

EU-OPEC Roundtable on Energy Policies


**World's future Oil demand  
&  
OPEC members' capacity expansion**

**IR Iran's Production Capacity Upgrading & Investment**

*The 10 Year National Development Plan*

HOSSEIN KAZEMPOUR ARDEBILI

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# **Oil and Gas Reserves** **Exploration Potentials**

# **Global Oil & Gas Reserves: Iran's Ranking**

**(21<sup>st</sup> March 2007)**

## **GAS**

**RESERVES: 27.93 TCM**

**Second rank in the world**

**Offshore Gas: 18.8 TCM**

**Onshore Gas: 9.12 TCM**

**R/P ratio = 165 years**

**share in M.East : 38.7 %**

**share in World : 15.5 %**

## **OIL**

**RESERVES: 136.39 Billion bls.**

**Second rank in the World**

**Offshore Liquids: 30.03 Bbls.**

**Onshore Liquids: 106.36 Bbls.**

**R/P ratio = 92 years**

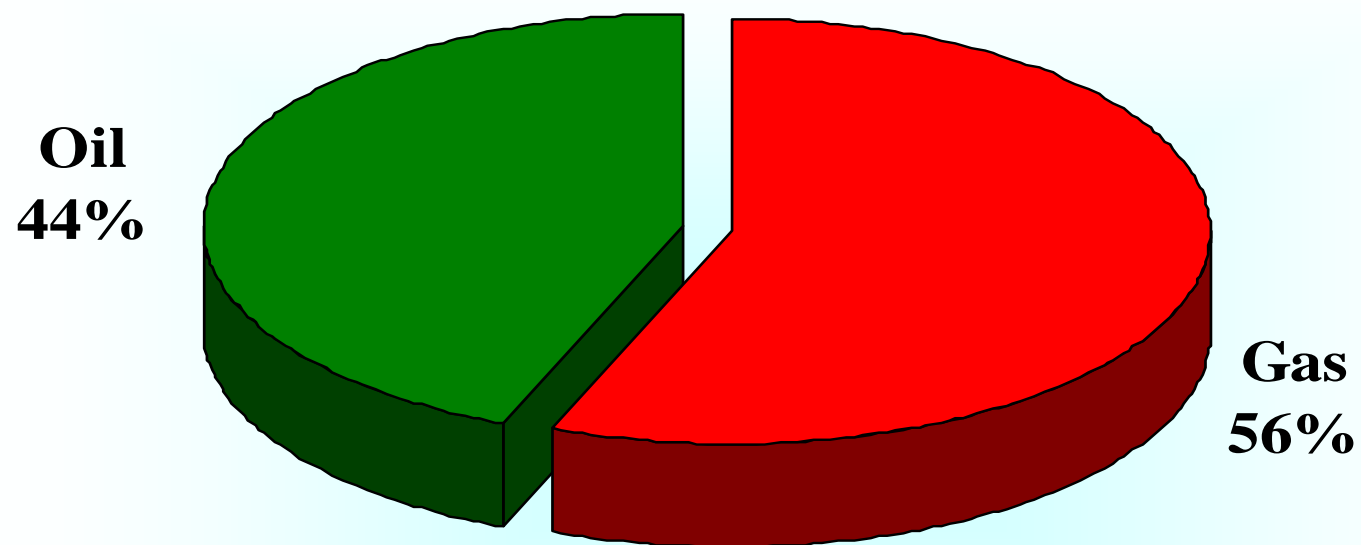
**share in M.East : 18.4 %**

**share in World : 11.4 %**

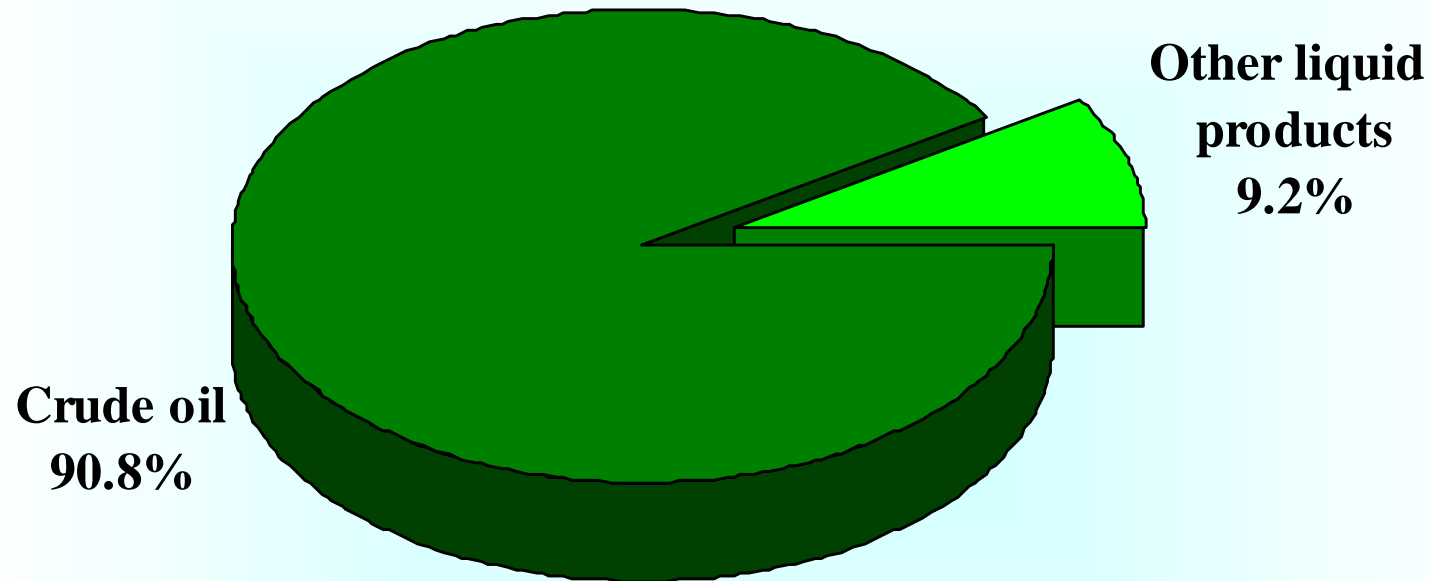
**Grand Total Reserves : 312.1 BBOE**

**R/P ratio = 122 years**

## Breakdown of oil and gas reserves in Iran (2007)



## **Breakdown of liquid hydrocarbons Production in Iran(2006)**

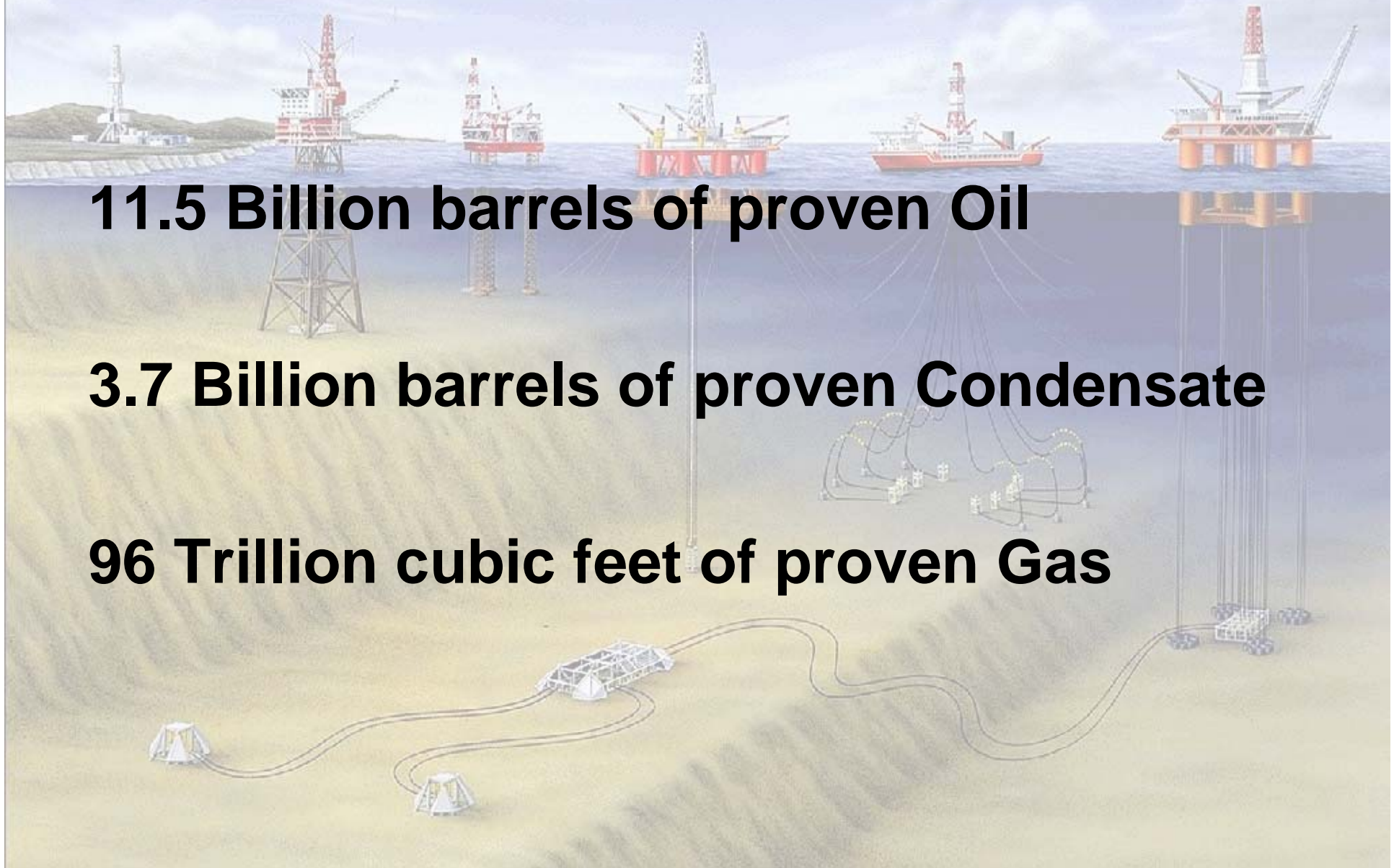


# **Oil & Gas Discoveries in Iran (1996-2006)**

**11.5 Billion barrels of proven Oil**

**3.7 Billion barrels of proven Condensate**

**96 Trillion cubic feet of proven Gas**





# **Mid-Long Term**

## **Required Capacity Expansion**

**+**

## **Investment for Oil Production**

**Based on OWEM (OPEC World Energy Model)**

# Iran's Share in Meeting the Global Oil Demand

	MMBD					
Year	2005	2010	2015	2020	2025	2030
World Demand	83.3	89.7	96.5	103.5	110.4	117.6
Non-OPEC Supply	49.0	54.1	56.3	57.8	58.5	58.8
Call on OPEC & NGL	34.3	35.6	40.2	45.7	51.9	58.8
Estimated production for OPEC's NGL	4.1	5.7	6.8	7.8	8.8	9.8
Estimated demand for OPEC's crude oil	30.2	29.9	33.4	37.9	43.1	49.0
Iraq estimated production (EIA,IEA)	2	3.2	3.8	4.3	5.1	6
Angola estimated production (EIA,IEA)	1.2	2.4	2.6	2.6	2.6	2.6
Call on OPEC's crude oil excluding Iraq & Angola	27.0	24.3	27.0	31.6	35.4	40.4
Call on Iran's Crude oil (With quota of 14.68%)	3.96	3.56	3.96	4.64	5.20	5.93

# Iran's Required Capacity Building

Based on OWEM Forecast

MMBD

	2005	2010	2015	2020	2025	2030
<b>Call on Iran's crude oil</b> (excluding NGL)	3.96	3.56	3.96	4.64	5.20	5.93
<b>Required Capacity</b> (5% Operational & 5% Spare)	4.00	3.92	4.00	5.10	5.72	6.52
<b>Excess Capacity Building</b>	-	- 0.08	0.08	1.10	0.62	0.80
<b>Required Capacity</b> (10%Operational &10%Spare)	4.75	4.27	4.75	5.57	6.24	7.12
<b>Excess Capacity Building</b>	—	- 0.48	0.48	0.82	0.67	0.88

# Iran's Estimated Annual Oil Capacity Expansion

based on 10%operational + 10%spare

MBD

	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030
<b>Required annual Excess Capacity Building</b>	—	96	164	134	176
<b>Annual production decline</b> (7% annual rate of decline)	316	316	361	413	470
<b>Required annual capacity expansion</b>	316	412	525	547	646
<b>Total required oil capacity expansion</b> (every 5 years)	1580	2060	2625	2735	3230

# Iran's Estimated Annual Oil Capacity Expansion

based on 5%operational + 5%spare

MBD

	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030
<b>Required annual Excess Capacity Building</b>	—	16	220	124	160
<b>Annual production reduction</b> (7% annual rate of decline)	277	277	318	379	428
<b>Required annual capacity expansion</b>	277	293	538	503	588
<b>Total required oil capacity expansion</b> (every 5 years)	1385	1465	2690	2515	2940

# Required Investment for Oil Production of Iran

	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	25 Years	Yearly Average Investment
Required annual capacity expansion (MBD) High Estimate	316	412	525	547	646	12230	
Required Annual Investment (Billion U.S \$)	2.212	2.884	3.675	3.829	4.522	85.69	3.48
Required annual capacity expansion (MBD) Low Estimate	277	293	538	503	588	10995	
Required Annual Investment (Billion U.S \$)	1.939	2.051	3.766	3.521	4.116	76.97	3.08

# Required Investment in Iran's Oil Sector

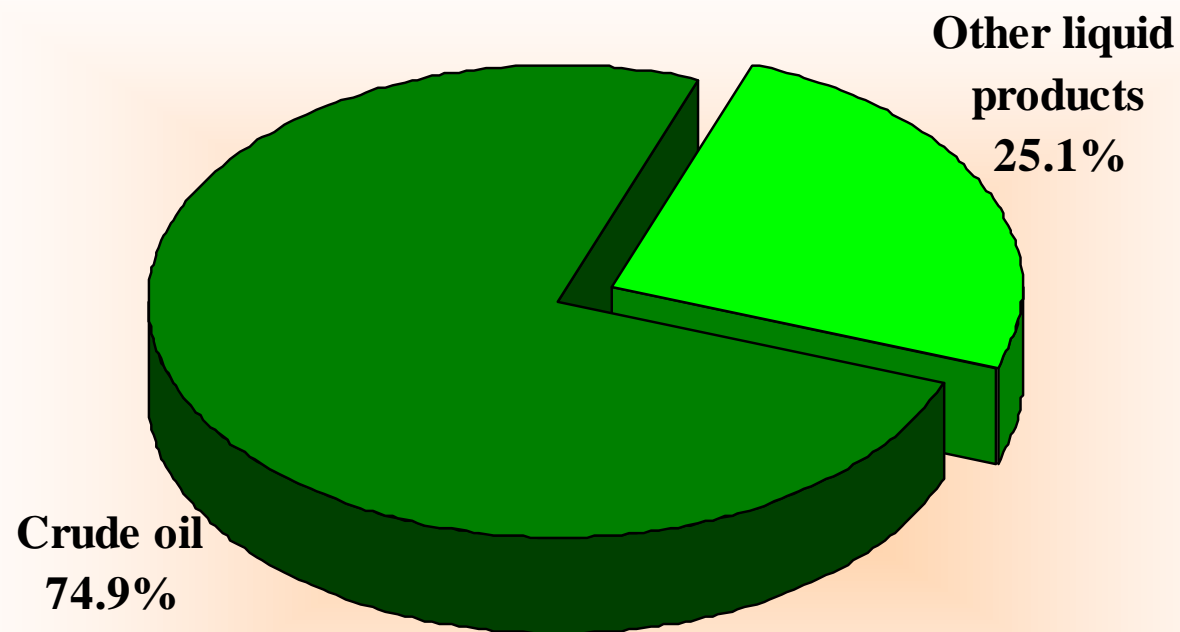
- 12.23 mmbd will be the MAX., capacity building and 10.99 mmbd could be MIN., expansion within 25 years.
- Average cost for keeping present capacity & capacity expansion could be \$ 7000 per barrel.
- Total required investment within 25 years will be 85.69 billion \$ at high estimate and \$76.97 billion at low estimated costs. i.e.; needed average investment ranging \$ 3.08-3.48 billion / year .



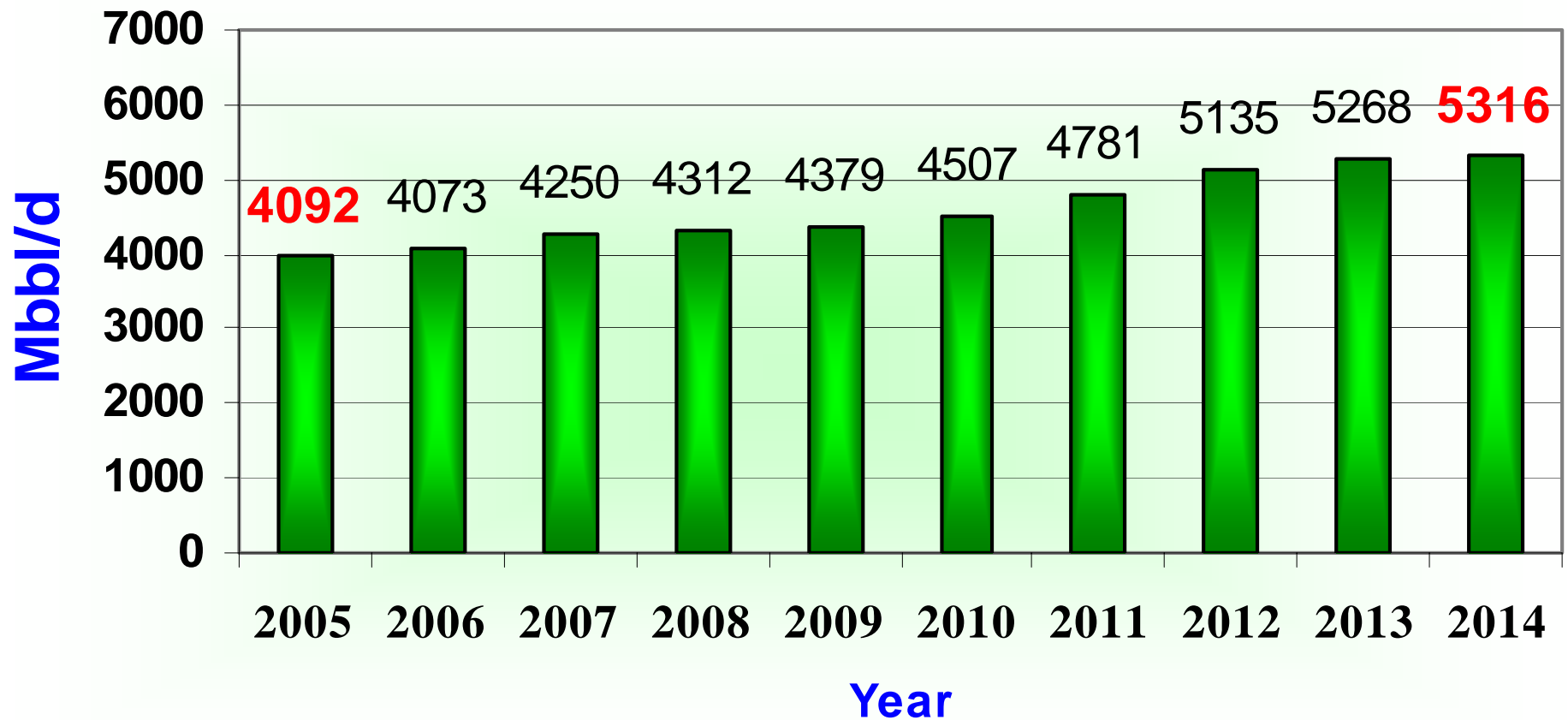
# **The 10 Year National Oil & Gas Development Plan**

**capacity expansion, production, injection,  
investment**

## **Breakdown of Forecast Liquid Hydrocarbons Production in Iran (March 2015)**



*The 10 Year National Development Plan*  
**Projection of Oil Production Capacity (2005-2014)**



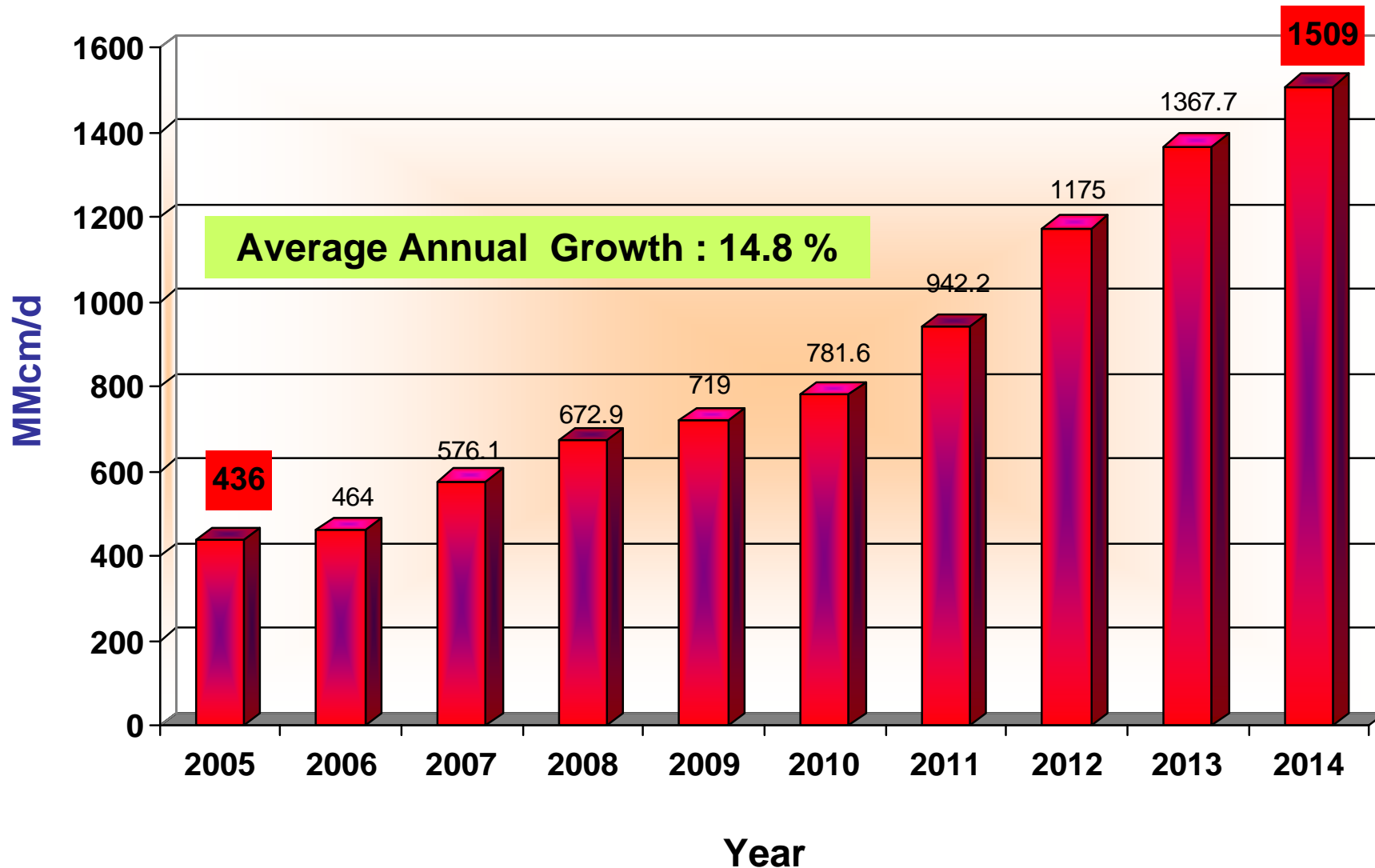
*The 10 Year National Development Plan*  
**Oil production Forecast in BAU scenario**

(MBD)

YEAR	Crud Oil	Other Liquid Products	Total of Liquid HC.	Volume increase during 5 year period
<b>2005</b>	<b>4021.3</b>	<b>354.4</b>	<b>4375.6</b>	-
<b>2009</b>	<b>4379.1</b>	<b>841.5</b>	<b>5220.6</b>	<b>845</b>
<b>2014</b>	<b>5315.7</b>	<b>1779.8</b>	<b>7095.5</b>	<b>1874.9</b>

# *The 10 Year National Development Plan*

## **Projection of Rich Gas Production Capacity(2005-2014)**



*The 10 Year National Development Plan*  
**Gas production Forecast in BAU scenario**

(MMCM/D)

YEAR	Rich Gas Production	Volume increase in 5 year period
2005	435.7	-
2009	719	283.3
2014	1509	790

## Short Term Production & Injection Expansion

Plan Titles	2005 (Actual)	2006 (Actual)	2007 (target)
Crud oil production capacity (MBD)	4257	4275	4481
Crud oil production (MBD)	4092	4073	4233
Rich gas production (MMCM/D)	435.1	464.1	576.1
NGLs production (MBD)	115.25	124.96	136.3
Condensate production (MBD)	214.20	241.08	325.9
Naphtha production (MBD)	23.48	25.32	32.9
Total of gas liquids (MBD)	352.9	391.36	495.1
Water injection (MBD)	272.2	356.27	495
Gas injection (MMCM/D)	77.2	73.05	106.5

*The 10 Year National Development Plan*  
**NIOC Oil and Gas Investment (2005-2014)**

Buy Back oil projects	28.21	bn\$
Buy Back gas projects & consumption optimization	35.79	bn\$
Finance	29.68	bn\$

<b>Total</b>	<b>93.67</b>	<b>bn\$</b>
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Internal financial sources	43.74	bn\$
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(NIOC own investment)

<b>Grant total</b>	<b>137.41</b>	<b>bn\$</b>
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*Thank you for your attention*