

**Title**

LNG carrier unloading: Uncertainty determination in the measurement of the unloaded energy.

**Abstract**

LNG international trading involves an enormous amount of energy. This energy, transported by LNG vessels, must be calculate for billing purposes either at origin or at destination depending on type of contract. The uncertainty associated with the energy determination is keystone to know the quality of the measurement. This paper provides some guidelines to determine that uncertainty.

The amount of energy delivered for Custody Transfer is calculated by means of the following parameters: LNG volume, LNG density and LNG gross caloric value. The main sources of uncertainty related to the unloaded energy have been studied in this work. As a result, it has been developed a mathematical model to calculate the uncertainty of the transferred energy between LNG vessel and LNG receiving terminal. The maximum uncertainty associated with an unloading has been estimated and contributions of each parameter to the total uncertainty has been studied in order to identify its main factors of influence.