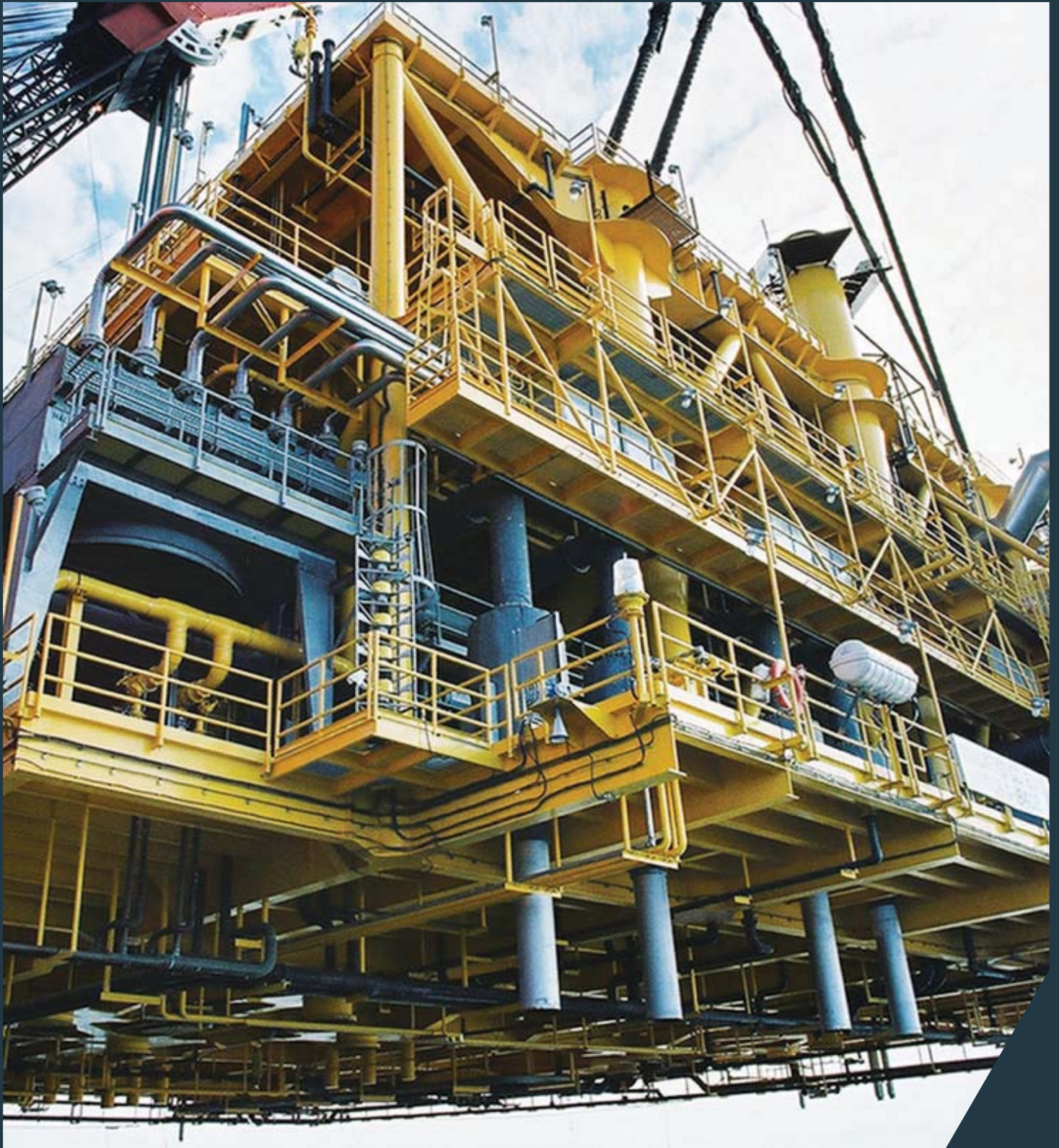


# Lightweight Topsides

WOOD GROUP



## Lightweight Features

An overriding factor in any deepwater project is cost. Weight impacts cost, so weight reduction is a top priority. Wood Group employs innovative engineering methods involving multiple disciplines for designing a topsides facility with less weight, but with comparable operational capabilities. Even though the resulting design is lighter, there is always an emphasis on asset and personnel safety.

## Lightweight Benefits

By reducing the weight of the topsides structure and facilities, the project can benefit in many ways:

- Less hull displacement
- Lower hull cost
- Smaller mooring loads
- Accelerated fabrication
- Reduced overall schedule
- More payload flexibility
- Improved project economics

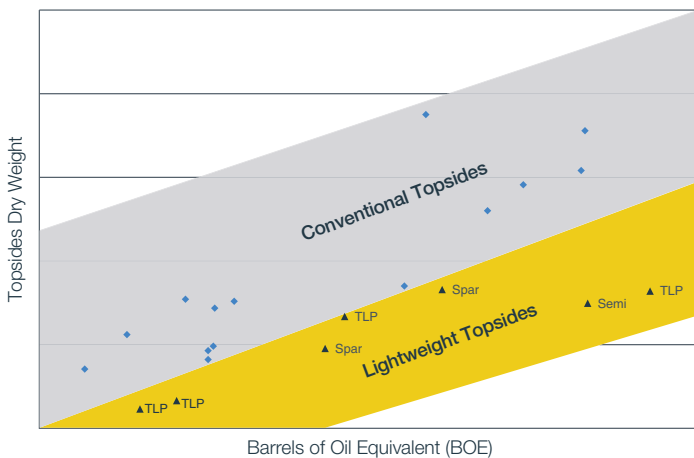
To enable a successful approach to designing a lightweight facility, there are key considerations that must be understood and agreed upon by the Operator and the design team during the front-end phases of a project, such as:

- Production and processing capability
- Operability
- Flexibility
- Constructability
- Installability
- Schedule
- Cost

We have applied lightweight innovative engineering design practices to both fixed and floating facilities around the world. Our strength lies in helping our clients develop a solution that meets the project requirements.



Topsides Dry Weight vs. BOE  
Lightweight and Conventional Design Comparison



Weight challenged and/or weight sensitive project experience includes:

### Independence Hub Semi-submersible

The Challenge: Design the largest capacity gas production platform in the Gulf of Mexico

- Installed as the world's deepest production platform in 8,000 ft. water depth
- 8,500 ST lift weight (quayside integration)
- Lifted with Heerema's Deepwater Construction Vessel Balder



Independence Hub Semi-submersible

### Titan Spar

The Challenge: Design a lightweight, cost-effective deepwater facility supporting full drilling

- Installed as the lightest topsides ever built on a floating structure with full drilling capacity in 4,000 ft. water depth
- Topsides operating weight (with drilling rig) 9,500 ST
- Lifted with McDermott's DB-50



Titan Spar

### Marco Polo TLP

The Challenge: Design the largest single-lift deck for installation in the Gulf of Mexico

- Installed as the world's deepest TLP in 4,300 ft. water depth
- Optimized deck geometry for 6,300 ST offshore lift
- Lifted with Heerema's Hermod Semi-submersible Crane Vesse



Marco Polo TLP

### Horn Mountain Spar

The Challenge: Design a facility for offshore lifting limited by the capacity of the lift vessel

- Installed as the world's deepest dry tree production platform in 5,420 ft. water depth
- Topsides structure and process facilities were installed as a single offshore lift weighing only 4,450 ST
- Lifted with Heerema's Deepwater Construction Vessel Balder



Horn Mountain Spar

### Perdido Spar

The Challenge: Design a single-lift topsides with the capability needed for a development of its size

- Installed as the world's deepest Spar production platform in 7,817 ft. water depth
- 9,350 ST offshore lift weight
- Lifted with Heerema's Thialf Semi-submersible Crane Vessel



Perdido Spar

