This abstract will be presented during LNG2023 conference on 10-13 July in Vancouver, Canada among many other innovative projects, ideas and outlooks. LNG2023 will provide a unique platform for the global LNG industry and key stakeholders to discuss, debate, and showcase the latest industry developments and opportunities.

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GRAVITY BASE STRUCTURES FOR LNG TRAINS – AN OPPORTUNITY FOR MEGA MODULARIZATION

Gravity Based Structures offer an interesting construction option for LNG trains. They avoid the problems of onshore site acquisition and preparation; practically eliminate hook up / and on site pre-commissioning work and consequently secure the overall project schedule. Their value is highest in areas with harsh soil conditions (e.g. arctic environments, swamps, unstable and wet soil).
By confining module displacement to permanent well equipped fabrication and integration yards, mega-modules of up to 20kt may be used to reduce the number of site manhours compared to an onshore modular facility with temporary construction jetty and roads. After assembly in one or more fabrication yards they can be transported by ship to the main yard where they are jacked up and skidded onto the GBS for integration, hook up and pre-commissioning. The finished unit is then towed to its final near shore location, moored and connected to any onshore facilities. A multi-train development may include common facilities onshore (eg: gas supply, power station, etc…)
Further optimization is achieved through E&I technical rooms inside each mega-module to facilitate pre-commissioning in the yard, at grade, and prior to installation on the GBS.
The GBS itself offers the possibility of LNG and condensate storage in large volume tanks.
Several GBS based LNG projects have demonstrated feasibility. In this paper the authors will summarize how this experience could be used in a future project.