Dynamic modeling of LNG carrier to predict boil-off gas rate

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Dynamic heat transfer model to predict the boil-off gas (BOG) rate in LNG carrier is developed. The BOG rate is an important factor which leads to significant economic loss to LNG transportation. Generated BOG is generally combusted, reliquefied or stored in pressure vessel to handle. The BOG rate prediction takes important role to design the most economic method for BOG handling. In this study, a 2D heat transfer model for an LNG tank is established using Aspen Custom Modeler®. As a result, the BOG rates are calculated at the various conditions such as composition of LNG, outside temperature, tank pressure and carrying time.