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(1/1)

Subject :  Enforcement of EEXI (Energy Efficiency Existing Ship Index) Regulation	Application	UEC Diesel Engine
	Type	All UEC
	No.	USI-10026E
<b>General</b>		

It has been regulated by International Maritime Organization (IMO) to reduce GHG emissions targeting zero in the international shipping as a long-term goal at earliest in this century.

The short-term strategy of year 2030, reducing average fuel consumption by more than 40%, has also been agreed officially in June 2021, and the regulation will start in 2030 in accordance with the short-term measures.

Existing vessels shall be subject to the regulation by EEXI and grading of actual fuel oil consumption. EPL (Engine Power Limitation) is an effective measures for EEXI regulation.

Please refer the attached guide lines, HSE-00-6730, in detail.

(Please also contact us for further information to improve fuel economy which can be applicable for individual engine model.)

In case of consulting on EPL, first, please contact us or UE licensees by providing:

Ship name/IMO number, engine model (engine serial number, if available) for easier communication.

**【J-ENG's information window】**

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Please contact each classification society regarding specific approval procedure for EEXI.

For your information, Class NK Consulting Co., Ltd. (NKCS) can provide general guidance of EEXI as a customer service.

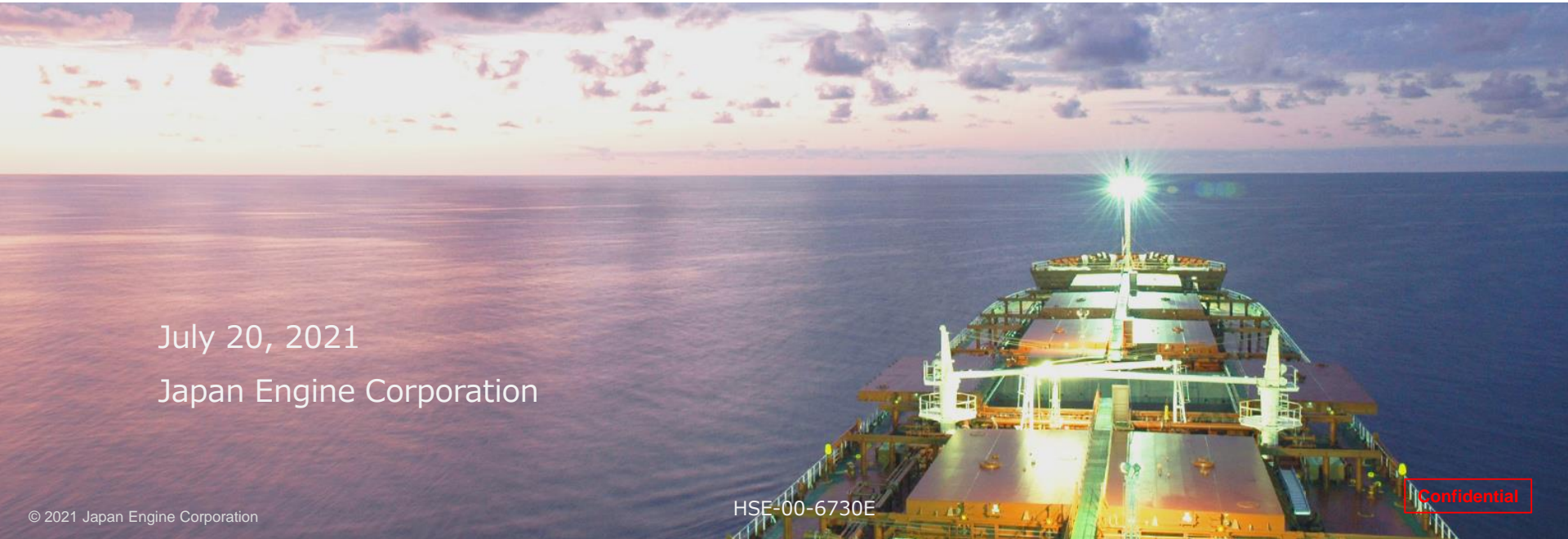
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Plan record	Newly issued. 20th Jul. 2021	Approved	<i>K. Yoshida</i>	SERVICE ENGINEERING DEPARTMENT
		Checked	<i>H. Hirabayashi</i>	SERVICE ENGINEERING SECTION
		Designed	<i>D. Yasuda</i>	DATE OF ISSUE : 20th Jul. 2021

# Guidelines for EPL Application



July 20, 2021

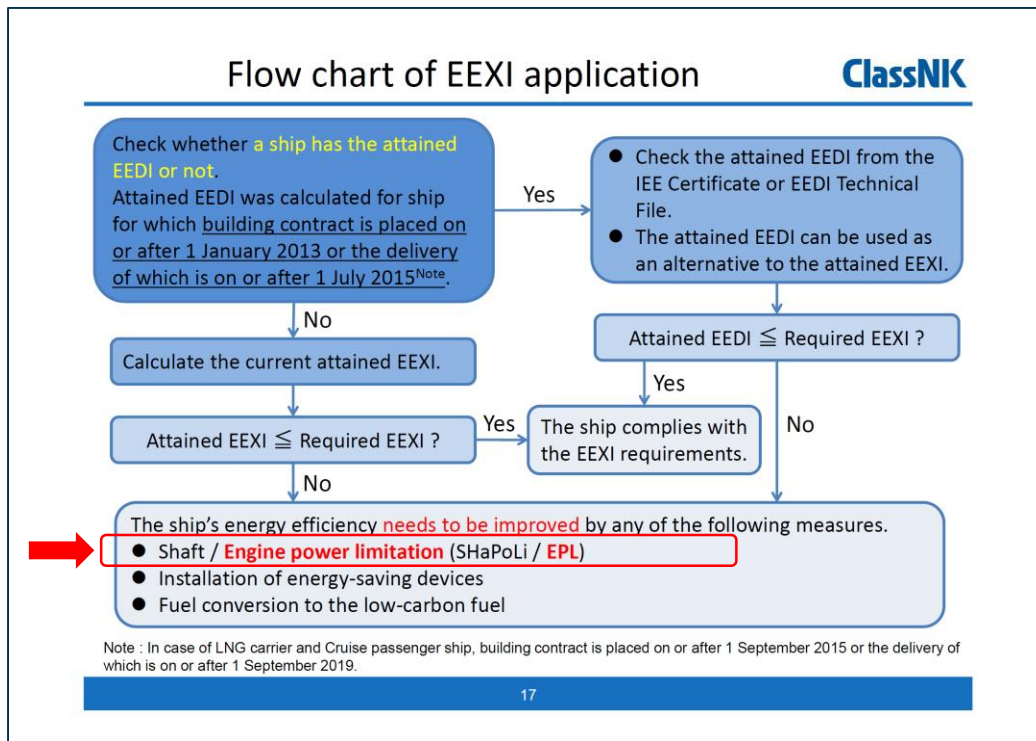
Japan Engine Corporation

- How an EEXI is evaluated
- What is EPL? (Engine Power Limitation)
- Flow chart of EEXI regulation
- How to set EPL

# How an EEXI is evaluated:

As shown the below flow chart, when an EEXI exceeds the regulation, it is requested to improve the EEXI.

To limit the main engine power is an effective solution(EPL: Engine Power Limitation).



Ref.: Outline of EEXI regulation by Class NK guidelines (June 2021)

# What is an EPL?

## Engine Power Limitation (EPL)

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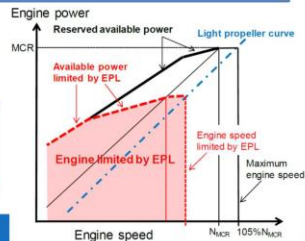
### What is Engine Power Limitation (EPL) ?

- ✓ Engine Power Limitation (EPL) is a system to improve a ship's energy efficiency by limiting the ship's engine power within the optimum engine setting. As a result, the ship speed will be limited.
- ✓ EPL consists of a simple device which can easily limit the maximum engine power by **adjusting a fuel index limiter** on the engine control system without retrofitting a complicated system within the current regulatory framework.
- ✓ EPL can be easily installed in a short time during a port without updating EIAPP certificate and the NOx technical file.
- ✓ EPL can be released in the adverse weather conditions. Therefore, the limited engine power does not have to meet the minimum power requirement.



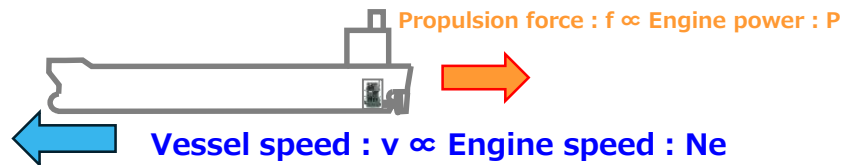
EPL can be utilized as **one of the effective measures** to improve energy efficiency of existing ships in terms of EEXI.

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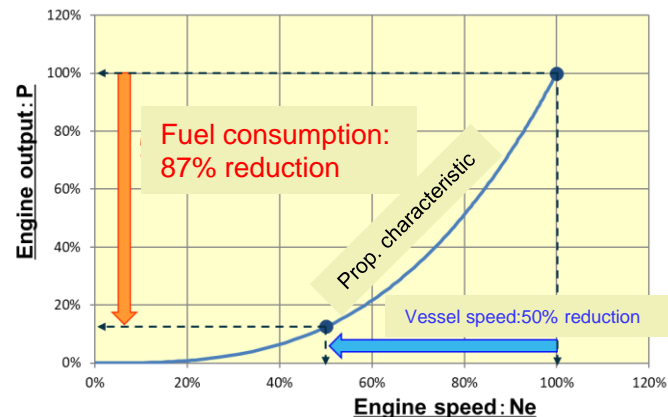


Outline of EEXI regulation by Class NK guidelines (June 2021)

## Effect of EPL (Slow steaming)



If a vessel speed is reduced by 50%, with slow steaming, fuel consumption (GHG) can be reduced by 87%



### 【Conditions for EPL application】

- Mechanically-controlled engine shall be limited its max. power by restricting fuel pump rack position with a mechanical stopper having a seal.
- Electronically-controlled engine shall be limited its max. power by restricting fuel limiter electronically on engine controller and/or remote control system.
- Limiter cancellation is allowed only for securing vessel's safety under stormy weather, lifesaving, escape from pirates and engine maintenance or equivalent issue.
- When an EPL is cancelled, record of the cancellation situation, report to concerned authority / next calling port, and reconfirmation by authorized organization/classification society after re-limitation are requested.

# How an EPL is applied /approved among the parties:

## Ship owner / Ship operator

### Planning of EPL

#### ① To determine max. power

- ✓ To determine max. power based on engine manufacturer's information about fuel consumption consulting with shipyard.

#### ② Document review

- ✓ Approval of EEXI technical file and on-board EPL control protocol by classification society.

#### ③ EPL setting and restriction

- ✓ Under the presence of authorized surveyor, power limitation is to be executed in accordance with engine manufacturer's guidance. Supervising by the engine manufacturer is available, if necessary.

#### ④ Operation

- ✓ To operate according to the EPL manual.

## J-Eng or UE licensee

Engine manufacturer will provide the followings. Please contact/consult with us when necessary. Sister vessels can be inquired at once for prompt application.

#### ① Information on fuel consumption

- ✓ Specific fuel oil consumption of a parent engine, converted with ISO reference conditions
- ✓ Excerpt of NOx technical file

#### ② Related document for EPL

- ✓ Setting of EPL, How to seal max. limiter
- ✓ How to log engine power (modification will be necessary for electronically-controlled engine)

#### ③ EPL setting and actual limitation work

- ✓ Dispatching of engineer is available by order

#### ④ EPL manual on-board

- ✓ How to set EPL by applying a seal
- ✓ How to log engine power(modification will be necessary for electronically-controlled engine)

Inquiry

Correspondences

Inquiry/Placing order

Responses

Dispatch of engineer



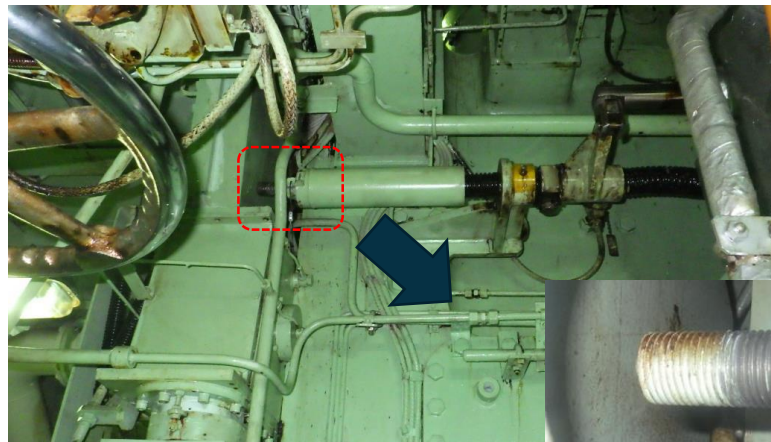
# How set an EPL (1/2)

## Mechanically-controlled engine

- ✓ To readjust max. limiter of governing devices
- ✓ To readjust mechanical stopper
- ✓ To seal the above mechanical stopper by wiring (will be inspected by classification society or PSC inspection)



Max. limiter on governing device



Mechanical stopper



Sealed after max. limiter setting

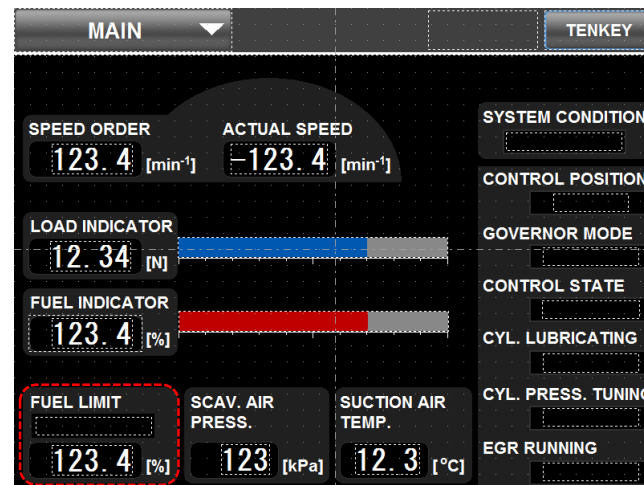
# How to set an EPL(2/2)

## Electronically-controlled engine

- ✓ Fuel limitation on Eco system controller shall be readjusted:

Electronically-controlled engine's max. power can not be restricted mechanically/physically as mechanically-controlled engine. It is necessary to demonstrate logged data of engine power at inspection by classification society or PSC to verify appropriate EPL operation.

Fuel Limit Setting →



Eco Controller Display (Generation 4)

- ✓ Control for change log of fuel limitation  
In order to log the fuel limitation history, updating of engine control system software and modification of data logger will be necessary.  
When the change log of fuel limitation is recorded other than data logger, additional data logging system is needed.  
⇒ Preparation of the above data logging system is under consideration within year 2021.