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January 4, 2023

EEXI TECHNICAL FILE PROPOSAL

EEXI Technical File preparation will performed basis on EEXI Guidelines regulated by IMO.

All required items will provided to the Client under the Proposal, including drawings, plans etc. as mentioned in the offer in electronic format.

The EEXI of the vessel is assessed based on the type of the vessel, her deadweight, engine fuel oil consumption, reference speed and other technical criteria based on the type of vessel.

If the EEXI criteria is being met, the technical file can be sent for Class Approval. If not, alternate methodologies can be suggested for implementation, which includes:

Engine Power Limitation - 35% EEXI Improvement
Fuel Change to LNG - 25% EEXI Improvement
Installation of Shaft Generator - 10% EEXI Improvement
Installation of Energy Saving Devices - 3% EEXI Improvement

We use the cheapest and the most commercially effective method is Engine Power Limitation.

If Engine Power Limitation is chosen as the method, Onboard Management Manual need be prepared and approved by Classification Society.

If speed power curves of the vessel are not available, CFD analysis will have to be carried out to develop the same.
Empirical relations are available as proposed by IMO for calculation of the Reference Speed to be used in the EEXI calculation, however, this comes with a penalty of nearly 1 knot speed.

In order to proceed, we will require the following set of documents for preparation of EEXI Technical file:

a) General particulars, deadweight, GT, Stability Booklet
b) Vessel speed power curves - model test data or sea trial data
c) Main Engine, Generator Spec & NOx Technical files
d) Details of Shaft Generator, if installed

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e) Details of fuel grade/ consumption of engine and generator
f) EEDI Technical file, if available
g) Load line certificate
h) Energy saving device details, if installed

The Scope of work includes:

1. Preparation of EEXI Technical File
2. CFD analysis to develop the speed power curve if not available
3. 3D CAD model preparation to serve as the input to CFD analysis if model is not available
4. Preparation of Onboard Management Manual if Engine Power Limitation is chosen

The list of simulations to be done, if CFD is needed are the following:

a) Open water test simulations for the actual propeller fitted to the ship
b) Open water test simulations for an equivalent Wageningen B series propeller
c) Validation of self-propulsion and calm water resistance simulations for the condition for which sea trial data is available, probably at 5 speeds. The difference between the power curves will be used to calculate the calibration factor.
d) One verification run: grid sensitivity study for one speed
e) Self-propulsion and calm water resistance simulations at the EEXI draft for five speeds.

If CFD analysis has to be employed, we will need the following additional documents:

1. Lines plan of the vessel
2. Propeller particulars, coordinates, series data

The list of items provided under the scope is given below:

a) EEXI Technical File
b) Speed Power curve
c) 3D CAD models
d) Onboard Management Manual

Delivery format:

In general, all drawings and documents will be submitted in electronic PDF format. Printed copies if required to be arranged by the Client at their cost. All drawings will be prepared in 2D drafting using AutoCAD.

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Delivery schedule:

Upon contract award, and input receipt, only we will be able to define the work phases and arrive at a definitive schedule for the proposed work scope. However, a tentative schedule will be as follows:

Scope of Work	Duration
EEXI Technical File Preparation	7 working days per vessel
CFD Analysis (if required)	25-35 working days per vessel
CAD Model Preparation (if required)	3 working days
Onboard Management Manual (if required)	5 working day

Notes:

- Above schedule assumes that all required input data for completion of scope of work will be made available in a timely manner.
- The drawings will be submitted on priority basis.
- The drawing/document class approval time of the submitted documents may depend on Class.
- Fees and expenses for approval of drawings by Classification Society and/or other relevant authorities are to be paid directly by the Client to the Classification Society and/or other relevant authorities on time.

We shall not be responsible for any delay arising from the delay or non-payment of fees and expenses of Classification Society and/or other relevant authorities by the Client.

For information on the rates/costs, please send a request to acc@flagadmin.com with the details of the vessel (vessels) for which such a service is required.

Our Company pleased to offer the work package as above described. We assure you that we provide the highest standard of professional expertise and best efforts. Should you need any further information/clarifications, please feel free to contact us.

Hope the above proposal is line with your requirement. Looking forward to receiving your valuable confirmation.