



# **Standardization Enabling Development of Offshore Platform Modular Rig**

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- **Development course of CNOOC offshore modular rig**
- **Standardization facilitating technological progress of CNOOC modular rig**
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- **Development trend of offshore modular rig and demands for standardization work**



# Characteristics of Platform Modular Rig

## ○ Advantage:

- Lower Day rate
- Easy infill well operation

## ○ Disadvantage

- Huge cost initially (Rig and platform)
- First oil comes later
- Normally fixed on single platform



## API Standards of platform modular rig

### Owned by Oil Company

- Big Module
- Fixed on one platform
- Installed by floating lift equipment

### Owned by Service Company

- Mini Module (Less than 40 tons each module)
- Installed by fixed platform crane or rented crane

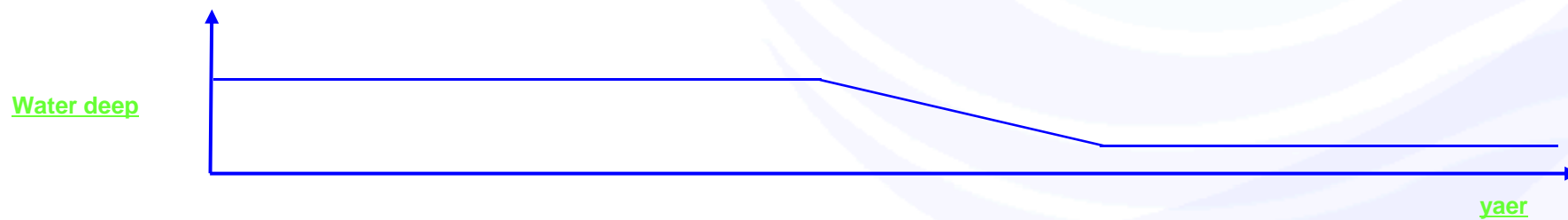
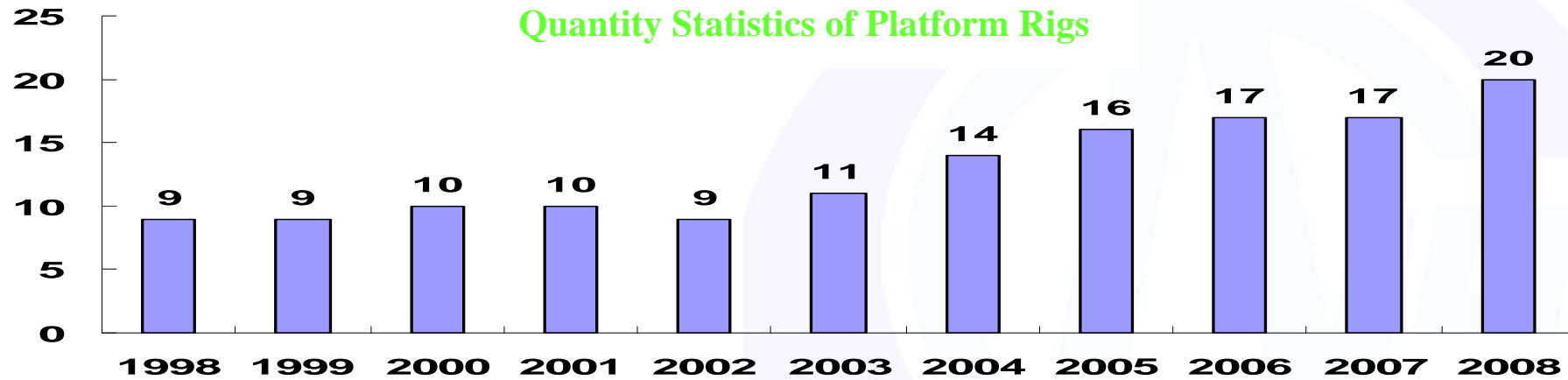


## Technology tendency of modular rig

- Number of in-use platform rig continuous increases while Jack-up day rate goes up.
- Mode for selection of platform rig changes from water deep to economic concern
- Platform modular rig re-use technology
- Rental of modular rig is more attractive and will be popular in next decade
- Tender assisted platform Rig shows more flexibility

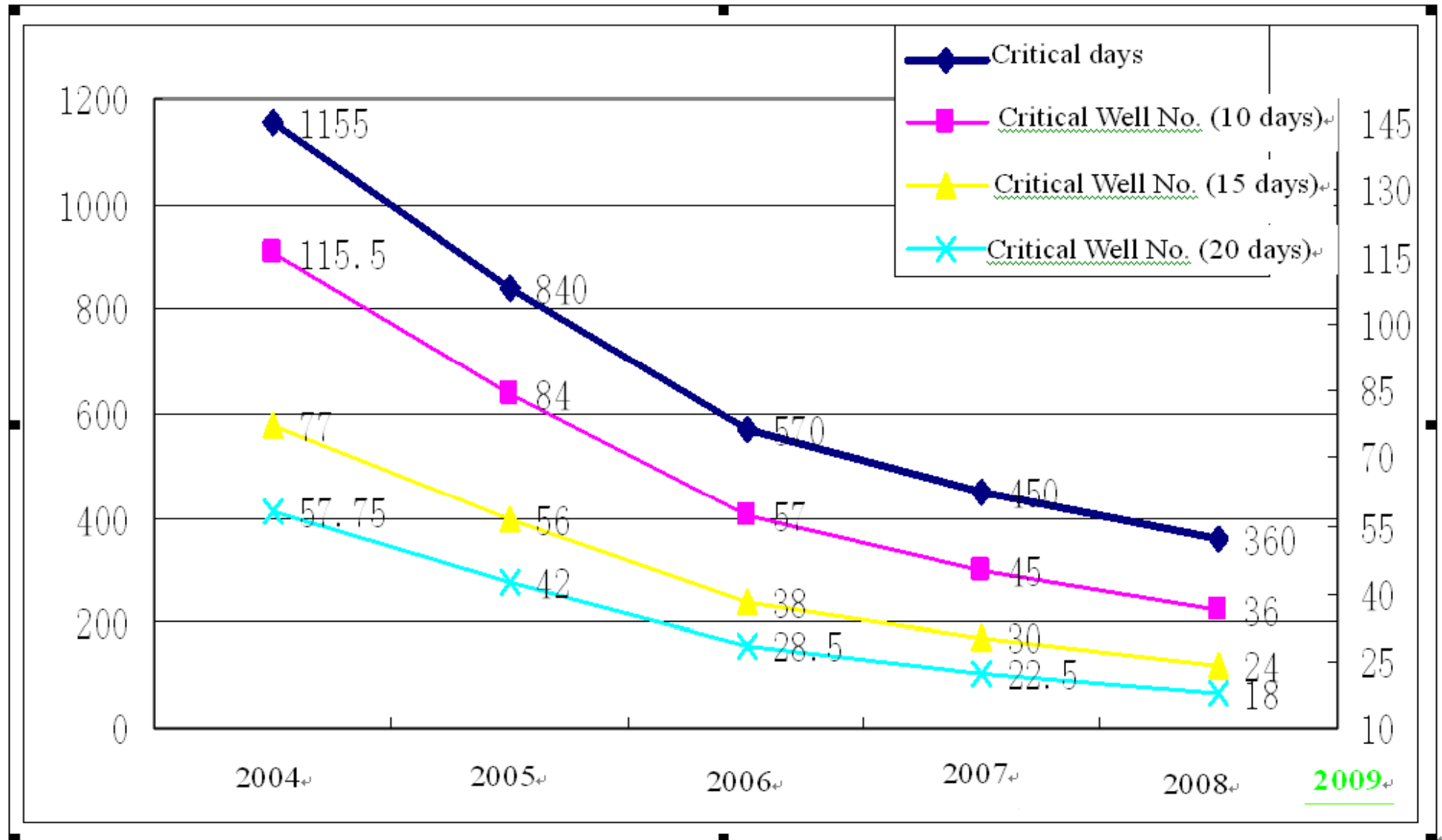


# Platform Rigs Quantity of CNOOC



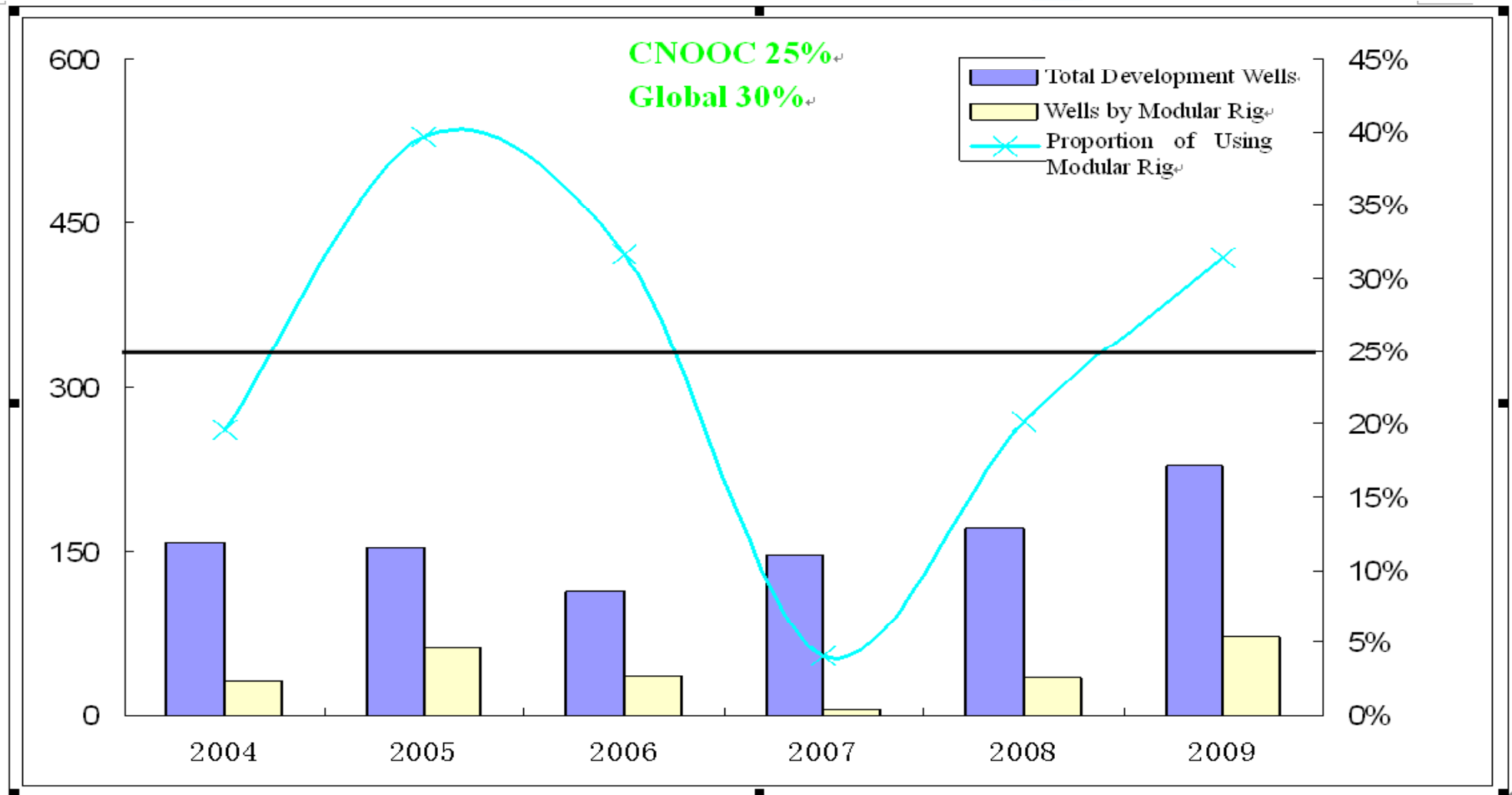


# Critical days of platform Rig





## Proportion of drilled and completed wells by CNOOC modular rigs in the total development wells (2004~2008)





# From complete dependence on imports to full realization of nationalization

- **Design and ECP**
  - Complete dependence on foreign company(-2001)
  - Foreign company ECP, CNOOC construction(2001-2003)
  - ECP by CNOOC service company
- **Equipment of platform rig**
  - 70%↑96%



## Standardization Enabling technology Development of Offshore Platform Modular Rig

- Development from API standard modular rig to light  
movable rig
- Formation of CNOOC enterprise standard on modular  
rig



## Requirement of Oil company on platform rig

- **Capacity**
  - Base on development plan of reservoir
- **Safety**
- **Economy**
  - Cost
  - Efficient
  - Reuse
- **Deliver time**



# API Specification of platform rig

## ○ API Spec 2E Specification

### DRILLING RIG PACKAGEING for MINIMUM SELF-CONTAINED PLATFORMS

1977-1988

API SPEC 2E  
(Supplement 1)

Specification for Drilling Rig Packaging for Minimum Self-Contained Platforms

1977

API SPEC 2E 1st

Specification for Drilling Rig Packaging for Minimum Self-Contained

1973



## **Q/HS 2037 Offshore Oil Platform Rig series standards**

**Part 1: Module Equipment Selection Methods;**

**Part 2: Derrick and Movable Foundation;**

**Part 3: Hoisting System;**

**Part 4: Rotating System;**

**Part 5: Circulation and Solid Control System;**

**Part 6: Power System;**

**Part 7: Well Control System;**

**Part 8: Cementing System;**

**Part 9: Electrical and Instrument System;**

**Part 10: Safety System;**

**Part 11: Auxiliary System.**



## Module Equipment Selection Methods

- **Principle and method of Equipment selection**
- **Method of Equipment selection**
  - **Hoisting System**
  - **Rotating System**
  - **Circulation System**



### ○ Max Hoisting System capacity:

**Max Hook load instead of Hoisting System**

**Power (API)**

- Definition height of Drilling floor
- Definition requirement of top drive
- Definition minimum mud tank capacity requirement
- Definition requirement living quarter and supervisor office

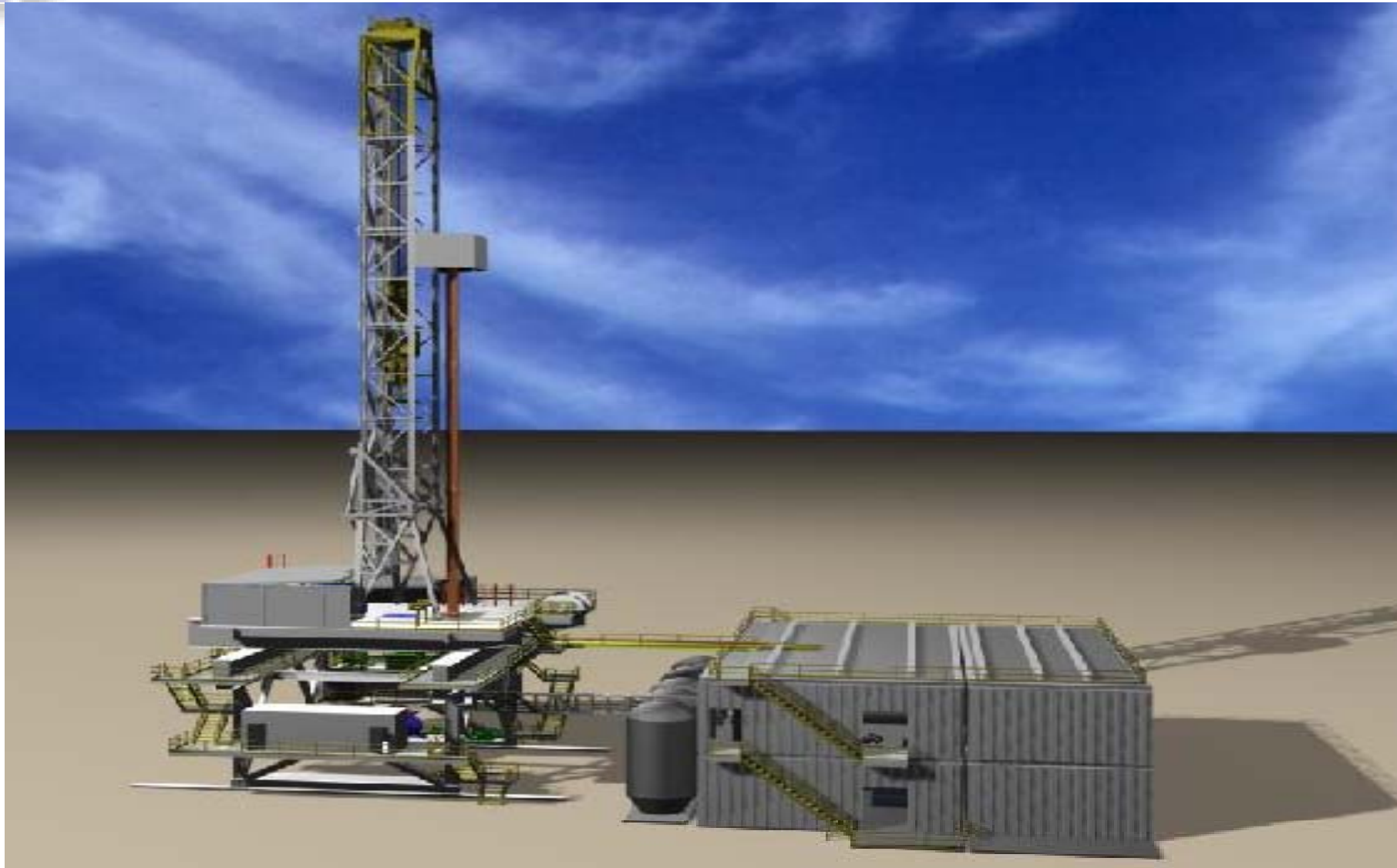


# Application of modular rig series standards in design and construction

- Ensures that drilling rig equipment selection can meet safe and high efficiency operation requirements of development wells
- Ensures that the design and construction of safety system of drilling rigs can meet the requirements of safety specifications
- Ensures that different systems of drilling rigs can meet operation requirements and realize standardized design
- Standardizes cementing system and electrical and instrument system



# Conventional API Rig







## Development trend of offshore modular rig and demands for standardization work

- Development trend of offshore modular rig technology
- Demands of offshore modular rig for standardization work
- Suggestions for standardization work of offshore modular rig



# Design and construction Capacity of CNOOC

## ○ Design

- ODP, Basic design & detail design

## ○ EPC

- EPC and Drilling operation service
- 5~10 sets per year

## ○ Experience

- More than 10 sets for CNOOC project, 4 sets oversea project )
- Average construction cycle about 12 months

**THANKS**

**谢谢!**

