

## Commentary on DNO

Presented to

**TUDOR**

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INVESTMENT CORPORATION

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**Summary and Conclusion**

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## Summary and Conclusion

### Summary

- DNO was founded in 1971 as an independent E&P based in Norway.
- It holds production licenses in Norway, Yemen and Iraq and holds several exploration licenses in Equatorial Guinea and Mozambique.
- DNO sold its mature fields and late life production, mostly to Lundin Petroleum in 2003/04 and is now working to a revised strategy if aggressive exploration led growth through an international (Middle East) based portfolio.
- About 94% of current production (14,700b/d) comes from Yemen and these assets tend to dominate news flow.
- This actually obscures the real value future in the company that is Iraq and Norwegian Sea.
- A degree of window dressing in Yemen may help to slow down an inevitable decline but the real interesting upside is elsewhere.
- Current reserves are as follows:
  - Reserves and Resources = 151MMbbl
  - Reserves class 1-3 (proven-possible) = 84MMbbl
  - Resources = 67MMbbl
- Resource values are also based on the same DCF models but we introduce a development risk element as these projects are in various planning phases as follows:
  - In planning phase (class 4): Iraq
  - Development likely (class 5): Norway
  - Under evaluation (class 7): Yemen
- Beyond the reserves and resources there may be upward of net 700MMbbl of unrisks resource potential, mostly in Iraq.
- In our opinion the company is downplaying this potential intentionally due to the sensitive nature of the ongoing negotiations between the Kurdish and Iraqi Petroleum Ministries on licensing and revenue sharing negotiations.
- We have not considered these commercial/legal risk factors in our valuations – either DNO goes ahead or it doesn't and for our valuations we are Kurdish bulls!
- The company has a very active exploration programme in 2007 with at least 24 wells drilling in Yemen and the North Sea (net cost \$146MM).
- Development drilling will continue in Iraq with upward of 18 development wells planned + infill drilling in Yemen (net \$114MM)

### Conclusion

- DNO is a pleasure to analyse because the company is as forthcoming as it can be with data relating to reserves, production and fiscal terms.
- This is an important point as our valuation is less likely to contain surprises and this is positive factor underpinning our valuation.
- But there may be a surprise from Iraq as follows:
  - Tawke field coming on stream now, 107MMbbl gross 2P (shallow)
  - 18 production additional wells drilling to take production to 50,000b/d
  - Reserve based on conservative 20% decline
  - If reservoir is better quality (as third parties believe)
  - reserve upgrades on the existing field may be in order
  - deeper Cretaceous formations have yet to be exploited in Tawke
  - Surrounding structures remain un appraised.
- Basically it is very early days in Iraq and upside is aplenty.
- Our view on Yemen is that the region is in steady decline, subject to a few infill wells and some quite risky exploration planned this year to the south (edge of the mapped basin) – we won't hold our breath.
- The acreage in Norway to the North (Barents and Norwegian Sea) is also impressive, particularly in Goliat (250MMbbl development by ENI) and this field should provide excellent cash flow from 2010 onwards.
- Our valuation works out thus:

	<b>Net Reserve</b>	<b>Net Risked Value</b>		
Core Value	84MMbbl	\$607MM*	\$7.2/boe	NOK 2.7
Contingent Value	67MMbbl	\$750MM	\$11.3/boe	NOK 5.1
Exploration Value	702MMbbl	\$602MM	\$0.9/boe	NOK4.1
	<b>853MMbbl</b>	<b>\$1960</b>		<b>NOK12.0</b>

\* Asset value excludes net debt -\$217MM, share value includes this)

- Most (80%) of core value is in Iraq and the majority (90%) of Contingent value is in Norway.
- About (58%) of exploration value is in Iraq, (34%) in Norway and the remainder (7%) in Yemen.
- Taking account that virtually all the valued exploration potential is based on firm drilling in 2007 there is a valid case for EMV based valuation:

	<b>Net Reserve</b>	<b>Net Risked Value</b>		
Core Value	84MMbbl	\$607MM*	\$7.2/boe	NOK 2.7
Contingent Value	67MMbbl	\$750MM	\$11.3/boe	NOK 5.1
Exploration Value	702MMbbl	\$1688MM	\$2.4/boe	NOK11.5
	<b>853MMbbl</b>	<b>\$3045</b>		<b>NOK19.2</b>

- A rare example of a substantial asset based company with high value upside.

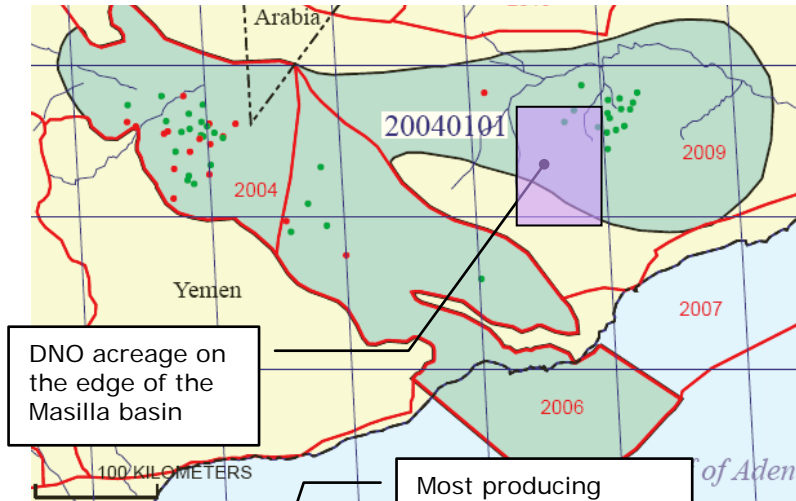
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**Yemen**

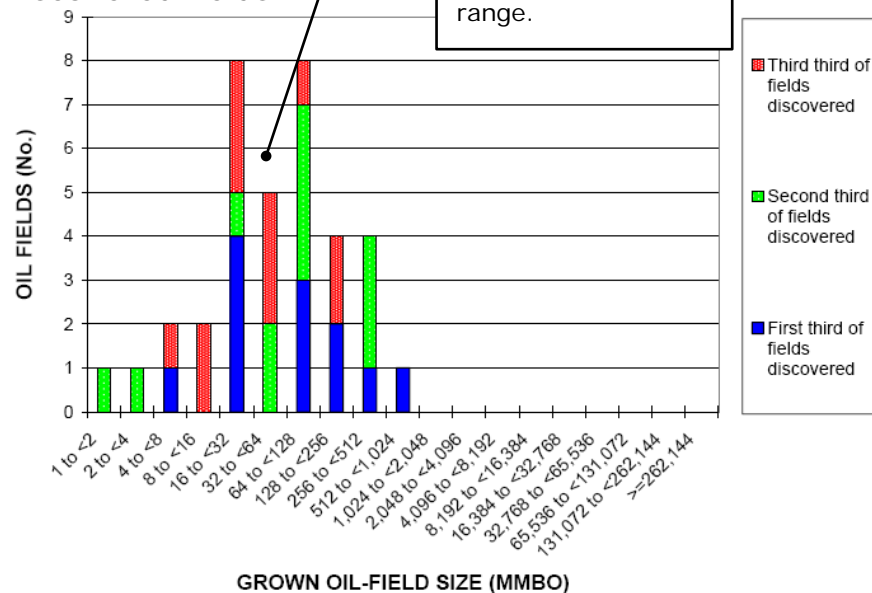
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# Field Sizes

## Basin Location



## Discovered fields



Source: USGS

## Geology

### General

- The petroleum system is related to an Upper Jurassic source rock sequence essentially deposited as deep marine deposits in a rifting setting.

### Source

- The Upper Jurassic (Kimmeridgian) source rocks of the Madbi Formation including both Madbi and Lam Members are organic-rich black shales deposited in the deeper portions of rifts in the Late Jurassic.

### Maturation

- Source rocks began generating in the central rift basin in latest Cretaceous to earliest Paleogene time and the process was largely completed by the end of Paleogene time.

### Migration

- Oil and gas migrated along faults to horst blocks within these various basins. Numerous horst uplifts occur; however migration resulted in hydrocarbon accumulations in those areas where sealed by either a Jurassic salt or by Early Cretaceous carbonate.

### Reservoir

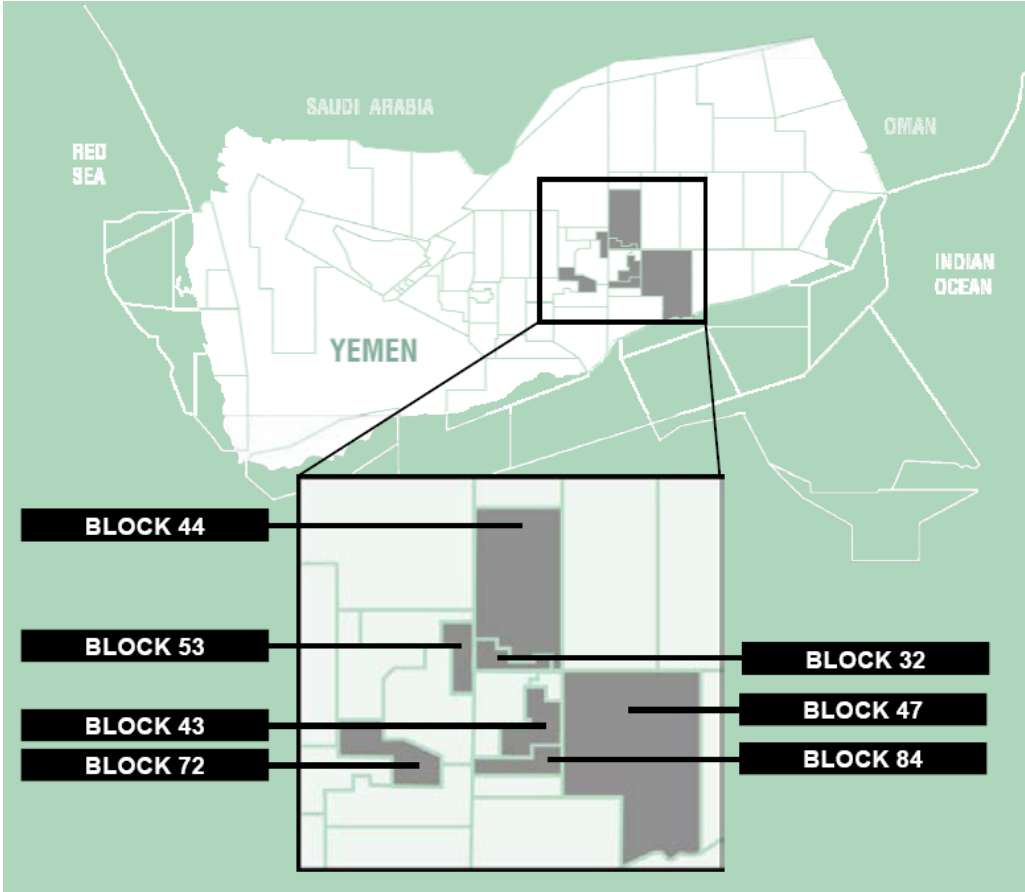
- In the western basins (Ma'rib/Al-Jawf), the reservoirs are dominantly Upper Jurassic (Kimmeridgian, Tithonian) clastics of the Amran Group (Safir Member), or lesser amounts of carbonates in the Amran Group. The Safer/Alif/Yan Member clastics prograded from the northwest of the Ma'rib Basin and diminish in thickness and content to the southeast; they are largely absent in the southern Shabwah Basin. In the Masila/Jeza Basin, the Early Cretaceous estuarine sandstones of the Qishn Formation (Berremian/Aptian) are the primary reservoir.
- Jurassic and Cretaceous units sit on basement in some areas and some oil appears to pass into the basement via faulting and fractures (not well understood)

### Traps and Seal

- Salt of the Upper Jurassic (Tithonian) Shabwa Member are the critical seal within the Ma'rib, Al-Jawf, and Shabwah basins, a secondary seal are evaporites of the Avad and Nayfa Formations. The Qishn Carbonate Member (Aptian) provides the seal for the underlying Qishn Clastic Member in the Masila Basin.

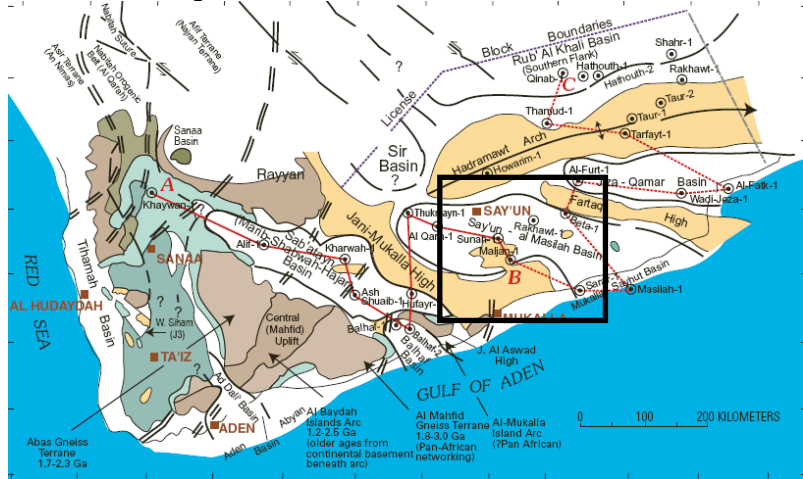
Yemen

DNO Yemen Assets



Source:

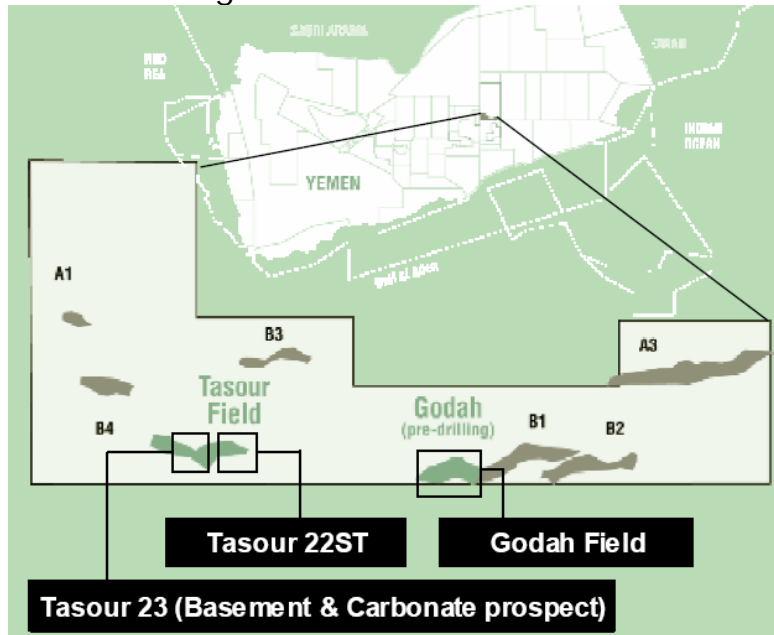
Commentary



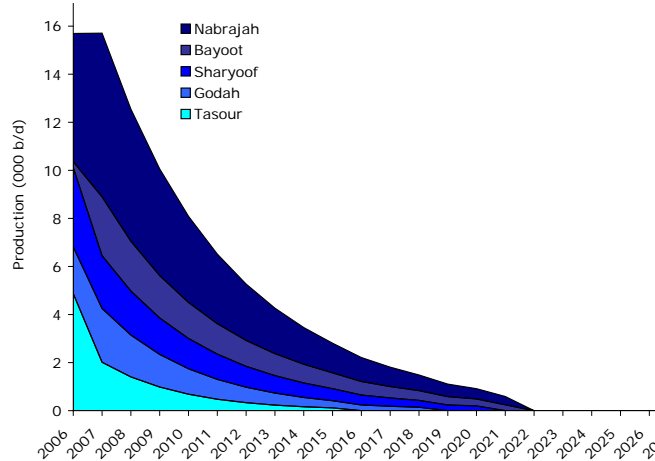
- DNO acreage in the Masilla Jeza basin off the Mukalla high.
- Production from Cretaceous reservoir on basement
- Area well known for hydrocarbons
- Main producing fields are:
  - Block 32: Tasour + Godah
  - Block 53: Sharyoof + Bayoot/Hekma
  - Block 43: Nabrajah
- Basement production is poorly understood, hence the recent reserve downgrade (gross 68MMbbl to 24MMbbl) following reduction in well productivity.

# Yemen Activity

## Yemen Acreage



## Production



Source: Hulf Hamilton

## Yemen Current Activity

### Tasour (6MMbbl gross)

- Declining production may be slowed by minor infill drilling in 2007 (6MMbbl).

### Godah (9MMbbl gross + 13MMbbl upside)

- Discovered in 2006 and bough quickly on stream with 3 wells – more planned in 2007 giving additional upside of 13MMbbl gross.

### Sharyoof (18MMbbl gross)

- Infill wells may slow decline

### Bayoot & Hekma (22MMbbl gross)

- 3 recent oil discovery wells, testing 3<sup>rd</sup> well and trucking production (growing).
- We carry a gross 10,000b/d peak this year before steady decline.

### Nabrajah (22MMbbl gross + 35MMbbl upside)

- Downgrade from 68MMbbl to 22MMbbl prompted by unpredictable behavior of basement play – we carry 35MMbbl upside for some basement reserves being reinstated.
- It may be possible that further wells reinstate reserves but for now a 12,000b/d gross peak seems appropriate for us before steady decline

### Exploration (324MMbbl gross unrisks upside)

- (2) Key wells on Blocks 72/47 this year with large 160MMbbl prospects that we risk 20%.
- Higher risk as we feel reservoir potential diminishes to the south.
- Other wells on Blocks 32 (3), 43(2) and 44(3) – total 13 exploration wells in 2007

## Yemen Reserves

	WI (%)	Gross Reserves (Mmboe)	Net (WI) Reserves Reserves	Net (WI) Reserves Resources (MMboe)	Total	Risk Factor (%)	Value (\$MM) (\$/bbl)	
Yemen	39%	6.00	2.3	2.3	2.3		7	3.12
	39%	9.00	3.5	3.5	3.5		12	3.30
	24%	17.99	4.4	4.4	4.4		15	3.42
	24%	22.09	5.4	5.4	5.4		18	3.40
	57%	21.85	12.4	12.4	12.4		42	3.36
<b>Reserve Value</b>			<b>28</b>		<b>28</b>		<b>94</b>	<b>3.4</b>
	Reserves	WI Reserves Resources (MMboe)	Total	Risk Factor (%)	Value (\$MM) (\$/bbl)			
Yemen	57%	20	20.0	60%	40	2.02		
	39%	5	5.0	60%	10	1.98		
<b>Resource Value</b>		<b>25</b>	<b>25</b>		<b>50</b>	<b>2.0</b>		
Yemen	34%	162.00	55	55	20%	34	0.6	
	35%	162.00	57	57	20%	37	0.7	
<b>Exploration Value</b>			<b>112</b>		<b>112</b>		<b>72</b>	<b>0.6</b>
<b>Total Value</b>			<b>28</b>		<b>137</b>		<b>165</b>	<b>216</b>
								<b>1.3</b>



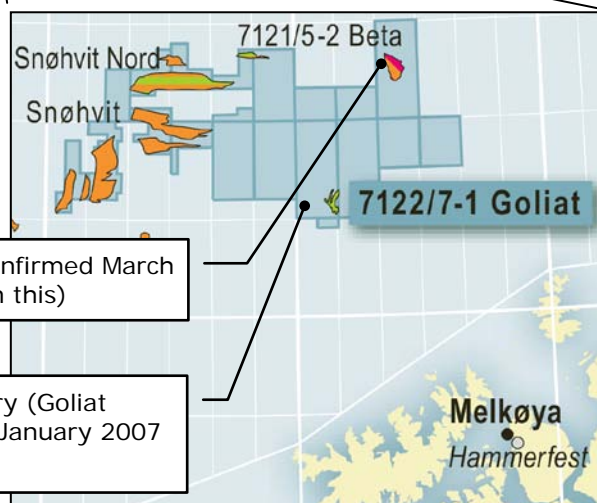
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**Norway**

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# Goliat

## Goliat Acreage



New discovery confirmed March 2007 (DNO not in this)

Potential discovery (Goliat West) confirmed January 2007 (DNO 15%).

## Commentary

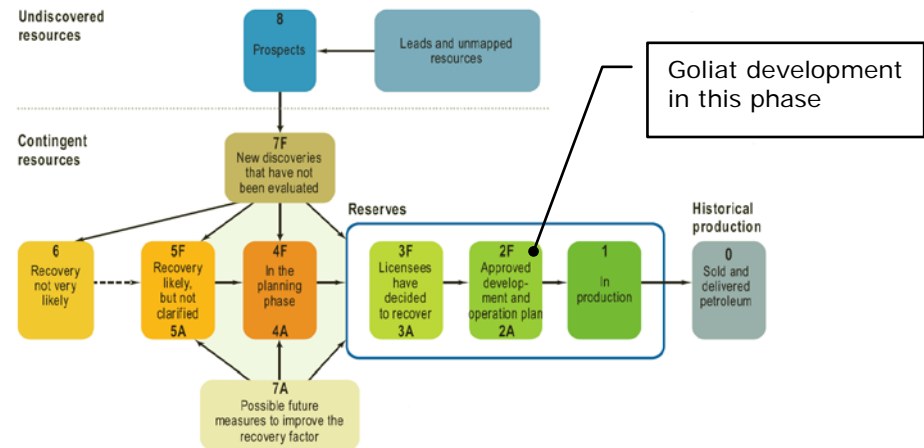
### Goliat Development (15%)

- Operated by ENI and partner Statoil, DNO has a 15% working interest in this 250MMbbl 2P field.
- Exploration well 7122/7-1 was spudded on 16 September 2000 with the semi-submersible installation "Transocean Arctic" and drilled to TD at 1524 m RKB, 148 m into the Middle-Late Triassic Snadd Sandstone Formation.
- The top of the main reservoir in the Kapp Toscana Group was found at 1102 m, 1 m below the prognosis. The reservoir was oil bearing.
- Four appraisal wells have been drilled since and the field is expected to come onstream in 2010.
- A development plan is likely to be announced sometime in 2007 and we estimate it will likely take 3 years to first oil.
- Our valuation is based on the \$/bbl estimate from the other Norwegian fields, discounted to take account of the time delay.

### Goliat Upside (15%)

- We carry a gross 150MMbbl prospect, press report sketchy but it looks as if an oil discovery may have been made, hence our low 80% risk factor.

## Norwegian Reserves Classification

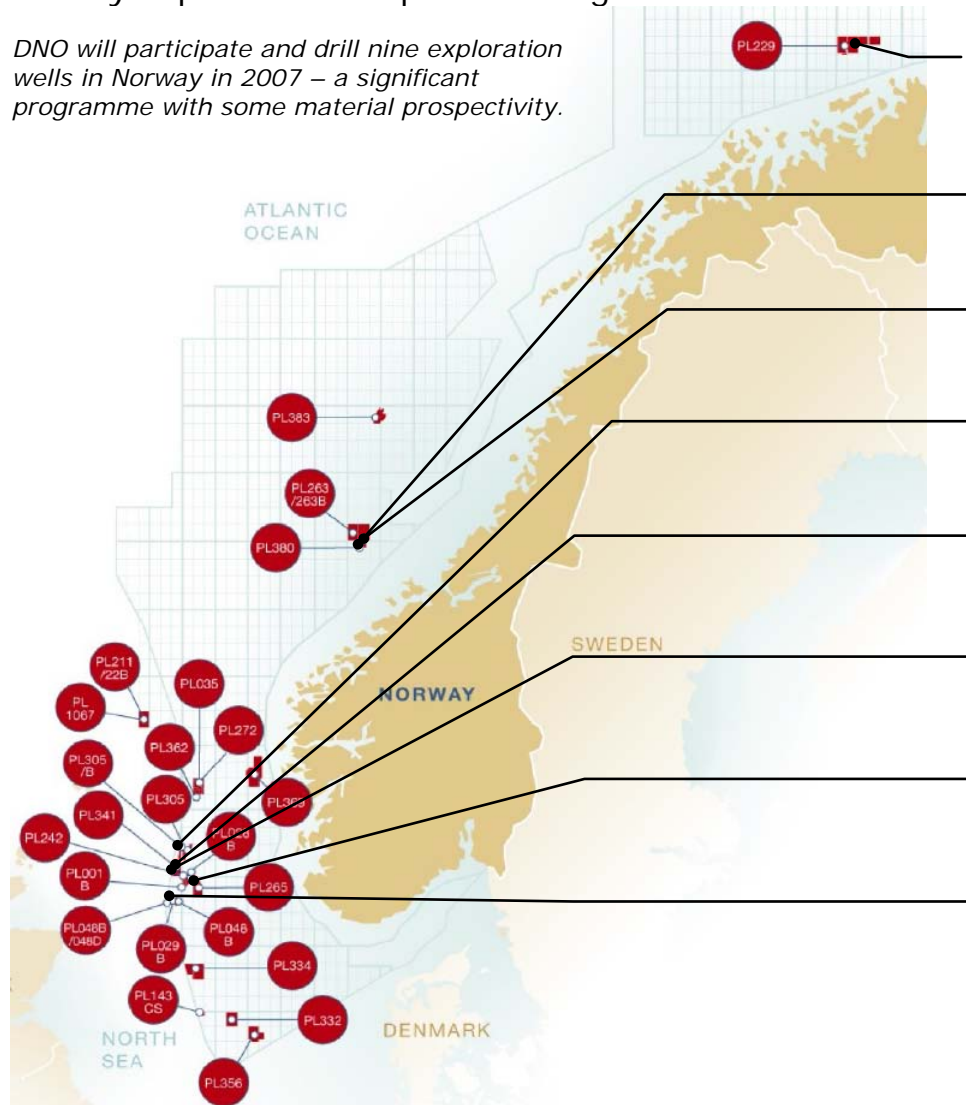


Source: NPD

# Norway 2007 Drilling programme

## Norway Exploration Prospects Drilling in 2007

*DNO will participate and drill nine exploration wells in Norway in 2007 – a significant programme with some material prospectivity.*



## Commentary

Goliat West (PL 229) -15% work int  
Gross 150MMbbl prospect –  
discovery well already drilled.

Midgard West (PL 380) – 30%  
Gross 70MMbbl prospect, 1 well.

Natalia (PL 380) – 30%  
Gross 360bcf prospect, 1 well.

Lie (PL 341) – 30% (DNO op)  
Gross 68MMbbl prospect, 1 well.

Torkildsen (PL 341) –30% (DNO op)  
Gross 82MMbbl, 1 well.

Draupne (PL 242) – 35% (DNO op)  
Gross 32MMbbl prospect, 1 well.

Ragnarrock (PL 265) – 30%  
Gross 138MMbbl prospect, 2 wells

Gere/Freke (PL 029B) – 20%  
Gross 20MMbbl prospect, 1 well

**Barents Sea Prospects**

- ENI drilled inconclusive well recently – follow-up in Dec.

**Norway Sea Prospects**

- Natalia close to Zita recent dry hole – risky.
- Midgard is Pertra operated, mid risk prospect

**North Sea Prospects**

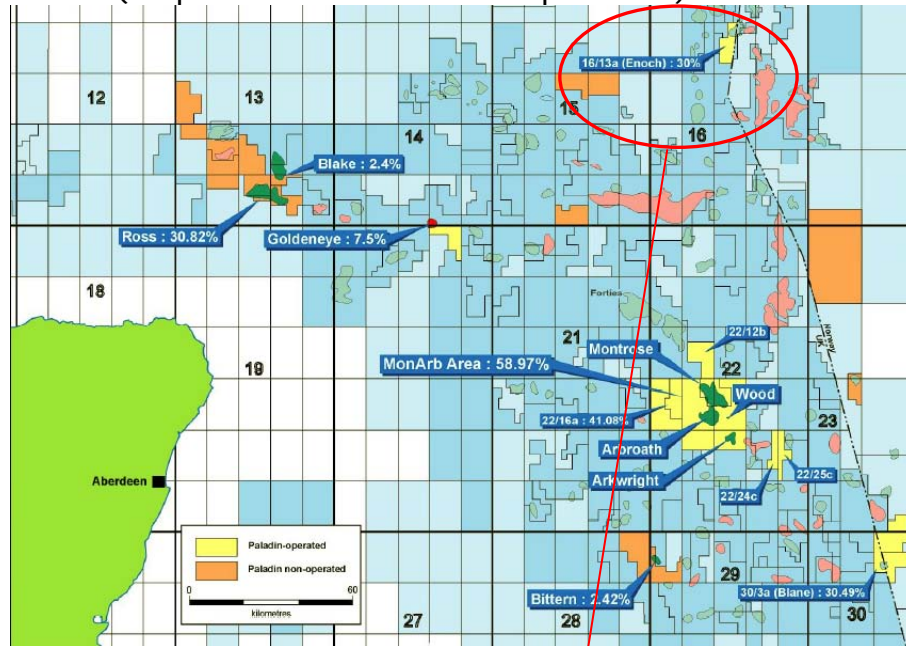
- Previous discoveries of West Cable and Hanz in this area (10MMbbl combined) means that any material discovery (40MMbbl+) will allow the area to be developed.
- Draupne and Lie are particularly important in this regard.

- Total 9 exploration wells in 2007.
- Lie, Torskildsen and Draupne DNO operated.
- Total 620MMboe gross unrisks prospectivity, 163MMbbl net to DNO.
- Net risks prospectivity 51MMboe to DNO (overall 31% CoS)

Source: DNO and Hulf Hamilton

# Enoch

## Enoch (as part of the Paladin UK portfolio)



Source: Paladin

DNO has a small 2% working interest in the Enoch field, soon to start producing via the Tartan (Talisman operated) field.

## Enoch

- Blocks and production licenses Block 15/5 - production license 048 B. Awarded 2001.
- The Norwegian part of the field is 20.00%, the British part is 80.00%.
- Discovered 1985
- Development approval 01.07.2005
- Talisman Energy (after Paladin acquisition).
- Licensees
  - DONG Norge AS 1.86%
  - DNO AS 2.00%
  - Statoil ASA 11.78%
  - Total E&P Norge 4.36%
  - Bow Valley Petroleum (UK) Limited 12.00%
  - Dana Petroleum (E & P) Limited 8.80%
  - Dyas UK Limited 14.00%
  - Lundin North Sea Limited 1.20%
  - Talisman 24.00%
  - Petro-Canada UK Limited 8.00%
  - Roc Oil (GB) Limited 12.00%
- Recoverable reserves Original: 15MMbbl Gross (0.3MMbbl net to DNO).
- Investment Total investment is expected to be NOK 0.2 billion (2006 values) NOK 0.1 billion had been invested at 31.12.2005 (2006 values)
- Development: The field will be developed with subsea facilities placed on the British continental shelf and connected to the Tartan field.
- Recovery strategy: The field will be produced by pressure depletion, but water injection may be implemented later if necessary.
- Transport: The well stream from Enoch will be transported to Brae A for processing before the oil is transported onwards in the existing pipeline to Cruden Bay. The gas will be sold to Brae.
- Status: The development plan was approved by Norwegian and British authorities on 01.07.2005. Production start-up is planned for 2Q 2007.

## Glitne

### Glitne field over Petrojarl I FPS



Source: Statoil

### Glitne

- Block 15/5 - production licence 048 B. Awarded 2001. + Block 15/6 - production licence 029 B. Awarded 2001.
- Discovered 1995
- Development approval 08.09.2000 by the Crown Prince Regent in Council
- On stream 29.08.2001
- Operator Statoil ASA
- Licensees
  - DONG Norge AS 9.30%
  - DNO 10.00%
  - Statoil ASA 58.90%
  - Total E&P Norge AS 21.80%
- Remaining Gross reserves 9MMbbl (0.9MMbbl net to DNO)
- Production Estimated production in 2006:
  - Oil: 10,000 barrels/day
- Investment Total investment is expected to be NOK 1.7 billion (2006 values) NOK 1.7 billion had been invested as of 31.12.05 (2006 values)
- Development:
 

Glitne is an oilfield that lies 40 kilometers northeast of the Sleipner area. The sea depth in the area is 110 meters. The development consists of four production wells and a water injection well tied back to the floating production, storage and offloading vessel, Petrojarl 1.
- Reservoir:
 

The reservoir consists of several separate sand sheets of deep-marine fan deposits in the upper Heimdal formation.
- Recovery strategy:
 

Associated gas is used for gas lift in the wells, while excess gas is reinjected into the reservoir.
- Transport:
 

Oil from Glitne is processed and stored on board the production vessel. The oil is exported using shuttle tankers.
- Status:
 

Late life field. Consideration is being given to drilling two new wells on the Glitne flanks. Increased reserves from these wells could extend production through 2009. Interpretation of reprocessed seismic will provide the basis for new well targets and possible deposits in the area.

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**Iraq**

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## Iraqi Kurdistan Introduction

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### Introduction

- Even though DNO appears comfortable on its title to acreage in Kurdistan – the precise production terms are still hazy (similar to Yemen we are told by DNO), and we are unclear about a final agreement between the Kurdish and Baghdad administrations on revenue sharing.
- All of this is likely forcing DNO to keep a low profile on its producing field and upside potential but we think all are extremely attractive.

### Commercial

In an article published by Reuters on 17th January 2006 headlined *Iraq leaders agree draft oil law*, a spokesman of the Ministry for Oil in Baghdad stated, “The committee finalized the draft of the law last night [i.e. 16th January]. It was approved unanimously and it will go before the cabinet early next week”.

As far as the Kurdistan Regional Government (KRG) is concerned, the draft law has not been “finalized unanimously”, therefore the claim made by the oil ministry spokesman, as reported by Reuters, is inaccurate and misleading.

The last draft that the KRG was in agreement with was presented to Prime Minister Al-Maliki for his review on 17th December 2006. That draft allows the KRG to negotiate and sign new contracts within the Region and to receive its fair share of Iraq's oil revenue, to be guaranteed and regulated by law. The draft acknowledges that the KRG shall be the competent authority to review its own previous contracts to make them consistent with the law. Any further material changes to that draft will require the KRG's consent.

Although the process of drafting the oil law is nearing completion, the important annexes to the law are still pending. Also, there are three associated laws (the revenue sharing law, the Iraq National Oil Company (INOC) charter law, and a law to define the oil ministry's new role) which must be drafted and agreed upon before the whole package can be regarded as being final.

Therefore, the position can only be finalized once all these matters are settled and the KRG looks forward to being among the first to make a formal announcement when this is done. – 18<sup>th</sup> Jan 2006

Source: Kurdistan Government

### Technical

#### General

- Overall the positioning of the DNO license off the prolific Zagros fold belt to the west is initially a disappointment.
- Super huge fields like Kirkuk are found along the Zagros that trends down into Iran where BP first made its discoveries in the 1930's.
- But after speaking to Cambridge Geologists (Cambridge Carbonates Ltd<sup>1</sup>) we have now formed a view that the DNO licenses are in an area of lower structural activity (e.g. smaller trap sizes), but the prehistoric position to the east is on a reefal structure with much better reservoir potential.
- We have verified this point by examining data from the Addax field (Taq Taq) to the south on the same trend.
  - Basically Zagros wells produce at high initial rates from fractures in the carbonate and then decline quickly.
  - Tawke and Taq Taq wells produce at even higher initial rates and so far are not showing signs of decline.
- This more stable production on DNO acreage may be interpreted as oil producing from primary porosity rather than secondary fracture based porosity and this is very positive for productivity.

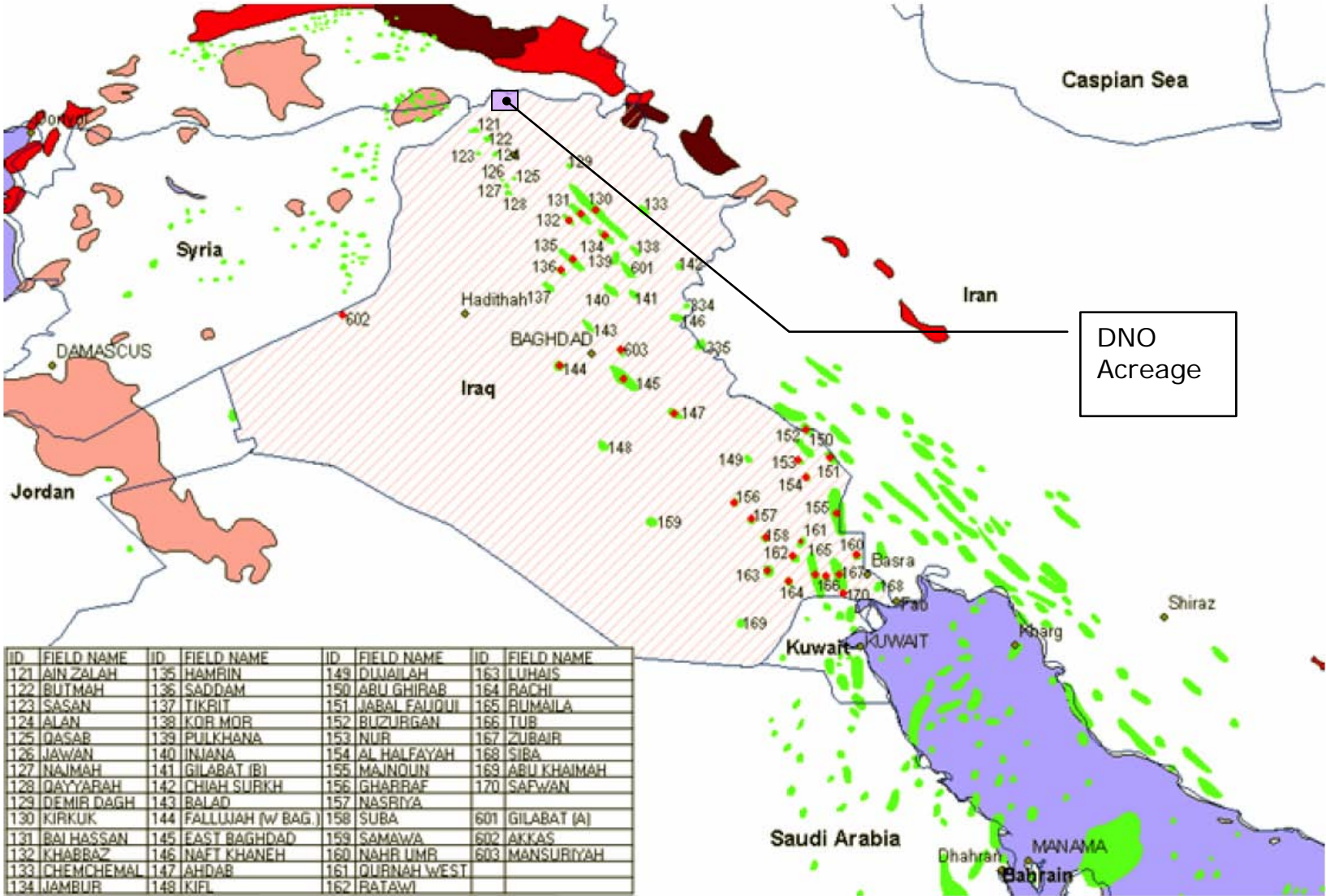
#### Our Analysis

- We have examined surrounding field productivity to construct our own well profiles for the Tawke field.
- We have interpreted the descriptions from DNO as to the upside potential on the Tawke license and risked accordingly and based upside valuations on Tawke \$/bbl metrics.

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<sup>1</sup> Andrew Horbury consulted for DNO in the early stages of exploration in Kurdistan and is an acknowledged expert in the area.

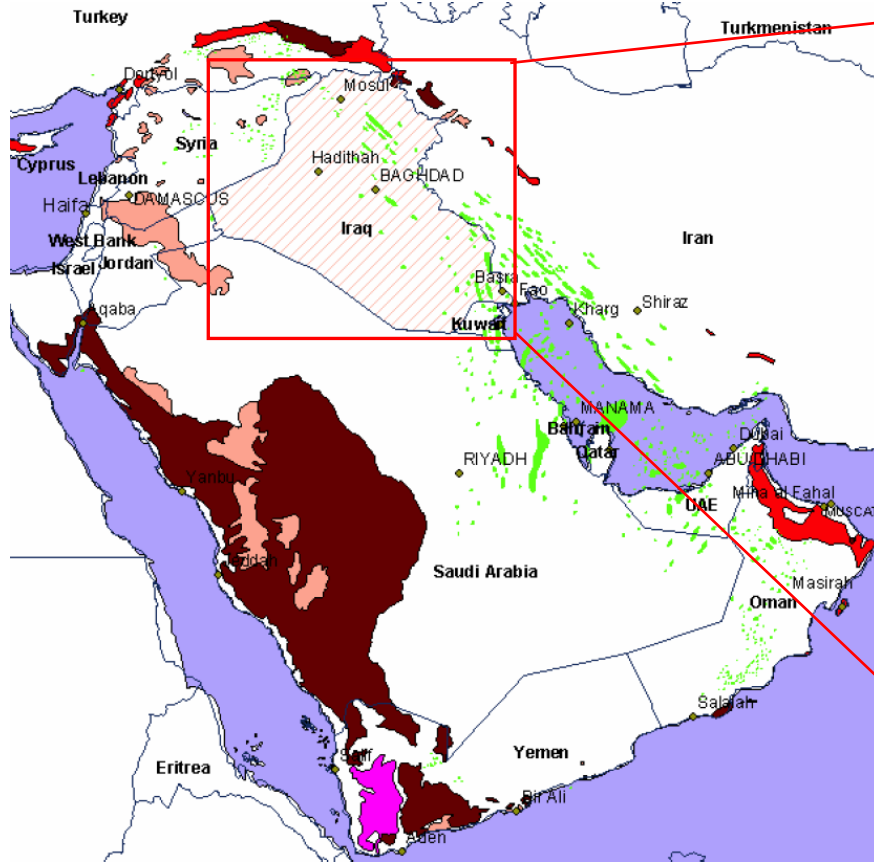
**Iraq Acreage**



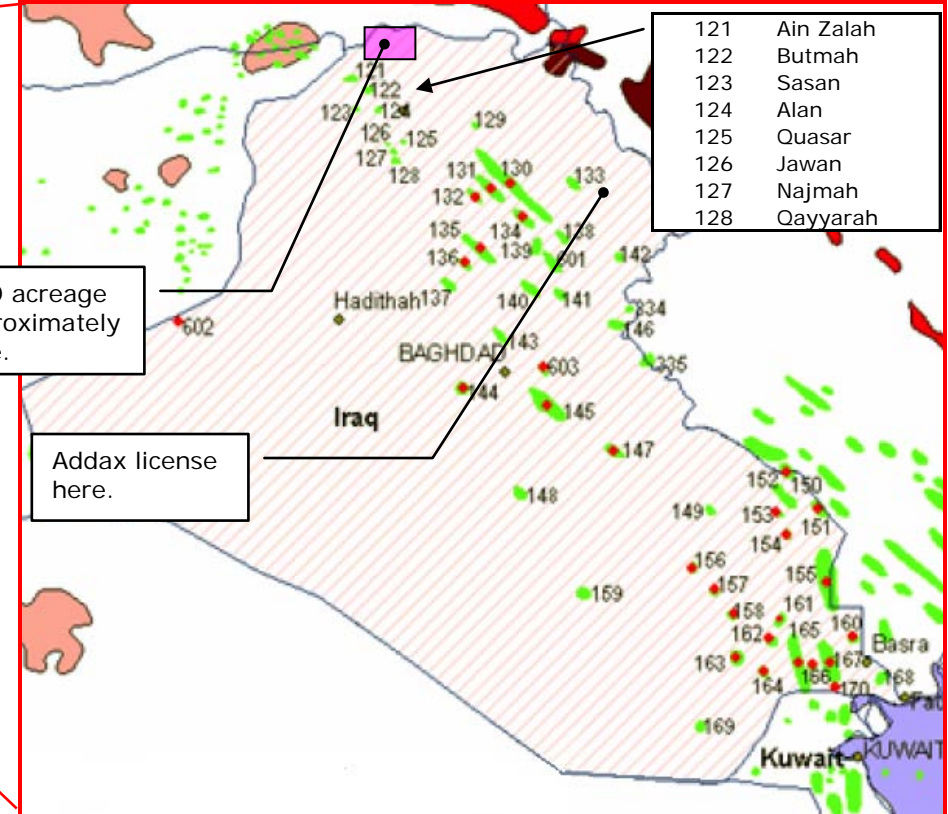


## Regional Setting

### Arabian Plate



### Iraq



DNO acreage approximately here.

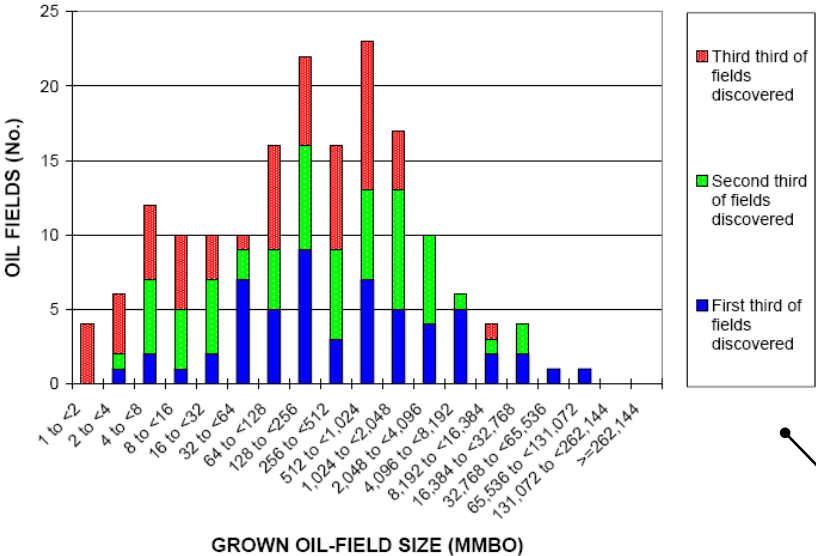
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### Regional Geology

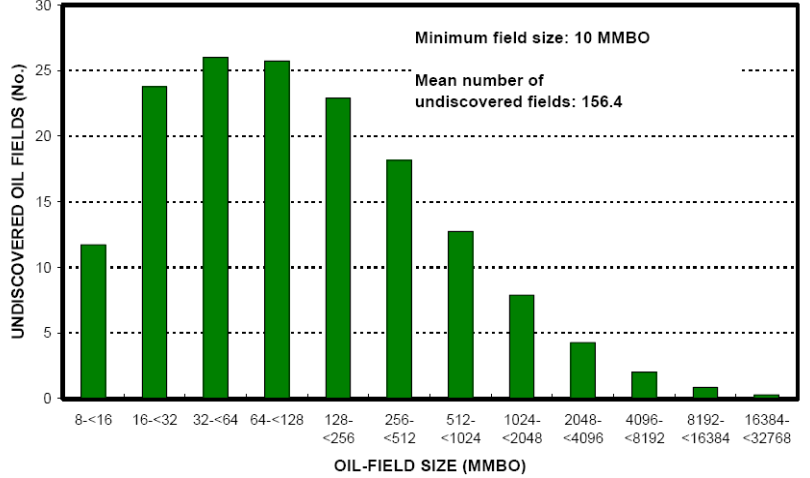
- Kurdistan is a geologically land straddling the zone between the colliding Eurasian and African tectonic plates.
- As a result the Zagros mountains and Kurdistan-the point of this collision-are being compressed and pushed upward several inches a year.
- The geologic province of the Kurdish foothills which faces the Arabian platform, is basically a continuation of the same land formation that lies farther south under the Persian Gulf-a remnant of the ancient Tethys Sea with its wealth of hydrocarbons.
- The waters of the Persian Gulf washed the Kurdish foothills until very recently in geologic terms, when they joined the Indian Ocean to the Mediterranean Sea and the Atlantic, separating Eurasia from Africa and Arabia. The petroleum-bearing geologic strata of the Persian Gulf thus ought to be credited for the wealth of petroleum and natural gas deposits in Kurdistan.
- Massive volcanic outpourings have resurfaced large portions of Kurdistan in the north and Northeast. The greater and lesser Ararat peaks, as well as Mt. Nimrod (or Nimrut Dâgh) on the shores of Lake Vân, are three prominent results of this active geology.

# Field Sizes

## Cretaceous Discovered



## Cretaceous Undiscovered

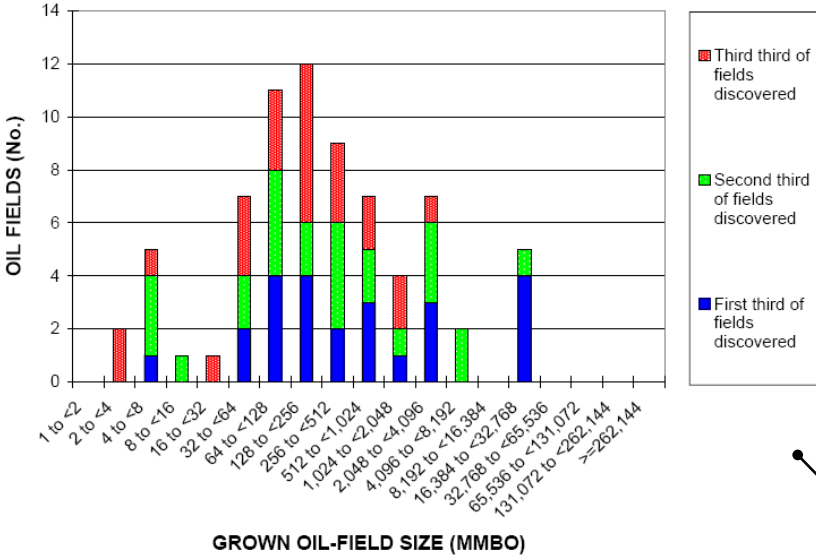


## Commentary

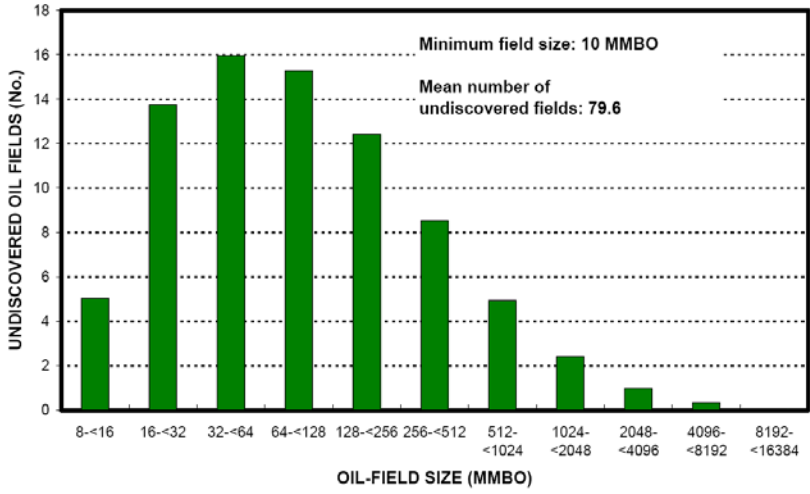
- Most Cretaceous fields discovered in the 100MMbbl-1000MMbbl range
- Undiscovered fields likely to be 100MMbbl+

Cretaceous Bigger

## Tertiary Discovered



## Tertiary Undiscovered

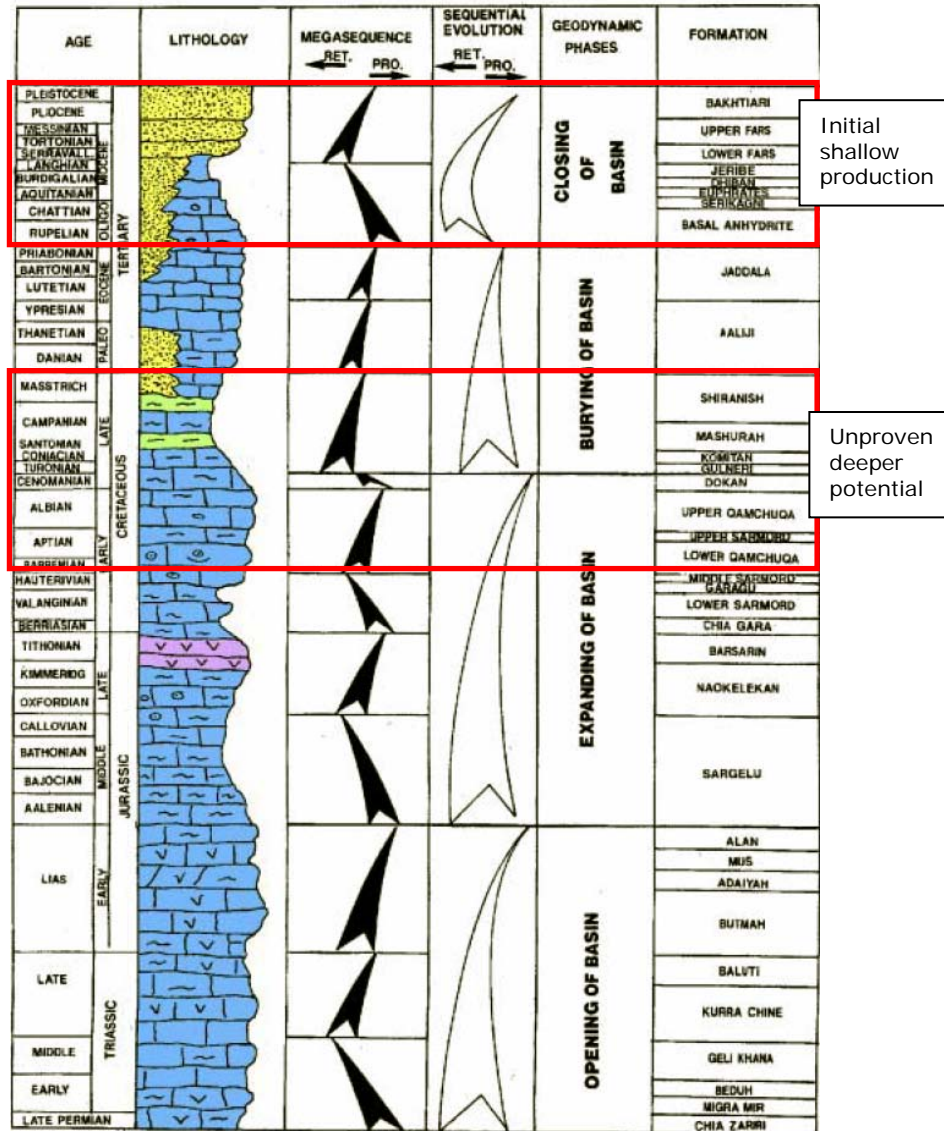


- Most tertiary fields discovered in the 100MMbbl-500MMbbl range.
- Undiscovered fields likely to be 50MMbbl+

Tertiary Smaller

# Tertiary Geology

## Northern Iraq Stratigraphy



## Tertiary (shallow) Geology

### Description

This assessment unit contains both Tertiary carbonate and clastic reservoirs within the Zagros fold belt and foreland. Carbonate reservoirs are more common to the east nearer the Zagros thrust belt and are the dominant reservoir. The Total Petroleum System was considered to be charged by Cretaceous source rocks although there is uncertainty as to mixing of Jurassic and Cretaceous oils in the area.

### Source Rock

Several source rock intervals have been identified dominated by Lower Cretaceous Shales including Hauterivian Ratawi Shale, Albian Zubair, Aptian Burgan (Nahr Umr), Shuaiba, and Mauddud Formations. Upper Cretaceous source rocks include Cenomanian Rumaila and Mishrif Formations.

- **Generous source rock potential**

### Migration

Although expulsion may have started in Late Cretaceous, significant migration commenced probably no earlier than latest Oligocene/earliest Miocene and continues to present. Migration into the Zagros fold and thrust belt has permitted extensive oil and gas seeps and tar belt formation in the eastern Zagros thrust. The eternal flame at Kirkuk is an example of the ongoing charge and seepage of petroleum on the east flank of the petroleum system.

- **Migration timing confirms shallow (tertiary) and deeper (Cretaceous) potential.**

### Reservoir

Exposed carbonate banks, high-energy shoals, of the Asmari Formation (Oligocene/Miocene) are important reservoirs in Iran and Iraq. Porous, coralline, reefal limestones of the Kirkuk Group (Oligocene) are also important reservoirs. Clastic reservoirs such as those in the Lower Fars Formation (Miocene) are subordinate to carbonate reservoirs.

- **shallow clastic reservoir quality mediocre, deeper carbonates better**

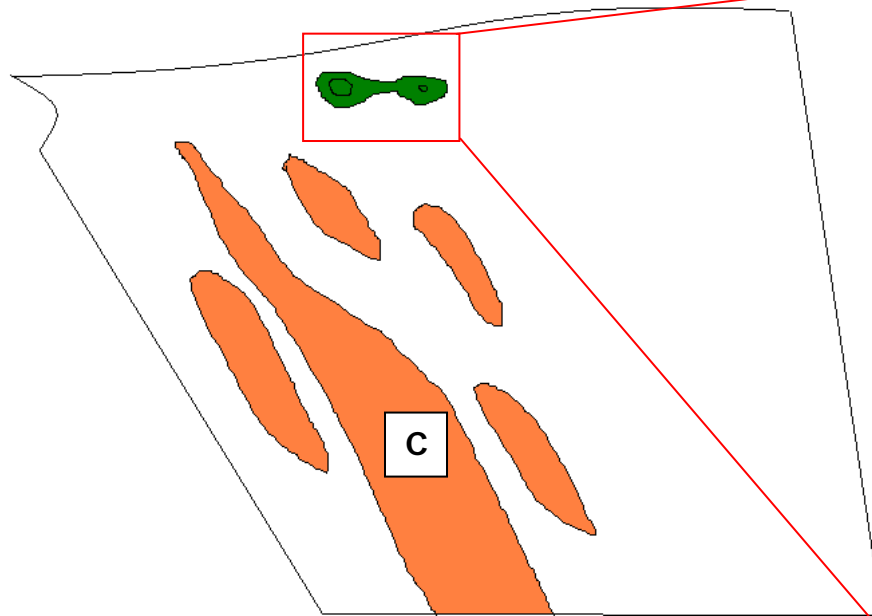
### Trap and Seal

Miocene salt and anhydrite seals of the Fars and Gashsaran Formations in the Zagros fold belt are critical blocks to vertical migration in the thrust belt structures of Iraq and Iran. The Fars Group reaches thicknesses of 5,000 m; however, the salt interval is generally several hundred meters thick.

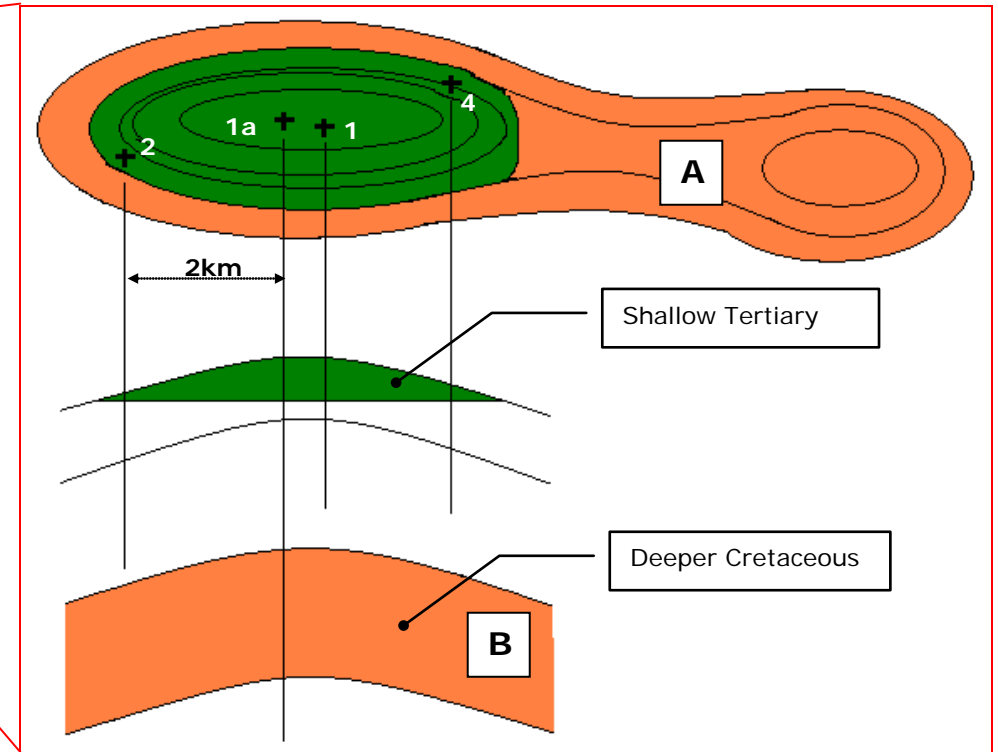
- **thick reservoir potential (large fields)**

## Exploration Upside

Tawke Block



Tawke Upside



### Commentary

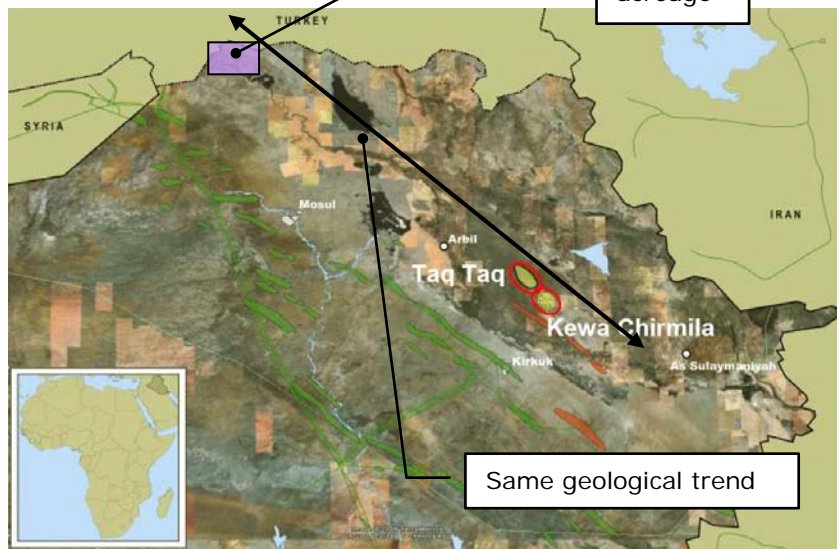
- The discovered reserves are shown in green above, based on the drilling results to date and this is approximately 107MMbbl gross.
  - Tawke-1: 5000b/d
  - Tawke 1A: 3840b/d, deeper Cretaceous carbonates did not produce
  - Tawke 2:
  - Tawke 4: 8500b/d
- Potential upside may be as follows:
  - A** lateral extensions to Tawke tertiary: Gross 77MMbbl (50% chance of success)
  - B** Deeper Cretaceous formations: Gross 200MMbbl (33% chance of success)
  - C** Additional structures on Block: Gross 500MMbbl (20% chance of success)

## Addax – Taq Taq Analog

### Taq Taq Location



DNO acreage



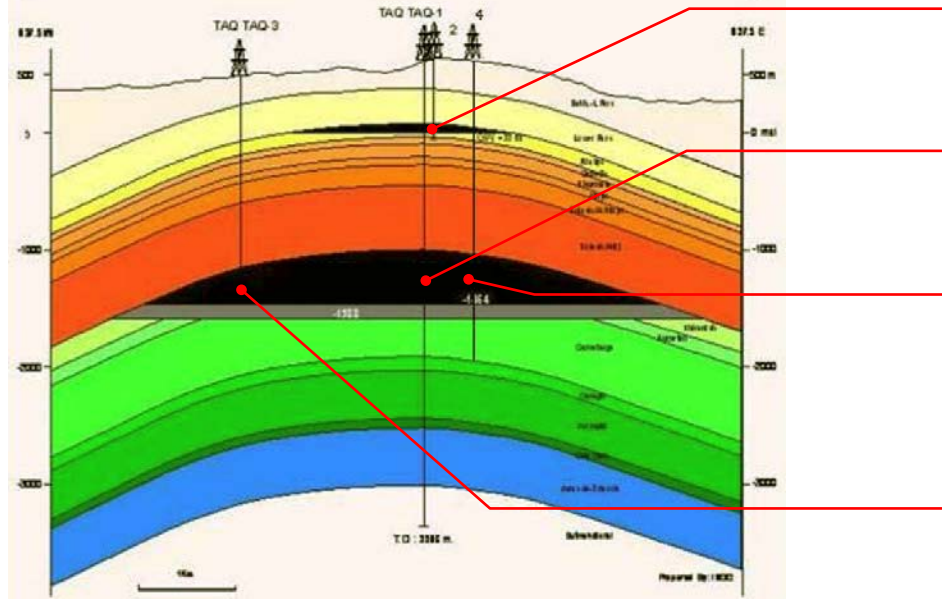
### Iraq

- The Taq Taq field is located 60 kilometers northeast of the Kirkuk oil field and the adjacent city of Kirkuk and 80 kilometers northwest of the city of Sulaimaniyah. The gross field area of Taq Taq is approximately 169,000 acres (680 km<sup>2</sup>).
- The Taq Taq License Area is in the Zagros basin where large, elongated anticlines dominate, field was discovered in 1978 by the drilling of the first well, which was drilled to a depth of approximately 4,000 m.
- The well was drilled on the crest of the structure and is reported to have tested 47° API oil at rates of up to 5,000 bbl/d, indicating a gross oil column in excess of 470 m in a Cretaceous reservoir.
- The second Taq Taq well, drilled in 1978 close to the first well, was a shallow well and tested oil at a reported rate of 1,000 bbls/d at a depth of approximately 600 meters, with oil of a medium gravity (24° API).
- This well is an analog for the shallow structures in Tawke.
- **Current Gross Reserves are 89MMbbl 2P and 147MMbbl 3P from estimated 1200MMbbl-2700MMbbl oil in place estimates and this implies a 7% RF for the 2P.**
- Delivery is via daily tanker truck to a local small-scale oil refinery and a cement factory.
- All current oil production is provided to the local government under the terms of the Taq Taq PSA.
- The objectives of the first phase of development are to establish and secure productive capacity of approximately 20 mbbbls/d as well as collecting subsurface data to prepare for future full field development.
- Based on initial mapping of the Taq Taq structure, Addax Petroleum's preliminary range estimate of oil in place is approximately 900 mmbbls to 3,500 mmbbls with an expected target of 2,100 mmbbls.
- Addax Petroleum and Genel Enerji, together with the Kurdistan Regional Government, are currently studying a proposed 255 km pipeline through the Kurdistan Region of Iraq which would permit the export of oil to Silopi in Turkey, for delivery to Ceyhan on the Mediterranean coast of Turkey.
- Capital expenditures for the Taq Taq Property are budgeted to be \$51 million in 2006. Under the terms of the Genel Farm-in, Addax Petroleum will fund all initial phase expenditures up to a maximum of \$74 million.

**Conclusion: Taq Taq appears to prove that 100MMbbl+ fields are present off the Zagros fold belt and sustainable well productivity of similar gravity oil of 100b/d is demonstrable.**

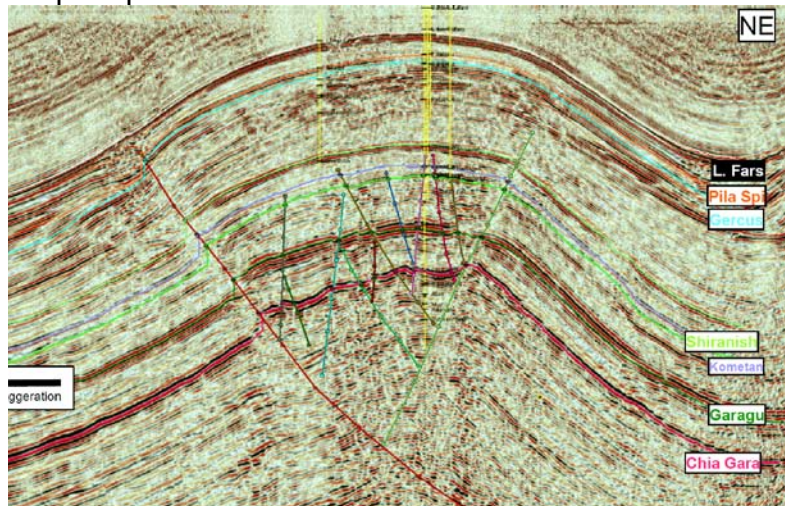
# Addax Taq Taq Analog

## Taq Taq field reservoir



Source: Addax

## Taq Taq field seismic



Taq Taq-2 (600m)  
 ▪ Shallow heavier oil – 24API  
 ▪ Tested 1000b/d

TaqTaq-1 (4000m)  
 ▪ 470m gross Cretaceous reservoir.  
 ▪ Tested at 5000b/d

Taq Taq-4 (2250m)  
 ▪ 500m gross Cretaceous reservoir.  
 ▪ Tested 47API oil at  
 - Shiranish 3,940b/d  
 - Kometan 12,930b/d  
 - Qamchuga 12,920b/d

Taq Taq-3 (2000m)  
 ▪ Flank appraisal well.  
 ▪ Inconclusive

**Taq Taq conclusions**

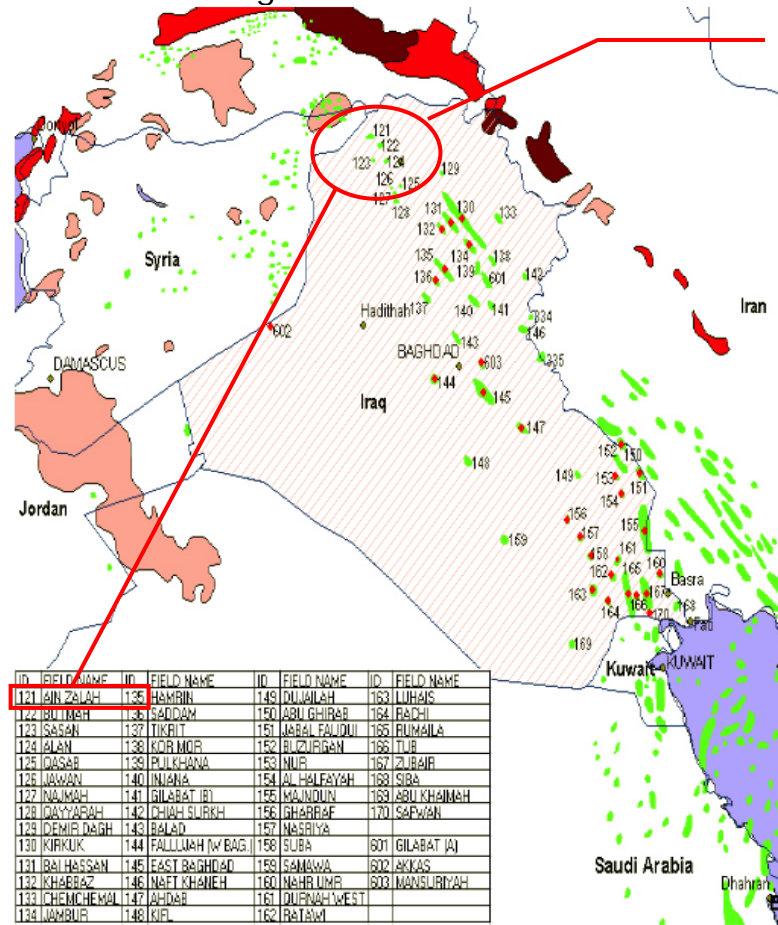
- Taq Taq field has a lower reservoir unit (lower Fars), seemingly identical to Tawke.
  - similar (600m) depth
  - limestone reservoir
  - same 24API oil
  - 1000b/d productivity
- We conclude that medium productivity reservoir has been encountered and wells have continued to produce without significant declines.
- This may prove a primary porosity system is working.

## Taq Taq-4 Core



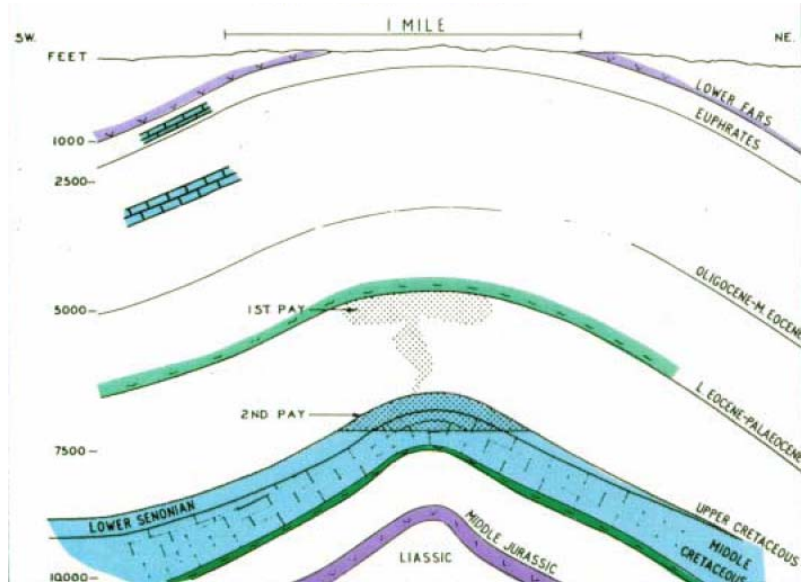
# Ain Zalah Analog

## Ain Zalah Analog field

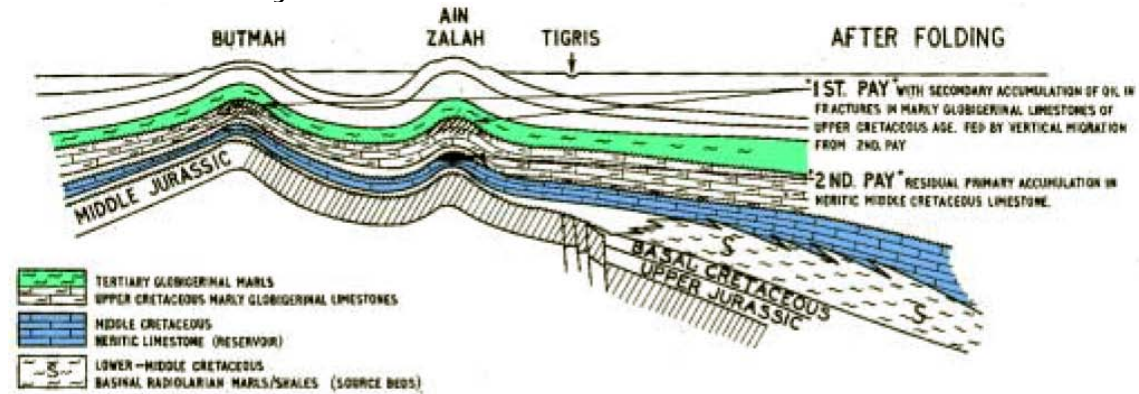


## Commentary

### Ain Zalah Cross section



### Ain Zalah Tertiary and Cretaceous formations



- These diagrams show the presence of productive Tertiary (shallow) and Cretaceous formations in the Ain Zalah field, to the west of Tawke.
- The Ain Zalah field had 800MMbbl of recoverable reserves and was discovered in the 1960's as one of the original Iraqi giant fields

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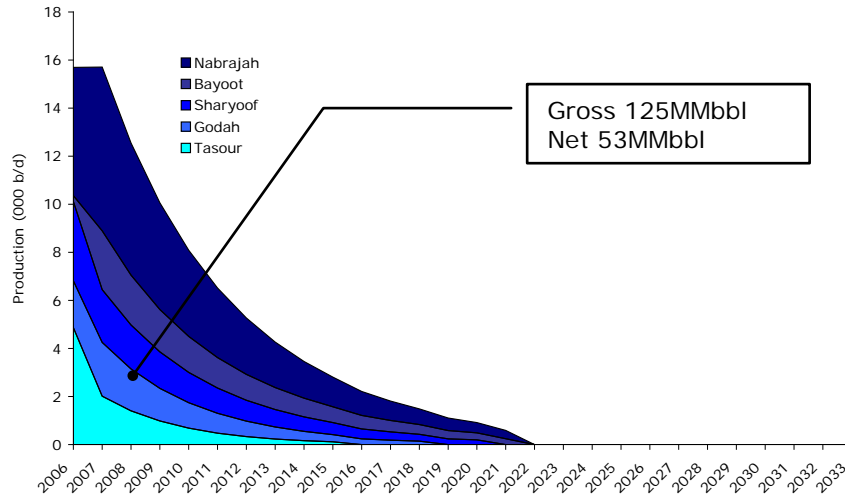
**Valuation**

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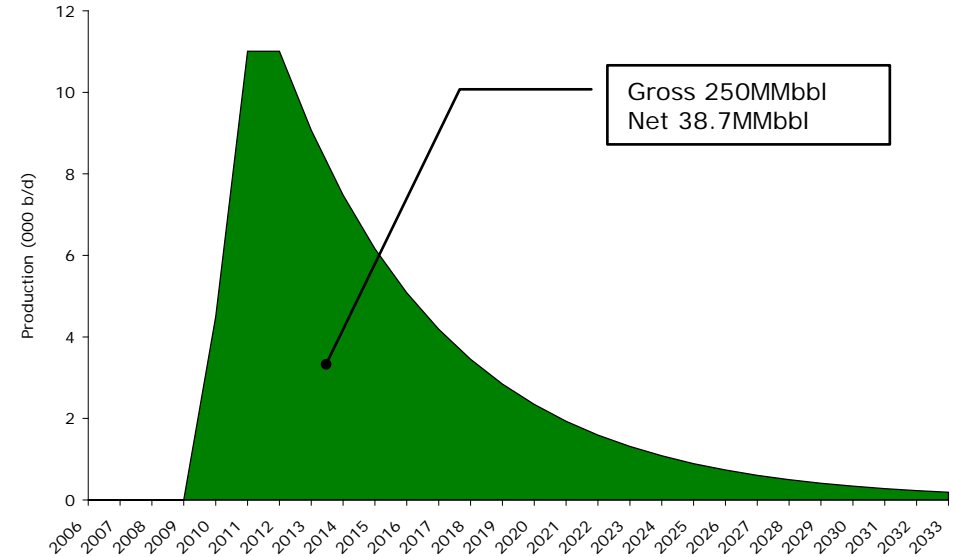


# Production Assumptions

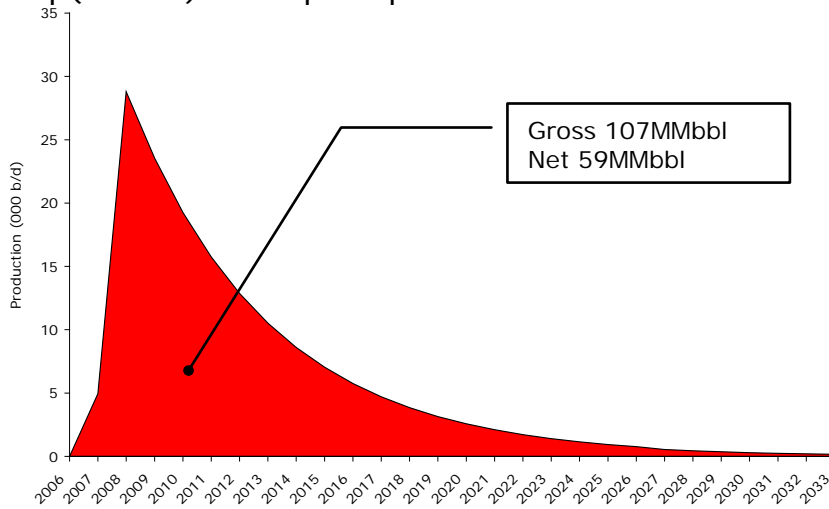
Yemen net oil production



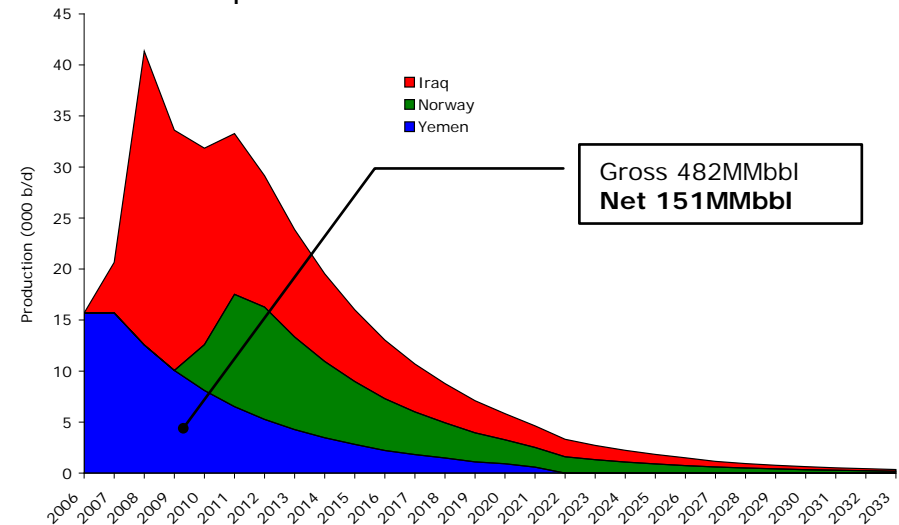
Norway (Goliat) net production



Iraq (Tawke) net liquids production

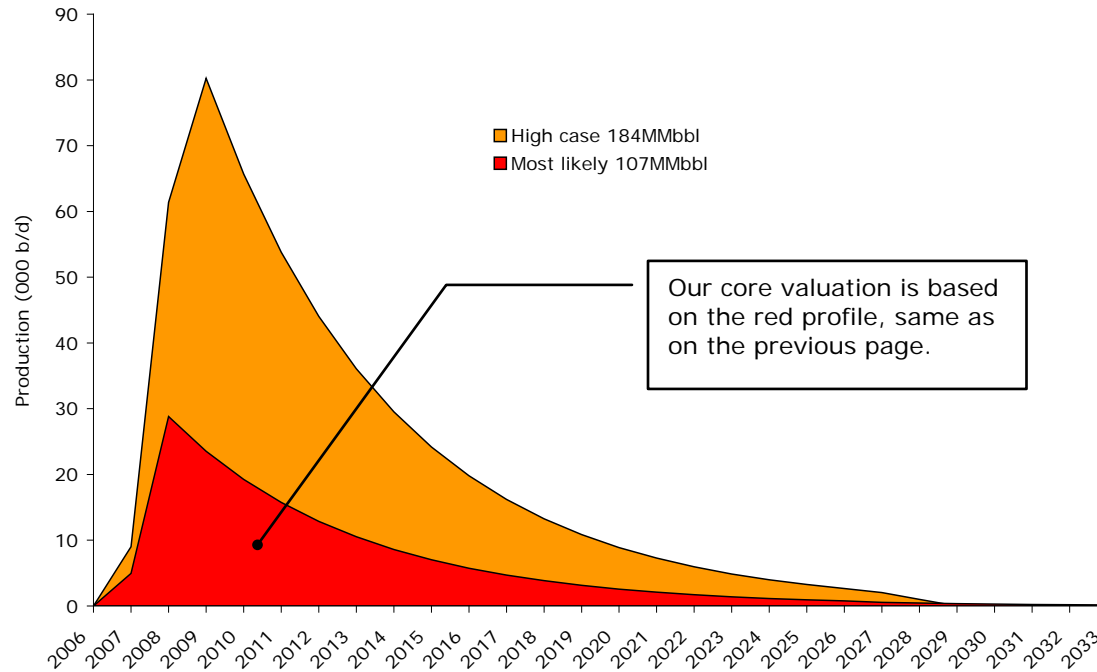


Combined net production



# Iraq Upside

## Tawke Projected Production



## Commentary

### Tawke most likely

- DNO plans to drill 18 appraisal/production wells on Tawke in 2007 and we estimate that 3 of these could be regarded as annual producers in that year.
- We forecast the remaining wells to start contributing to production the following year.
- From our productivity analysis on p250-p22 we assume initial rates of 3000b/d per well with 20% exponential decline.
- This builds up to 107MMbbl gross recoverable from 2007-2033 (59MMbbl net to DNO) – and we carry this in our core valuation.

### Tawke Upside

- We carry an upside case based on additional oil in place (e.g. extension of the field laterally or stratigraphically).
- On this basis we assume that more wells are productive in 2008 (18 not 15) and a further 10 wells are drilled in 2009.
- On this basis and assuming the same productivity, gross 2P reserves of 184MMbbl may be achievable and we carry this in our contingent reserves.
- If stabilized initial rates are significantly higher than 3000b/d then reserves remain the same but valuations are likely to increase.

## Tawke Production cases

Tawke Upside 1		Initial rate																													TOTALS		
		decline																															
		20%	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033			
wells			0.00	3.00	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.7
				9.00	7.36	6.02	4.92	4.02	3.29	2.69	2.20	1.80	1.47	1.20	0.98	0.80	0.66	0.54	0.44	0.36	0.29	0.24	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.6	
					45.00	36.79	30.08	24.60	20.11	16.44	13.44	10.99	8.99	7.35	6.01	4.91	4.02	3.28	2.68	2.20	1.79	1.47	1.20	0.98	0.80	0.66	0.54	0.44	0.36	0.29	0.0		
Totals			0.00	9.00	52.36	42.81	35.00	28.62	23.40	19.13	15.64	12.79	10.46	8.55	6.99	5.72	4.67	3.82	3.12	2.55	2.09	1.71	1.40	0.98	0.80	0.66	0.54	0.44	0.36	0.29	107.3		
Tawke Upside 2		Initial rate																															
		decline																															
		20%	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033			
wells			0.00	3.00	18.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.8	
			0.00	9.00	7.37	6.03	4.94	4.04	3.31	2.71	2.22	1.82	1.49	1.22	1.00	0.82	0.67	0.55	0.44	0.36	0.29	0.24	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	107.1	
					54.00	44.21	36.20	29.64	24.26	19.87	16.26	13.32	10.90	8.93	7.31	5.98	4.90	4.01	3.28	2.69	2.20	1.80	1.48	1.21	0.99	0.00	0.00	0.00	0.00	0.00	0.00	59.1	
					30.00	24.56	20.11	16.46	13.48	11.04	9.04	7.40	6.06	4.96	4.06	3.32	2.72	2.23	1.82	1.49	1.22	1.00	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	183.9	
Totals			0.00	9.00	61.37	80.24	65.70	53.79	44.04	36.06	29.52	24.17	19.79	16.20	13.26	10.86	8.89	7.28	5.95	4.87	3.99	3.26	2.67	2.03	0.99	0.00	0.00	0.00	0.00	0.00	183.9		

## DNO Base Case Valuation

### INPUTS

2007 \$/£ Exchange Rate	1.9
2007 \$/NOK	6.16
Exploration value	\$0.50/boe
No undiluted Shares	904.9
No Diluted (inc 4.8MM options)	909.7

### OUTPUTS

	WI (%)	Tawke	WI Reserves		Total	Risk Factor (%)	Value		
			Reserves	Resources (MMboe)			(\$MM)	(\$/bbl)	(NOK)
Iraq	55%	Tawke	55.0		55.0	484	8.80	2982	3.30 NOK
Yemen	39%	Tasour	2.3		2.3	7	3.12	45	0.05 NOK
	39%	Godah	3.5		3.5	12	3.30	71	0.08 NOK
	24%	Sharyoof	4.4		4.4	15	3.42	93	0.10 NOK
	24%	Bayoot/Hekma	5.4		5.4	18	3.40	113	0.12 NOK
Norway	57%	Nabrajah	12.4		12.4	42	3.36	257	0.28 NOK
	10%	Glitne	0.9		0.9	22	24.64	137	0.15 NOK
	2%	Enoch	0.3		0.3	7.1	24.64	44	0.05 NOK

#### Financial Adjustments

Net Debt								-1336	-1.48 NOK		
Options								-7	-0.01 NOK		
<b>Reserve Value</b>			<b>84</b>		<b>84</b>			<b>607</b>	<b>7.2</b>	<b>2399</b>	<b>2.7 NOK</b>

	WI (%)	Tawke	WI Reserves		Total	Risk Factor (%)	Value			
			Reserves	Resources (MMboe)			(\$MM)	(\$/bbl)	(NOK)	(per share)
Iraq	55%	Tawke	4.0		4.0	80%	28	7.04	173	0.19 NOK
Norway	15%	Goliat	37.5		37.5	80%	672	17.92	4140	4.58 NOK
Yemen	57%	Nabrajah	20		20.0	60%	40	2.02	249	0.27 NOK
	39%	Godah	5		5.0	60%	10	1.98	61	0.07 NOK

<b>Resource Value</b>			<b>67</b>		<b>67</b>			<b>750</b>	<b>11.3</b>	<b>4623</b>	<b>5.1 NOK</b>
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Iraq	55%	Tawke Tertiary	42		42	50%	186	4.4	1143	1.26 NOK
	55%	Tawke Deep	110		110	33%	114	1.0	704	0.78 NOK
	55%	Tawke other	275		275	20%	138	0.5	847	0.94 NOK
Yemen	34%	Block 72	55		55	20%	28	0.5	170	0.19 NOK
	35%	Block 47	57		57	20%	28	0.5	175	0.19 NOK
Norway	30%	Lie	20		20	33%	10	0.5	63	0.07 NOK
	30%	Torkildsen	25		25	33%	12	0.5	76	0.08 NOK
	35%	Draupne	11		11	33%	6	0.5	34	0.04 NOK
	30%	Ragnarrock	41		41	33%	21	0.5	128	0.14 NOK
	20%	Gere/Freke	4		4	33%	2	0.5	12	0.01 NOK
	30%	Midgard West	21		21	33%	11	0.5	65	0.07 NOK
	15%	Goliat West	23		23	33%	185	8.2	1138	1.26 NOK
	30%	Natalia	18		18	20%	9	0.5	55	0.06 NOK
	Exploration Cost (2007)								-146	-900

<b>Exploration Value</b>			<b>702</b>		<b>702</b>			<b>602</b>	<b>0.9</b>	<b>3710</b>	<b>4.1 NOK</b>
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<b>Total Value</b>			<b>84</b>		<b>853</b>			<b>1960</b>	<b>2.3</b>	<b>10731</b>	<b>11.9 NOK</b>
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### Commentary

- In our valuation we have followed company guidelines in assigning:
  - Reserves and Resources = 151MMbbl
  - Reserves class 1-3 = 84MMbbl
  - Resources = 67MMbbl
- All of the Reserve valuations are based on DCF based valuations using a \$50/bbl Brent with various local discounts to this.
- Resource values are also based on the same DCF models but we introduce a development risk element as these projects are in various planning phases as follows:
  - In planning phase (class 4): Iraq
  - Development likely (class 5): Norway
  - Under evaluation (class 7): Yemen
- Exploration values are based on straight \$0.5/boe applied to the net *unrisked* prospect size, except:
  - Tawke Tertiary and Deep
  - Goliat West
 where we have used EMV because of greater certainty about the exploration/appraisal
- Clearly the portfolio is slanted towards exploration and appraisal success, particularly.
  - Goliat
  - Takwke deep
  - Takwe other prospects
- But the unusual element of the DNO exploration portfolio is that most of the exploration we have listed will actually drill in 2007 and so there is a strong case to model exploration using the EMV methodology (see next page).

Note working interest reserves but entitlement based valuation.

## DNO Upside Valuation

### INPUTS

2007 \$/E Exchange Rate	1.9
2007 \$/NOK	6.16
Exploration value	EMV
No undiluted Shares	904.9
No Diluted (inc 4.8MM options)	909.7

### OUTPUTS

	WI (%)	WI Reserves	WI Reserves Resources (MMboe)	Total	Risk Factor (%)	Value			De risk Exploration
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	10%	Glitne	0.9	0.9	22	24.64	137	0.15 NOK	
	2%	Enoch	0.3	0.3	7.1	24.64	44	0.05 NOK	

#### Financial Adjustments

Net Debt								-1336	-1.48 NOK
Options								-7	-0.01 NOK

<b>Reserve Value</b>	<b>84</b>	<b>84</b>	<b>607</b>	<b>7.2</b>	<b>2399</b>	<b>2.7 NOK</b>	<b>2.7 NOK</b>
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	WI Reserves	WI Reserves Resources (MMboe)	Total	Risk Factor (%)	Value			(per share)	
					(\$MM)	(\$/bbl)	(NOK)		
Iraq	55%	Tawke	4.0	4.0	28	7.04	173	0.19 NOK	
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	39%	Godah	5	5.0	60%	10	1.98	61	0.07 NOK

<b>Resource Value</b>	<b>67</b>	<b>67</b>	<b>750</b>	<b>11.3</b>	<b>4623</b>	<b>5.1 NOK</b>	<b>5.1 NOK</b>
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Iraq	55%	Tawke	42	42	50%	186	4.4	1143	1.26 NOK	2.53 NOK	
	55%	Tawke Deep	110	110	33%	114	1.0	704	0.78 NOK	2.33 NOK	
	55%	Tawke other	275	275	20%	182	0.7	1119	1.24 NOK	6.18 NOK	
Yemen	34%	Block 72	55	55	20%	34	0.6	211	0.23 NOK	1.17 NOK	
	35%	Block 47	57	57	20%	37	0.7	231	0.25 NOK	1.27 NOK	
Norway	30%	Lie	20	20	33%	168	8.2	1032	1.14 NOK	3.42 NOK	
	30%	Torkildsen	25	25	33%	202	8.2	1245	1.38 NOK	4.13 NOK	
	35%	Draupne	11	11	33%	92	8.2	567	0.63 NOK	1.88 NOK	
	30%	Ragnarrock	41	41	33%	340	8.2	2095	2.31 NOK	6.94 NOK	
	20%	Gere/Freke	4	4	33%	33	8.2	202	0.22 NOK	0.67 NOK	
	30%	Midgard West	21	21	33%	172	8.2	1062	1.17 NOK	3.52 NOK	
	15%	Goliat West	23	23	33%	185	8.2	1138	1.26 NOK	3.77 NOK	
	30%	Natalia	18	18	20%	89	4.9	546	0.60 NOK	3.02 NOK	
	Exploration Cost (2007)						-146		-900	-0.99 NOK	-0.99 NOK

<b>Exploration Value</b>	<b>702</b>	<b>702</b>	<b>1688</b>	<b>2.4</b>	<b>10395</b>	<b>11.5 NOK</b>	<b>39.8 NOK</b>
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<b>Total Value</b>	<b>84</b>	<b>769</b>	<b>853</b>	<b>3.6</b>	<b>17417</b>	<b>19.2 NOK</b>	<b>48 NOK</b>
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### Commentary

- Identical analysis for reserve and Resource values but modified Exploration value based on EMV's.
- EMV is the risked reserve x \$/bbl of discovered field less exploration cost.
- This methodology values the exploration at nearly 3X the straight \$0.5/boe method and may be justified in this case because the drilling is almost certain to take place for most of the exploration portfolio.
- We have also shown the unrisks value of each exploration prospect – e.g. what it would be worth as a discovery.
- DNO will drill and participate in at least 24 exploration wells in 2007 (excluding Iraq) – if 1 in 10 is a discovery (3 wells) then this could add at least NOK6.0, even based on the smallest prospects shown left.

Note working interest reserves but entitlement based valuation.