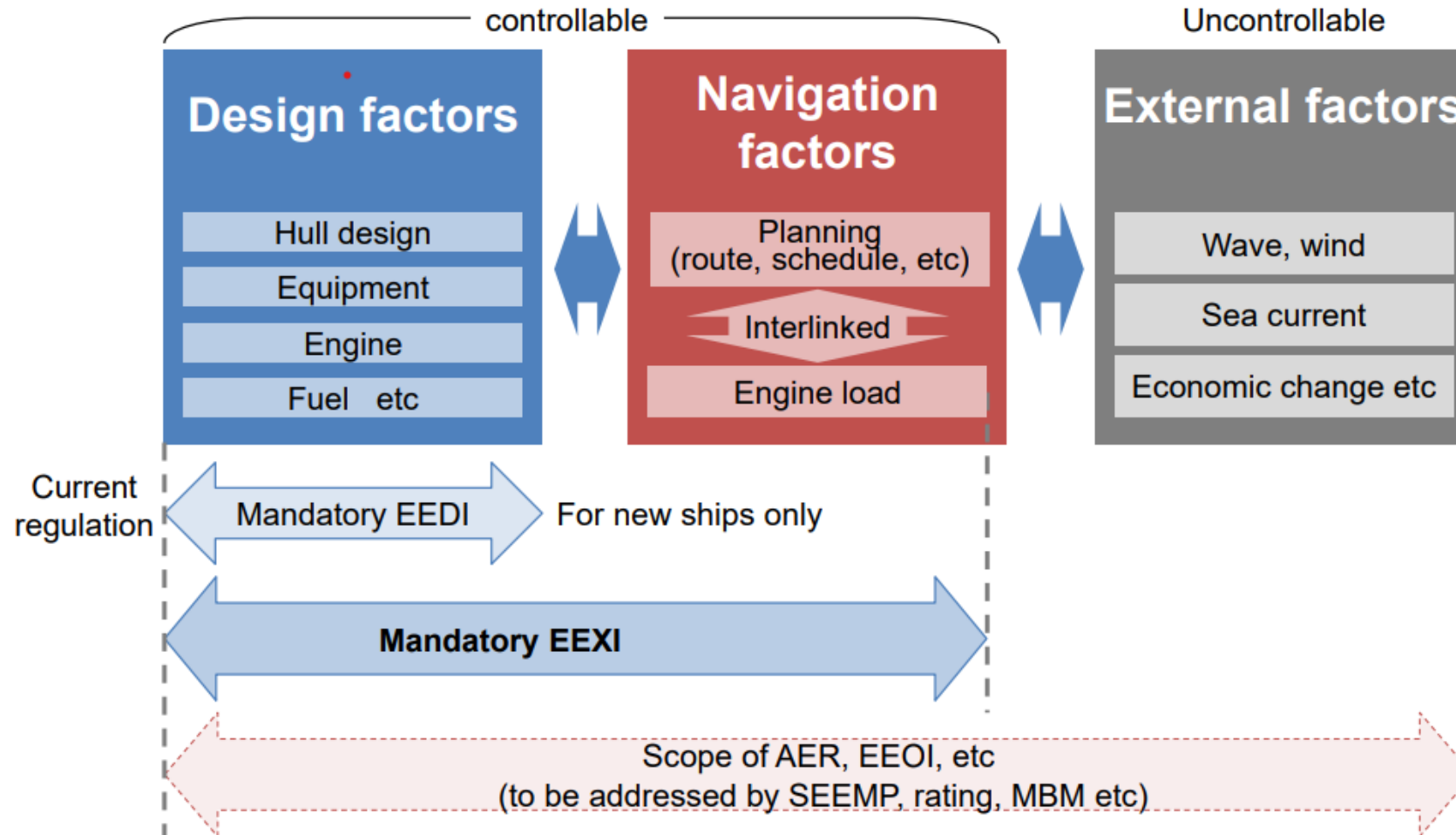
## 1. EEXI 개요

## 2. EEXI 협약 개정안





## EEXI changes operation in a **controllable way**



**EEXI : Energy Efficiency Existing Ship Index (EEXI)**  
 현존선박에 대한 에너지효율 지수

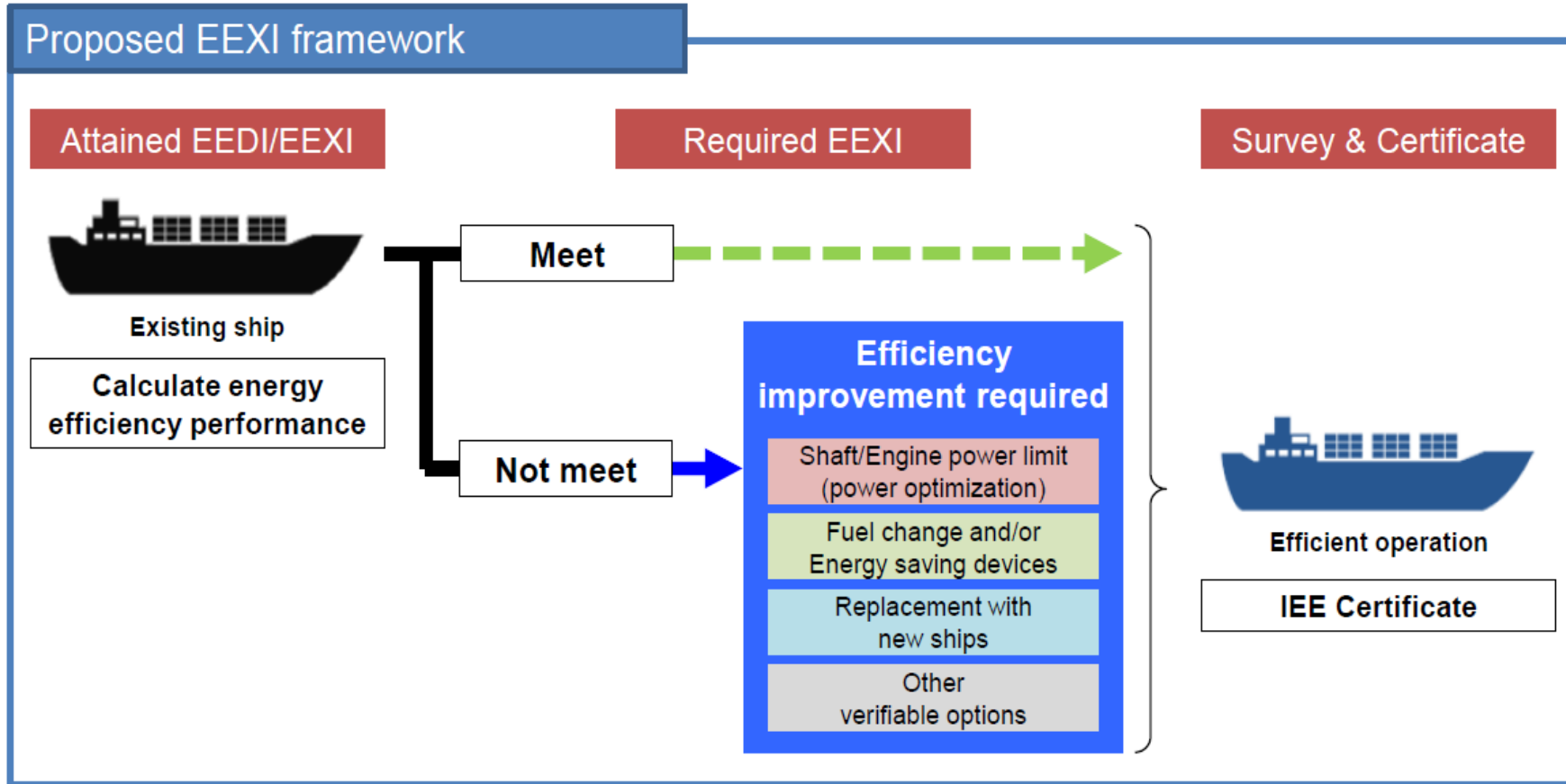
**EEDI : Energy Efficiency (New Ship) Design Index (EEDI)**  
 (신조선에 대한) 에너지효율 설계지수

Based on **EEDI** formula

**EEXI = CO<sub>2</sub> emissions per DWT-miles**  
**= Fuel conversion factor × fuel consumption per hour / DWT-speed**

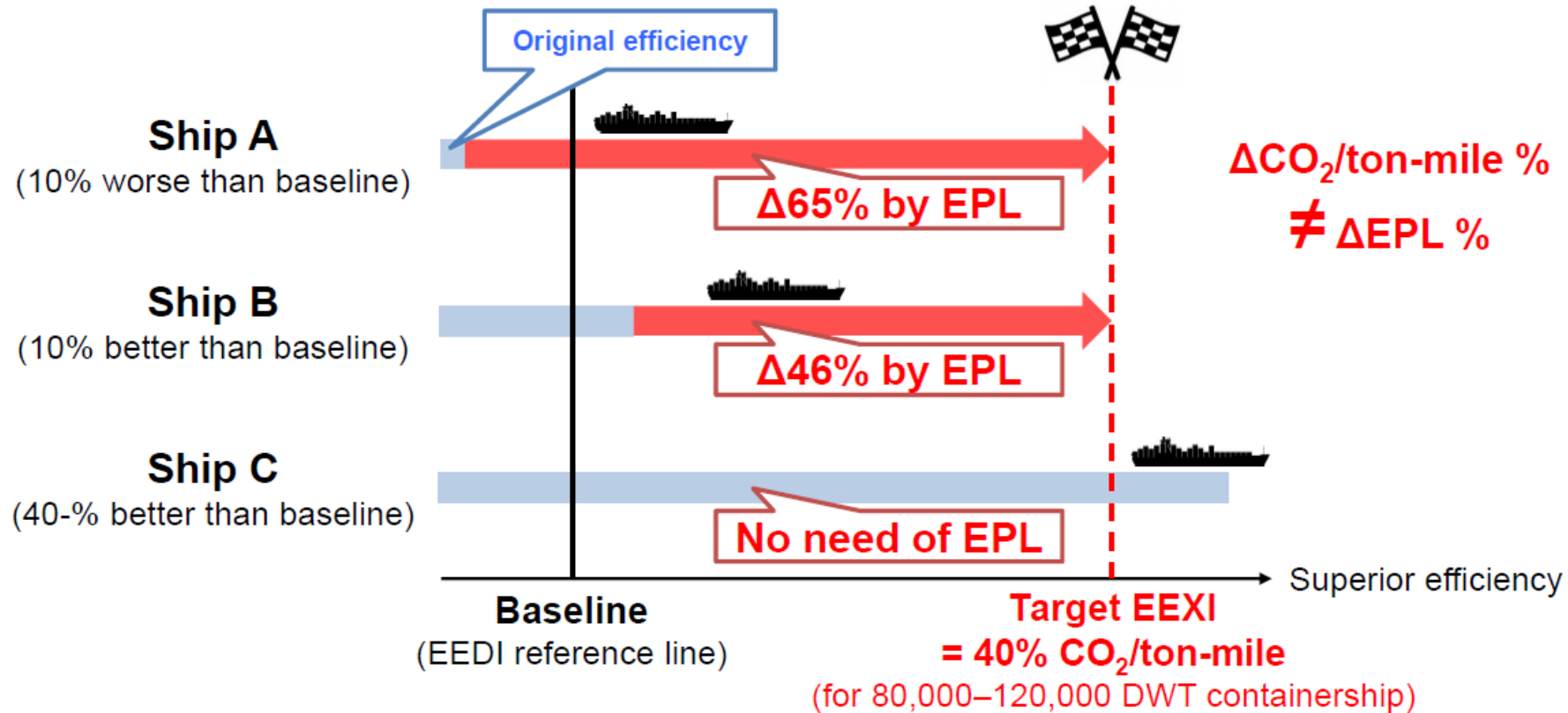
$$= \frac{\left( \prod_{j=1}^M f_j \right) \left( \sum_{i=1}^{nME} P_{ME(i)} \cdot C_{FME(i)} \cdot SFC_{ME(i)} \right) + (P_{AE} \cdot C_{FAE} \cdot SFC_{AE}) + \left\{ \left( \prod_{j=1}^M f_j \cdot \sum_{i=1}^{nPTI} P_{PI(i)} - \sum_{i=1}^{neff} f_{eff(i)} \cdot P_{AEff(i)} \right) \cdot C_{FAE} \cdot SFC_{AE} \right\} - \left( \sum_{i=1}^{neff} f_{eff(i)} \cdot P_{eff(i)} \cdot C_{FME} \cdot SFC_{ME} \right)}{f_c \cdot f_i \cdot f_l \cdot Capacity \cdot V_{ref} \cdot f_w}$$

- Documented in the **EEXI Technical File**
- Pre-certified by the **International Energy Efficiency Certificate**
- Utilizes the same factors and coefficients as those of EEDI
- Introduces the concept of shaft / engine power limitation



## EEXI mandates CO<sub>2</sub>/ton-mile, not engine power

Case of 8,000 TEU (80,000 DWT) containerships





## 정의

- "실측 EEXI"란 제20A규칙에 따라서 개별 선박이 관련 규정에 따라서 달성한 EEXI 값
- "규제 EEXI"란 특정 선종 및 크기에 대하여 제21A규칙에서 허용하는 실측 EEDI의 최대값

56 Attained EEXI is the EEXI value achieved by an individual ship in accordance with regulation 20A of this Annex.

57 Attained annual operational CII is the operational carbon intensity indicator value achieved by an individual ship in accordance with regulations 22 and 22B of this Annex.

58 Required EEXI is the maximum value of attained EEXI that is allowed by regulation 21A of this Annex for the specific ship type and size.

59 Required annual operational CII is the target value of attained annual operational CII in accordance with regulations 22 and 22B of this Annex for the specific ship type and size.

4	Required EEDI	
4.1	Required EEDI is: ..... grams-CO <sub>2</sub> /tonne-mile	
4.2	The required EEDI is not applicable as:	
4.2.1	the ship is exempt under regulation 21.1 as it is not a new ship as defined in regulation 2.23. ....	<input type="checkbox"/>
4.2.2	the type of propulsion system is exempt in accordance with regulation 19.3 .....	<input type="checkbox"/>
4.2.3	the requirement of regulation 21 is waived by the ship's Administration in accordance with regulation 19.4 .....	<input type="checkbox"/>
4.2.4	the type of ship is exempt in accordance with regulation 21.1 .....	<input type="checkbox"/>
4.2.5	the ship's capacity is below the minimum capacity threshold in Table 1 of regulation 21.2 .....	<input type="checkbox"/>



## ▶ 검사

- 2023년 1월 1일 전까지 주관청은 SEEMP를 승인해야 함. 이에 따른 CoC를 발급 해야하며, 이는 선박에 비치 되어야 함
- 협약 발효일 이후 도래하는 첫번째 정기적 검사 시 실측 EEXI값이 검증되어야 함
- 주요개조에 따른 설정치의 변경이 있을 경우 EEXI의 재계산이 요구됨

.6 the Administration shall ensure that for each ship to which regulation 22B applies, the SEEMP complies with regulation 22.3 of this Annex. This shall be done prior to 1 January 2023. Confirmation of compliance shall be provided to and retained on board the ship.

.7 the verification that the ship's attained EEXI is in accordance with the requirements in regulations 20A and 21A of this Annex shall take place at the first annual, intermediate or renewal survey identified in paragraph 1 of this regulation or the initial survey identified in paragraphs 4.1 and 4.3 of this regulation, whichever is the first, on or after [date of entry into force]; and



## 감축률

1. 적용대상은 EEDI 적용대상과 동일
2. 감축률은 EEDI 감축률 2단계와 동일하게 설정
3. 단, 벌커, 탱커, Ro-Ro 선박들은 규정적용의 만족이 어려움을 고려, 대형선박 Segment에는 5%의 감축률을 추가로 하향
4. 2026년 재검토를 통하여 만족수준 재검토 예정

Ship type	Size	Reduction factor
<u>Bulk carrier</u>	<u>200,000 DWT and Above</u>	<u>15</u>
	<u>20,000 and above but less than 200,000 DWT</u>	<u>20</u>
	<u>10,000 and above but less than 20,000 DWT</u>	<u>0-20*</u>
<u>Gas carrier</u>	<u>15,000 DWT and above</u>	<u>30</u>
	<u>10,000 and above but less than 15,000 DWT</u>	<u>20</u>
	<u>2,000 and above but less than 10,000 DWT</u>	<u>0-20*</u>
<u>Tanker</u>	<u>200,000 DWT and Above</u>	<u>15</u>
	<u>20,000 and above but less than 200,000 DWT</u>	<u>20</u>
	<u>4,000 and above but less than 20,000 DWT</u>	<u>0-20*</u>

<u>Containership</u>	<u>200,000 DWT and above</u>	<u>50</u>
	<u>120,000 and above but less than 200,000 DWT</u>	<u>45</u>
	<u>80,000 and above but less than 120,000 DWT</u>	<u>35</u>
	<u>40,000 and above but less than 80,000 DWT</u>	<u>30</u>
	<u>15,000 and above but less than 40,000 DWT</u>	<u>20</u>
	<u>10,000 and above but less than 15,000 DWT</u>	<u>0-20*</u>
<u>General cargo ship</u>	<u>15,000 DWT and above</u>	<u>30</u>
	<u>3,000 and above but less than 15,000 DWT</u>	<u>0-30*</u>
<u>Refrigerated cargo carrier</u>	<u>5,000 DWT and above</u>	<u>15</u>
	<u>3,000 and above but less than 5,000 DWT</u>	<u>0-15*</u>
<u>Combination carrier</u>	<u>20,000 DWT and above</u>	<u>20</u>
	<u>4,000 and above but less than 20,000 DWT</u>	<u>0-20*</u>
<u>LNG carrier</u>	<u>10,000 DWT and above</u>	<u>30</u>
<u>Ro-ro cargo ship (vehicle carrier)</u>	<u>10,000 DWT and above</u>	<u>15</u>
<u>Ro-ro cargo ship</u>	<u>2,000 DWT and above</u>	<u>5</u>
	<u>1,000 and above but less than 2,000 DWT</u>	<u>0-5*</u>
<u>Ro-ro passenger ship</u>	<u>1,000 DWT and Above</u>	<u>5</u>
	<u>250 and above but less than 1,000 DWT</u>	<u>0-5*</u>
<u>Cruise passenger ship having non-conventional propulsion</u>	<u>85,000 GT and above</u>	<u>30</u>
	<u>25,000 and above but less than 85,000 GT</u>	<u>0-30*</u>

## ➤ 재검토

- 본 규정에 대한 영향성 평가를 위한 재검토는 승인기관에 의해 2026년 1월 1일 까지 완료되어야 함
- 재검토 사항을 기반으로 회원국들은 협약의 개정안을 채택할 수 있음



3 A review shall be completed by 1 January 2026 by the Organization to assess the effectiveness of this regulation taking into account any Guidelines developed by the Organization. If, based on the review, the Parties decide to adopt amendments to this regulation, such amendments shall be adopted and enter into force in accordance with the procedures contained in article 16 of the present Convention.



## ▶ 운항요건에 대한 PSC 사항

- PSC는 연료소모량 보고에 대한 SoC, CII등급, IEE증서 및 SEEMP의 보관에 대해 검사할 수 있음
- PSC는 선박에서의 SEEMP 이행여부를 검사할 수 있음

6 Notwithstanding the requirements in paragraph 5 of this regulation, any port State inspection may inspect whether the Ship Energy Efficiency Management Plan is duly implemented by the ship in accordance with regulation 22B of this Annex.

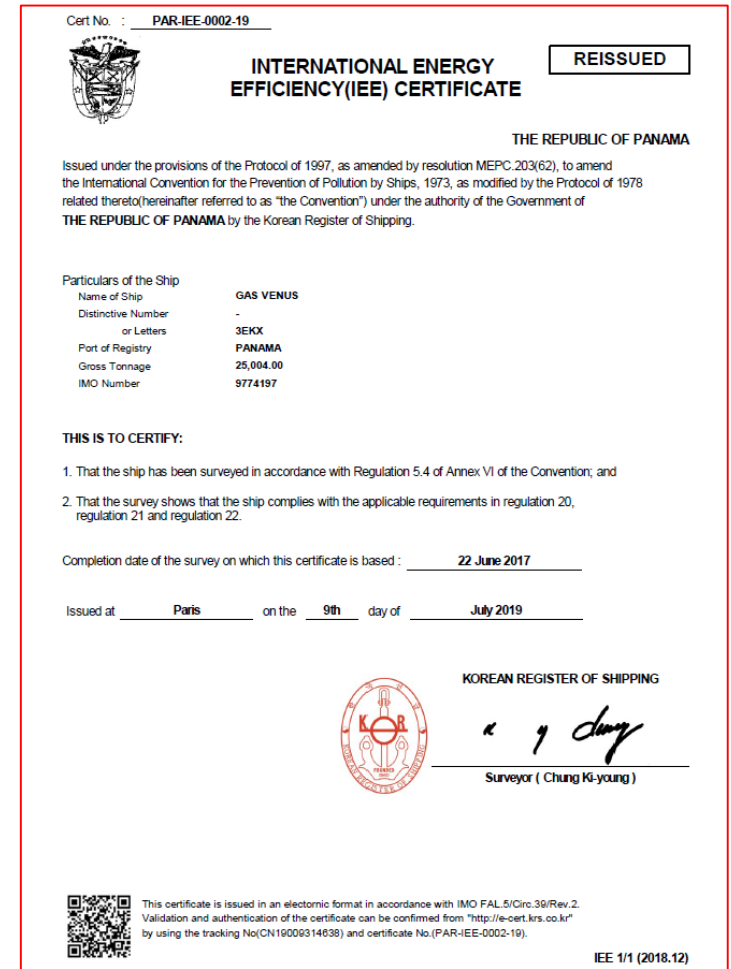




## 실측 EEXI 및 규제 EEXI

- 실측 EEXI는 EEXI 기술파일에 따라 주관청 또는 위임 받은 인증기관에 의해 검증되어야 함
- Attained EEXI  $\leq$  Required EEXI =  $(1-Y/100) \times$  EEDI Reference line value

which falls into one or more of the categories in regulations 2.25 to 2.31, 2.33 to 2.35, 2.38 and 2.39 of this Annex. The attained EEXI shall be specific to each ship and shall indicate the estimated performance of the ship in terms of energy efficiency, and be accompanied by the EEXI technical file that contains the information necessary for the calculation of the attained EEXI and that shows the process of the calculation. The attained EEXI shall be verified, based on the EEXI technical file, either by the Administration or by any organization duly authorized by it\*.





## IEE Certificate 개정

- EEXI 도입에 따른 재발급이 요구됨

<b>68</b>	<b>EEDI technical file</b>
68.1	The IEE Certificate is accompanied by the EEDI technical file in compliance with regulation 20.1.....□
6.28.1.1	The EEDI technical file identification/verification number.....
6.38.1.2	The EEDI technical file verification date.....
<b>9</b>	<b>EEXI technical file</b>
9.1	The IEE Certificate is accompanied by the EEXI technical file in compliance with regulation 20A.1.....□

[9 현존선 에너지효율지수 기술파일

9.1 제20A.1규칙에서 요구되는 현존선에너지효율설계지수에 대한 기술파일은 에너지효율증서와 함께 유지되어야 한다.....□]



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leeth@krs.co.kr

070-8799-8324

*Thank you*