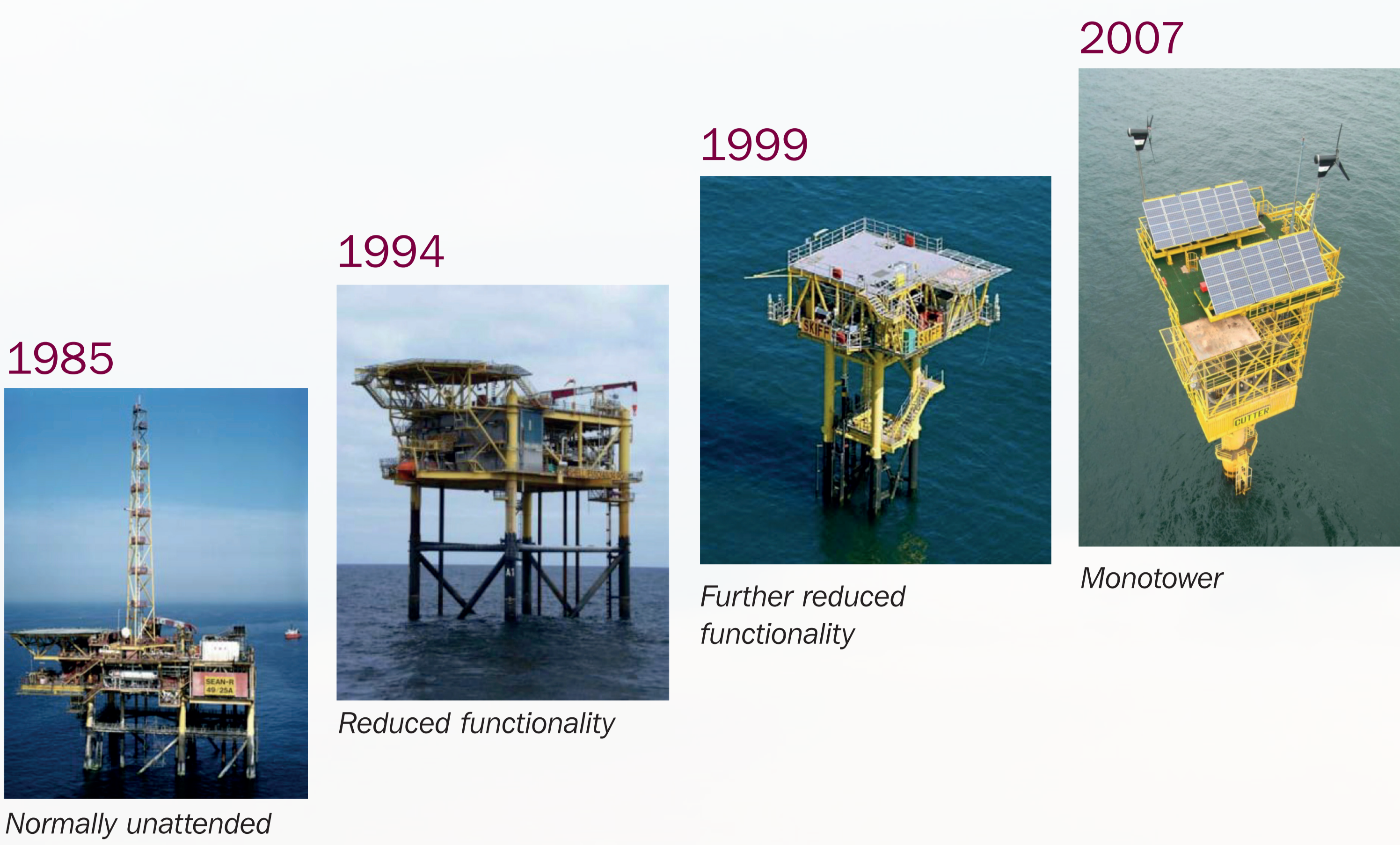


# Innovative low cost development opens up more opportunities

### Evolution towards more cost efficient developments

- Crucial for economic development of marginal fields
- Extensive network of central processing platforms enables a growing number of satellites
- One major operator observed that their platform costs are typically halved with each new generation of design
- Satellites becoming cheaper at a cost i.e. reduced functionality and flexibility



### Example of latest generation satellite

Unmanned minimum facility platform L6-B (Wintershall, 2014)

- 35 m water depth
- No helideck – marine access only
- No crane – lifting beam only
- No living quarters
- No lifeboat

### EBN study for low cost development

- Focus on wear and tear at increased water depth of 45 meter
- Design life 25 years

### CONCEPTS

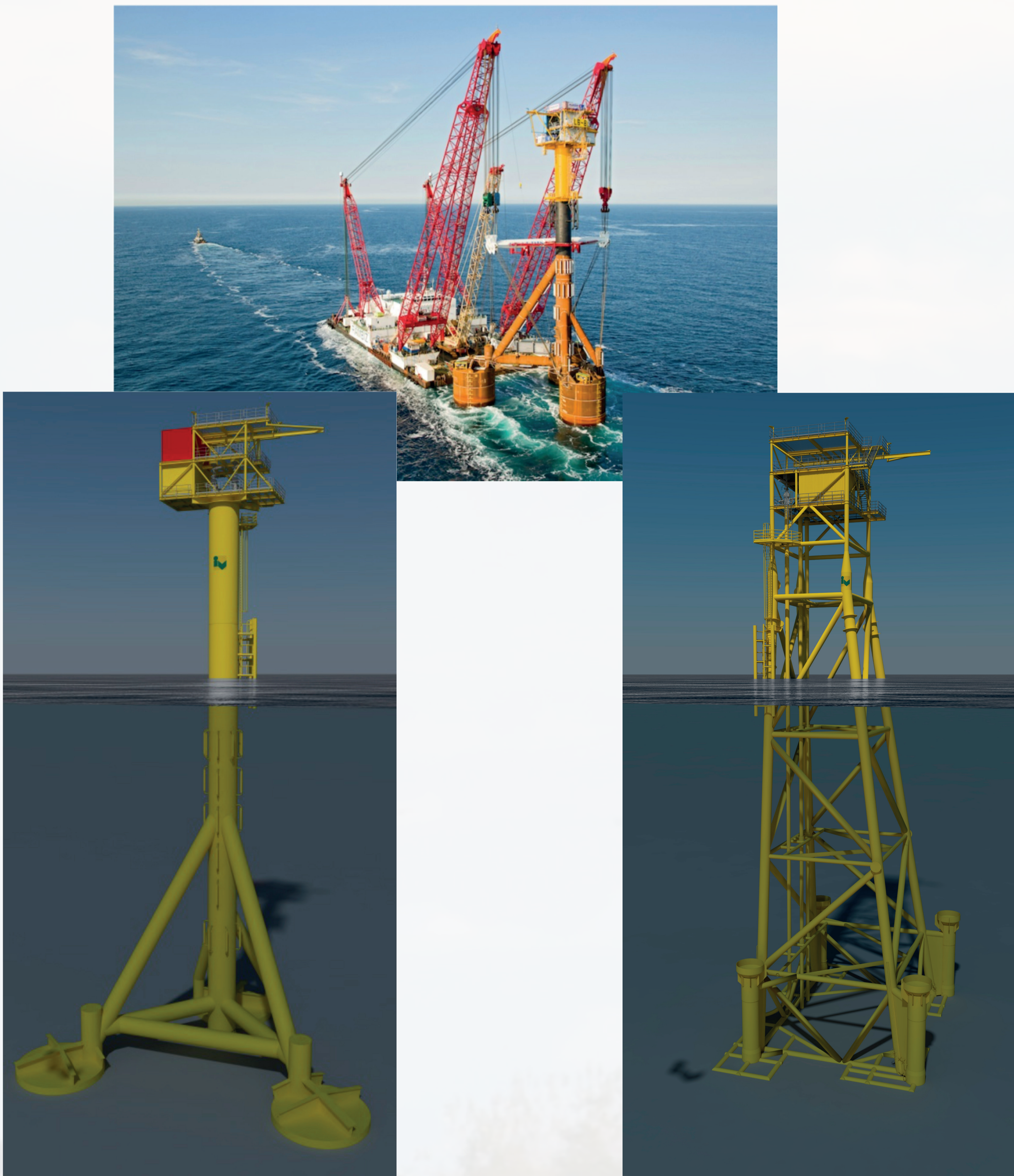
Alternatives score table	Shear leg / lifting vessel	Offshore piling and welding	Expandable	Re-locatable	Proven concept
Piled Jacket	Yes	Yes	Yes	No	Yes
Jacket with suction buckets	No	No	Yes	Yes	Yes
Mono-pile	Yes	Yes	No	No	Yes
Tripod with suction buckets	Yes	No	Yes (!'td)	Yes	Yes
Tripod with piles	Yes	Yes	Yes (!'td)	No	No

### 50% PLATFORM COST REDUCTION

- Concepts are feasible
- Potential CAPEX saving of some 50% vs. traditional satellite platform

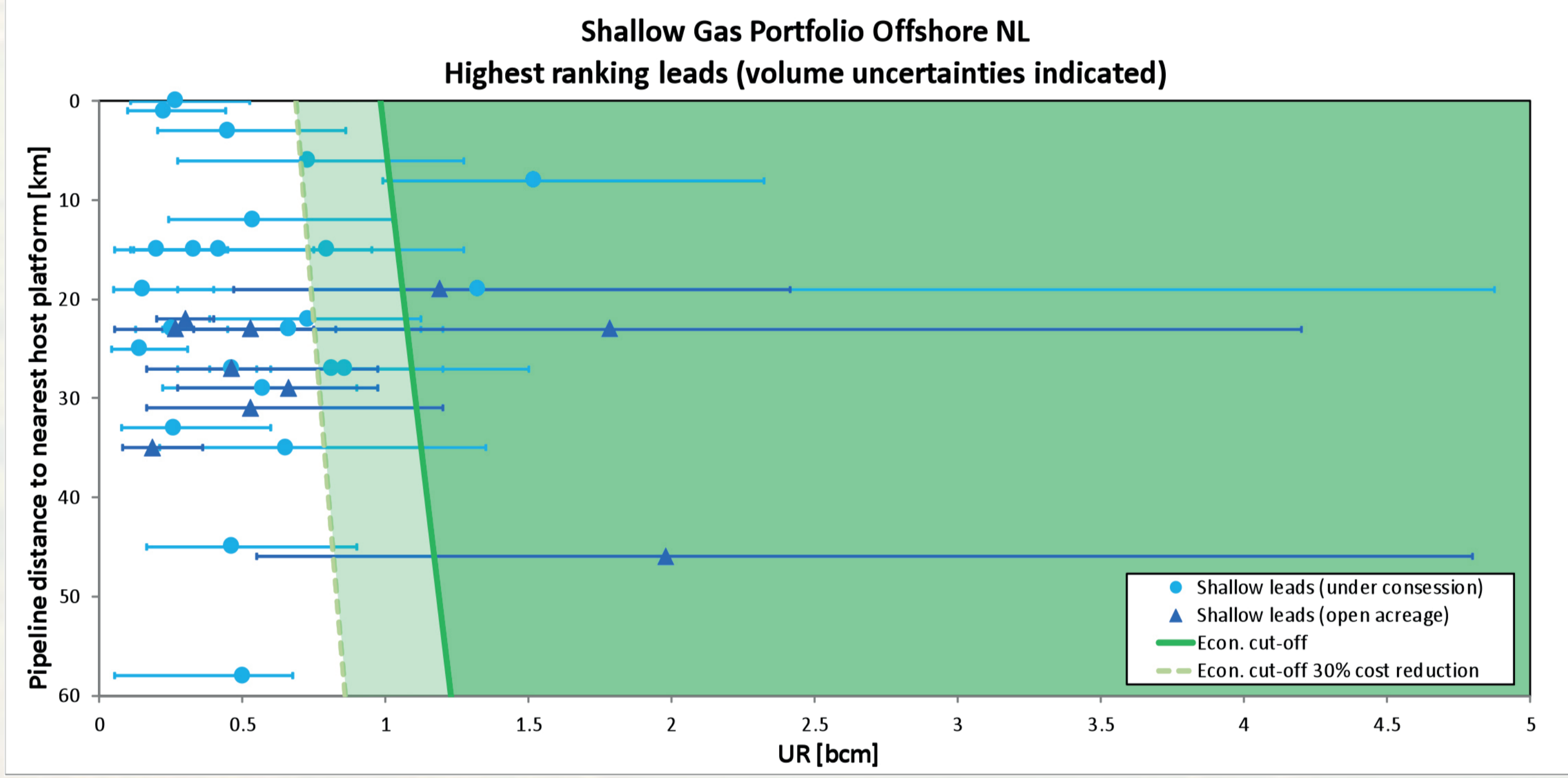
### REMARK

Several operators and engineering companies are actively pursuing more cost efficient satellite platforms to be installed in the near future



### Study results encouraging for shallow gas developments

- A recent study showed that the number of economic shallow leads and prospects doubles with 50% cost reduction
- Number of economic projects increases even further with cluster developments



For all information and data on Exploration and Production in the Netherlands, see the Netherlands Oil and Gas Portal

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