Department of Mineral Fuels
MINISTRY OF ENERGY

Thailand Oil and Gas Recovery Policy

By
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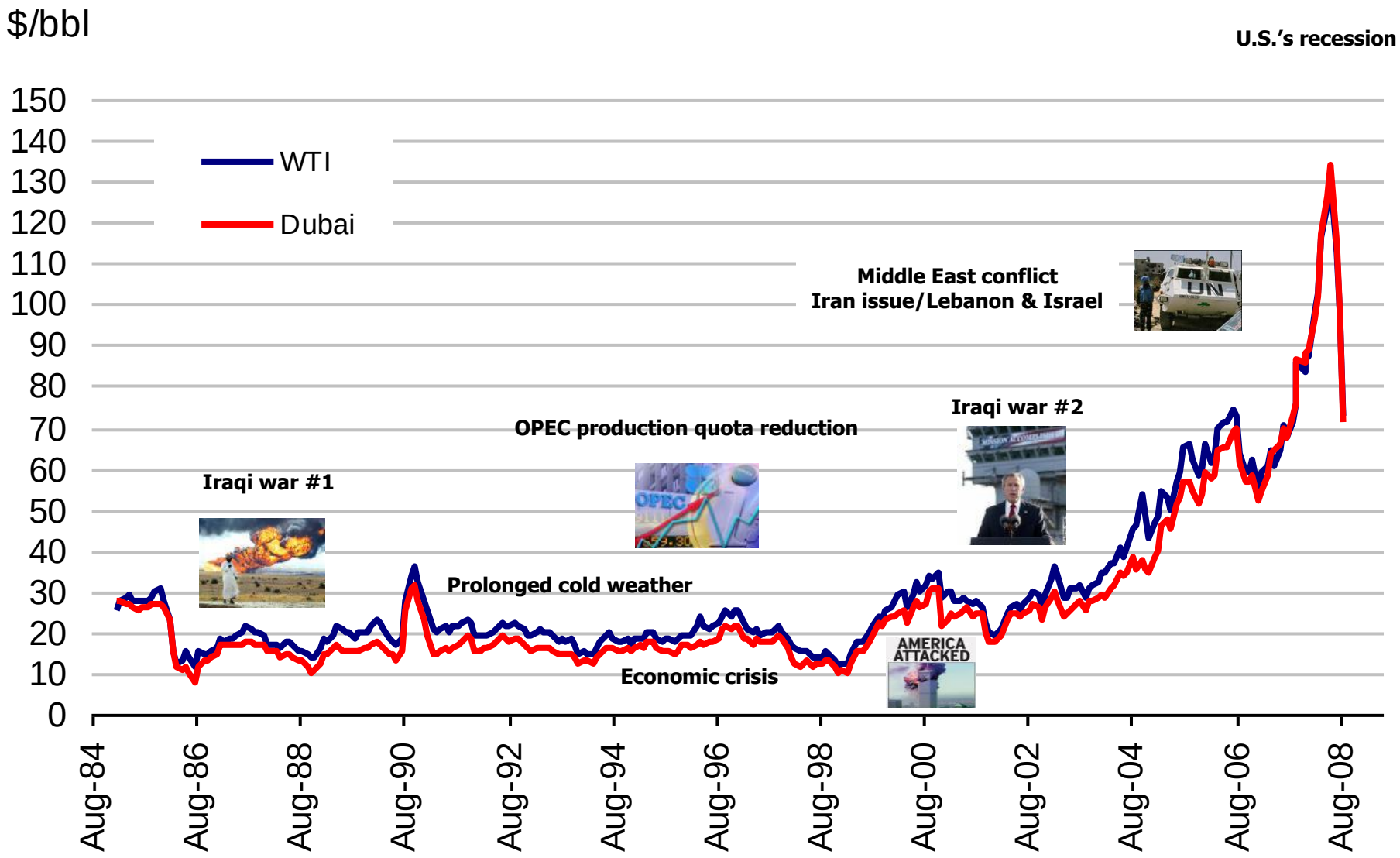
Deputy Director-General
Department of Mineral Fuels (DMF)

September 29, 2009

Rising Oil Prices

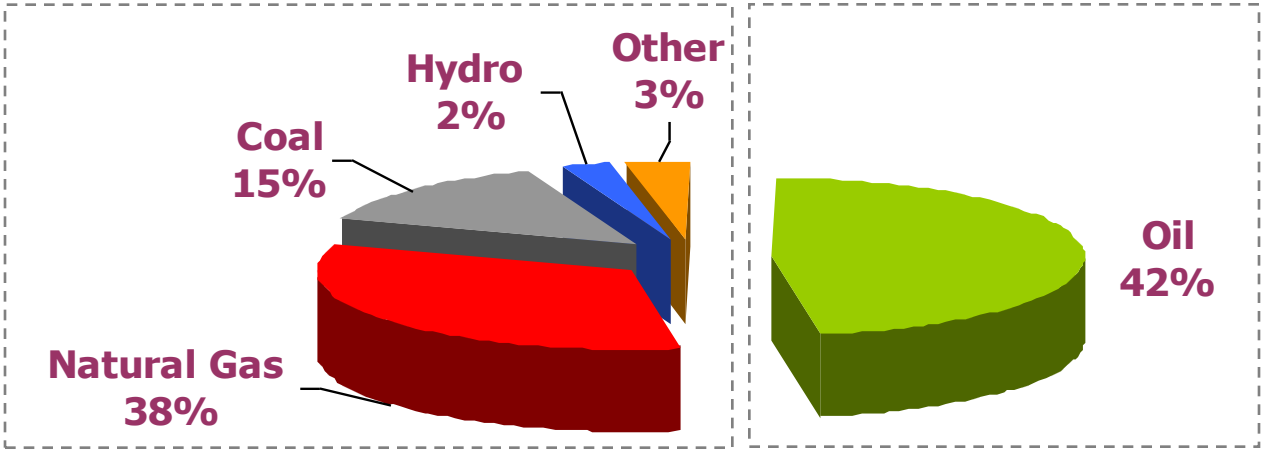


Thailand Energy Status

In 2008 Value of energy consumption = 1.7 trillion baht

The daily commercial energy consumption ~ 1.6 million barrel oil equivalent

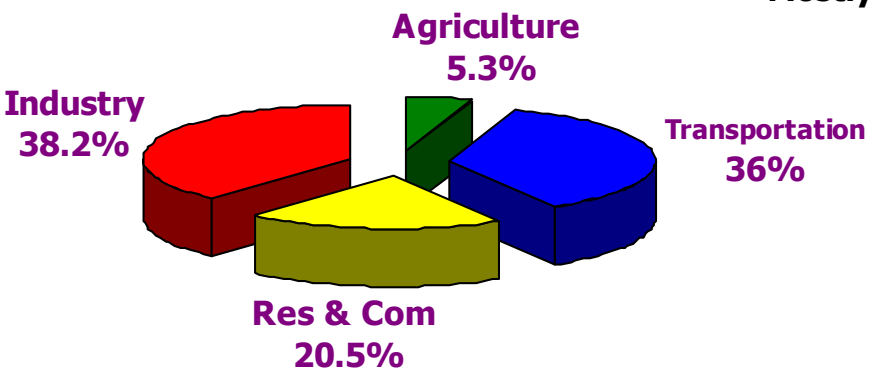
Primary Commercial Energy



Mostly used in Power Gen.
Imported 35%

Mostly used in Transportation Sector
Imported 85%

Energy Consumption by business sectors



Thailand's National Energy Policy

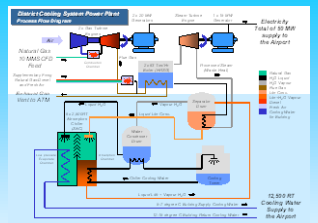
Efficiency | **Security** | **Sustainability**

Goals

- Reduce oil import
- Diversification of fuels consumption
- Promote indigenous resources

Action

- Energy Saving



District Cooling/ Cogen

- Promote Renewable & Alternative Energy

- ASEAN hydropower grid & gas pipeline

- Promote indigenous petroleum E&P

- Invest E&P in other countries

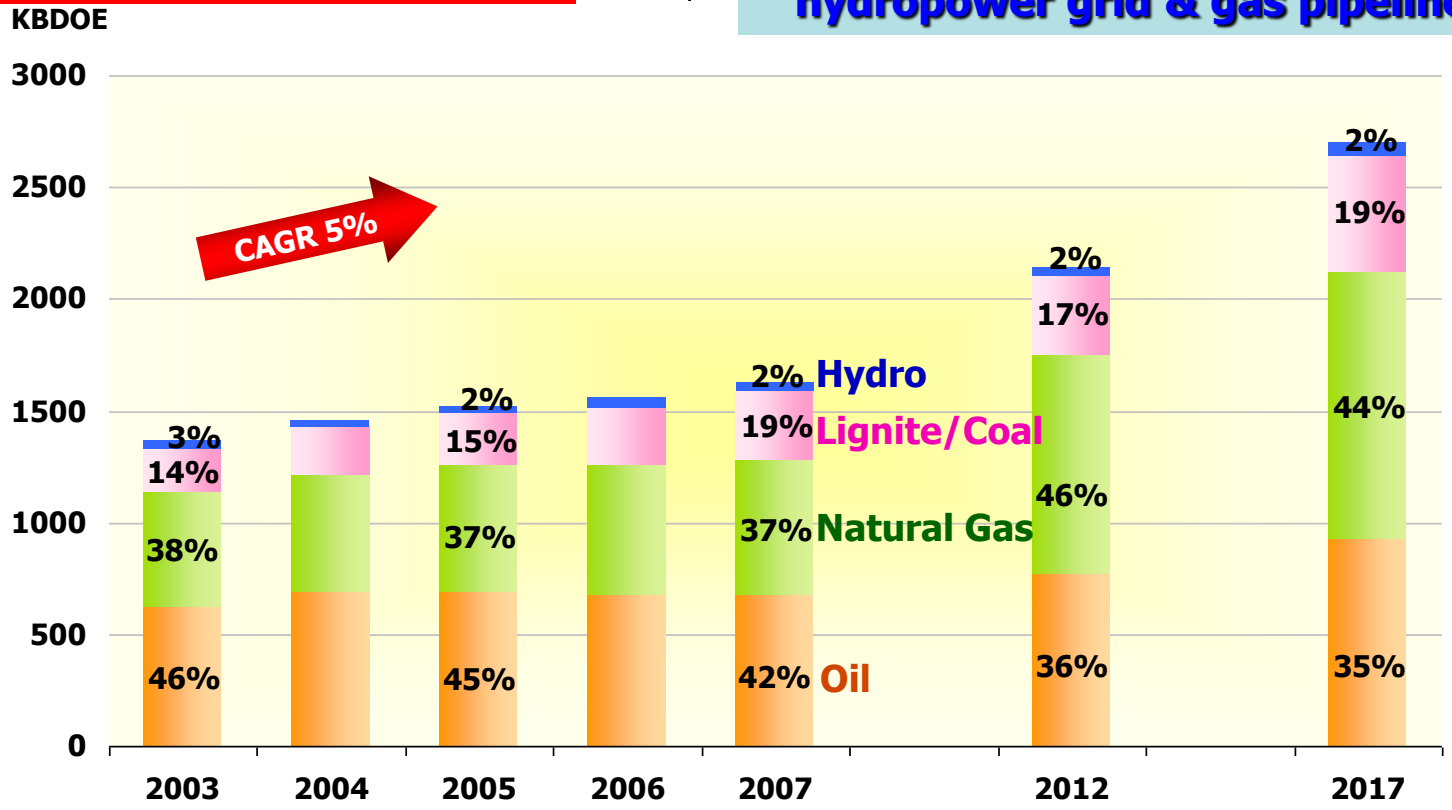
Thailand Energy Security Policy

Targets

- Reduce oil import
- Diversify fuels consumption
- Promote indigenous resources

❑ Energy Security

- Promote indigenous petroleum E&P
- Interconnection with Neighboring Countries and Beyond Border (ASEAN hydropower grid & gas pipeline)



Source: Energy Policy and Planning Office, PTT, PTIT

Petroleum Reserves

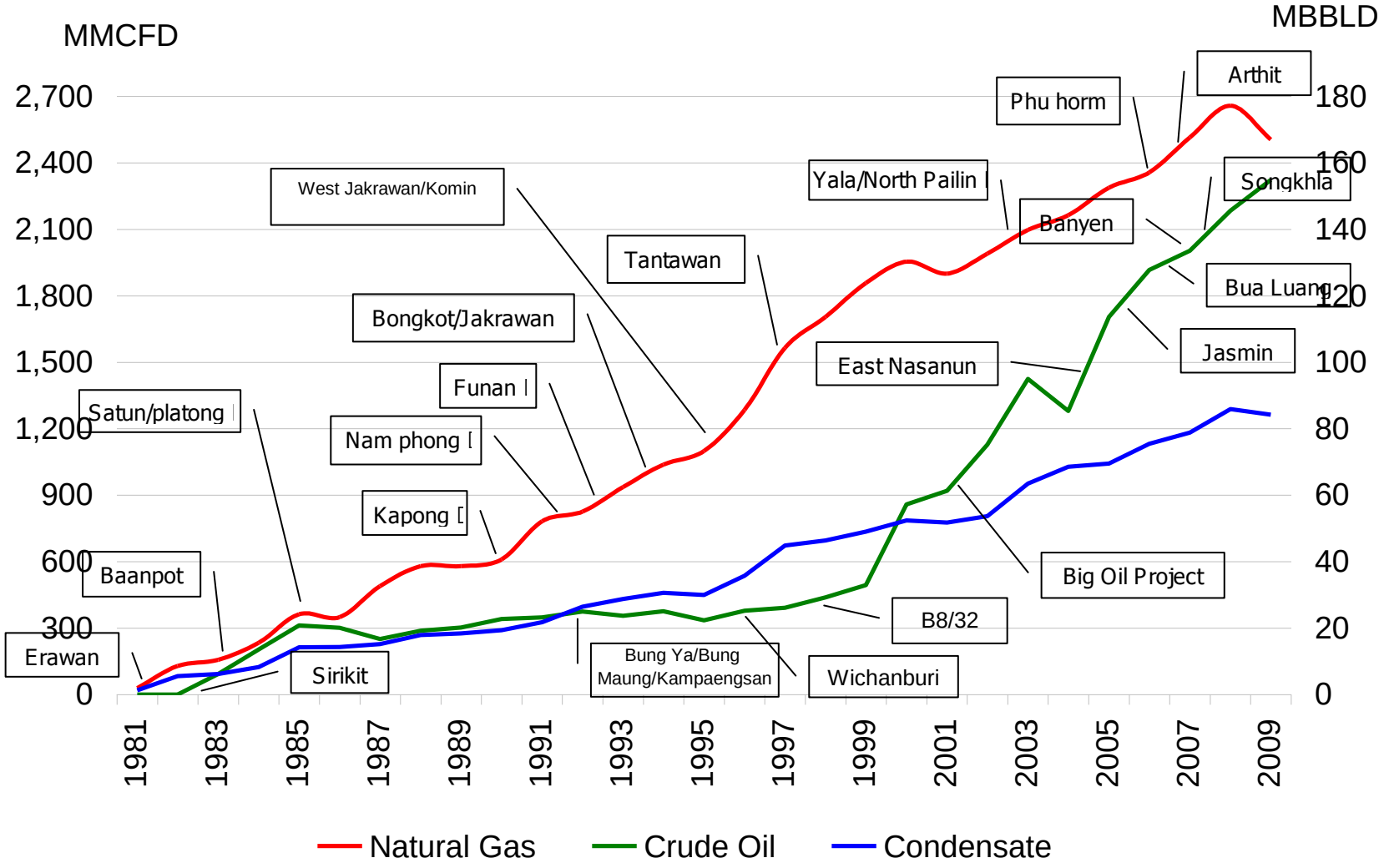
(Data as of 31 December 2008)

TYPES	Proved Reserves (P1)	Probable Reserves (P2)	Possible Reserves (P3)	Total
Natural Gas (TCF)	12.00	12.48	7.63	32.11
Condensate (Mil. Barrels)	271	337	134	742
Crude Oil (Mil. Barrels)	183	438	203	824

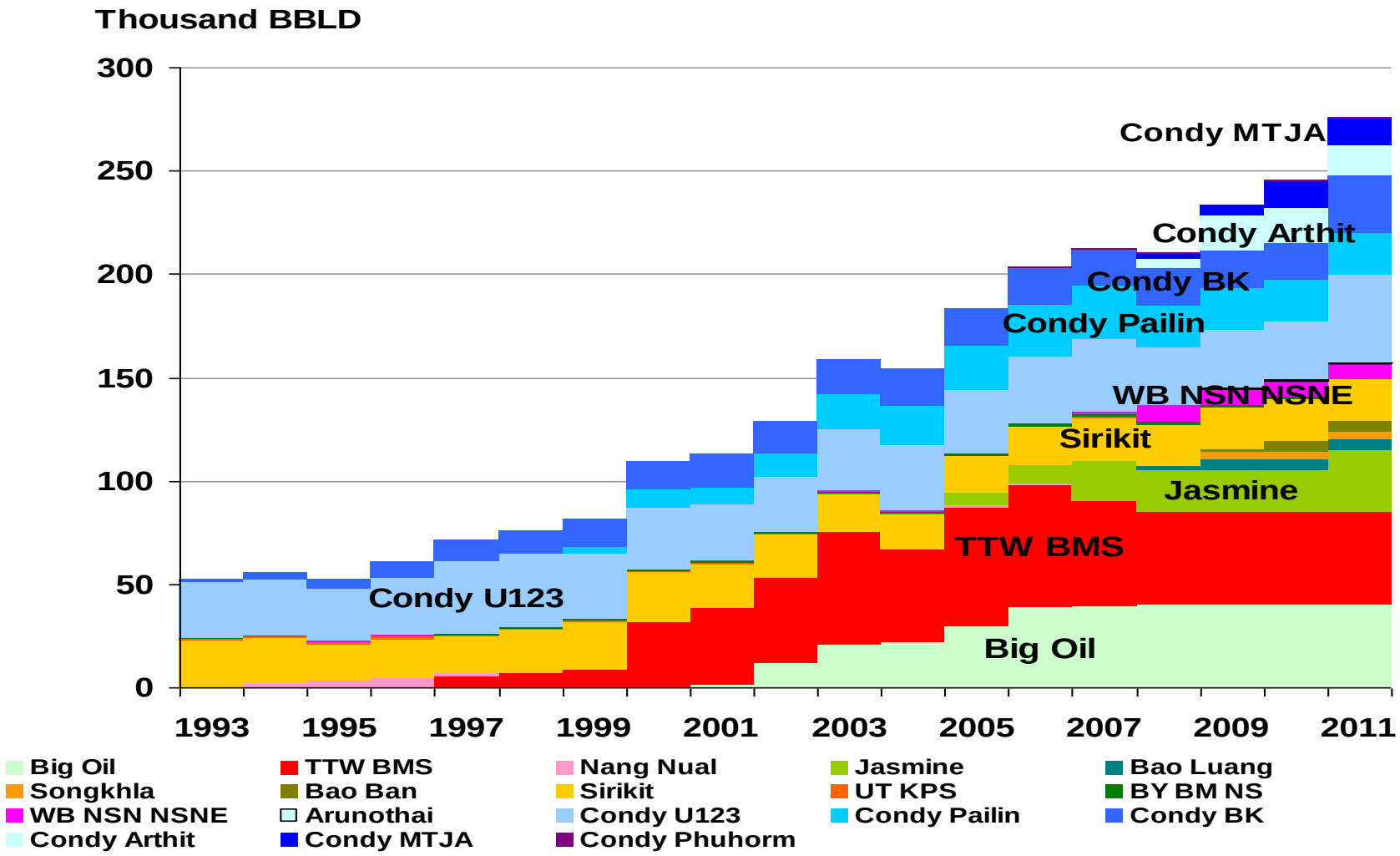
Source: Department of Mineral Fuels

Thailand Petroleum Production

Petroleum Production of Thailand **(1981-2009)**



Increase liquid petroleum production



Petroleum Concessions

Since 1971

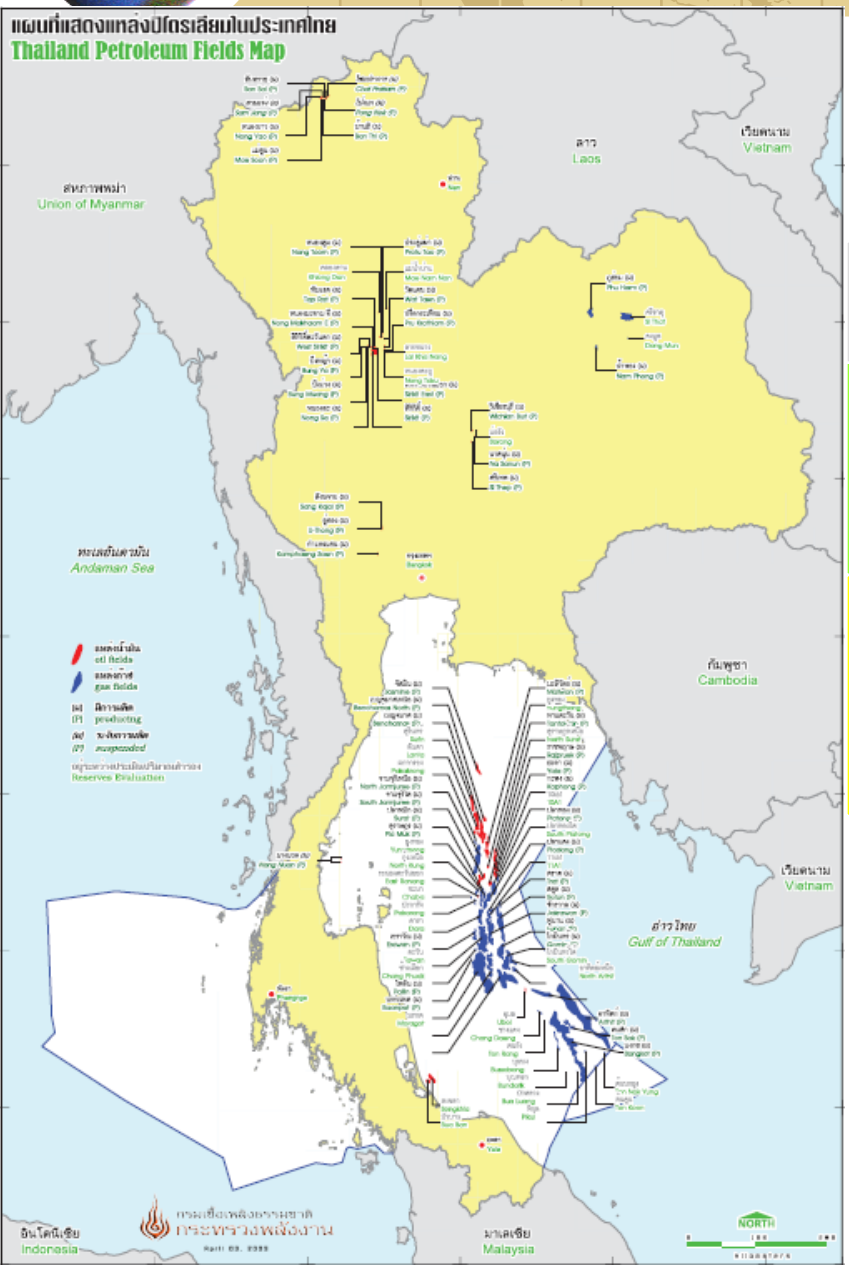
20 Petroleum Bidding Rounds

62 Concessions 80 Blocks

(As of 30 April 2009)

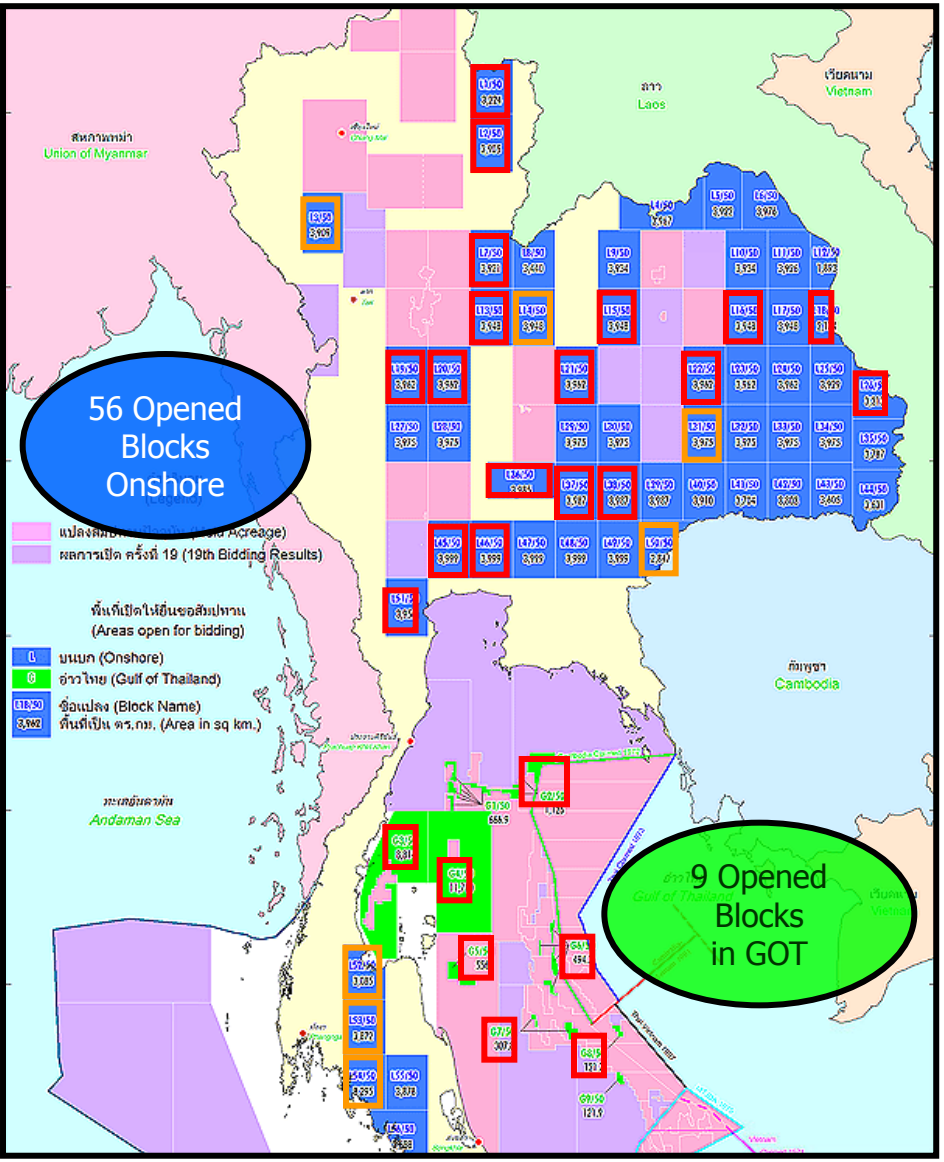
	Produced	Exploration
Onshore	8	31
GOT	22	16
Andaman	-	3
Total	30	50

Petroleum Fields



	Discovered	Producing
Total	***78***	***49***
Natural Gas	**50**	**21**
Onshore	**2**	**2**
Offshore	**48**	**19**
Crude Oil	**28**	**28**
Onshore	**19**	**19**
Offshore	**9**	**9**

The 20th Bidding Round (23 May 2007 – 22 May 2008)



- ✓ **65 blocks** opened for bidding
- ✓ Total area of **235,606 km2**

Awarded concessions

Being considered

The applications for 52 Blocks have been submitted and considered

(44 Blocks Onshore / 8 Blocks GOT)

The 19th Bidding round

(July 1, 2005 – June 30, 2006)

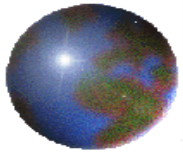
Opened blocks: 82 Blocks

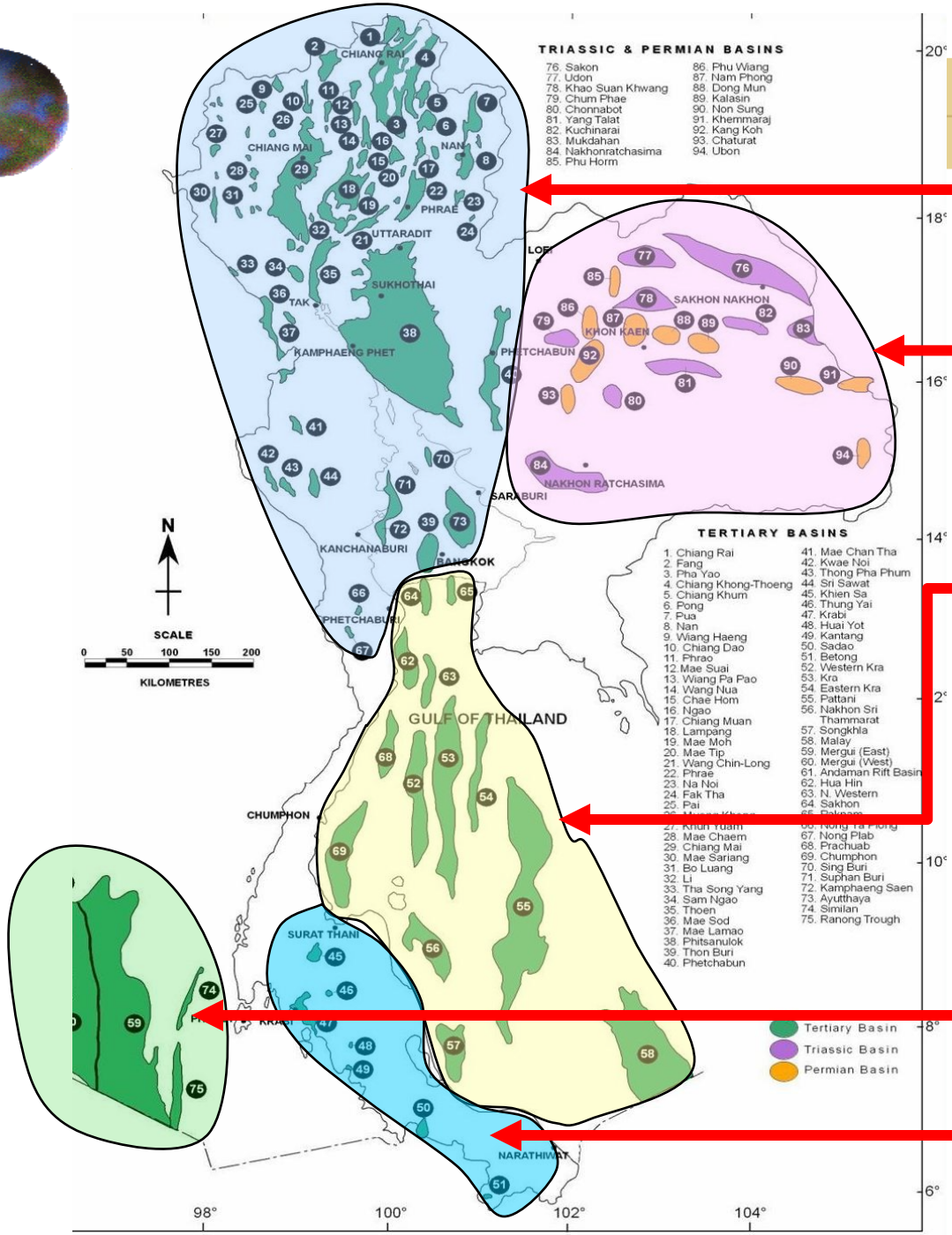
Awarded Concession : 16 Concessions

21 Blocks

Petroleum Geology

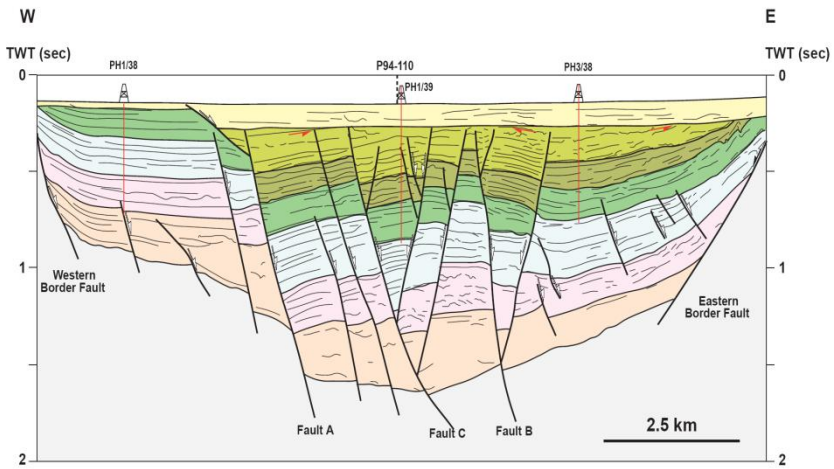
Petroleum Provinces



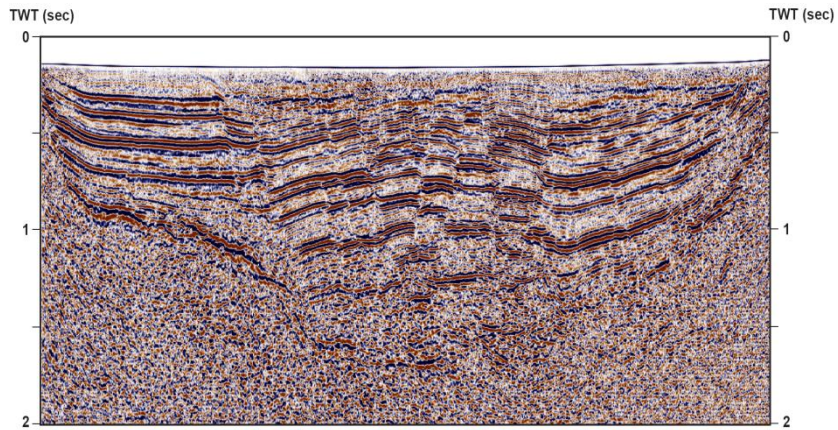


- **Northeast**
- **North & Central**
- **South**
- **Gulf of Thailand**
- **Andaman**

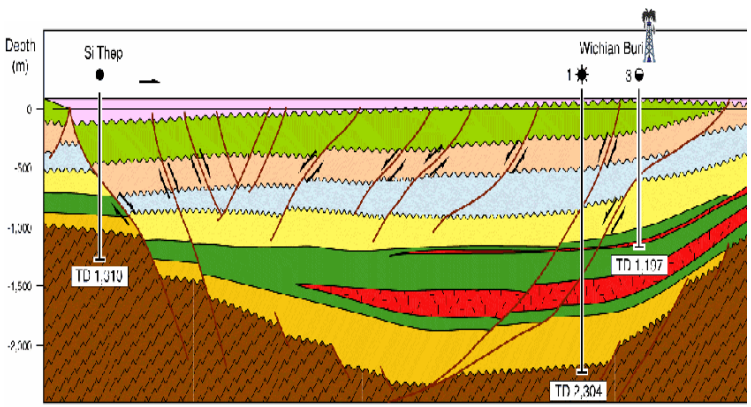
Petroleum Geology of Thailand Onshore Tertiary Basin



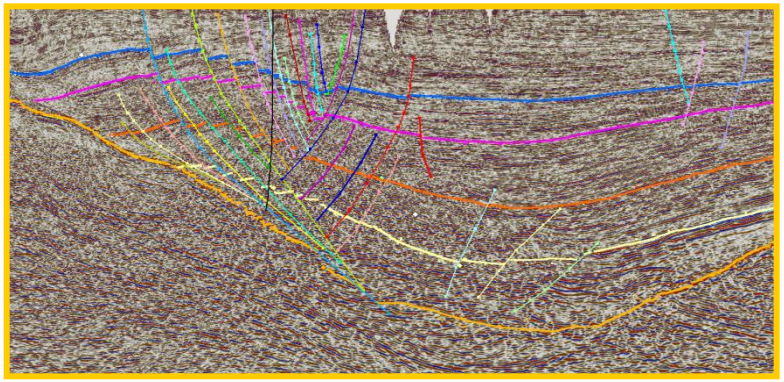
Interpreted Section of Phrae Basin (DED reserved area)



Seismic Cross Section of Phrae Basin (DED reserved area)

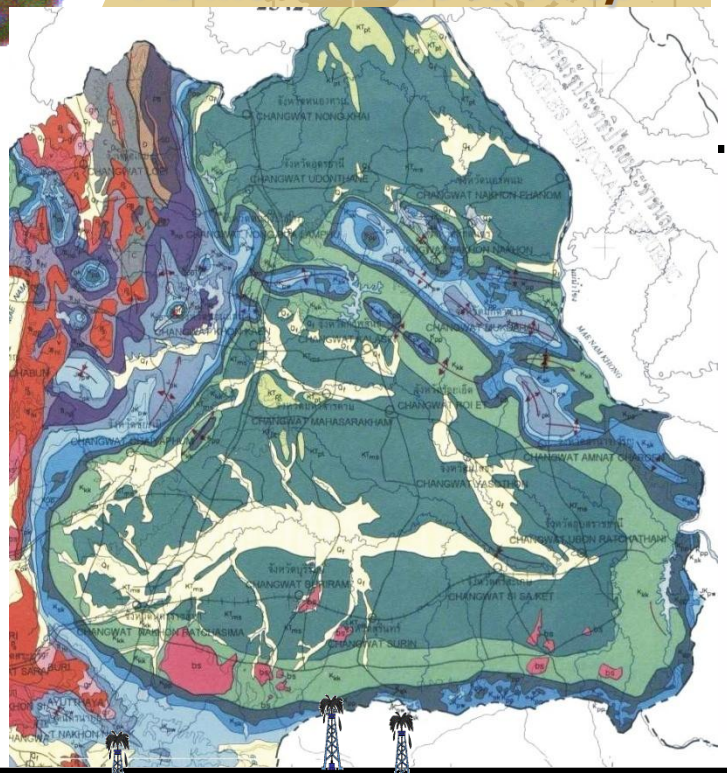


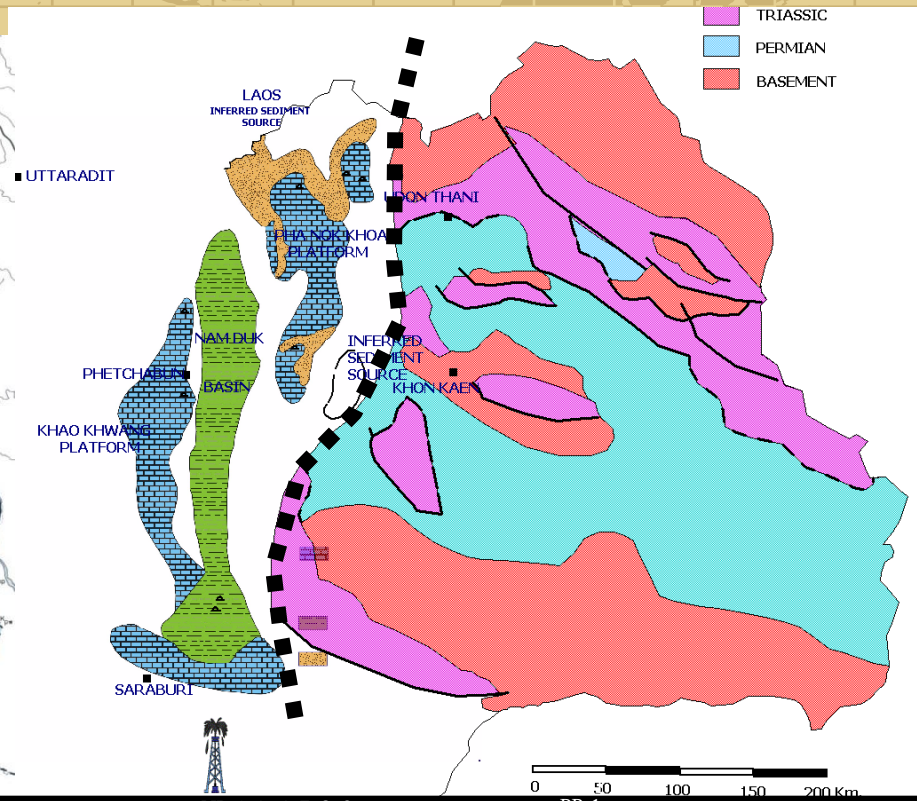
Schematic Cross Section of the Phetchabun Basin

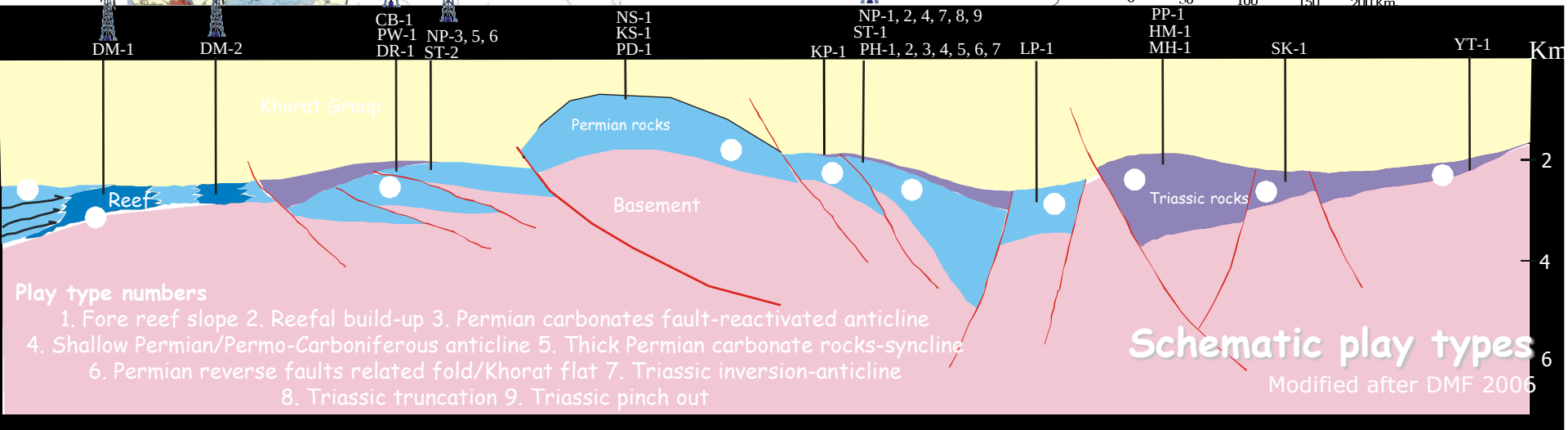


Seismic section of Western Sukhothai Depression

Combination between maps of Permian paleogeographic provinces and Permo-Triassic subcrop







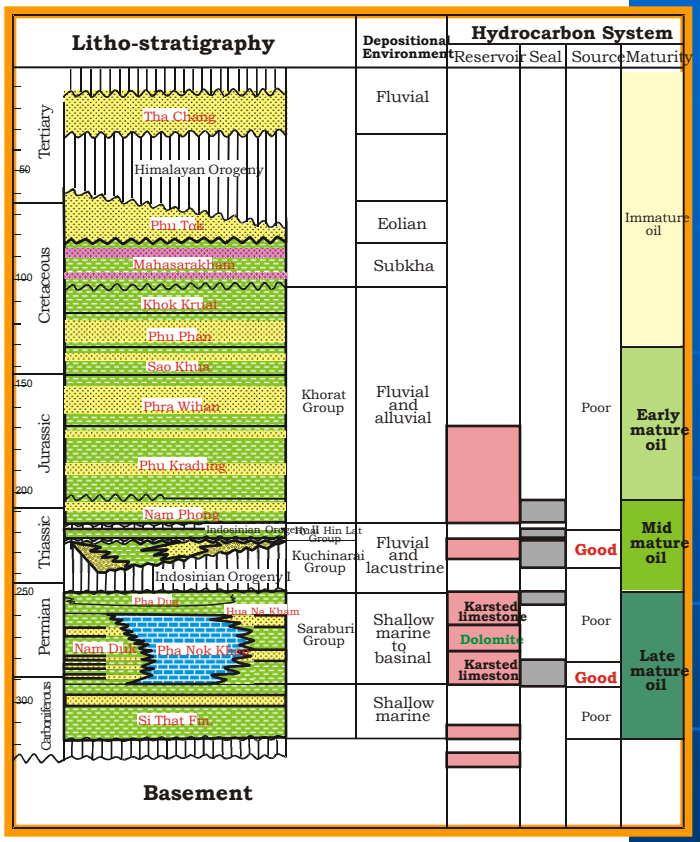
Play type numbers

1. Fore reef slope 2. Reefal build-up 3. Permian carbonates fault-reactivated anticline
4. Shallow Permian/Permo-Carboniferous anticline 5. Thick Permian carbonate rocks-syncline
6. Permian reverse faults related fold/Khorat flat 7. Triassic inversion-anticline
8. Triassic truncation 9. Triassic pinch out

Schematic play types

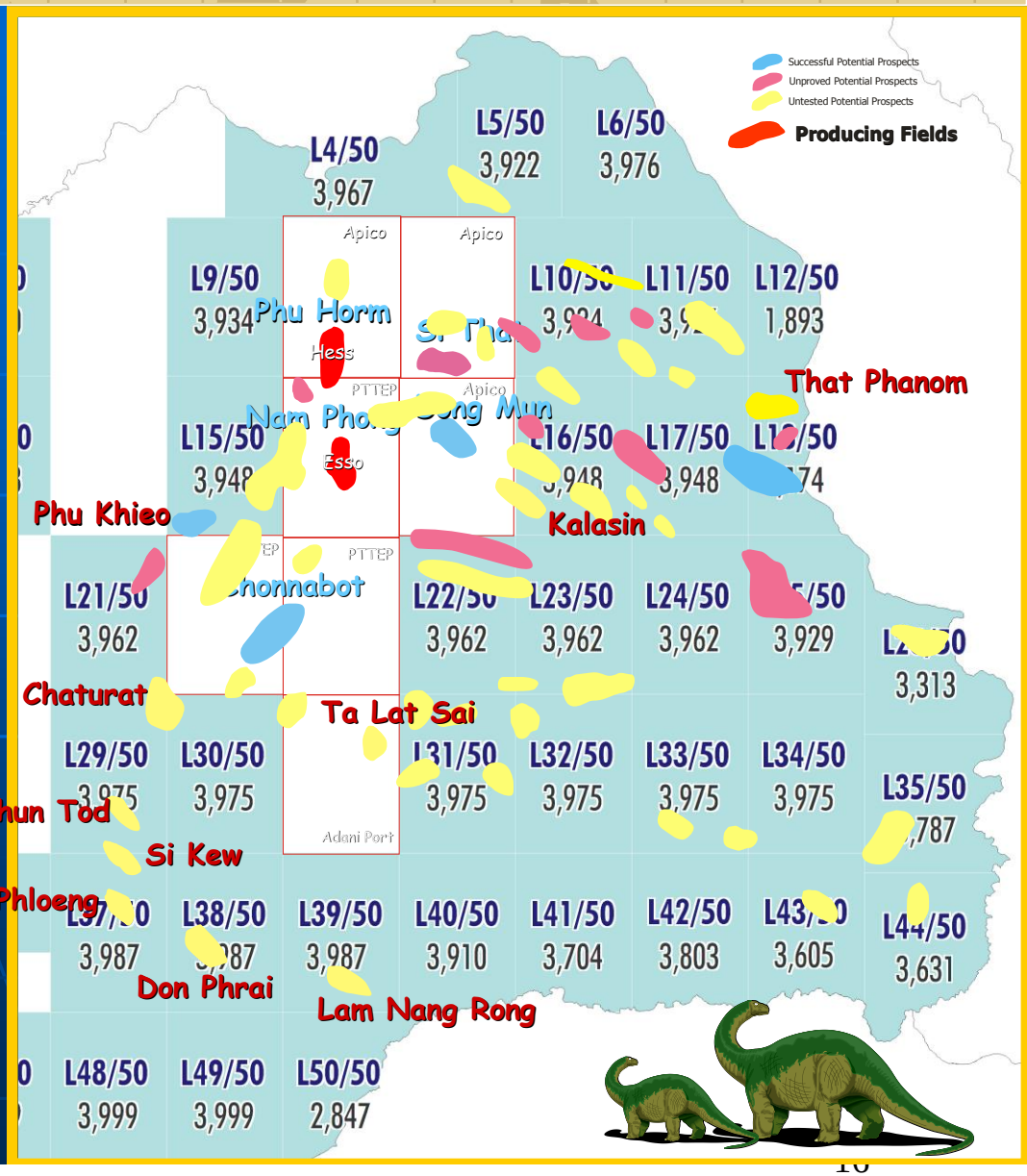
Modified after DMF 2006

Petroleum Prospects map of the Khorat Plateau

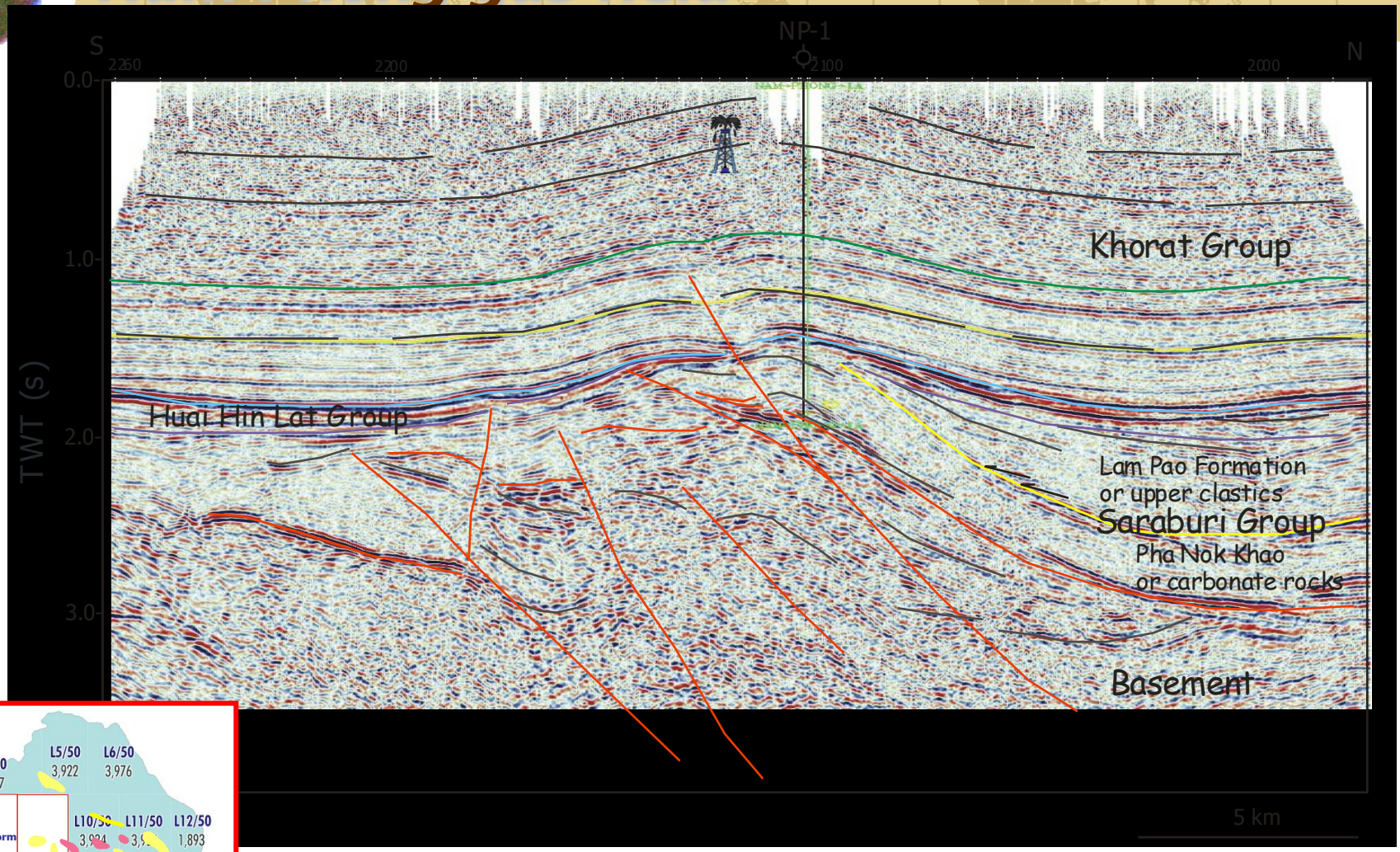


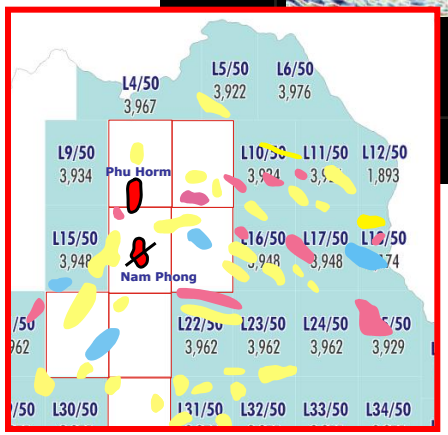
Litho-stratigraphy and petroleum system

Lots of prospective structures are still available for challenging to explore and to develop in both carbonate reservoirs and siliciclastic reservoirs.

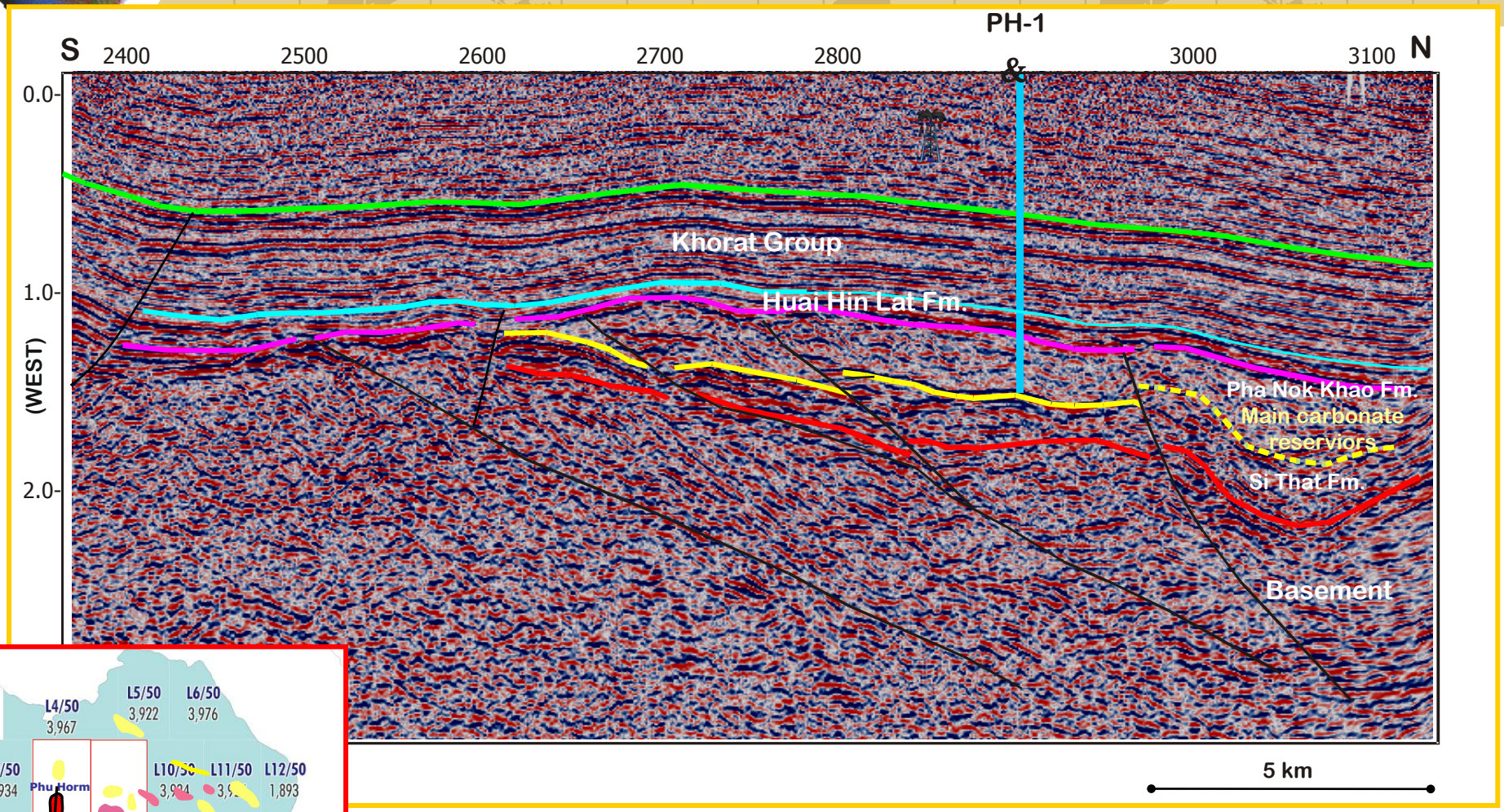


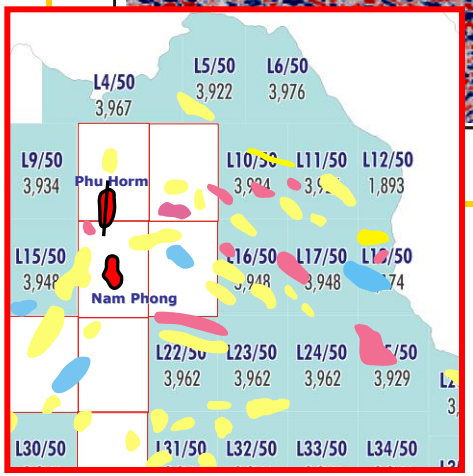
Nam Phong gas field





Phu Horm gas field

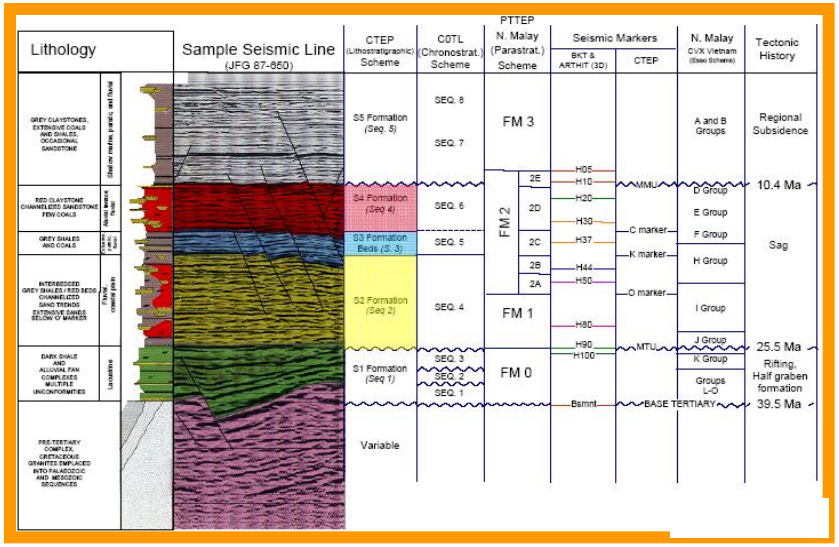


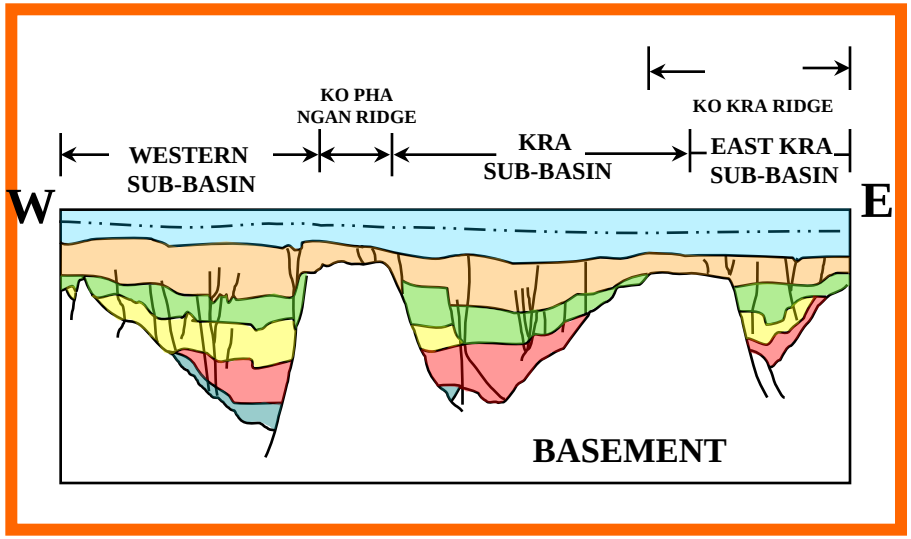


The Gulf of Thailand

Sediments in the Gulf of Thailand are mainly non-marine, fluviatile-lacustrine deposits, which allow dual-system for petroleum source rocks, specifically are from Oligocene Lacustrine sediments and interbeded carboneceous section of Miocene fluvial flood plains and delta plains deposits.

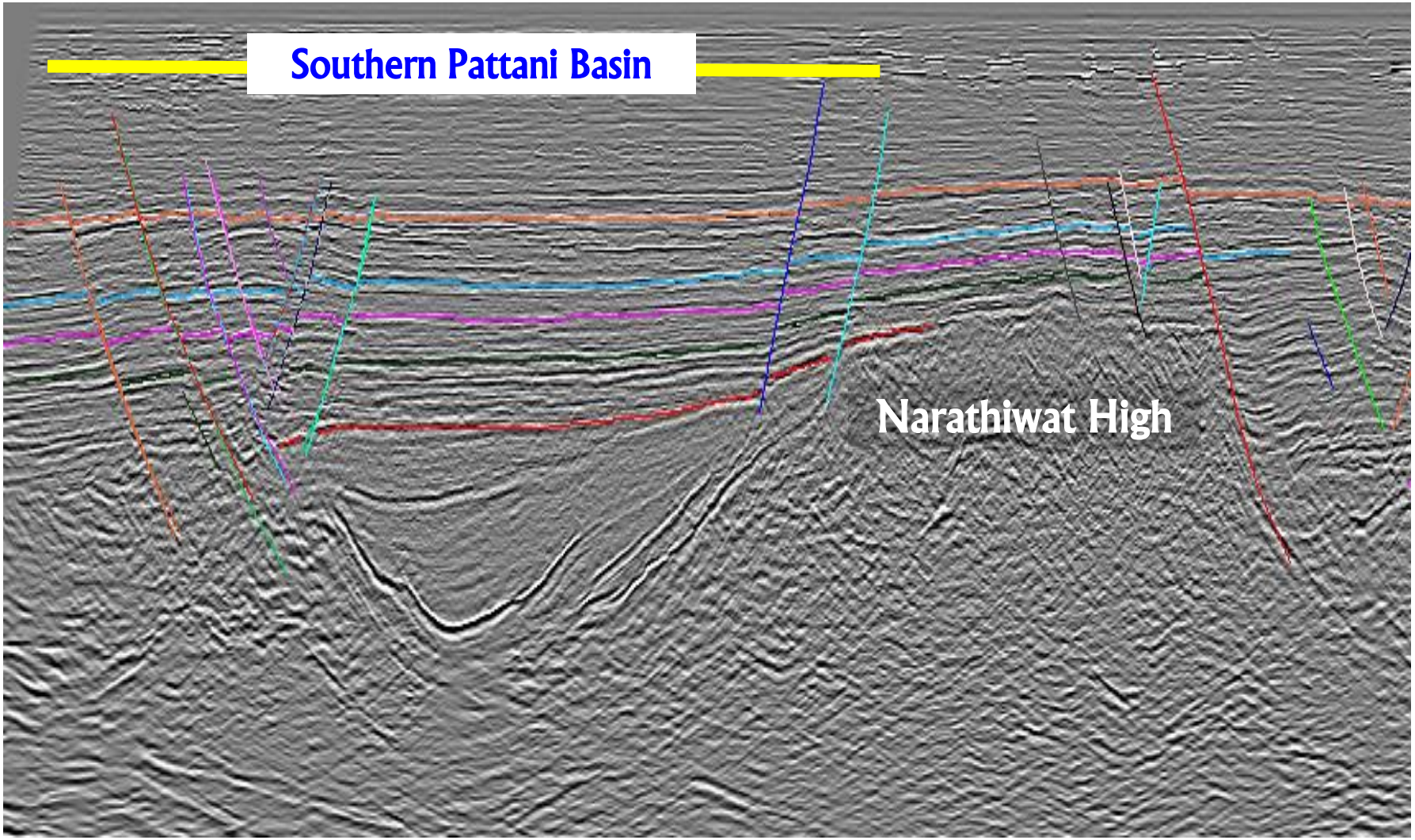
Extension of the oil- prone Lacustrine source rock in basins such as Western Kra, Eastern Kra, and Kra basins, located west of Ko Kra ridge suggested high potential of Hydrocarbon



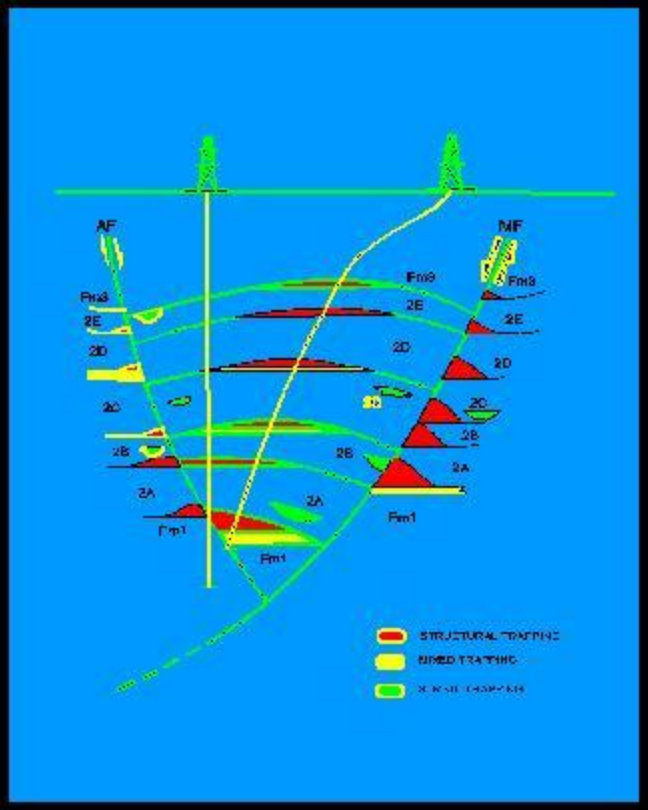


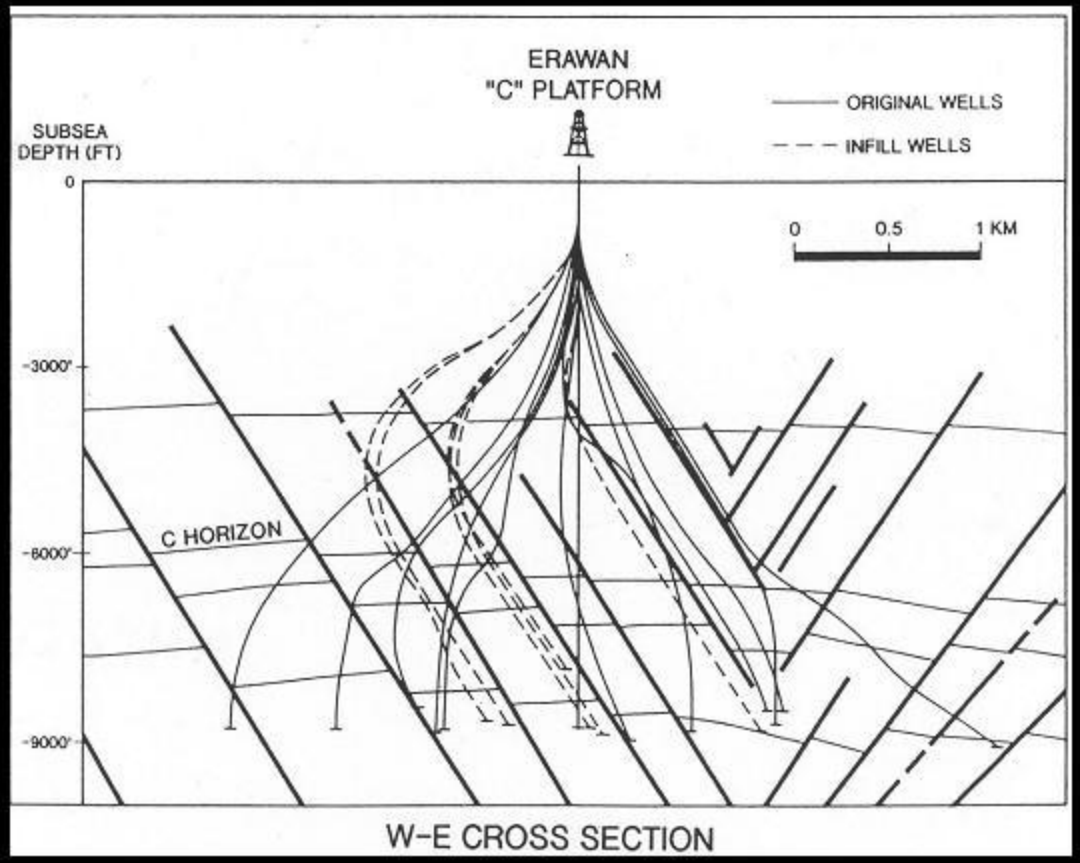
Schematic Diagram of the Northern Gulf of Thailand (Crossing EW)

The Gulf of Thailand: Directional Drilling Technique



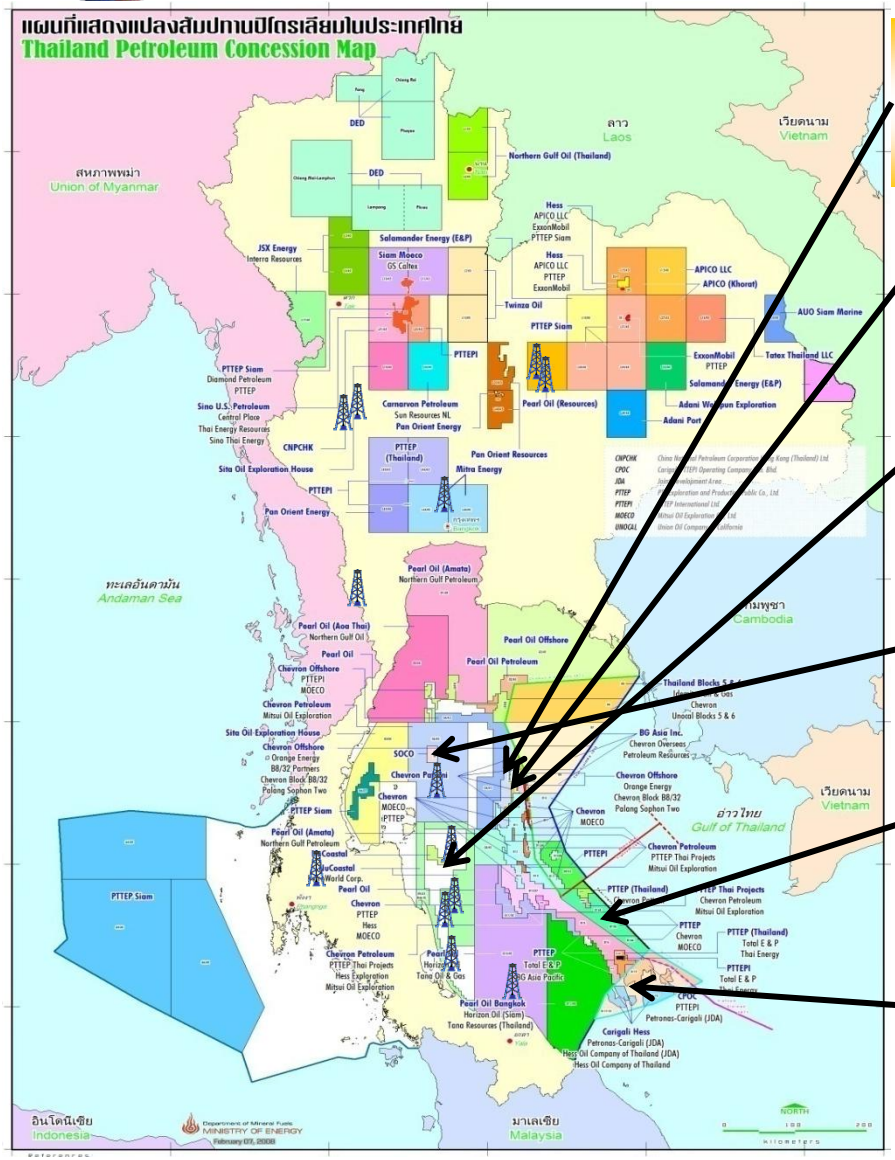
The Gulf of Thailand: Directional Drilling Technique





New Fields
Upcoming Fields

New Fields



Chaba – B8/32

Chevron Offshore (TH)

Producing Rate 5,000 BBLD and 19 MMSCFD

Yungthong – G4/48

Chevron Pattani

Producing Rate 1,200 – 5,000 BBLD and 4 - 40 MMSCFD

Songkla – G5/43

Nucoastal

Producing Rate 7,000 BBLD

Bualuang – B8/38

Salamander

Producing Rate 10,800 BBLD

Arthit- Block 14A 15A 16A

PTTEP

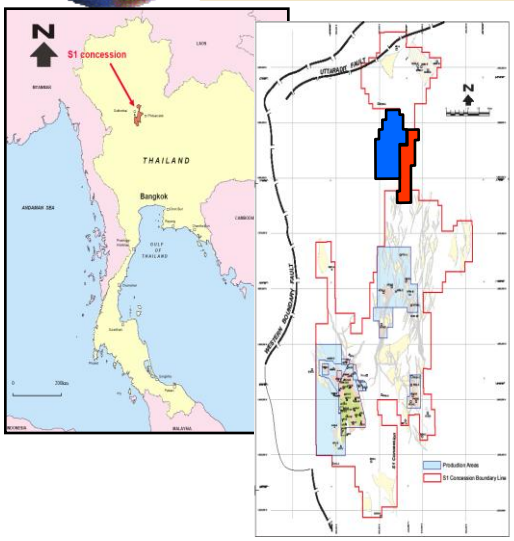
Producing Rate 17,000 BBLD and 450 MMSCFD

MTJDA A-18

CHess

Producing Rate 4,000 BBLD and 400 MMSCFD

Upcoming Fields



Arunothai - L10/43
Siam Moeco Co.Ltd
Maximum production rate 2,000 BBLD

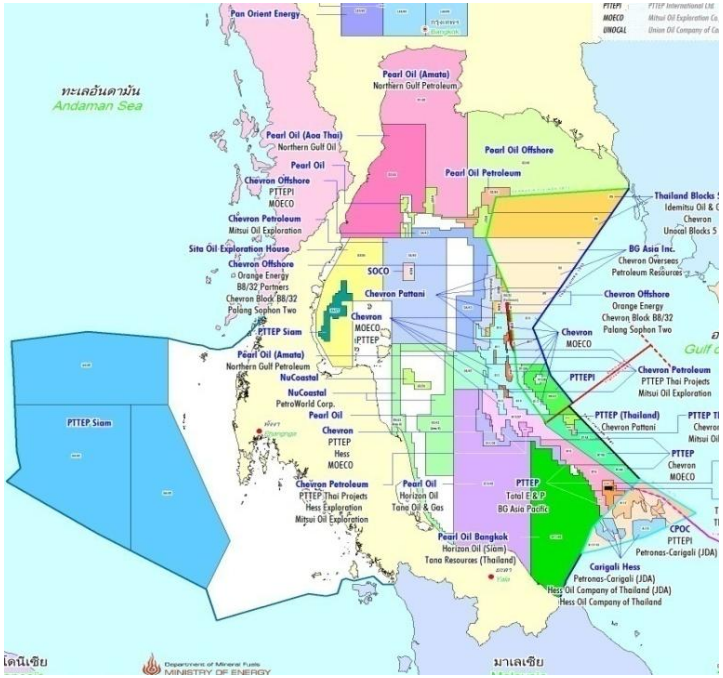
Saothien - S1
PTTEP Siam Co.Ltd
Production rate 300 - 1,300 BBLD

MTJDA B-17
CPOC
Production rate 270 MMSCFD

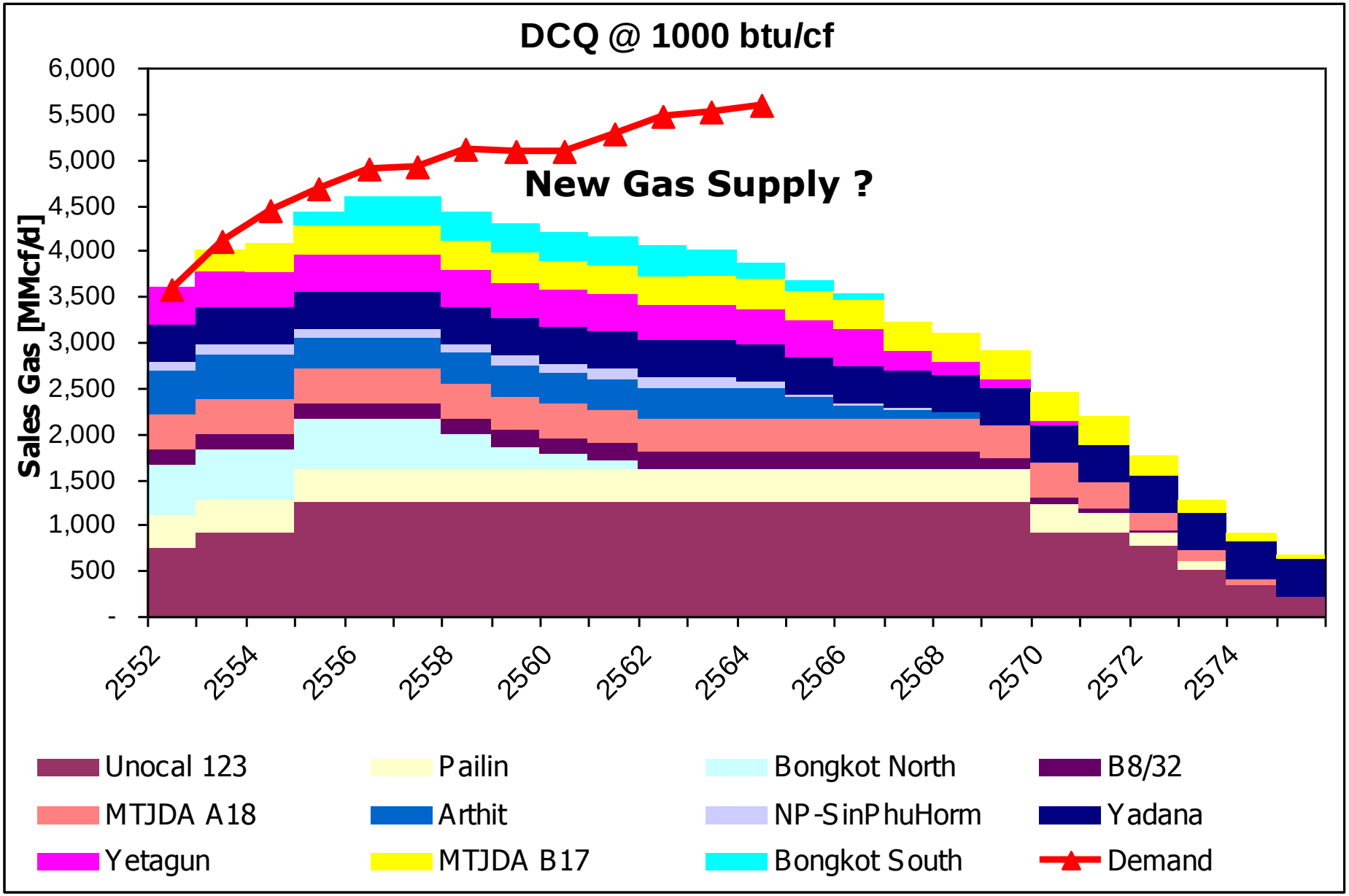
Bua Ban G5/43
Nucoastal
Production rate 6,000 – 14,000 BBLD

Platong Gas II B 10 11 12 13
Chevron TH
Production rate 330 MMSCFD

S. Bongkot B 16 17
PTTEP
Production rate 320 MMSCFD

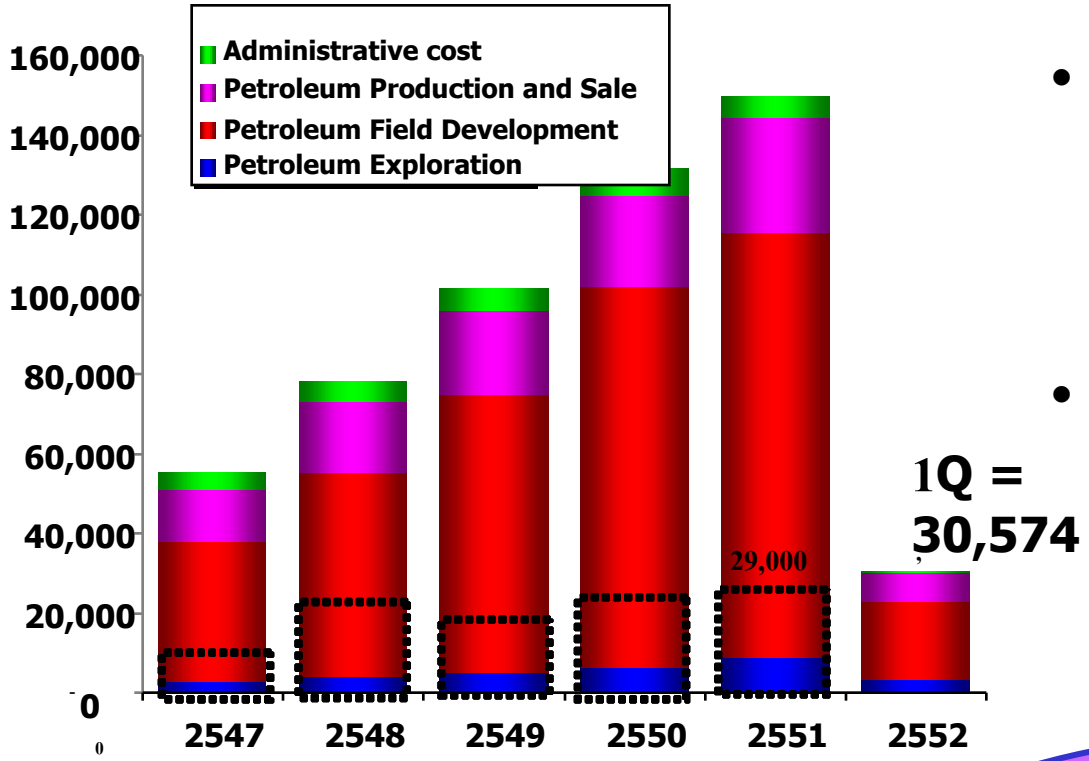


Gas Supply Plan



E&P Investment and Revenue

Investment in E&P in the past 5 Years



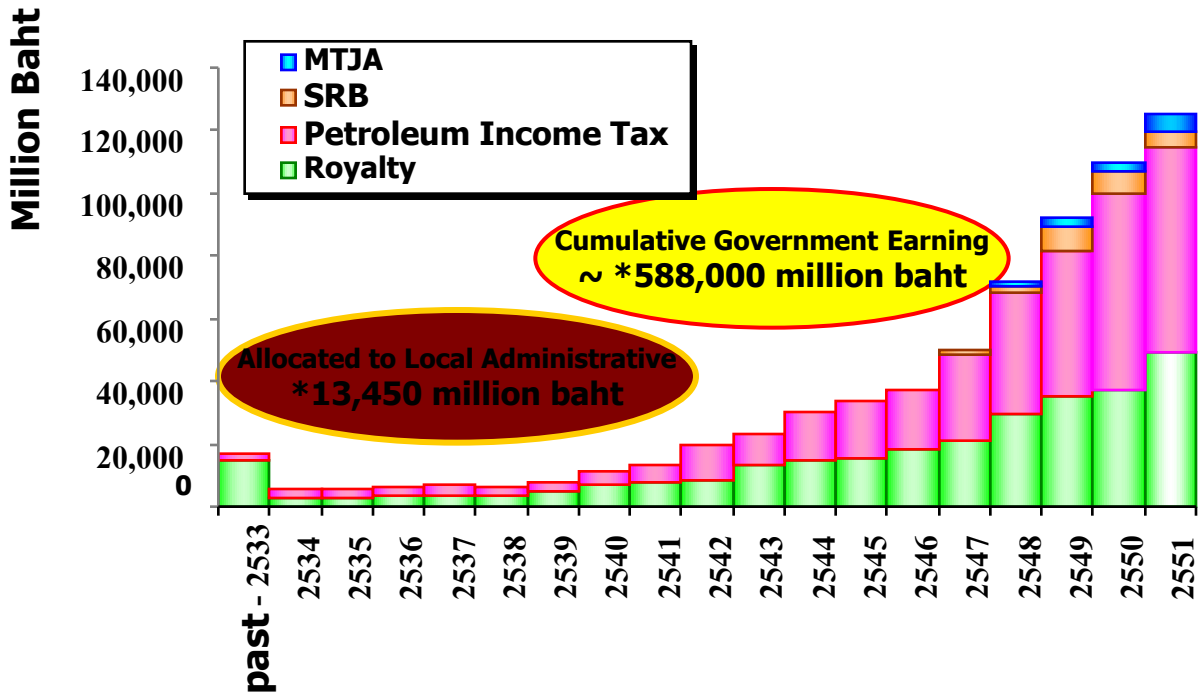
- The portion of investment in the Field Development area increased from the higher cost of petroleum production from the mature fields.
- The government should promote more of exploration activities in the future to continually provide energy security to the country.

From 1980 to the 1st quarter of 2009 The cumulative petroleum sale amount is 1,040 billion baht

From the 2nd Quarter of 1981 to 2009 The cumulative petroleum sale amount is 2,400 billion baht

Government Revenue from E&P

	2003	2004	2005	2006	2007	2008	2009 (Jan-June)
Royalty	18,292	21,306	29,443	35,228	37,354	49,092	19,241
Income from MTJDA	-	-	771	2,742	2,407	5,650	4,317
SRB	-	1,039	2,077	7,810	7,197	4,743	6,862
Petroleum Income Tax	19,183	27,318	38,992	46,104	62,639	65,767	-
Total	37,475	49,663	71,283	91,664	109,597	125,252	30,420



Unit: million baht

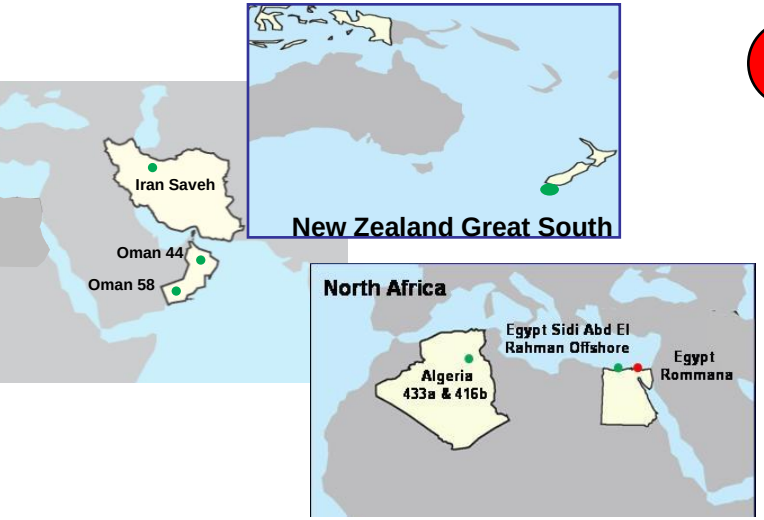
Government Earning during The 1st half of 2009 (Jan-June) 30,420 million baht

Energy Supply Plan: Key Activities

1. **Promote energy resources exploration and development**

2. **Interconnect with neighboring countries**
   - **Gas**
   - **Power**

     Myanmar – 14,000 MW
     Loas – 8,000 MW
     Cambodia – 1,500 MW
     Malaysia – 300 MW
     } **Mostly Hydro**



3. **International Cooperation:**

   Oman – Sham Field Block 44/Block 58

   Iran – Saveh Block

   Algeria – 2 blocks; Block 433a & 416b

   Egypt – 2 blocks

   New Zealand – 6 blocks in Great South Basin

4. **LNG for long term supply**

Department of Mineral Fuels
MINISTRY OF ENERGY

THANK YOU

For Further Information

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