# Comparative Assessment of the Federal Oil and Gas Fiscal Systems

## GoM Report Presentation

Contract # GS-10F-0318K

Order # 140M0118F0028

November 16, 2018

Washington, D.C.

# Contents

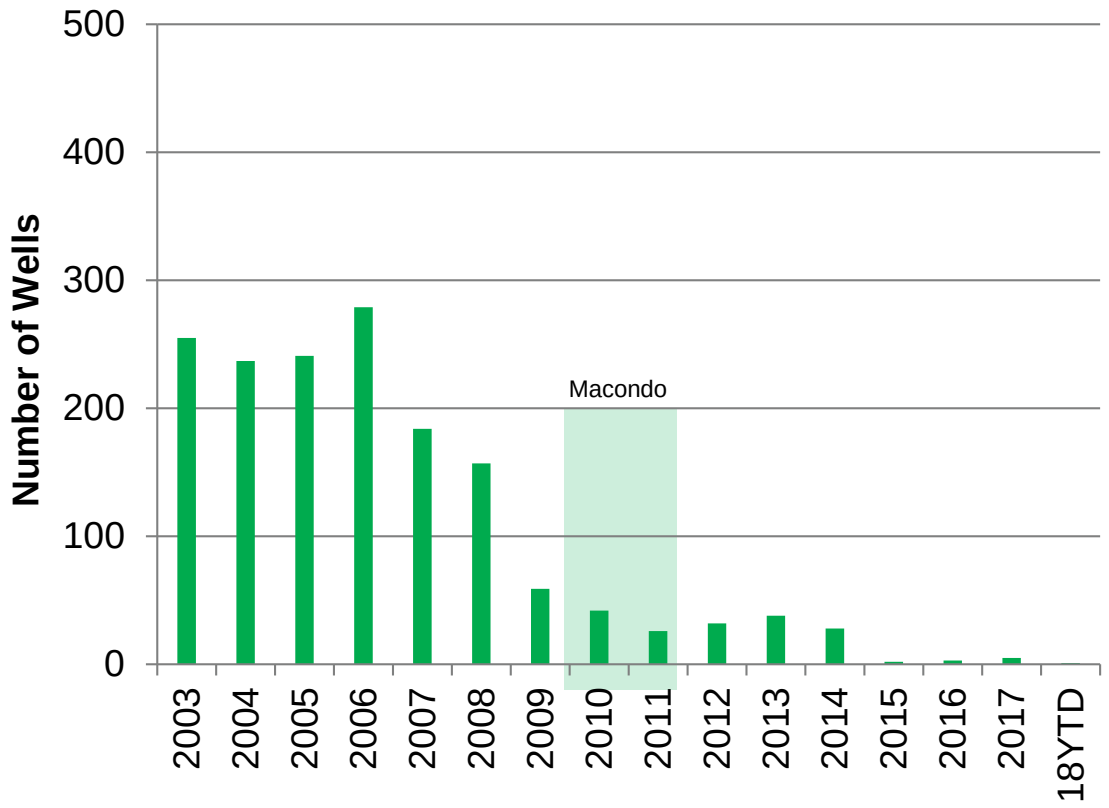
# US GoM Activity and Yet-To-Find Overview

**Shallow Water**

Deepwater

# U.S. shallow water exploration and development have decreased dramatically since 2003

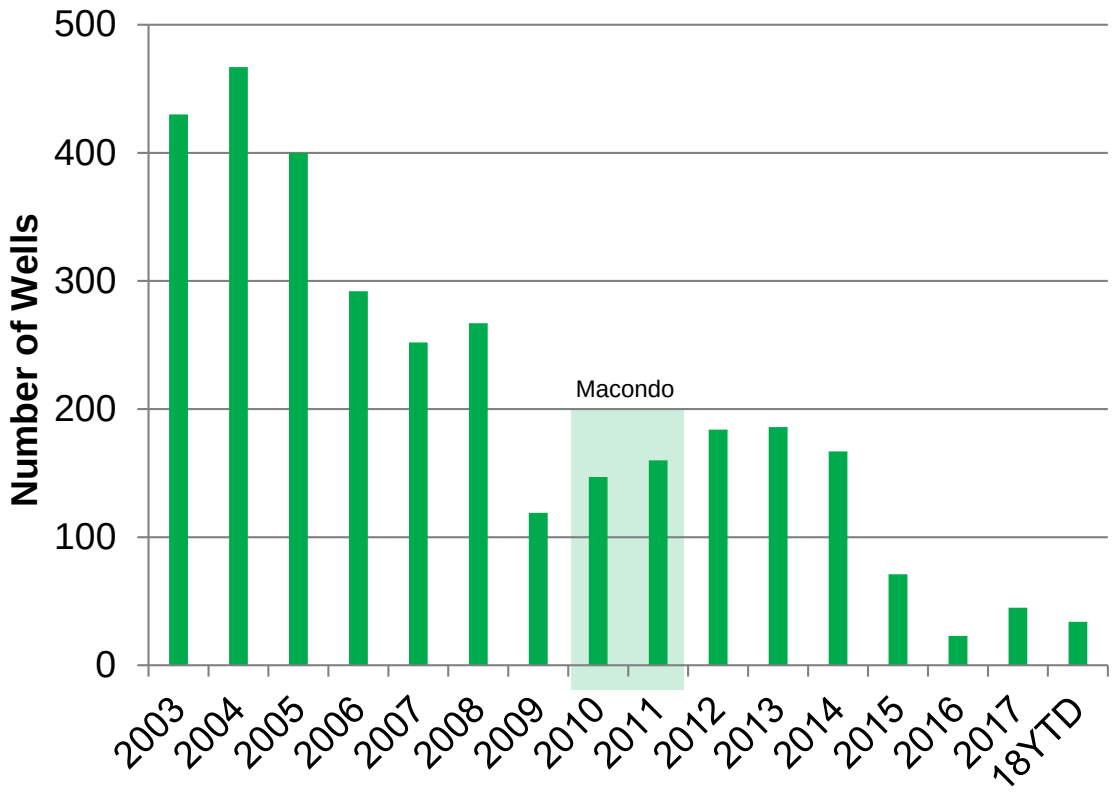
## Shallow water (0-200m) exploration wells (2003-YTD)




Source: IHS Markit

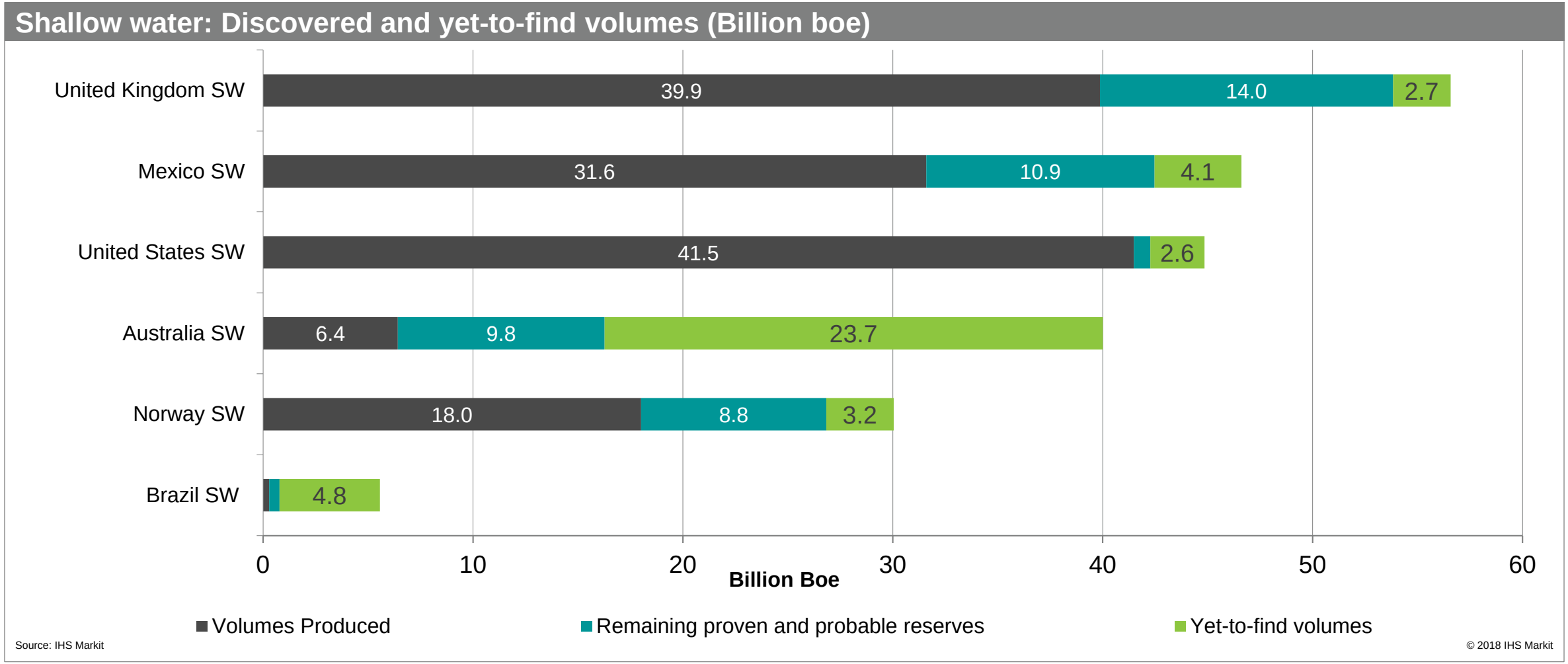


## Shallow water (0-200m) development wells (2003-YTD)



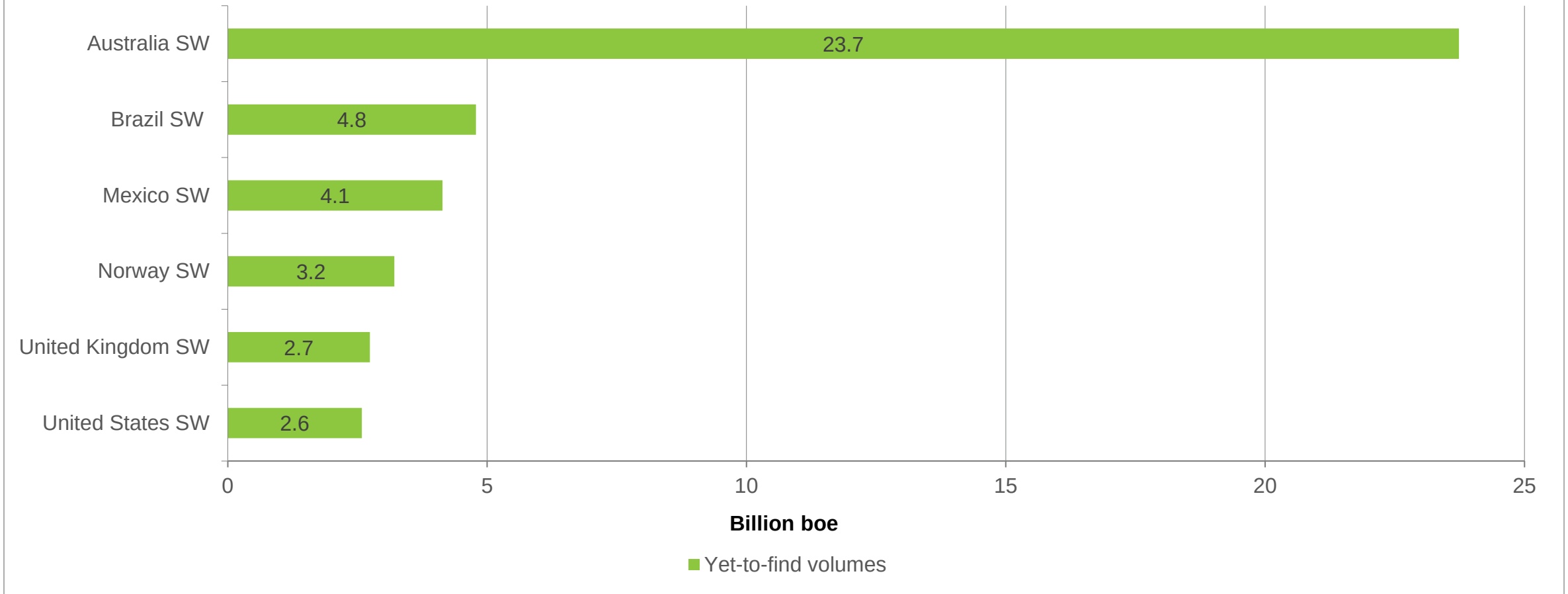

Source: IHS Markit

# In addition, U.S. shallow water GoM is the most mature of peer group regions



# Low yet-to-find volumes imply limited upside potential in U.S. shallow water GoM

## Shallow water: Discovered and yet-to-find volumes (Billion boe)




Source: IHS Markit

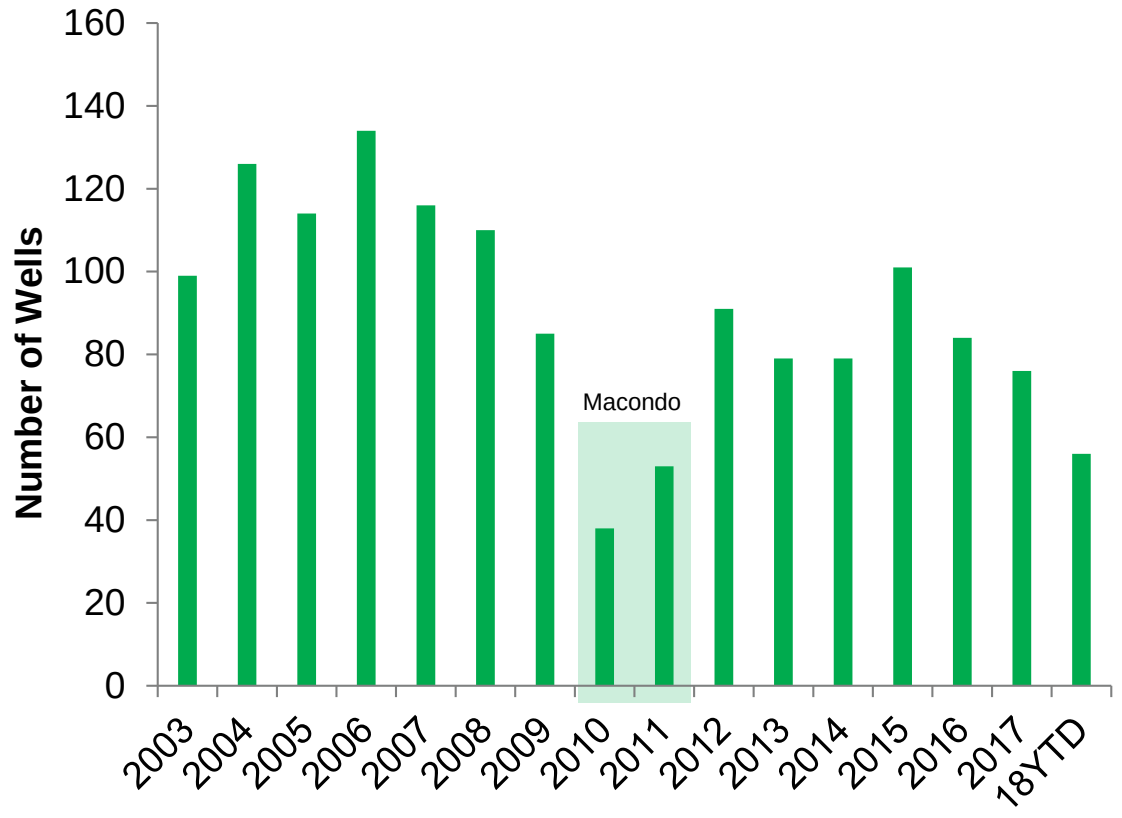
# US GoM Activity and Yet-To-Find Overview

Shallow Water

**Deepwater**

# U.S. deepwater GoM has similarly witnessed declines in exploration and development wells…

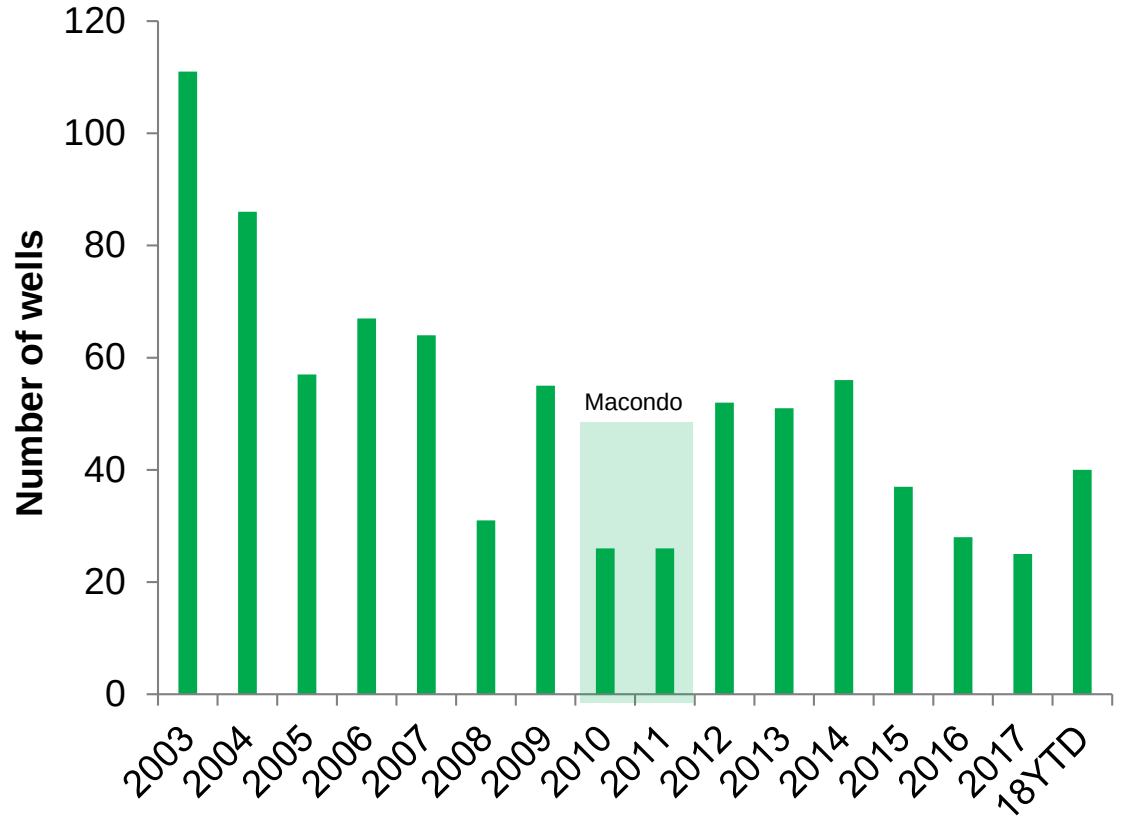
## Deepwater (+200m) exploration wells (2003-YTD)




Source: IHS Markit



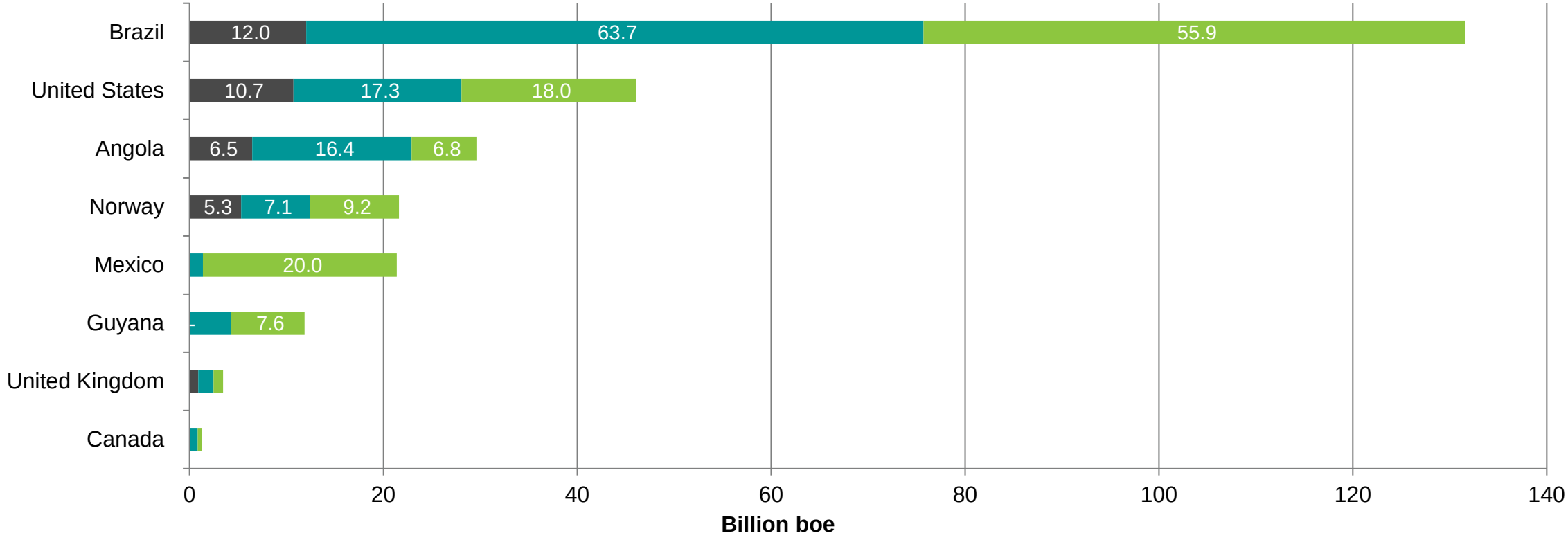
## Deepwater (+200m) development wells (2003-YTD)




Source: IHS Markit

# …However, the region has yet to “mature” and has more upside potential as evidenced by yet-to-find volumes

## Deepwater discovered and yet-to-find volumes (billion boe)




Source: IHS Markit

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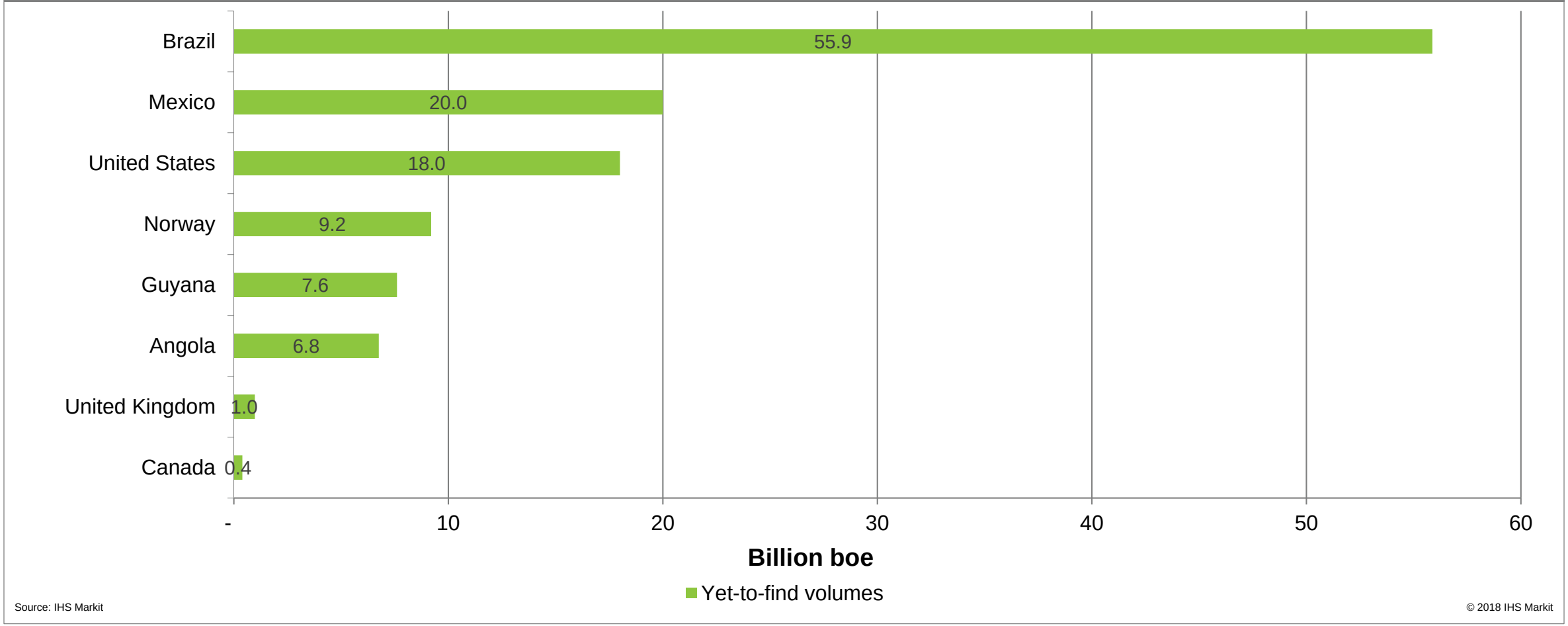
# Brazil, Mexico and the U.S. deepwater basins are among the peer group regions with the highest yet-to find volumes

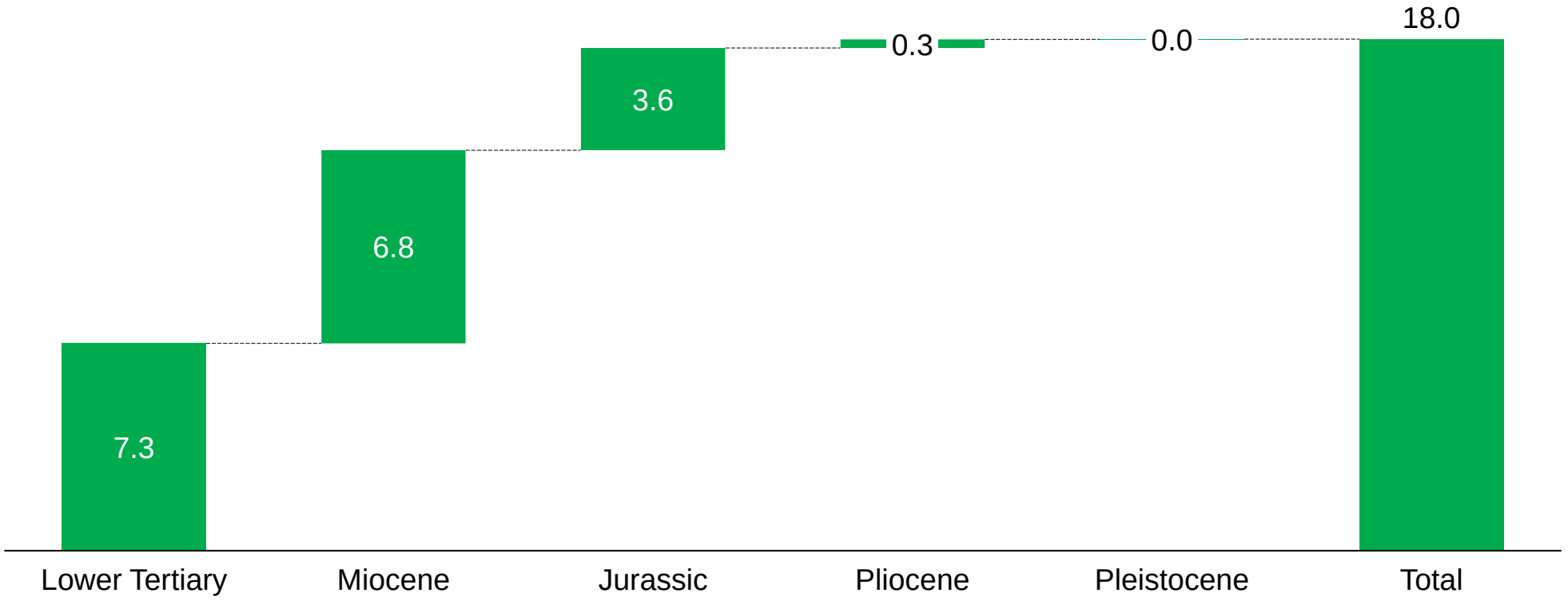
## Deepwater: Yet-to-find volumes (Billion boe)




Source: IHS Markit

# However, ~40% of the YTF barrels in U.S. Deepwater GoM are in the Lower Tertiary, which presents significant technical challenges and low productivity

**Deepwater GoM: Yet-to-Find Barrels (40 Year Forecast)**




Source: IHS Markit

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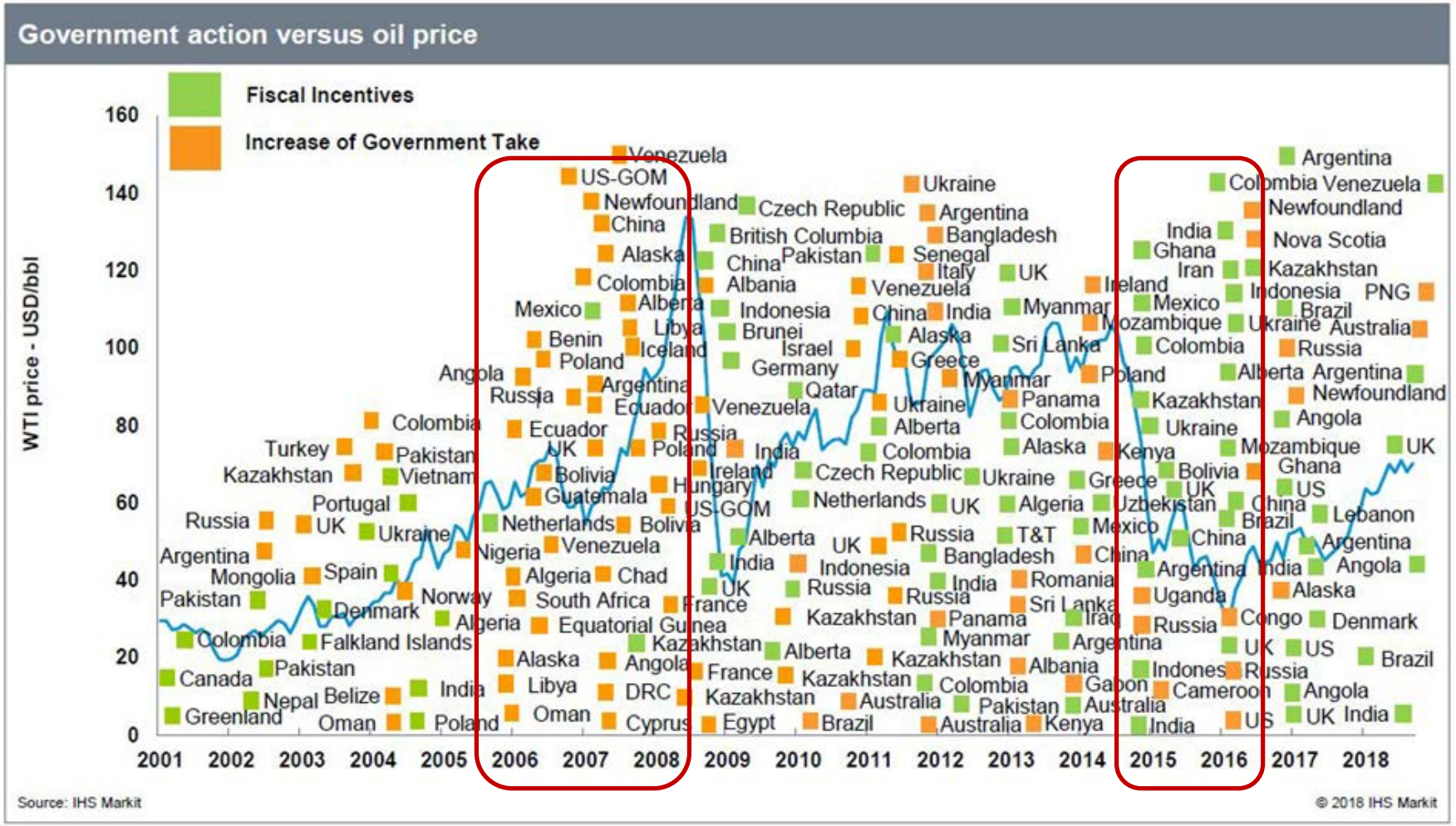
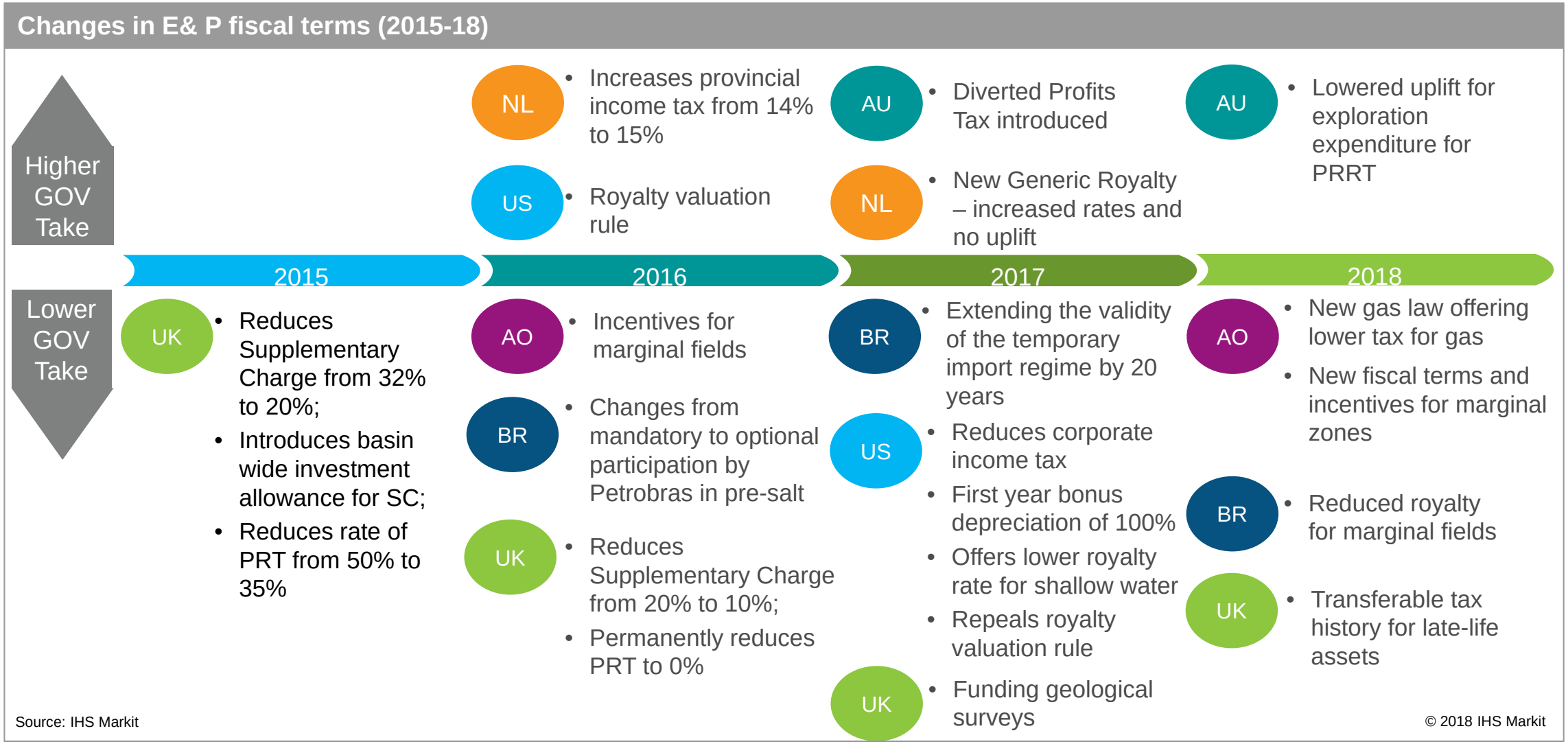
# Governments tend to react to changes in oil price, adjusting fiscal terms to maintain competiveness

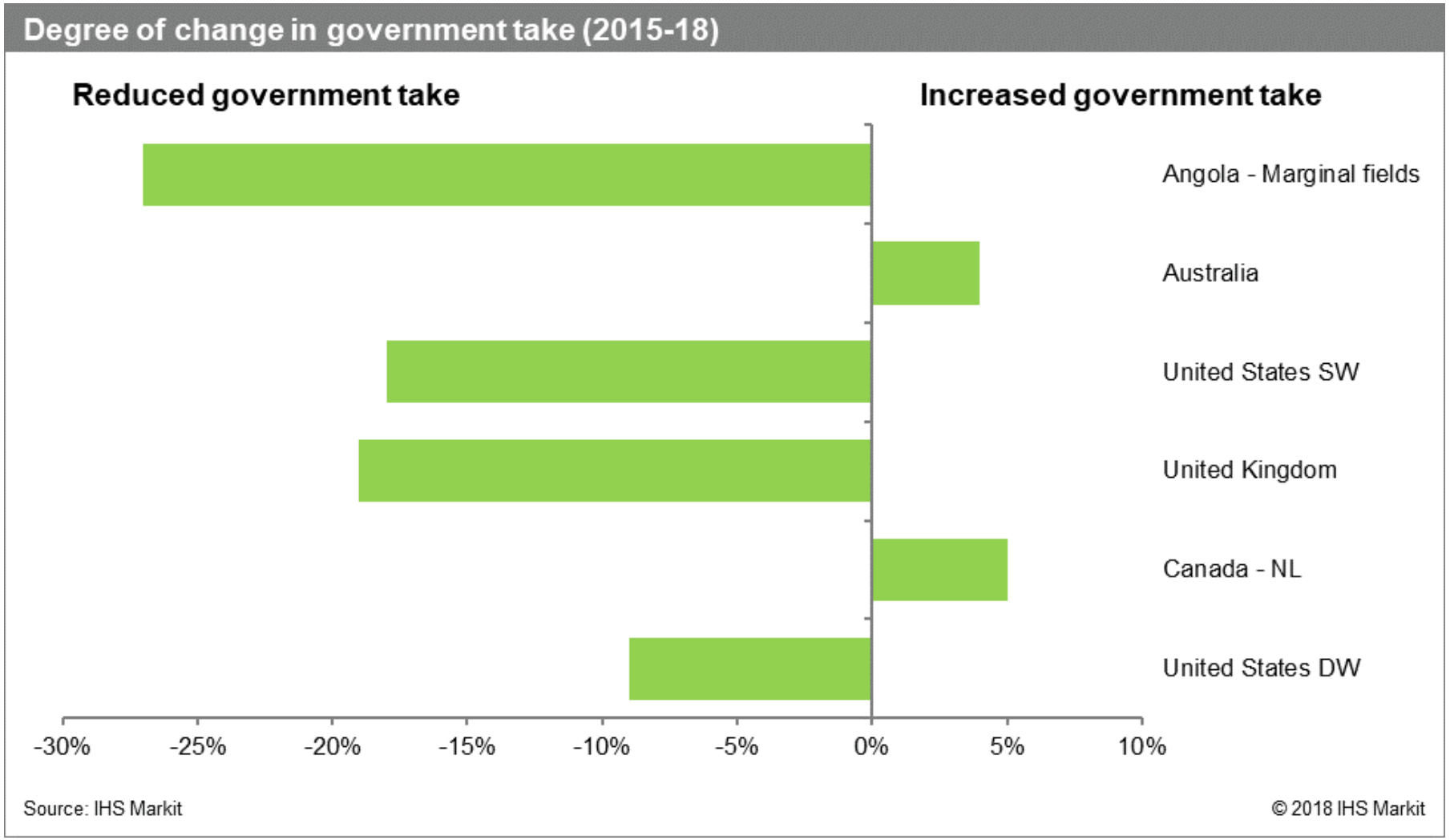



- Governments have both given incentives or tightened fiscal terms in reaction to variations in oil prices
- Historically, government take has increased during periods of rising and high oil prices
- Over the past 4 years, most countries that have changed fiscal terms have improved them, in response to lower oil prices

# Most of the jurisdictions in the peer group improved fiscal terms in the last 4 years…



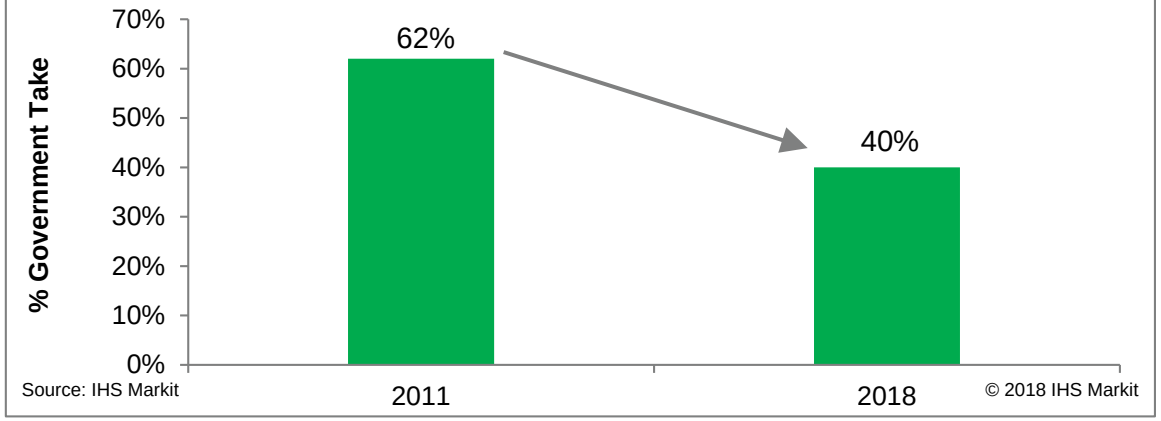
# …and these changes typically amounted to reduced government take in an effort to increase competitiveness



# The United Kingdom has been one the most pro-active peer group members and is starting to witness the first impact of its policies on E&P Activity

- The UK government launched an independent review of the oil and gas fiscal regime in 2013, which ultimately led to the following policy changes:
  - Reduced supplemental charge from 32% to 20% in 2015 and further from 20% to 10% in 2016
  - Reduced rate of Petroleum Revenue Tax from 50% to 35% in 2015 and further from 35% to 0% in 2016
  - Basin-wide investment allowances granted in recognition of significant capital costs of North Sea projects
  - Decommissioning Relief Deeds in 2013 to provide tax relief on decommissioning costs

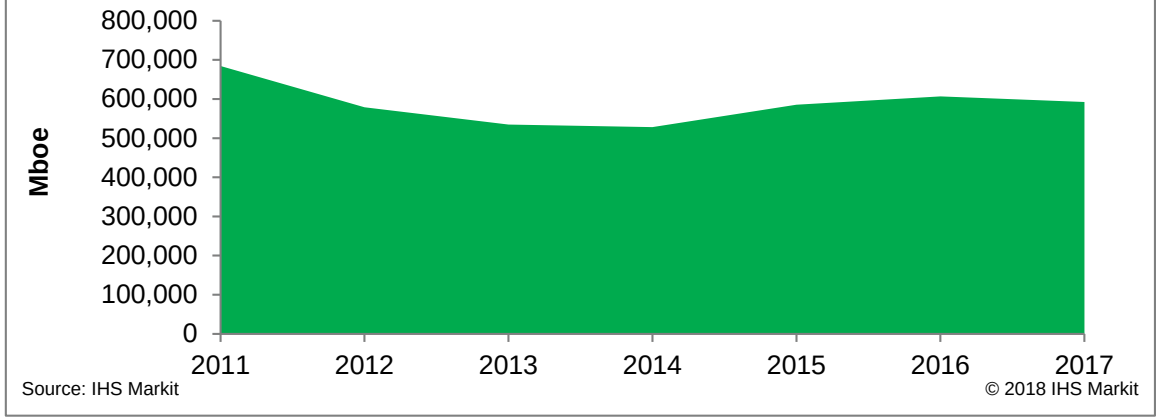
**UK: Government Take (2011 vs. 2018)**




Source: IHS Markit



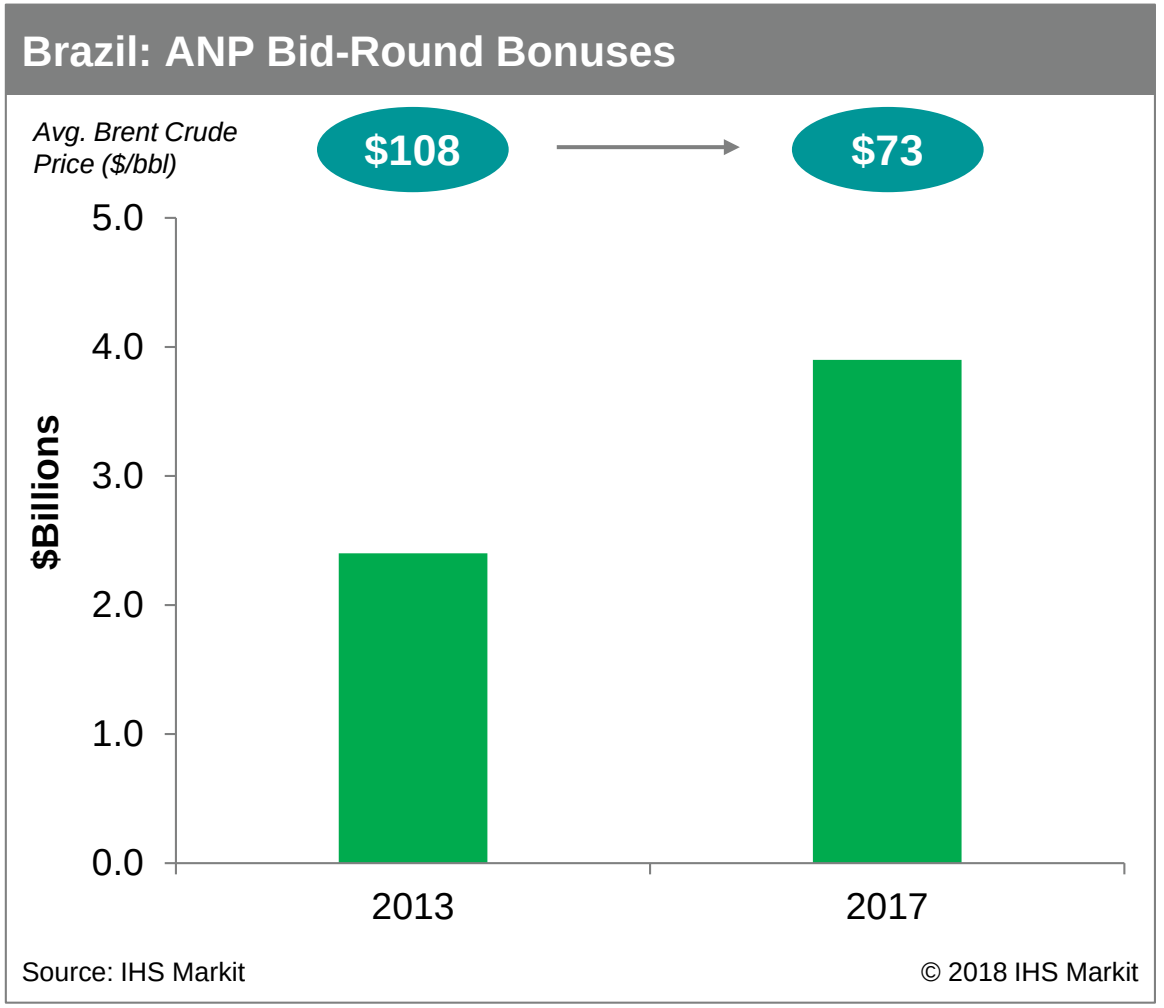
**UK: Offshore oil and gas production**




Source: IHS Markit

# Brazil has enacted fiscal reforms that have been well-received by operators, reflected in higher bid round bonuses in 2017

- Brazil introduced reforms from 2016-18 to attract investment in oil & gas from private operators
- As a result of the reforms, the following changes were introduced that impact oil and gas fiscal terms:
  - Elimination of Petrobras mandatory participation
  - Relaxation of local content, which helped reduce frequent cost overruns and schedule delays
  - Extension of REPETRO import exemption regime
  - Lowering of royalty rates on incremental production for mature fields (announced September 24, 2018); rates range from 5.0% to 7.5% based on field size
- The Brazil reforms were well-received operators, as the 2017 ANP bid-rounds collected $3.9 billion in bonuses versus $2.4 billion in 2013; it is too early to judge their impact on exploration and appraisal



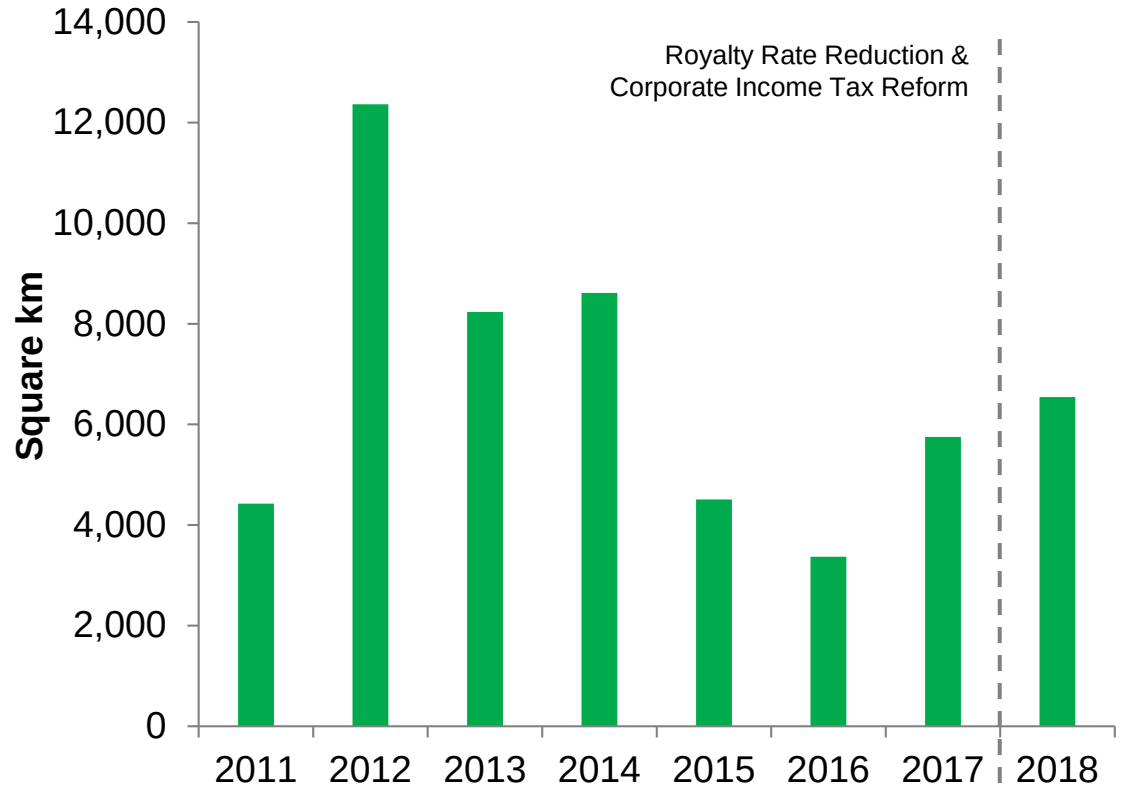


Legend: ANP - National Petroleum, Natural Gas and Biofuels Agency of Brazil

# The United States decrease in corporate tax and royalty rate contributed to a moderate increase in the interest in the Gulf of Mexico

- Both the corporate income tax and the royalty rate reduction in the shelf were introduced in 2017
  - The Tax Cuts and Jobs Act of Dec 2017 reduced the corporate income tax from 35% to 21%
  - The shallow water royalty rate was decreased from 18.75% to 12.5% in 2017 for new leases
- Difficult to assess full impact of these initiatives given it takes 2-3 years to assess impact of policy decisions
- Licensing activity recovered moderately from lows in 2016, reaching 6,500 square kilometers in 2018

## U.S. Gulf of Mexico leased acreage




Source: IHS Markit

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# Comparative analysis of current fiscal systems

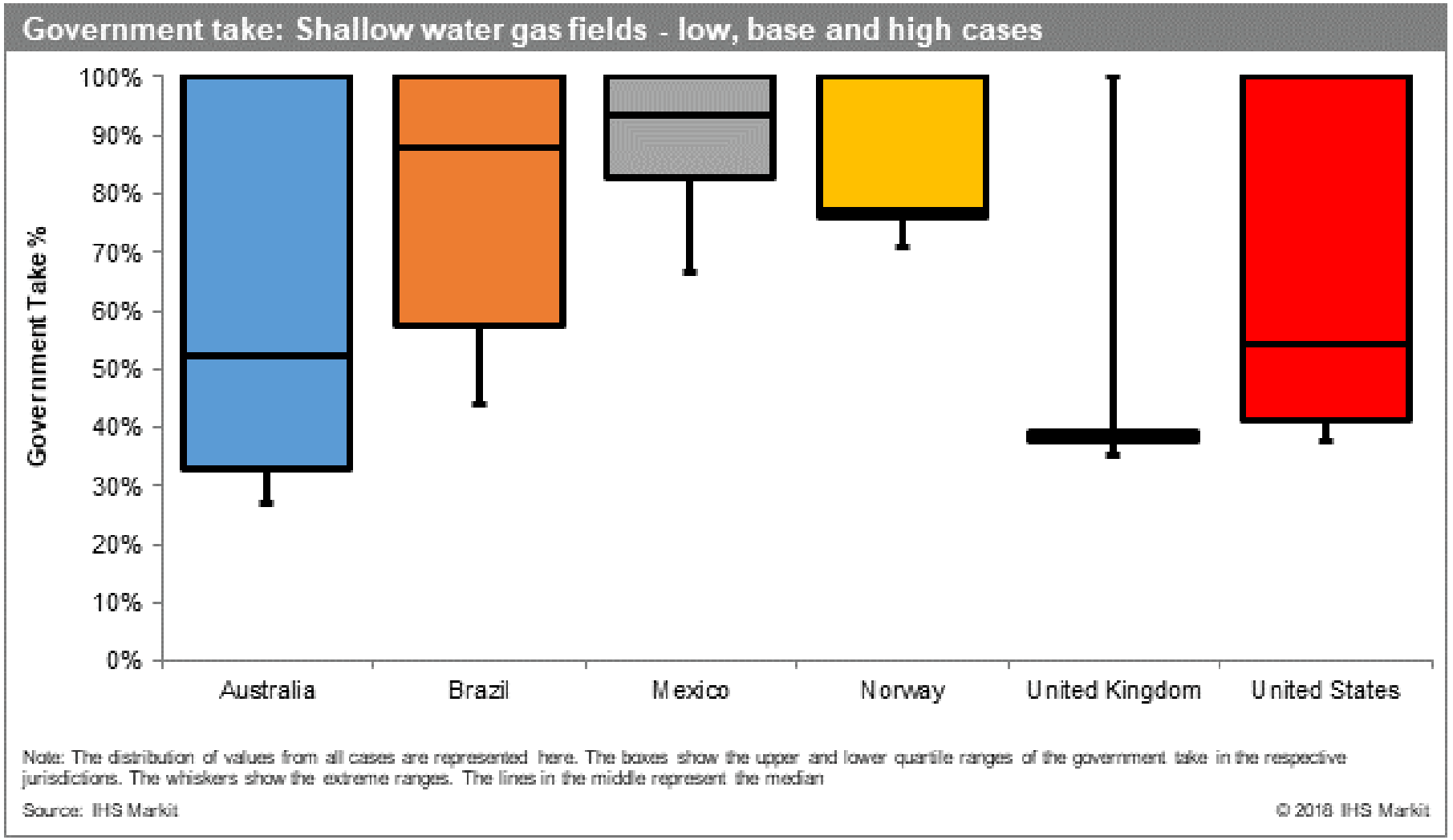
**Shallow Water Gas**

Shallow Water Oil

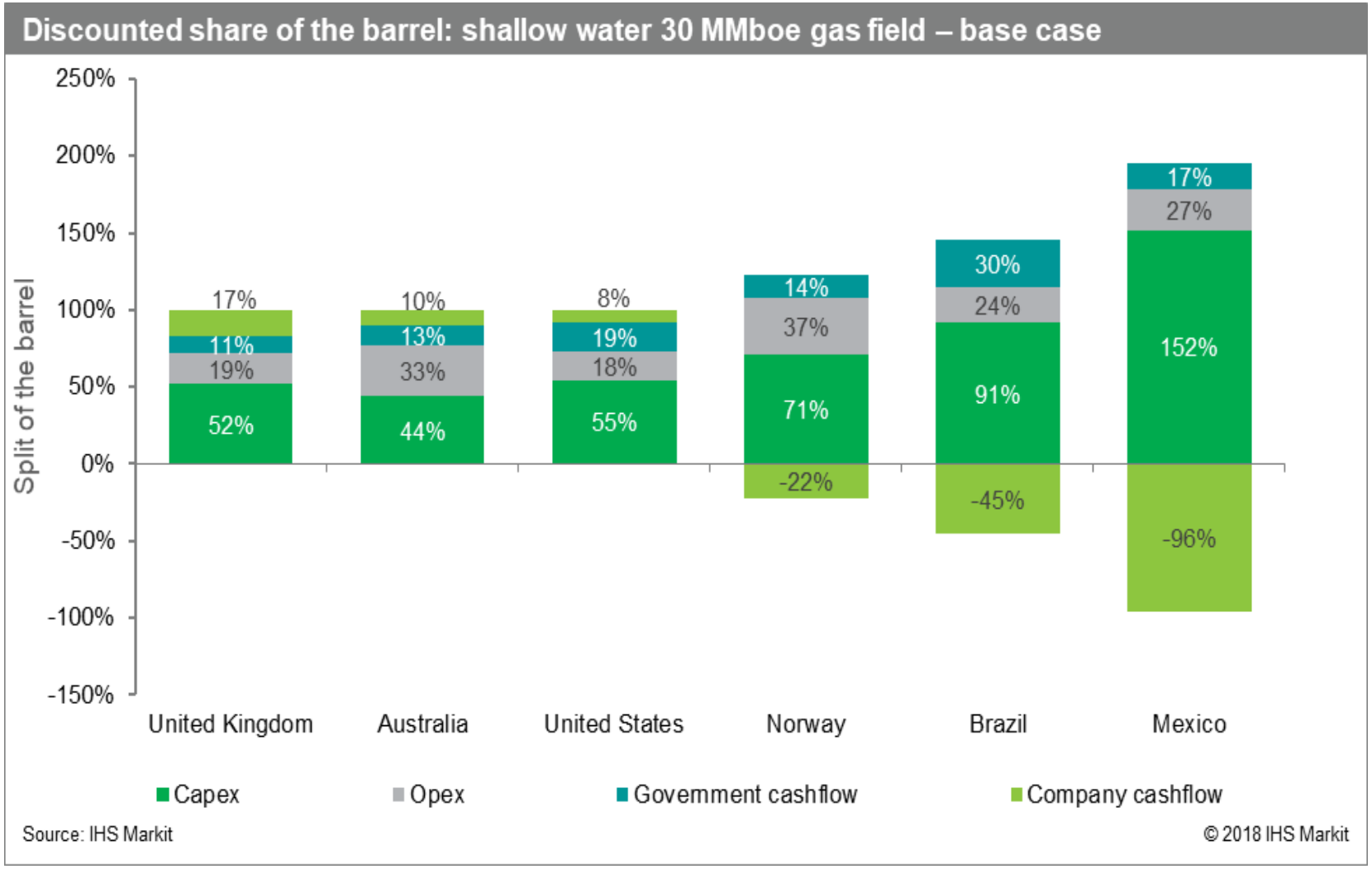
Deepwater Gas

Deepwater Oil

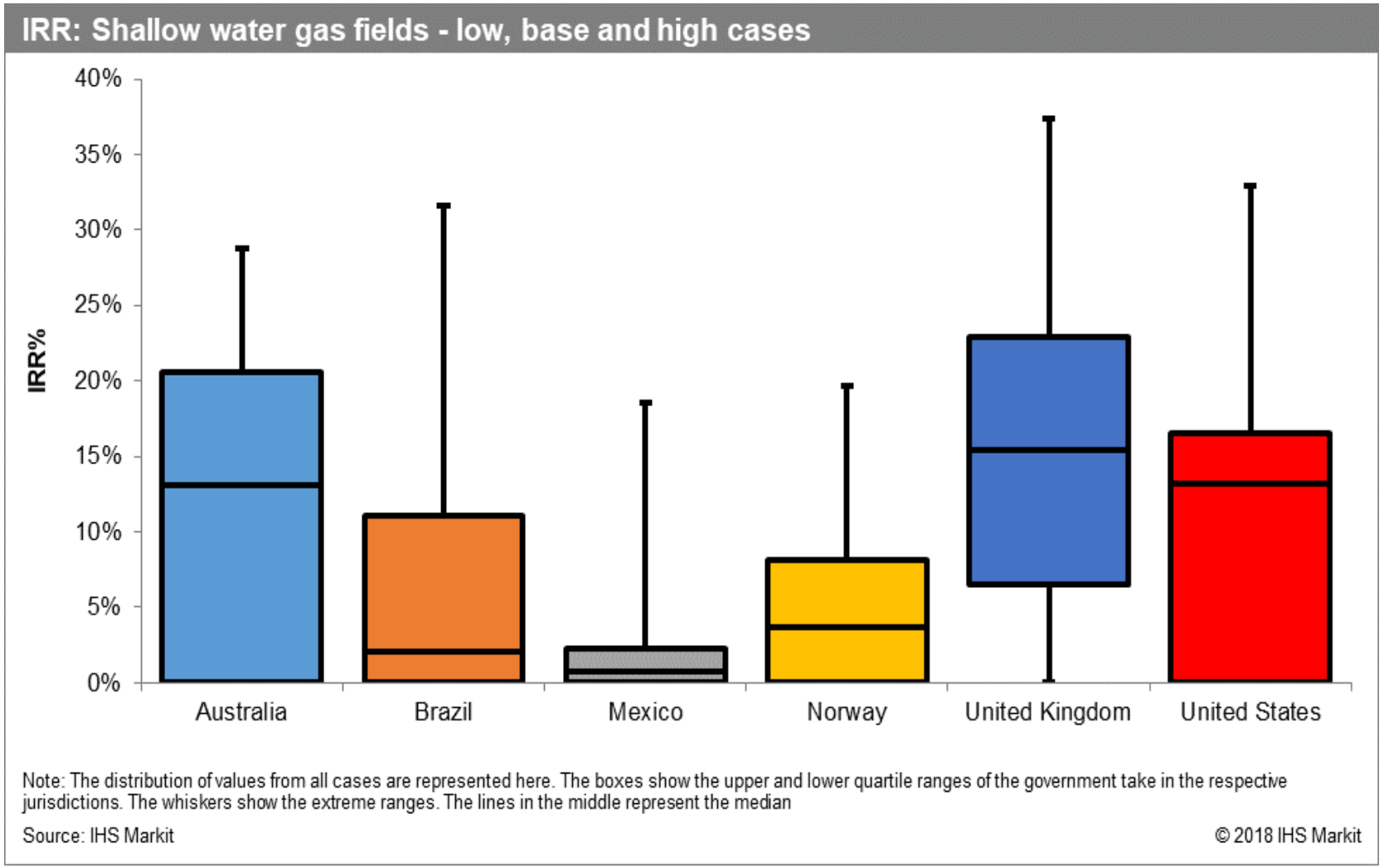
# The U.S. government take is the third lowest after the UK and Australia for shallow water gas projects



# In the U.S. Fiscal Regime, only 8% of the discounted barrel flows to the operator for a 30MM boe gas field at base case prices

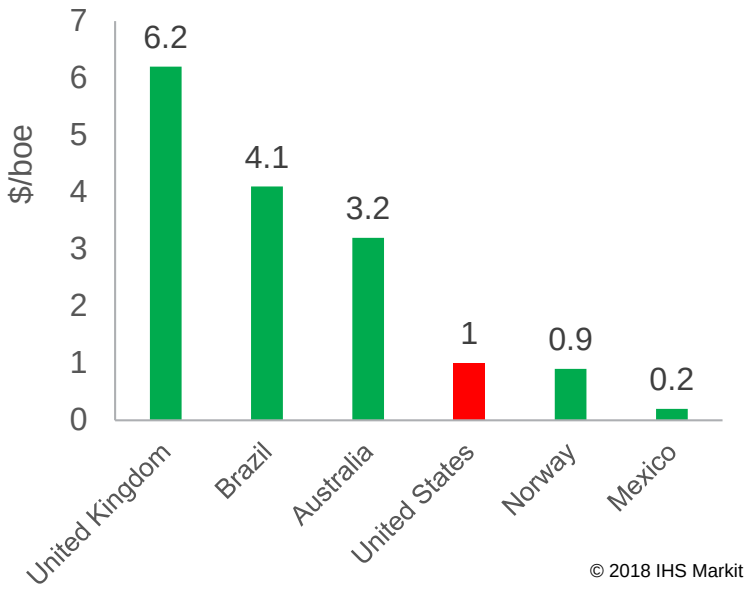


# Operators IRRs for the shallow water peer group confirm the challenging economics of gas fields in the US GoM



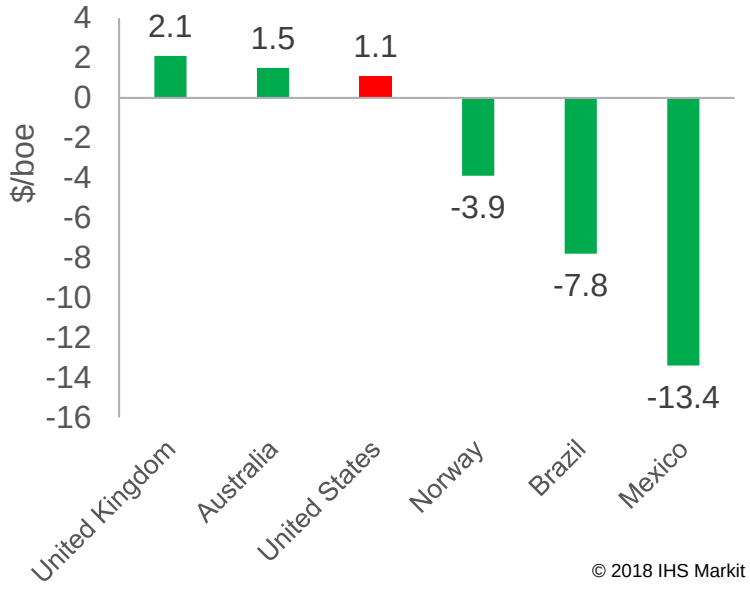
# The NPV/boe benchmarking for base case prices, shows the limited value that could be created for large and mid-size gas fields in the U.S. GoM

## NPV/Boe 100 MMboe Gas field



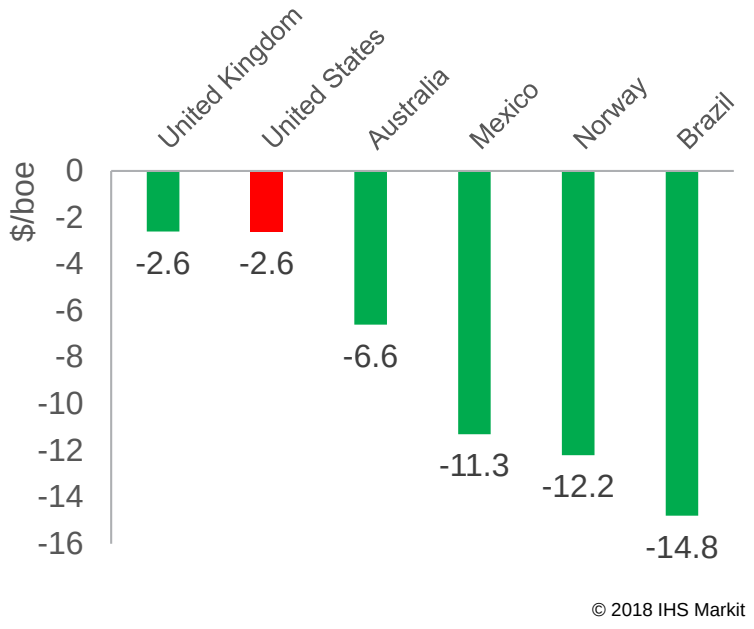



## NPV/boe 30 MMboe Gas field



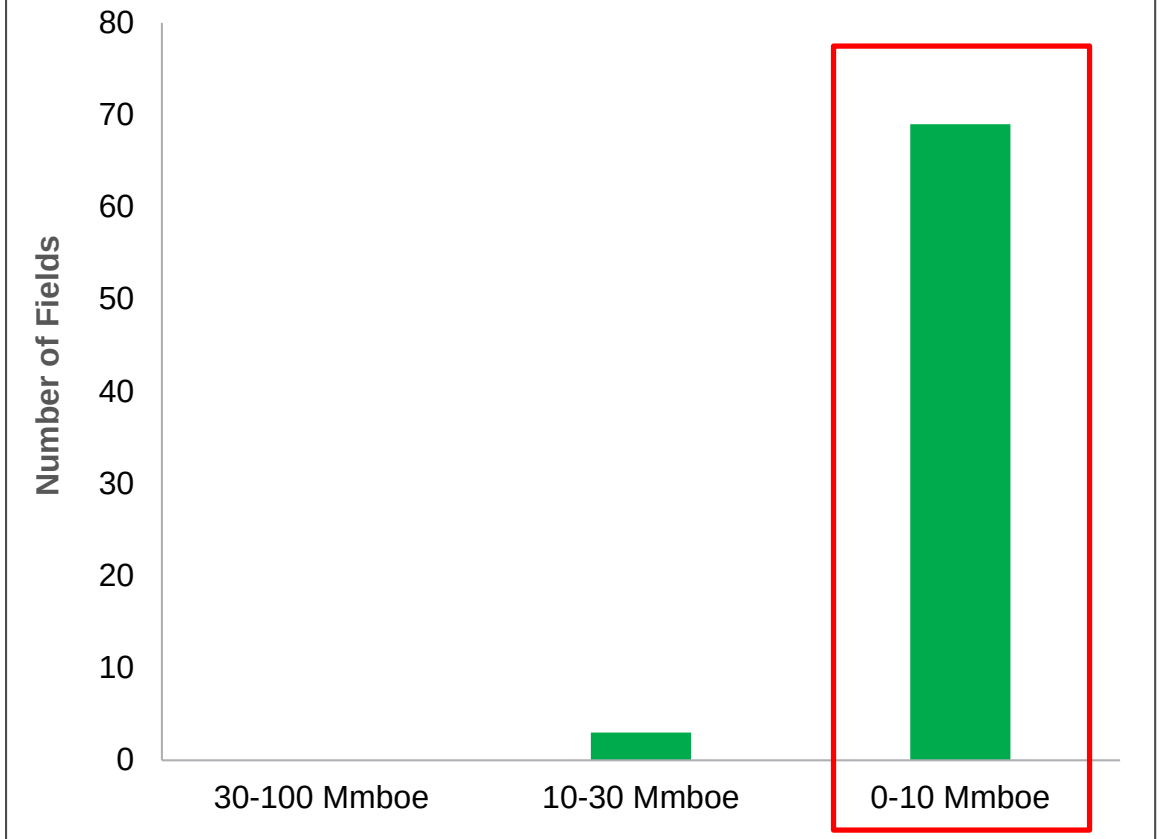



## NPV/boe 10 MMboe Gas field



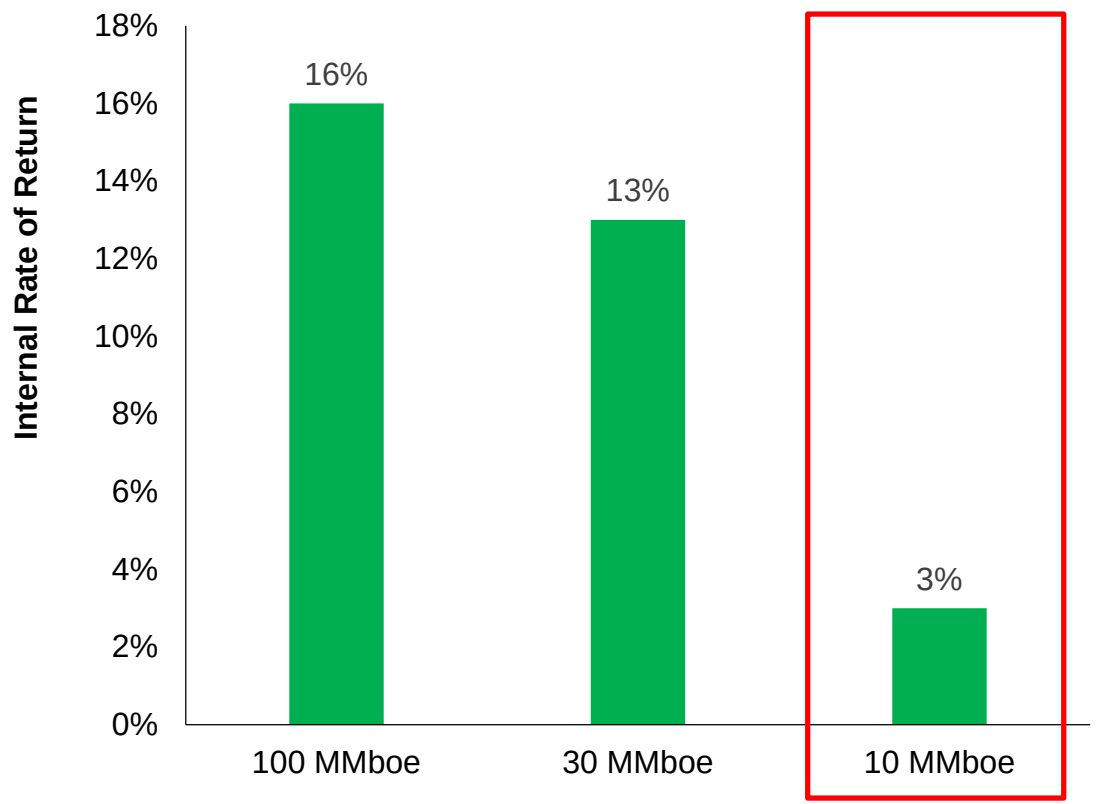
# Most of the recent shallow water GoM discoveries are small and returns for small fields are not attractive enough to trigger activity

## 2003-2018 - U.S Shallow water GoM discovery distribution






## IRR: Shallow water base case - gas fields




Source: IHS Markit

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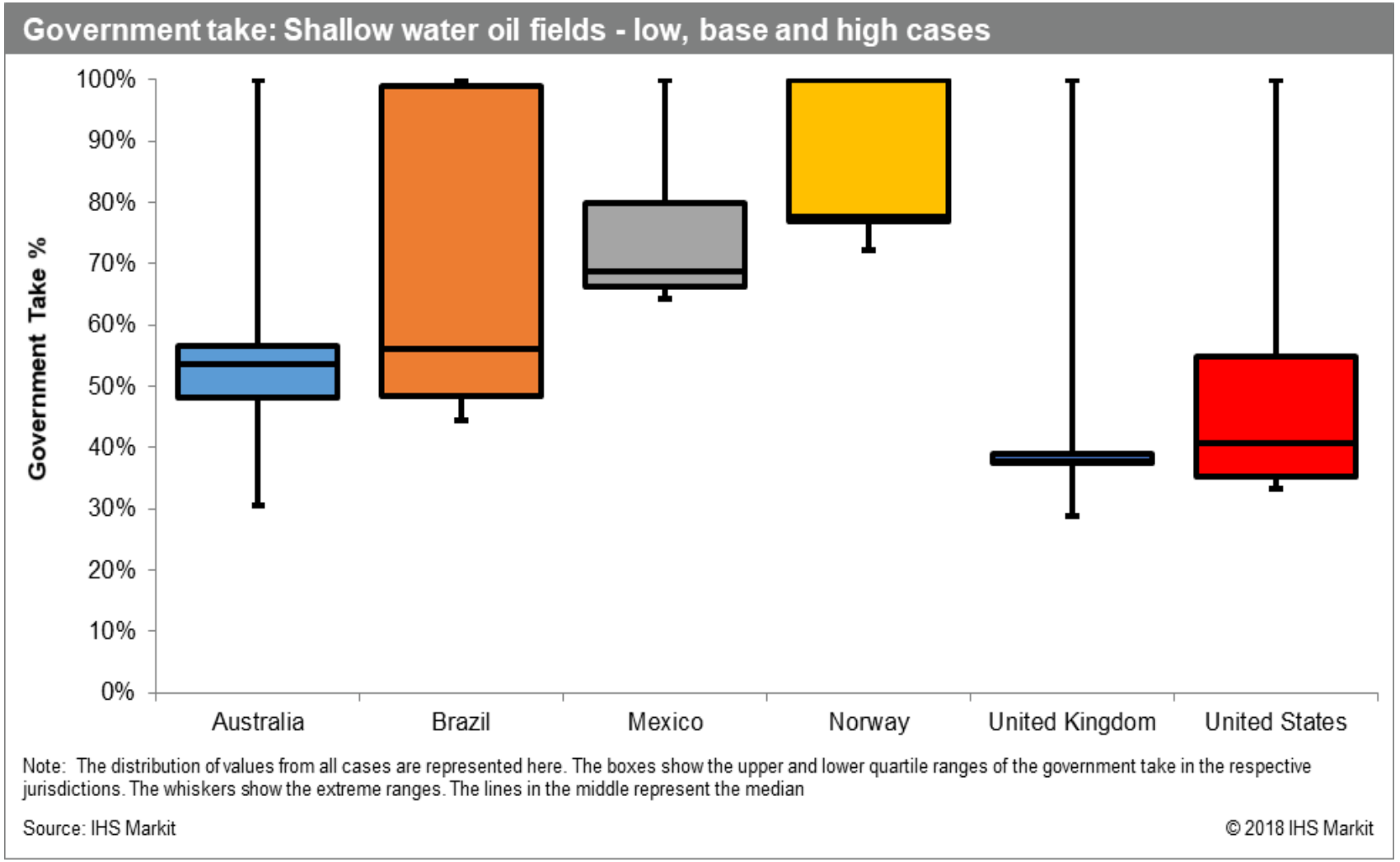
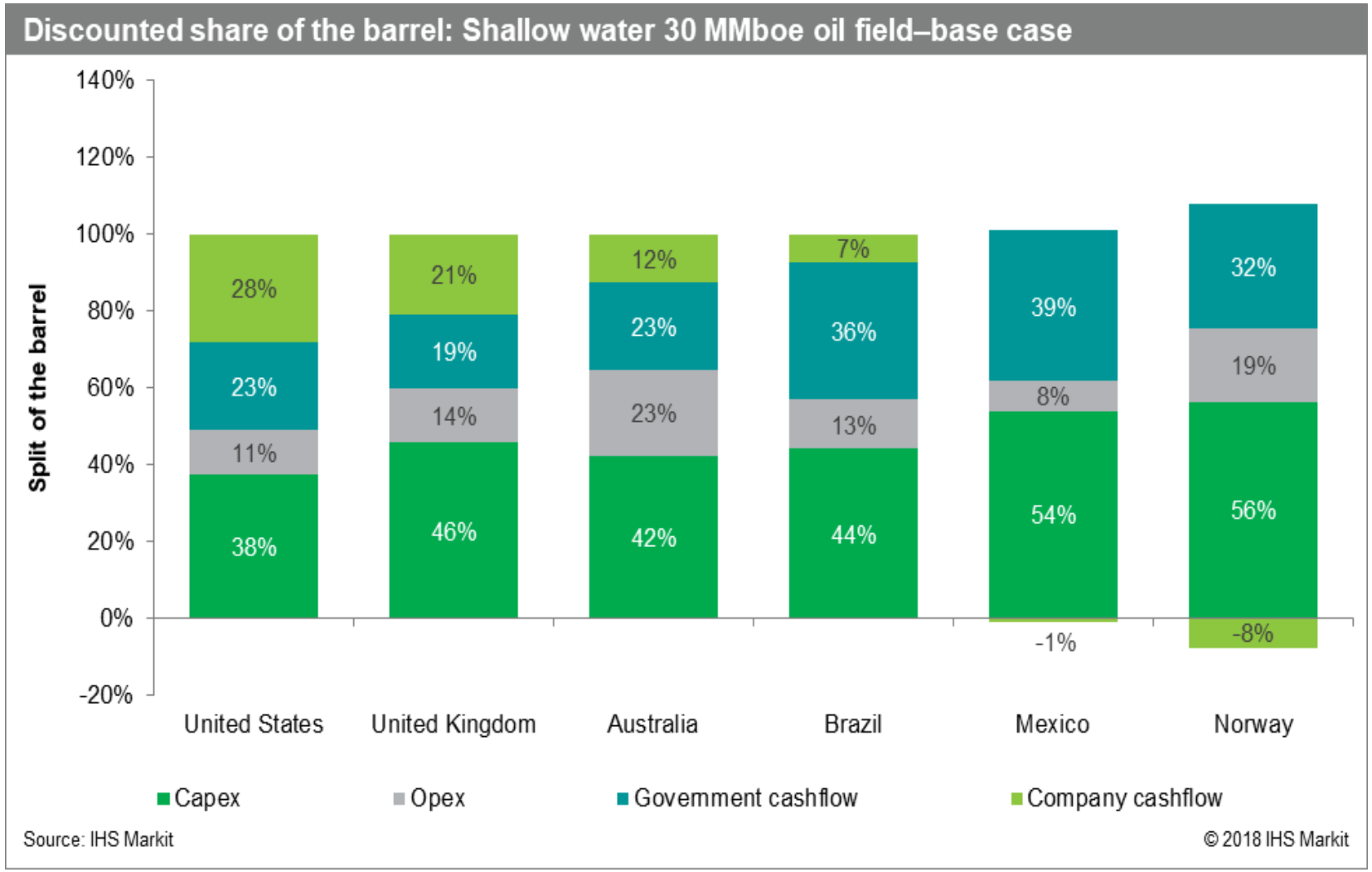
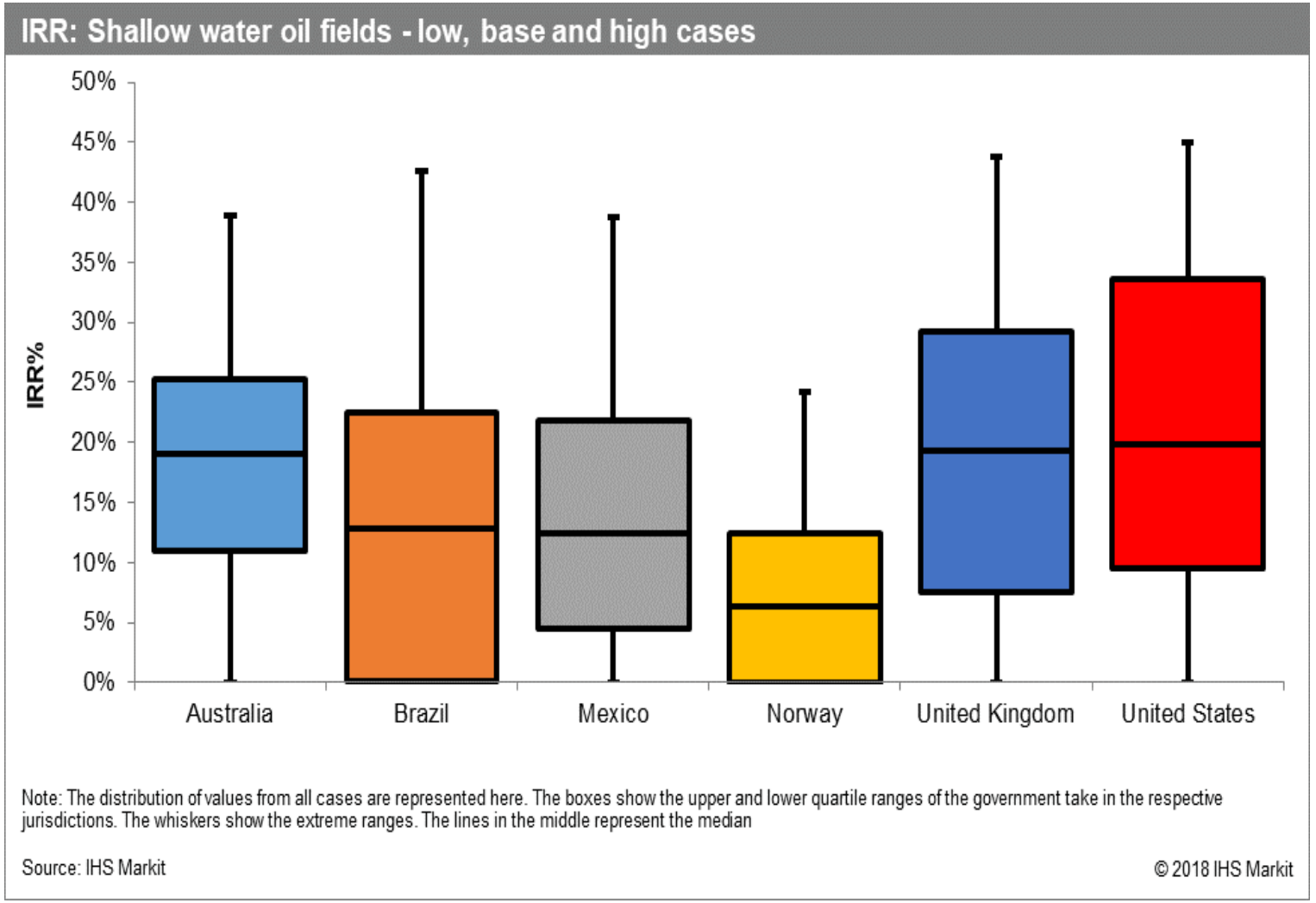
# The U.S. government take is the second lowest after the UK for shallow water oil projects



# U.S. Gulf of Mexico shallow water fiscal system is the most competitive for a 30 MMboe oil field at base case prices



# Operators IRRs for the shallow water peer group confirm the competitiveness of the U.S. fiscal system



# Comparative analysis of current fiscal systems

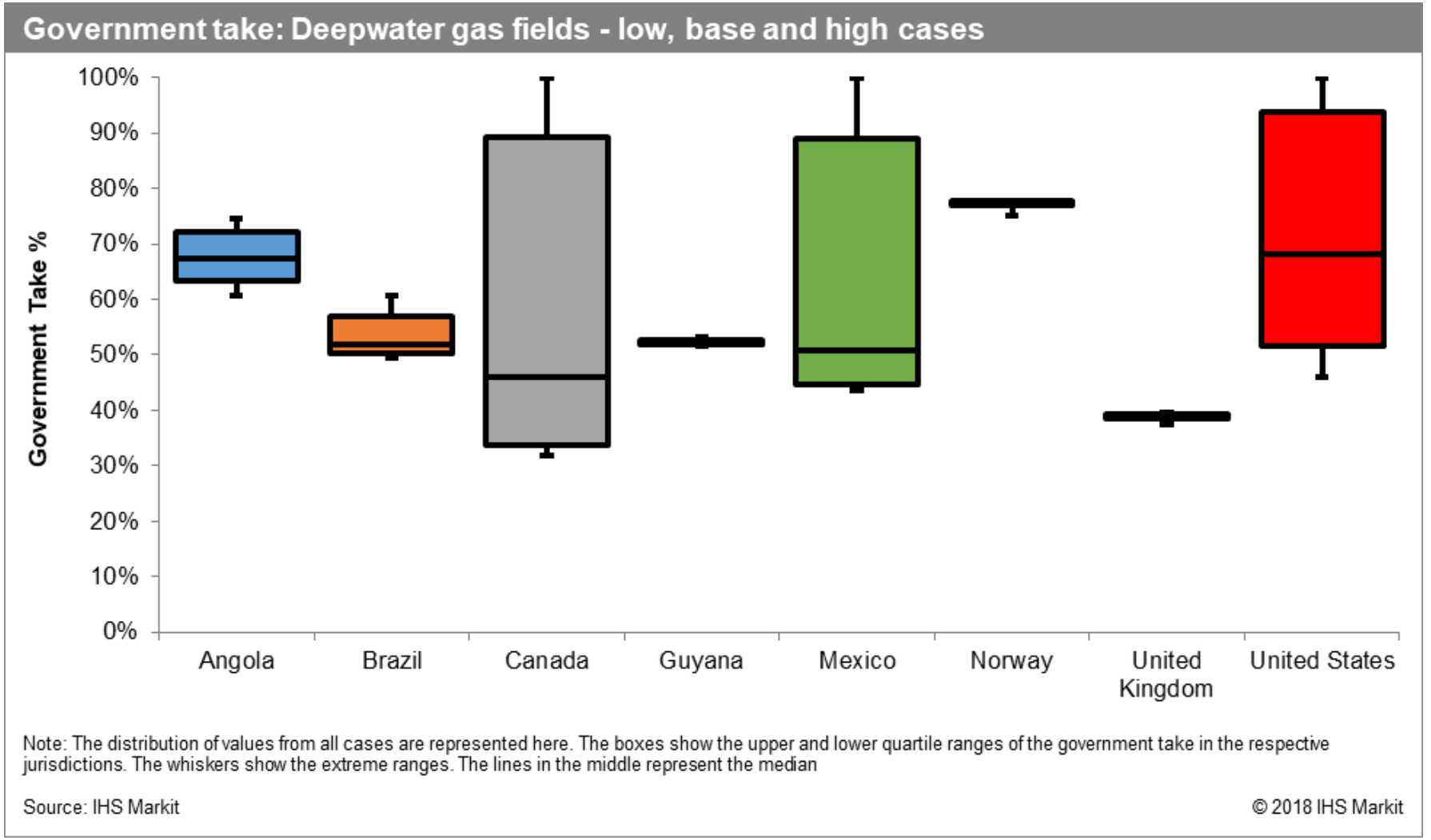
Shallow Water Gas

Shallow Water Oil

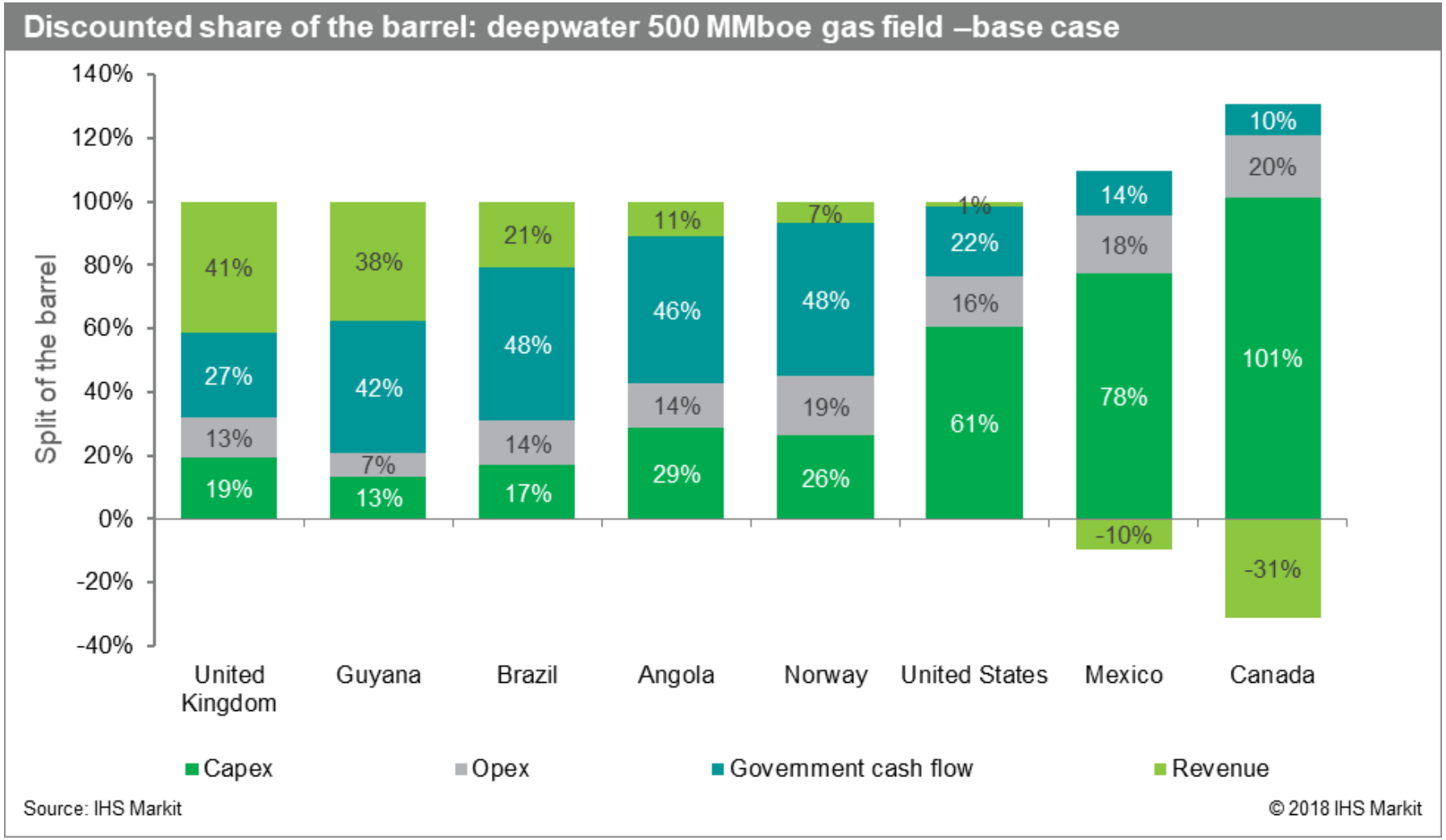
**Deepwater Gas**

Deepwater Oil

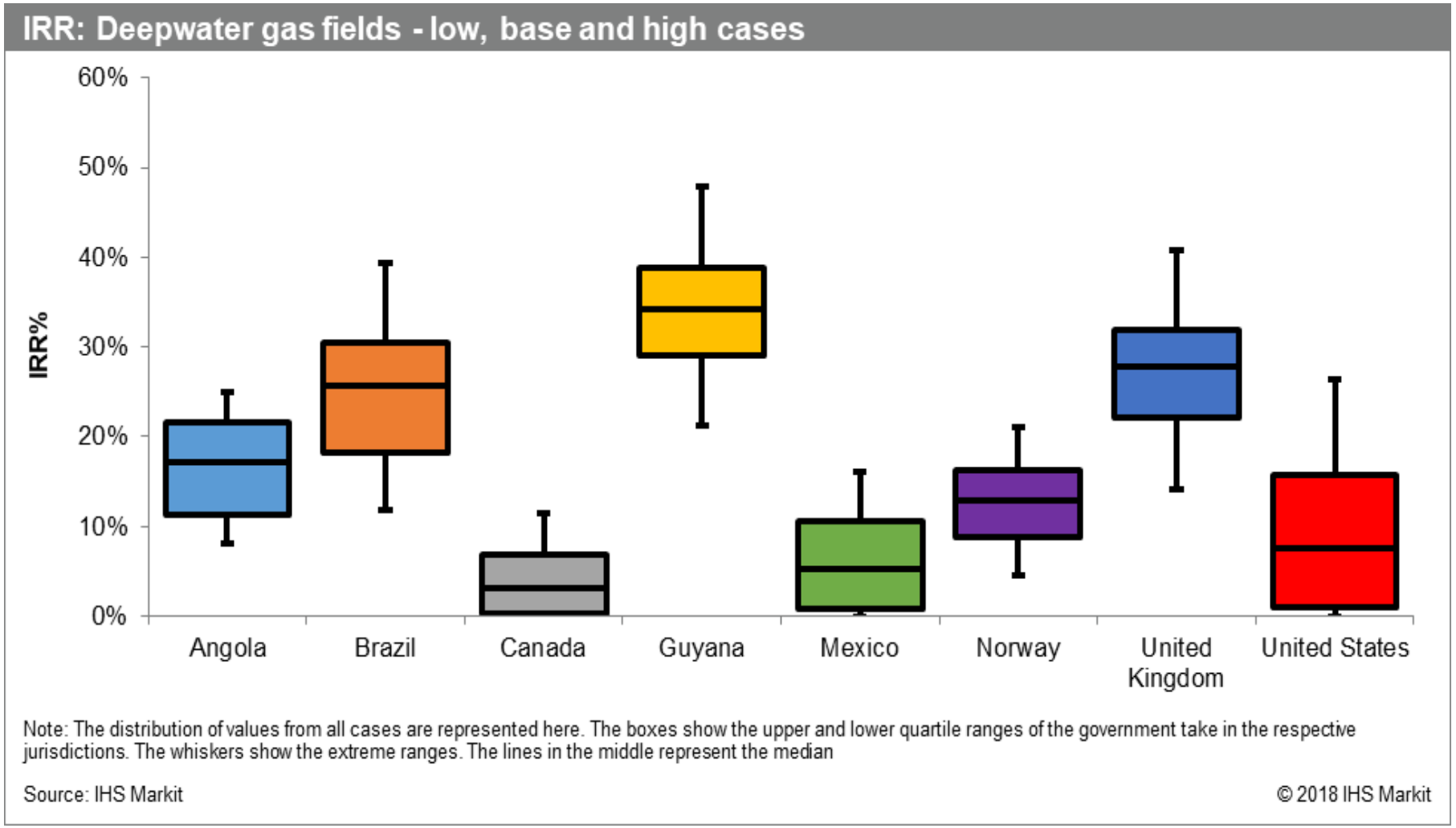
# U.S. deepwater gas government take is the second-highest; combined with reservoir depths and low gas prices, economic potential is challenging



# Only 1% of a “discounted barrel” of a gas field in U.S. GoM Deepwater, flows to the operator



# IRRs for U.S. Deepwater GoM gas projects are below typical operator hurdle rates



# Comparative analysis of current fiscal systems

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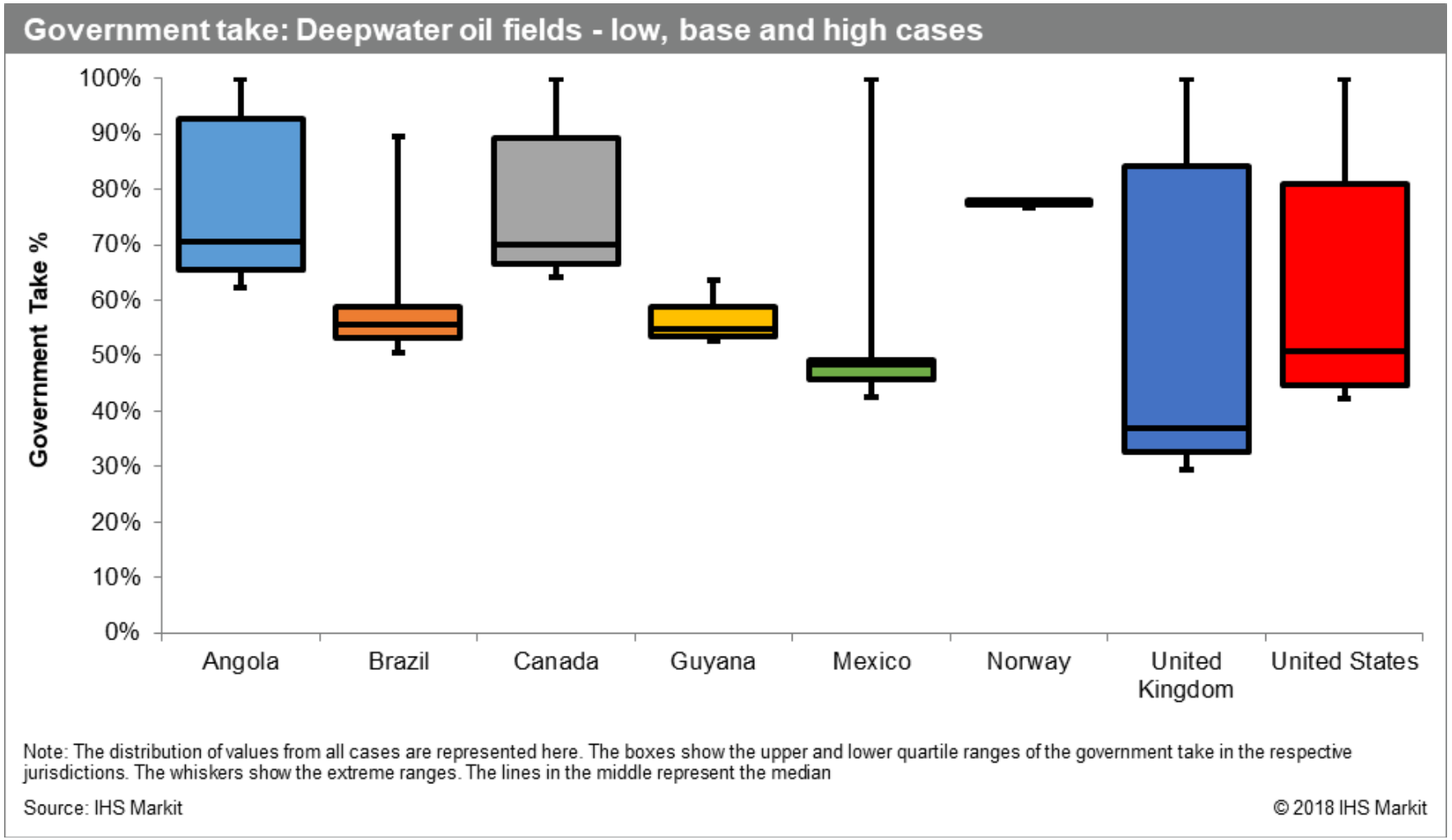
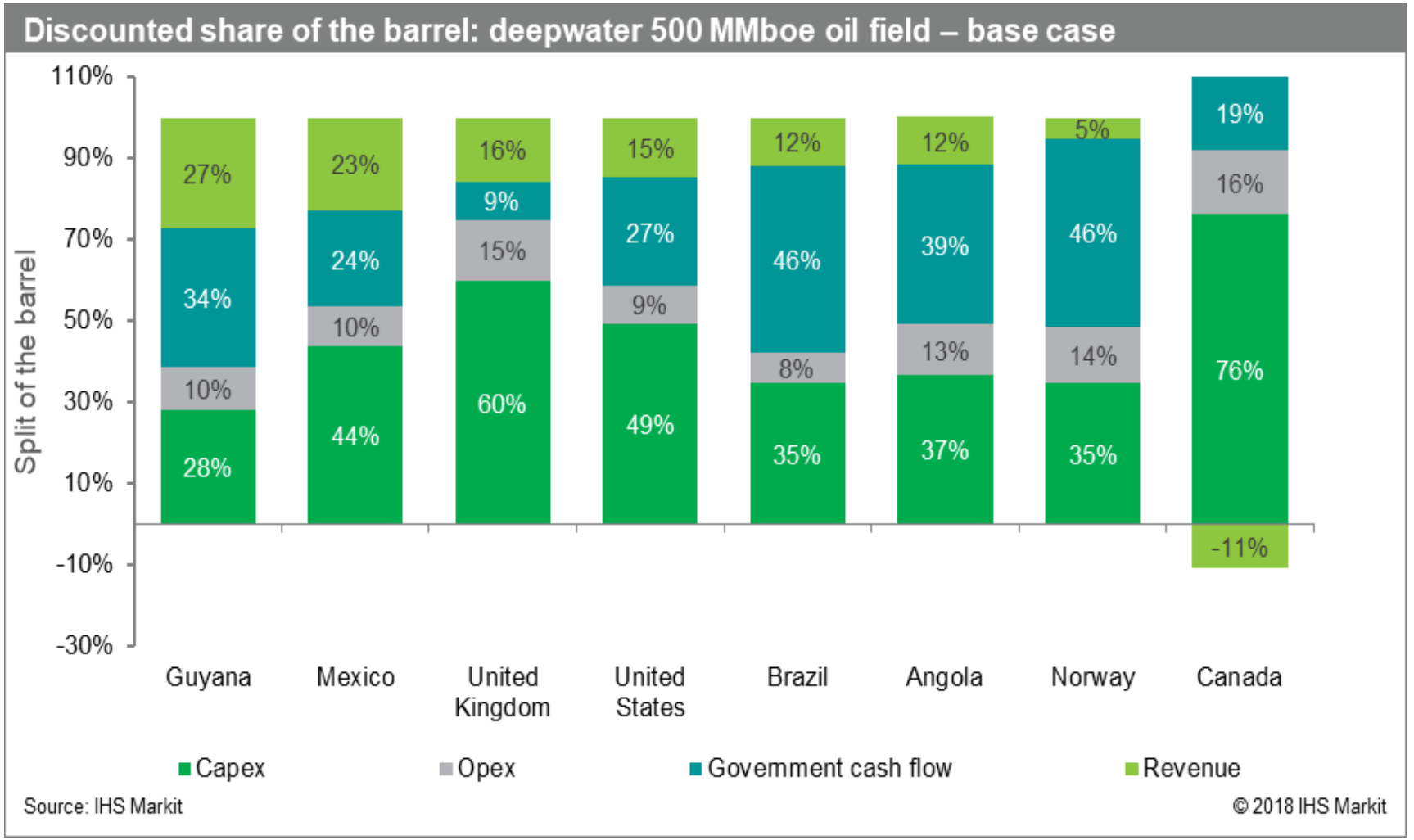
Deepwater Gas

**Deepwater Oil**

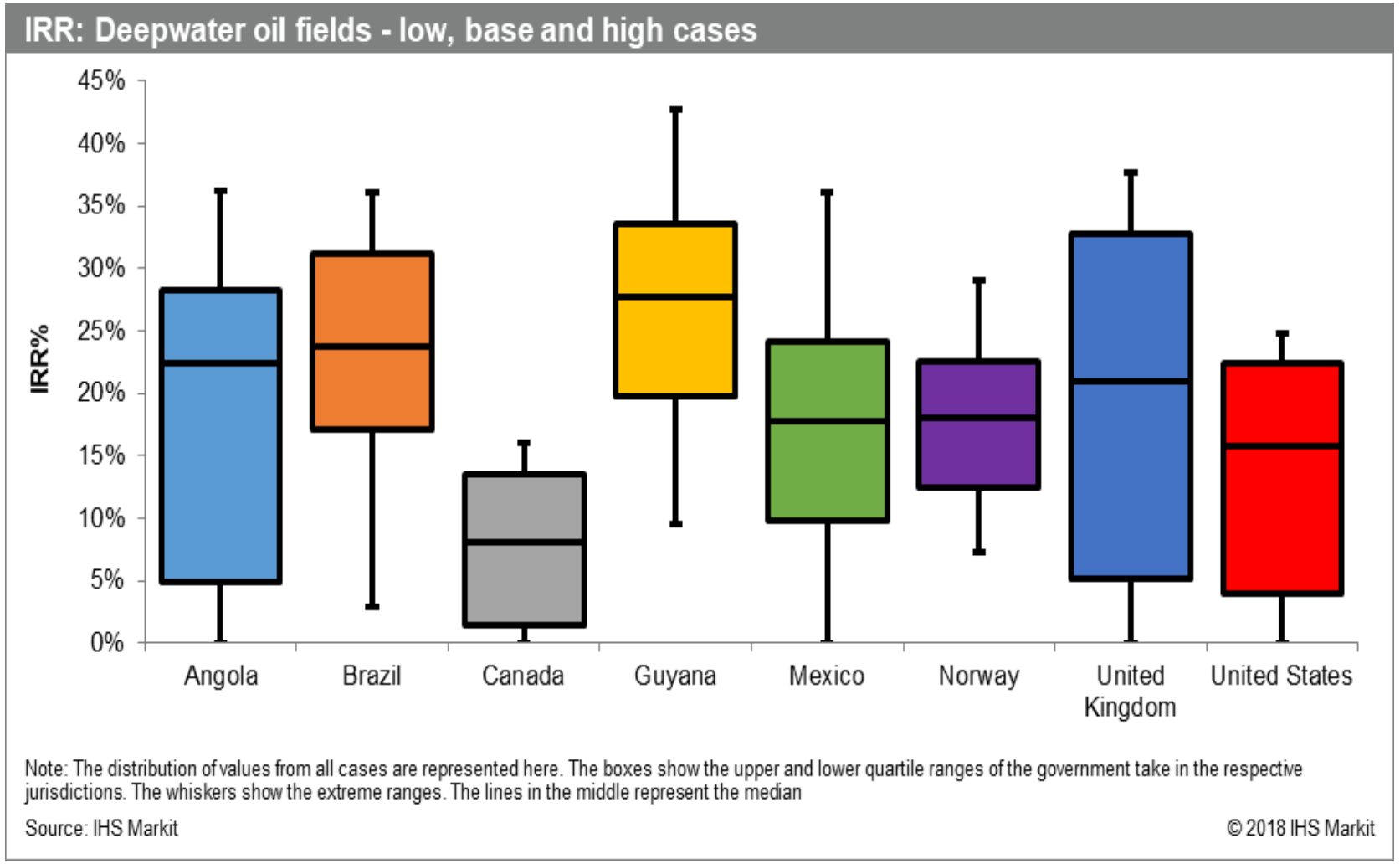
# For deepwater oil projects, U.S. government take is the third lowest after the UK and Mexico



# U.S. government take ranks fourth among peers with respect to share of revenue that flows to operators

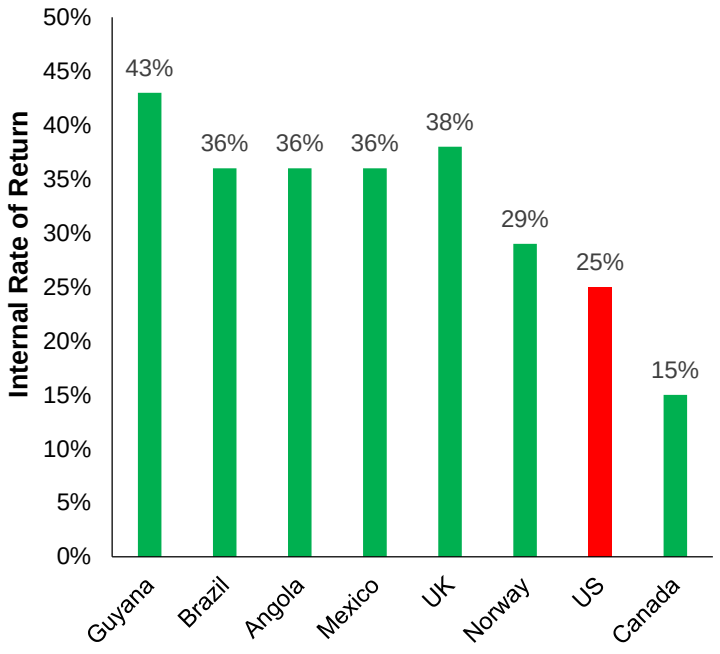


# U.S. GoM Deepwater IRRs are not competitive, particularly with Brazil, Angola, Guyana and Mexico

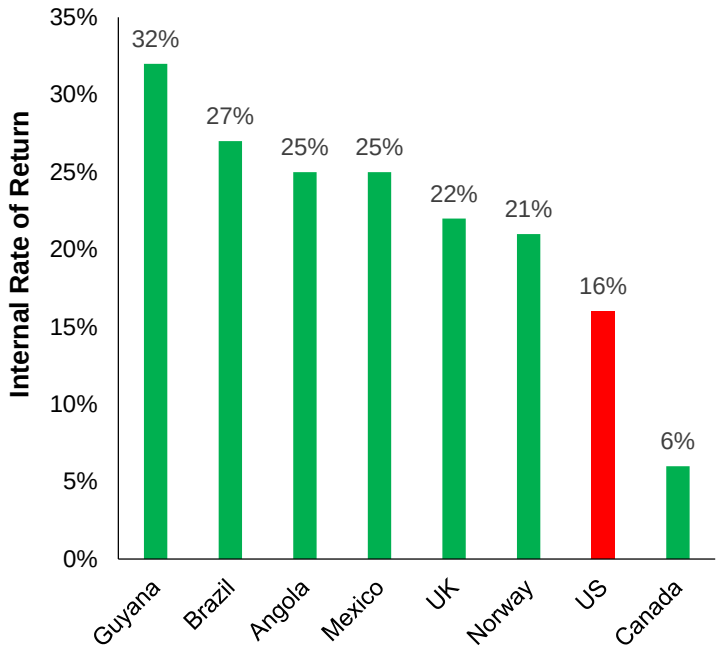


# The IRRs benchmarking for large oil fields highlights the limited competitiveness of U.S. Deepwater GoM fiscal terms

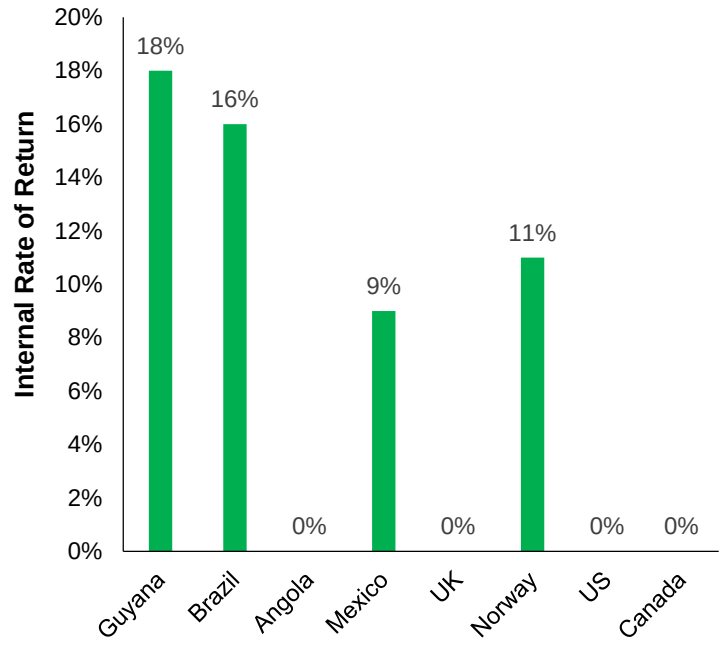
## Deepwater - Oil - 500 MMboe - High Case




## Deepwater - Oil - 500 MMboe - Base Case

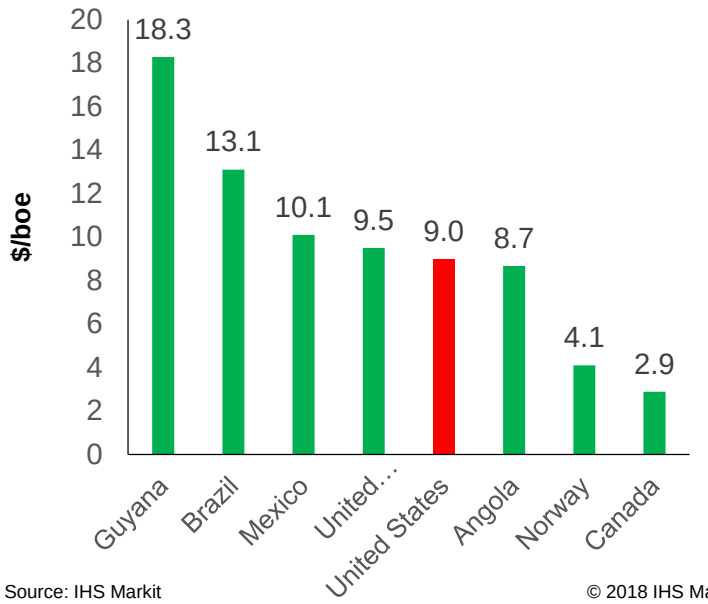



## Deepwater - Oil - 500 MMboe - Low Case



# The NPV/boe benchmarking confirms the limited competitiveness of US GoM

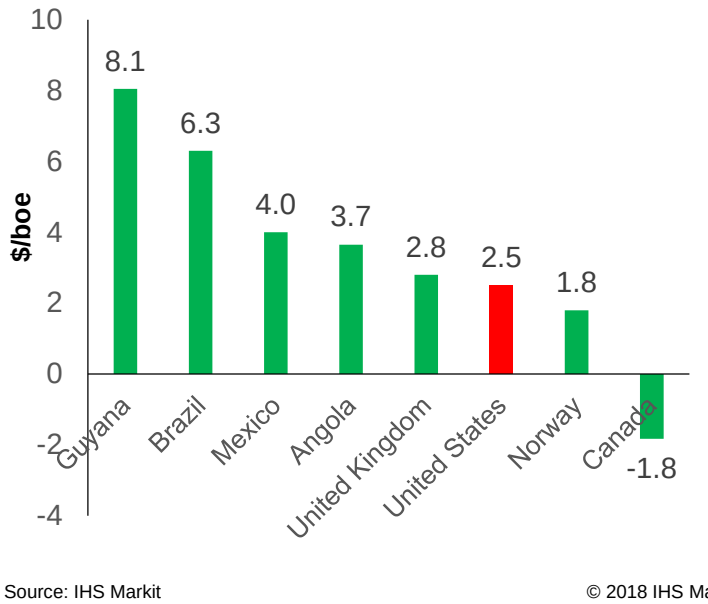
## NPV/boe Deepwater 500 MMboe oil field - High Case




Source: IHS Markit



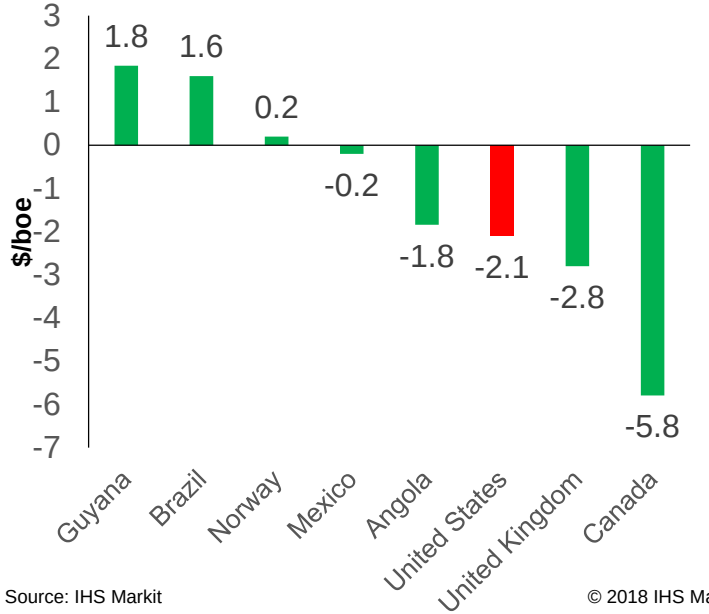
## NPV/boe Deepwater 500 MMboe oil field - Base Case




Source: IHS Markit



## NPV/boe Deepwater 500 MMboe oil field - Low Case




Source: IHS Markit

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# Seven fiscal system alternatives have been defined and evaluated

| | | |
|---|---|---|
| Shallow Water | S.1. | Categorical Royalty Relief |
| | S.2. | Sliding Scale Royalty (12.5% to 22.5%) |
| Deep Water | D.1. | Reduced Royalty to 12.5% Fixed |
| | D.2. | Increase Royalty to 20% Fixed |
| | D.3. | Increase Royalty to 22.5% Fixed |
| | D.4. | Categorical Royalty Relief |
| | D.5. | Sliding Scale Royalty (12.5% to 22.5%) |

# Shallow water alternative S.1. is a water-depth-driven categorical relief system – relief increases with water depth

## S.1. Categorical Royalty Relief

### Description

- Applies to all leases in water depth less than 200m
- A Royalty Suspension Volume (RSV) of 5 MMboe is granted for each qualifying lease when oil prices are less than $85/bbl
- Field-level RSV determined by total number of relevant qualifying leases

### Pros & Cons

- ✚ Improves investor economics for marginal field sizes that might otherwise not be developed
- ✚ Since most of recent discoveries and prospects are marginal in the shallow waters, it could stimulate activity
- ▬ Could affect royalty volumes payable to the U.S. government and thus total government take, but will create opportunities to generate tax revenue from marginal projects and increased lease bonuses

# Shallow water alternative S.2. is a sliding scale royalty system where the prevailing royalty rate is determined by prevailing oil prices

## S.2. Sliding Scale Royalty (12.5% to 22.5%)

### Description

- Lessees pay a variable royalty rate based on oil and condensate sales prices
- Under this royalty alternative, only gas production is subject to the statutory royalty minimum of 12.5%.
- This scale is intentionally more onerous than the current statutory minimum of 12.5% in the shallow water Gulf of Mexico.

| Oil price ($/bbl) | Royalty rate (%) |
|---|---|
| < 50 | 12.5 |
| 50 to < 80 | 16.67 |
| 80 to < 105 | 20 |
| > 105 | 22.5 |

Source: IHS Markit



### Pros & Cons

- Overall increases the U.S. government take, potentially enabling more revenue, depending on how much activity is affected
- Activity likely to be negatively affected, due to reduction of the upside potential for operators

# Deep water alternative D.1. is a fixed royalty rate lower than the currently applicable rate

## D.1. Reduced Royalty to 12.5% Fixed

### Description

- This alternative lowers the oil production royalty rate to the statutory minimum of 12.5%
- Makes producer economics better while also making the U.S. system more competitive

### Pros & Cons

- ✚ Improves regional competitiveness by lowering and narrowing range of government take, and makes the regime less regressive
- ✚ Provides incentive for exploration and development activity
- ▬ Could reduce the government revenues if the additional income due to increased activity and improved licensing bonuses do not offset the reduced revenue from royalties

# Deep water alternatives D.2. and D.3. are fixed royalty rates higher than the currently applicable rate

**D.2.** & **D.3.** **Increase Royalty to 20% or 22.5% Fixed**

## Description

- These alternatives increase the oil production royalty rate to 20% or 22.5%
- Reduces producer expected returns

## Pros & Cons

- Potentially increases the government revenue, depending on how much activity and licensing bonuses are affected
- Increases and expands the range of government take, and makes the regime more regressive
- Reduces attractiveness of U.S. GoM for operators, could lead to reduced activity and future production

# Deep water alternative D.4. is a water depth driven categorical relief system – relief increases with water depth

## D.4. Categorical Royalty Relief

### Description

- Applies to all leases in more than 200m of water depth
- The Royalty Suspension Volumes (RSVs) of 20, 40 or 60 MMboe per qualifying lease is granted depending on water depth, applied when oil prices are less than $85/bbl
- Total project RSV determined by number of relevant leases and field water depth

### Pros & Cons

- Improves investor economics for marginal field sizes that might otherwise not be developed, including:
  - Miocene tiebacks
  - Lower Tertiary Fields
- Powerful incentive to increase activity
- Could affect royalty volumes payable to the U.S. government and thus total government take, but will create opportunities to generate tax revenue from marginal projects.

# Deepwater alternative D.5. is a sliding scale royalty system where the prevailing royalty rate is determined by prevailing oil prices

## D.5. Sliding Scale Royalty (12.5% to 22.5%)

### Description

- Lessees pay a variable royalty rate based on oil and condensate sales prices
- Under this royalty alternative, gas production is subject to the statutory royalty minimum of 12.5%

| Oil price ($/bbl) | Royalty rate (%) |
|---|---|
| < 50 | 12.5 |
| 50 to < 80 | 16.67 |
| 80 to < 105 | 20 |
| > 105 | 22.5 |

Source: IHS Markit



### Pros & Cons

- \+ Provides cash flow protection for investors in periods of low oil price, while retaining upside for government revenues in periods of high oil price
- − Activity likely to be negatively affected, due to reduction of the upside potential for operators

# Contents

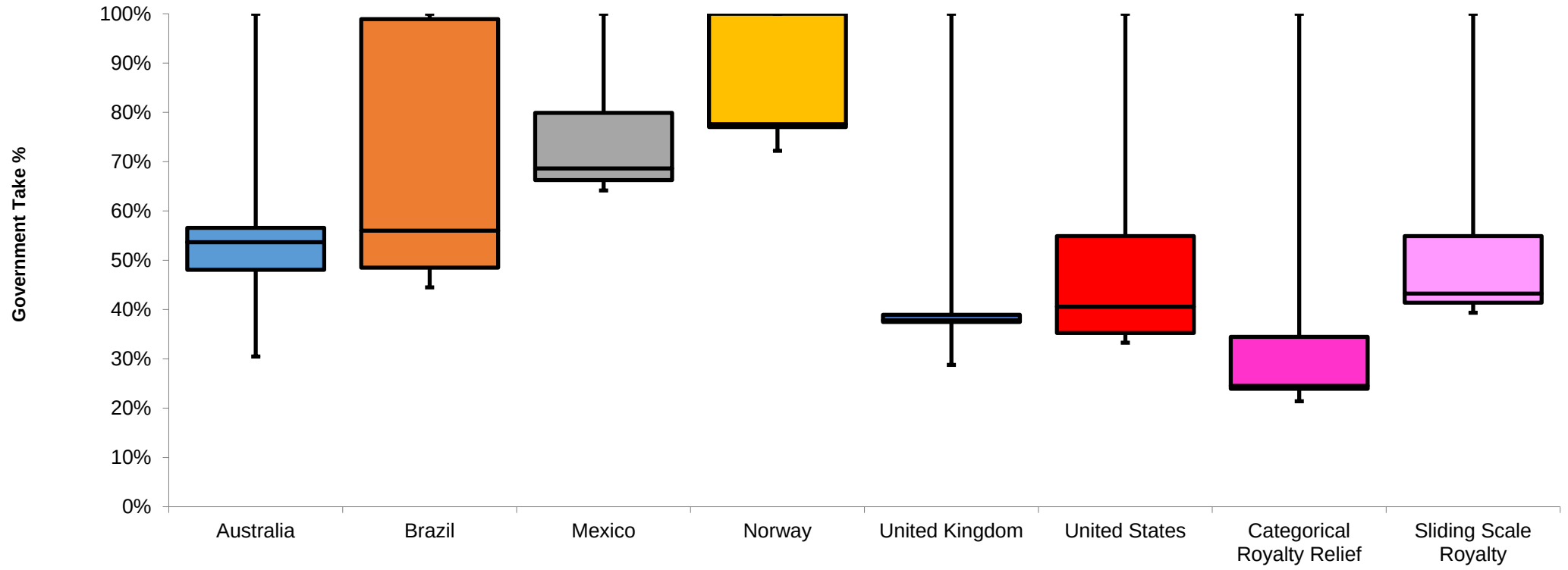
# Comparative Analysis of Alternative Fiscal Systems

**Shallow Water**

Deepwater

# The two alternatives provide the government flexibility based on its goals for shallow water oil fields

## Government take: Peer group v. Royalty alternatives - Shallow water oil fields - low, base and high cases

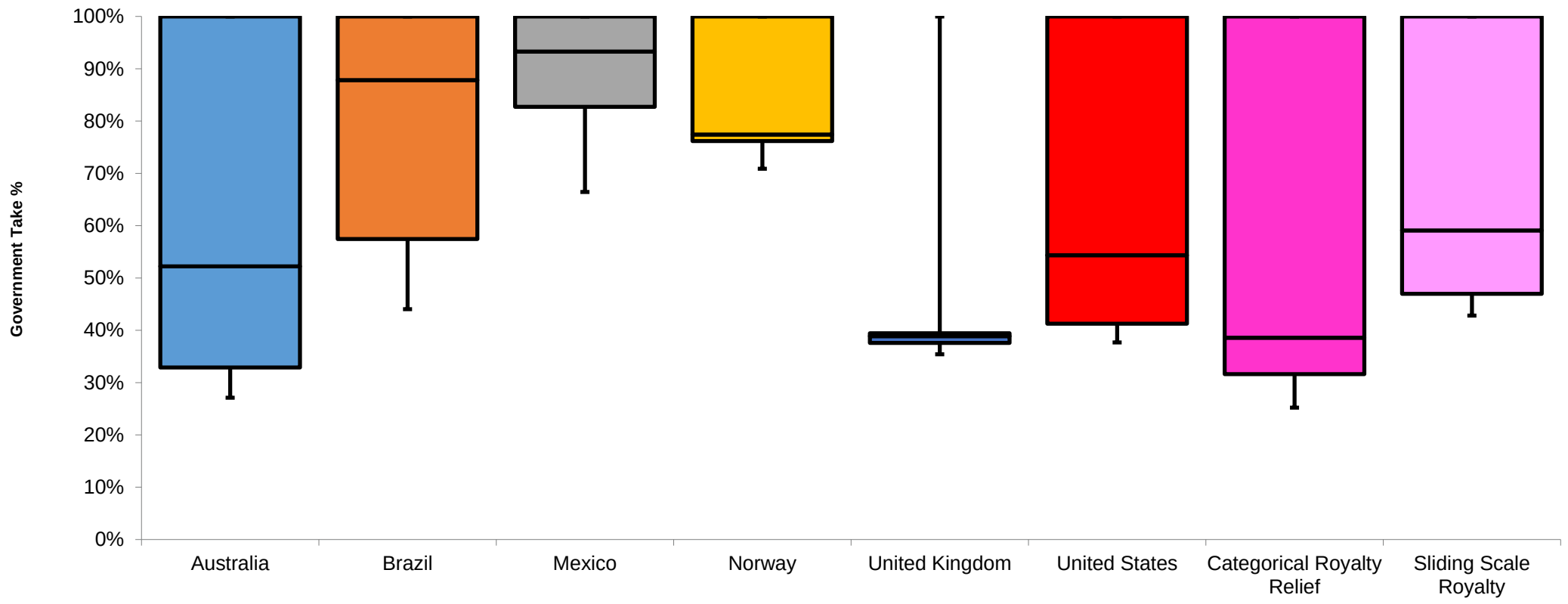



Note: The distribution of values from all cases are represented here. The boxes show the upper and lower quartile ranges of the government take in the respective jurisdictions. The whiskers show the extreme ranges. The lines in the middle represent the median

Source: IHS Markit

# Categorical relief would make the U.S. the most competitive shallow water gas fiscal regime; sliding scale would increase take

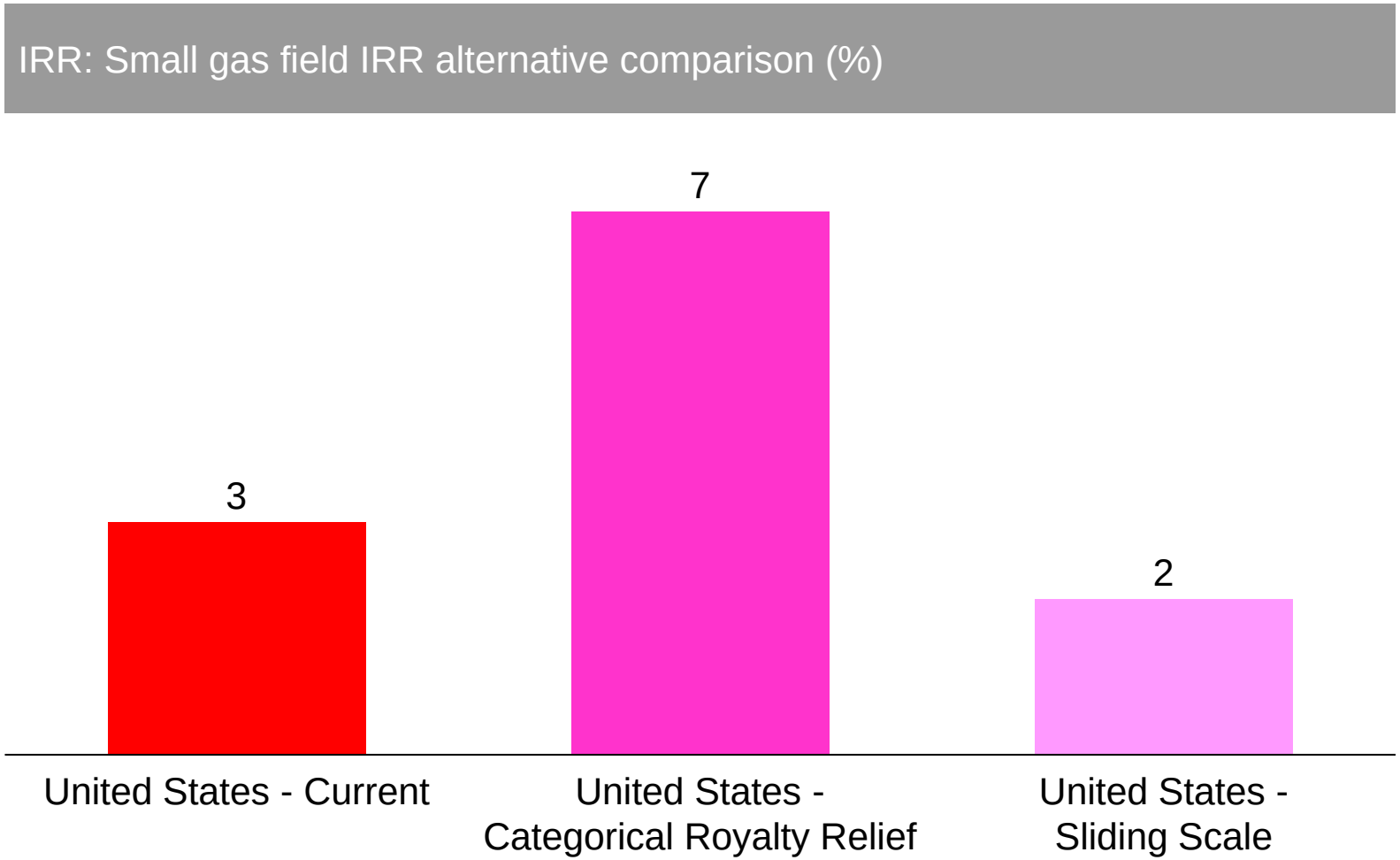
## Government take: Shallow water gas fields - low, base and high cases




Note: The distribution of values from all cases are represented here. The boxes show the upper and lower quartile ranges of the government take in the respective jurisdictions. The whiskers show the extreme ranges. The lines in the middle represent the median

Source: IHS Markit

# However, the Categorical Relief does not improve the IRR of small gas fields projects enough to exceed typical hurdle rates



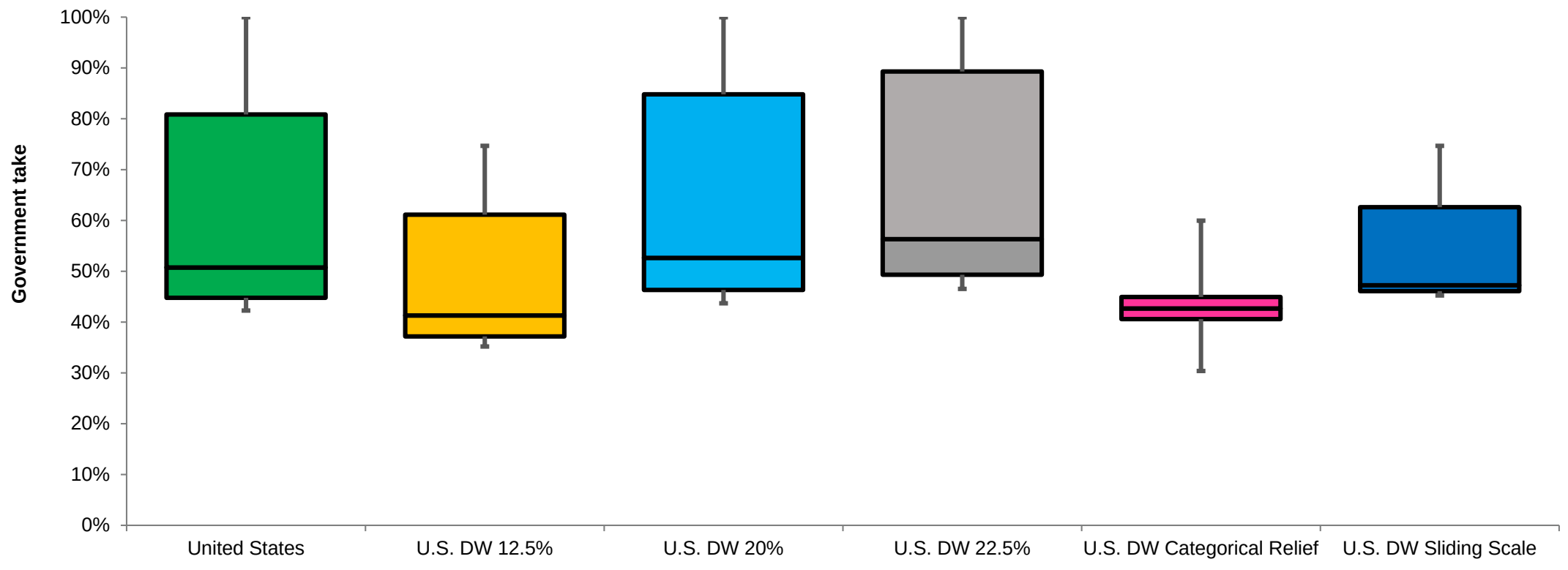
# Comparative Analysis of Alternative Fiscal Systems

Shallow Water

**Deepwater**

# The 20% and 22.5% fixed royalty alternatives would increase government take, but all other alternatives would increase DW GoM competitiveness

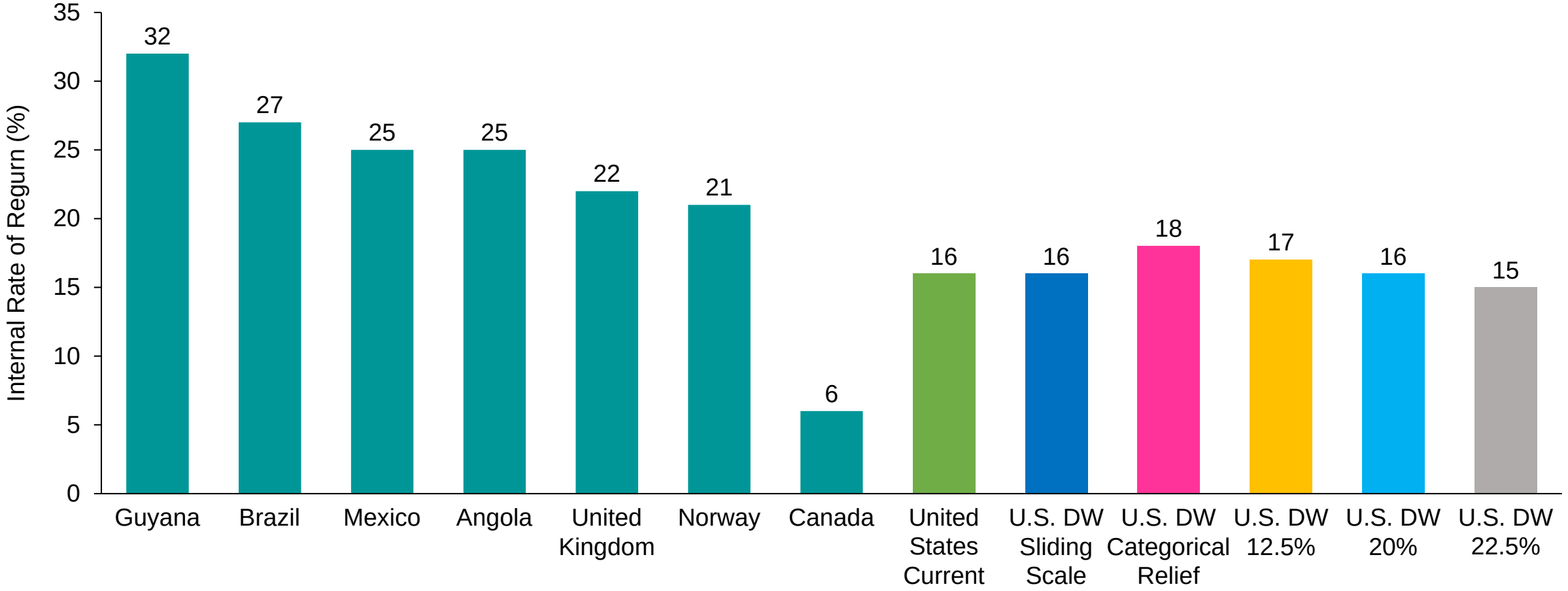
**Government take: Deepwater oil fields - low, base and high cases**




Source: IHS Markit

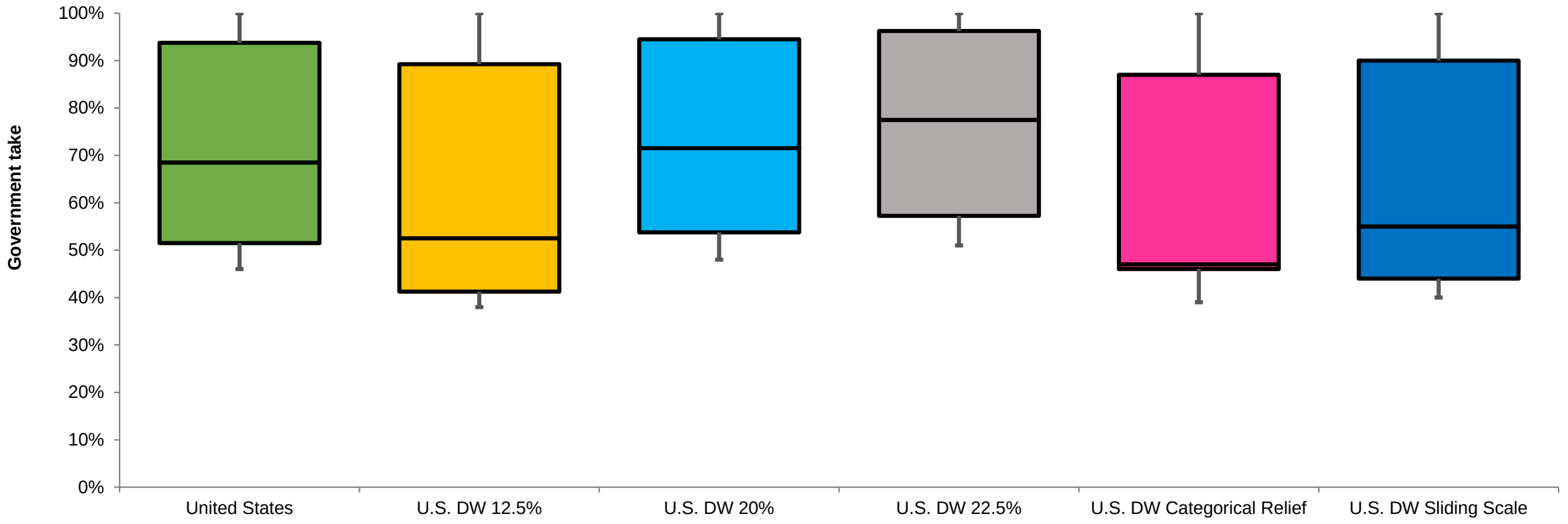
# The categorical relief – the alternative that improves the most the competiveness of the DW GoM

**IRR: 500 MMboe deepwater oil field IRR alternative comparison**



# Deep water gas competitiveness would improve under most alternatives, but is not likely to drive material activity due to low expected returns

## Government take: Deepwater gas fields - low, base and high cases




Source: IHS Markit

# Contents

# Two discretionary royalty relief programs have also been evaluated

| | |
|---|---|
| R.1. | End of Life Royalty Relief |
| R.2. | BSEE Special Case Royalty Relief |

# The existing End of Life royalty relief program intends to extend the life of fields to increase ultimate resource recovery, but its impact is limited

## R.1. End of Life Royalty Relief

### Description

- Can be granted (at BSEE discretion) when royalty payments over a 12-month period exceed 75% of net revenues
- If granted, stipulates a 50% reduction of royalty payable on relief volume
- Goal: Extend the economic life of the field to increase the ultimate resource recovery
- To date, rarely used by operators

### Pros & Cons

- ✚ Can theoretically lengthen project lifecycles by improving marginal production economics
- ▬ Current requirements push application date for relief so late in the asset lifecycle that few projects have taken advantage of the program
- ▬ Limited impact in extending the life of fields (Less than one year)
- ▬ The criteria for granting the relief should be relaxed (e.g. when royalty payments over a 12-month period exceed 50% of net revenues) to maximize the potential impact of the program

# End-of-life royalty relief had no measurable impact on shallow water fields

| Primary Production | Reserve size (MMboe) | Production life (Years) | Stranded reserves (MMboe) | Asset life increase (Years) | Production increase (MMboe) |
|---|---|---|---|---|---|
| **High Case** | | | | | |
| **Oil** | 10 | 8 | 0.3 | 0 | 0 |
| | 30 | 7 | 0.1 | 0 | 0 |
| | 100 | 9 | 1.2 | 0 | 0 |
| **Gas** | 10 | 8 | 0.6 | 0 | 0 |
| | 30 | 7 | 0.1 | 0 | 0 |
| | 100 | 12 | 3.8 | 0 | 0 |
| **Base Case** | | | | | |
| **Oil** | 10 | 7 | 0.7 | 0 | 0 |
| | 30 | 6 | 0.3 | 0 | 0 |
| | 100 | 8 | 2.2 | 0 | 0 |
| **Gas** | 10 | 8 | 0.6 | 0 | 0 |
| | 30 | 6 | 0.3 | 0 | 0 |
| | 100 | 11 | 5.6 | 0 | 0 |
| **Low Case** | | | | | |
| **Oil** | 10 | 6 | 1.5 | 0 | 0 |
| | 30 | 5 | 0.7 | 0 | 0 |
| | 100 | 7 | 4.2 | 0 | 0 |
| **Gas** | 10 | 7 | 1.6 | 0 | 0 |
| | 30 | 5 | 0.8 | 0 | 0 |
| | 100 | 10 | 8.2 | 0 | 0 |

**Source: IHS Markit**

# End-of-life royalty relief had no measurable impact on deepwater fields

| Primary Production | Reserve size (MMboe) | Production life (Years) | Stranded reserves (MMboe) | Asset life increase (Years) | Production increase (MMboe) |
|---|---|---|---|---|---|
| **High case** | | | | | |
| Oil | 250 | 13 | 2.8 | 0 | 0 |
| | 500 | 19 | 0.0 | 0 | 0 |
| Gas | 250 | 19 | 4.5 | 0 | 0 |
| | 500 | 19 | 6.8 | 0 | 0 |
| **Base case** | | | | | |
| Oil | 250 | 12 | 4.7 | 0 | 0 |
| | 500 | 19 | 2.2 | 0 | 0 |
| Gas | 250 | 13 | 21.5 | 0 | 0 |
| | 500 | 13 | 32.4 | 0 | 0 |
| **Low case** | | | | | |
| Oil | 250 | 10 | 11.9 | 0 | 0 |
| | 500 | 13 | 31.2 | 0 | 0 |
| Gas | 250 | 13 | 26.9 | 0 | 0 |

**Source: IHS Markit**

# The BSEE Special Case Royalty Relief provides fiscal incentives for the development of fields with marginal economics

## R.2. BSEE Special Case Royalty Relief

### Description

- Can be granted (at BSEE discretion) when two of the following criteria are met:
  a) A royalty relief would allow recovery of significant additional resources
  b) There is a substantial risk another lessee would not recover the resources
  c) Valuable facilities exist on the lease which a successor would be unlikely to use
  d) The lessee made substantial efforts to reduce operating costs, but it is too late to take advantage of other royalty relief programs
  e) Circumstances beyond lessee's control preclude reliance on one of the existing royalty relief programs.
- Goal: Incentivize development of fields with marginal economics

### Pros & Cons

- ✚ Allows flexibility for operators and BSEE to collaborate to increase probability of development of fields with marginal economics
- ▬ Requires significant royalty relief to improve economics enough to justify investment for the cases evaluated
- ▬ The process could to be perceived by operators as complex and cumbersome given lack of guidance

# IHS Markit developed a royalty relief case for incremental development of existing field types, assuming 50% of the statutory rate

## Special Case Royalty Relief:

### Description

- Application of the following criteria:
  - A royalty relief would allow recovery of significant additional resources
  - Valuable facilities exist on the lease which a successor would be unlikely to use

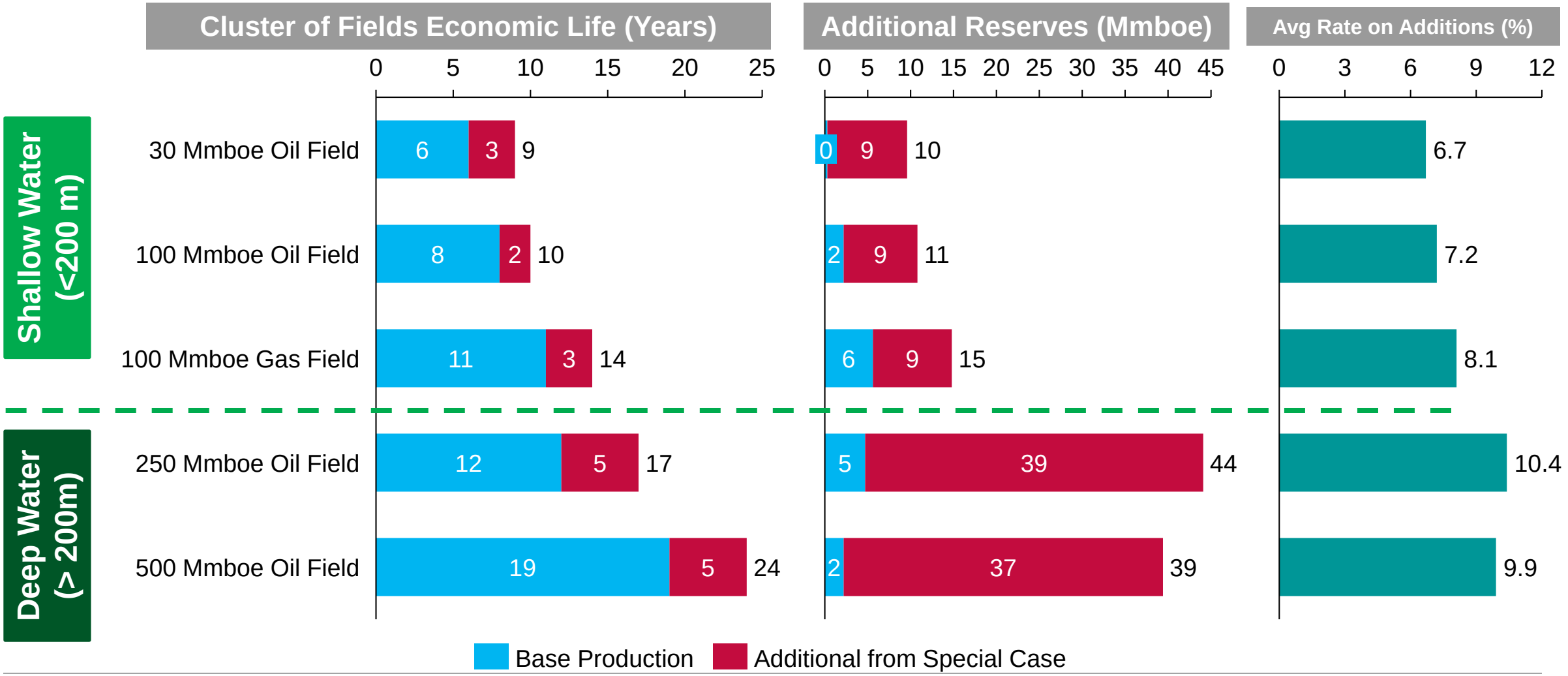
This is a hypothetical special case Royalty Relief targeted at improving the economics of tying-back nearby discoveries to existing facilities to access additional reserves.

- Goal: Increase production and extend the life of field “clusters” (and associated infrastructure)
- Assumes 50% of the statutory rate for all new reserves

### Pros & Cons

- ✚ Creates financial incentive to develop small, nearby discoveries that can utilize existing infrastructure
- ✚ Maximizes development potential of existing fields and infrastructure life
- ✚ Enable potential fiscal revenue from project that tend to be uneconomical, without fiscal incentives
- ▬ If the application requires a complex process, it could be perceived as less attractive by some operators

# Under all scenarios evaluated, Special Case Royalty Relief enables the extension of the life of the “cluster” and the production of additional reserves



# Contents

# Conclusions – Shallow Water GAS

**Current Fiscal System**

- The current fiscal system is competitive for large gas fields
- However, most of the recent shallow water GoM discoveries are small and returns for small fields are not attractive enough to trigger activity
  - Small fields have IRRs of 3% at base prices
- Low gas prices are a key factor limiting returns
- If the policy goal for shallow water gas is to maximize resource recovery, production, life of the fields, and activity levels, significant reductions of fiscal terms will be needed

**Alternatives**

- Of the alternatives evaluated, the Categorical Royalty Relief offers the best results to improve operators' expected returns and spur activity, but is unlikely to be enough for small gas fields
  - Small gas fields could achieve IRRs of 7% with the categorical relief at base prices
- The Sliding Scale Royalty alternative has limited impact on shallow water gas, given that it is designed to impact liquids royalties

# Conclusions – Shallow Water OIL

**Current Fiscal System**

- The current fiscal system is very competitive for large and mid-size shallow water oil fields
- Small fields, at base prices, have negative NPV / boe and IRRs below 10%; therefore, they tend to be uneconomical

**Alternatives**

- The Categorical Royalty Relief helps improve the expected returns of small fields; therefore, the categorical relief could provide incentives for a recovery of the activity levels in shallow water GoM
- The Sliding Scale Royalty increases the fiscal load and reduces operator upside at high prices; given the very mature nature of shallow water GoM (It is the most mature basin among peers), the implementation of the sliding scale royalty alternative will likely further suppress the activity levels in shallow water GoM

# Conclusions – Deepwater GAS

**Current Fiscal System**

- Deepwater gas fields tend to be uneconomical or offer marginal returns
- High cost of deepwater development combined with low gas prices (driven by shale gas in the L48) are the key structural factors that limit gas returns

**Alternatives**

- Improvements in the competitiveness of the deepwater gas fiscal regime will likely have only limited impact in deepwater gas activity, given the other limiting structural factors (low price / high cost)
- Any tightening of the fiscal conditions will make deepwater gas even less attractive to operators

# Conclusions – Deepwater OIL

**Current Fiscal System**

- The current US deepwater GoM fiscal system offers IRRs above the hurdle rates for most operators
- However, the US GoM rates of return are not as attractive as Guyana, Brazil, Angola, United Kingdom and Mexico, which offer rates of return above 20% under the base case scenario; therefore, international players are likely to prioritize these jurisdictions over US GoM

**Alternatives**

- The Categorical Royalty Relief has the highest impact in improving the expected returns to operators and the competitiveness of deepwater GoM
- The 12.5% royalty alternative lowers the government take and increases the IRR in all cases, but not to the degree of categorical royalty relief
- As expected, the 20% and 22.5% royalty alternatives have the potential to generate more revenue for the Federal government but increase the regressivity of the fiscal system and will likely reduce activity levels
- The sliding scale royalty offers a more balanced approach by lowering the royalty rate at low prices and increasing it at high prices; this alternative softens the degree of regressivity of the fiscal system.

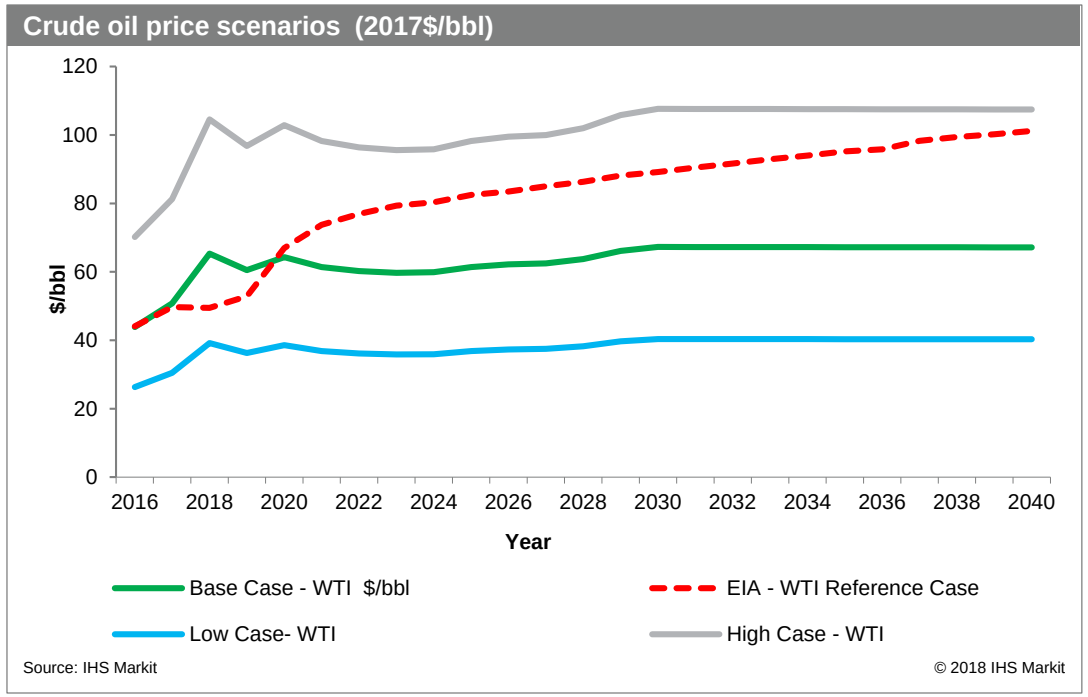
# Conclusions – Discretionary Royalty Reliefs

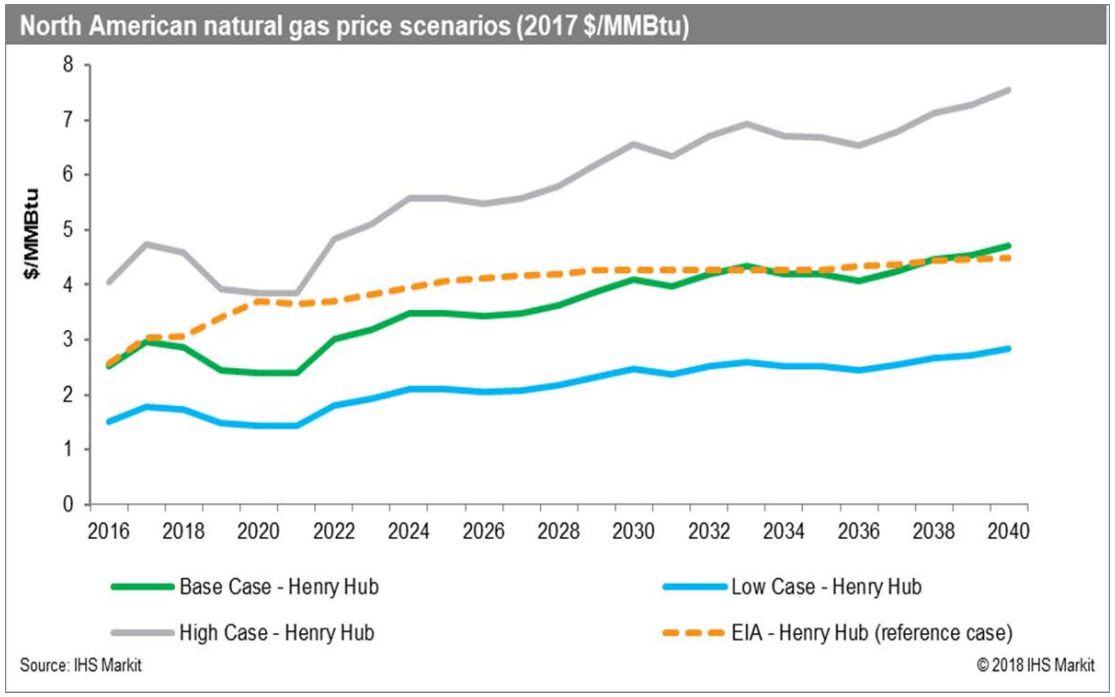
- The current **discretionary end-of-life relief** does not extend the life of the tested fields long enough to be notable in our annual models. Perhaps a revision of its timing and condition of application would generate a more impactful life extension

- A **discretionary special case relief on significant reserves addition** would work well to incentivize incremental production with a royalty rate reduction of 50%. This would benefit both the tie-back and the central processing facilities. This could also help slow down the retirement rate of the shelf infrastructure in the U.S. GoM

# Appendix

# The selected IHS base case scenario is lower than the EIA forecast but is used as a mean to derive variances not as a true forecast




- The selection of crude oil prices for this analysis is not intended as a forecast,
- It reflects the relatively wide range between the high and low commodity price ranges that have prevailed in the past decade.
- The wide spread among the low, base and high case is useful to analyze the performance of alternative fiscal systems under depressed and high commodity prices alongside the base case scenario which is reflective of the current market conditions

# NPV/Boe for Shallow Water Oil and Gas Fields ($)

| Jurisdiction | High case | | | Base case | | | Low case | | |
|---|---|---|---|---|---|---|---|---|---|
| | 100 MMboe | 30 MMboe | 10 MMboe | 100 MMboe | 30 MMboe | 10 MMboe | 100 MMboe | 30 MMboe | 10 MMboe |
| **Crude Oil** | | | | | | | | | |
| Australia | 12.7 | 9.3 | 7.9 | 6.9 | 3.1 | 0.7 | 3.0 | -2.8 | -8.2 |
| Brazil | 17.7 | 11.7 | 2.2 | 9.0 | 2.0 | -9.3 | 3.1 | -4.9 | -17.5 |
| Mexico | 18.4 | 7.7 | 3.1 | 9.6 | -0.4 | -5.0 | 3.8 | -6.2 | -14.7 |
| Norway | 4.8 | 1.4 | -8.4 | 1.9 | -1.9 | -17.8 | -0.1 | -5.4 | -31.6 |
| United Kingdom | 17.2 | 14.4 | 5.9 | 8.9 | 5.3 | -4.0 | 3.3 | -1.0 | -14.0 |
| United States | 18.6 | 17.5 | 8.5 | 9.0 | 7.0 | -2.3 | 2.6 | -0.1 | -10.6 |
| **Natural Gas** | | | | | | | | | |
| Australia | 7.5 | 6.3 | 3.3 | 3.2 | 1.5 | -6.6 | 0.2 | -4.6 | -15.8 |
| Brazil | 9.8 | -1.3 | -6.8 | 4.1 | -7.8 | -14.8 | 0.3 | -13.6 | -21.9 |
| Mexico | 3.9 | -8.0 | -5.6 | 0.2 | -13.4 | -11.3 | -2.0 | -19.0 | -15.6 |
| Norway | 3.1 | -1.1 | -5.9 | 0.9 | -3.9 | -12.2 | -0.7 | -9.3 | -22.6 |
| United Kingdom | 12.3 | 8.7 | 5.1 | 6.2 | 2.1 | -2.6 | 2.2 | -2.8 | -9.0 |
| United States | 5.9 | 6.9 | 3.6 | 1.0 | 1.1 | -2.6 | -2.8 | -3.0 | -7.9 |

# NPV/Boe: Deepwater Oil and Gas Fields ($)

| Jurisdiction | High Case | | Base Case | | Low Case | |
|---|---|---|---|---|---|---|
| | 500 Mmboe | 250 Mmboe | 500 Mmboe | 250 Mmboe | 500 Mmboe | 250 Mmboe |
| **Crude Oil** | | | | | | |
| Angola | 8.67 | 8.35 | 3.65 | 3.09 | -1.84 | -3.04 |
| Brazil | 13.1 | 10.8 | 6.3 | 3.5 | 1.6 | -1.6 |
| Canada | 2.88 | 4.70 | -1.83 | 0.24 | -5.79 | -3.22 |
| Guyana | 18.28 | 16.22 | 8.05 | 5.97 | 1.84 | -0.15 |
| Mexico | 10.1 | 8.1 | 4.0 | 1.1 | -0.2 | -4.0 |
| Norway | 4.1 | 3.6 | 1.8 | 1.2 | 0.2 | -0.5 |
| United Kingdom | 9.5 | 9.7 | 2.8 | 2.5 | -2.8 | -3.9 |
| United States | 9.0 | 10.8 | 2.5 | 2.8 | -2.1 | -2.8 |
| **Natural Gas** | | | | | | |
| Angola | 5.44 | 5.22 | 2.23 | 1.87 | -0.12 | -0.58 |
| Brazil | 8.1 | 7.5 | 3.9 | 3.3 | 1.0 | 0.4 |
| Canada | 0.66 | -1.55 | -1.71 | -4.23 | -3.66 | -6.95 |
| Guyana | 19.02 | 17.64 | 10.07 | 8.87 | 4.54 | 3.41 |
| Mexico | 2.6 | 0.8 | -0.9 | -2.7 | -3.2 | -5.8 |
| Norway | 2.3 | 1.9 | 0.8 | 0.2 | -0.3 | -1.1 |
| United Kingdom | 9.4 | 8.3 | 5.0 | 3.9 | 2.0 | 0.9 |
| United States | 3.7 | 2.3 | 0.1 | -1.2 | -2.6 | -4.0 |