ASPO PRESENTATION

EXPLORATION NEWS

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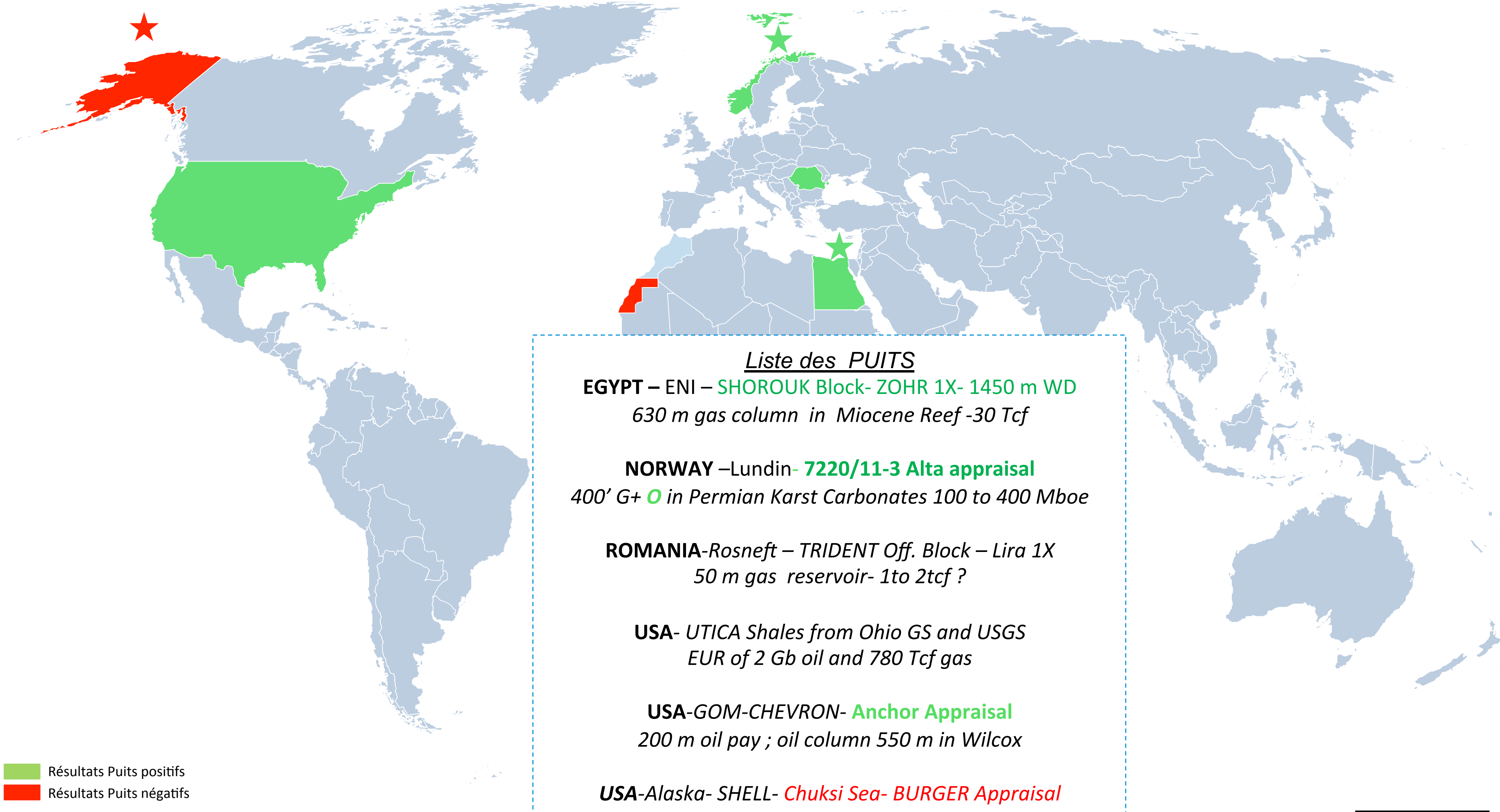
09/11/2015

FAITS MARQUANTS au 01/11/2014
Exploration / Appréciation



Liste des PUITS

EGYPT – ENI – SHOROUK Block- ZOHR 1X- 1450 m WD
630 m gas column in Miocene Reef -30 Tcf

NORWAY –Lundin- **7220/11-3 Alta appraisal**
400' G+ O in Permian Karst Carbonates 100 to 400 Mboe

ROMANIA-*Rosneft – TRIDENT Off. Block – Lira 1X*
50 m gas reservoir- 1to 2tcf ?

USA- *UTICA Shales from Ohio GS and USGS*
EUR of 2 Gb oil and 780 Tcf gas

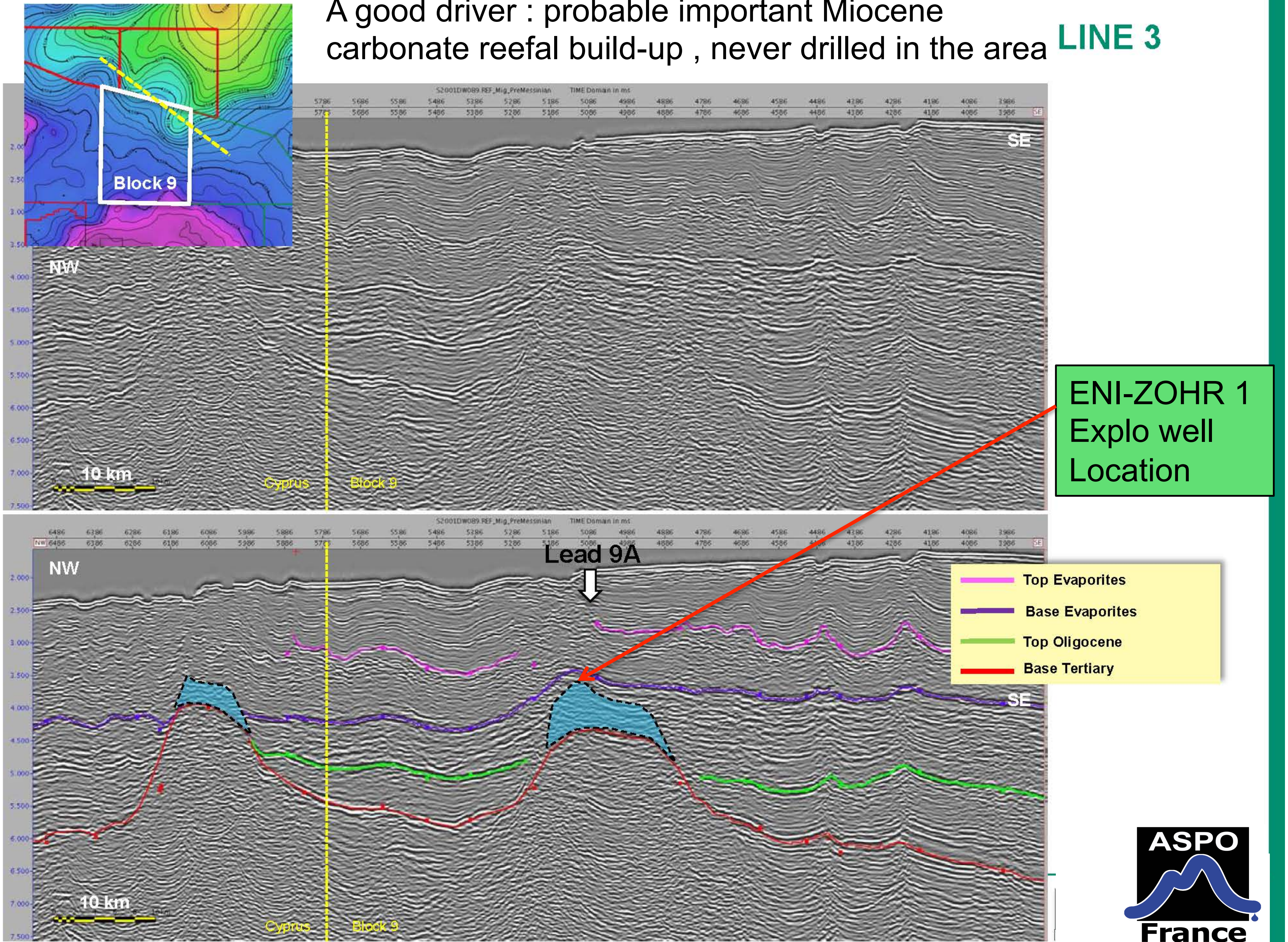
USA-*GOM-CHEVRON*- **Anchor Appraisal**
200 m oil pay ; oil column 550 m in Wilcox

***USA**-Alaska- SHELL- Chuksi Sea- BURGER Appraisal*

MOROCCO - *KOSMOS- Cap Boujdour DO Block*
Tiny shows in Cretaceous

A good driver : probable important Miocene carbonate reefal build-up , never drilled in the area

LINE 3



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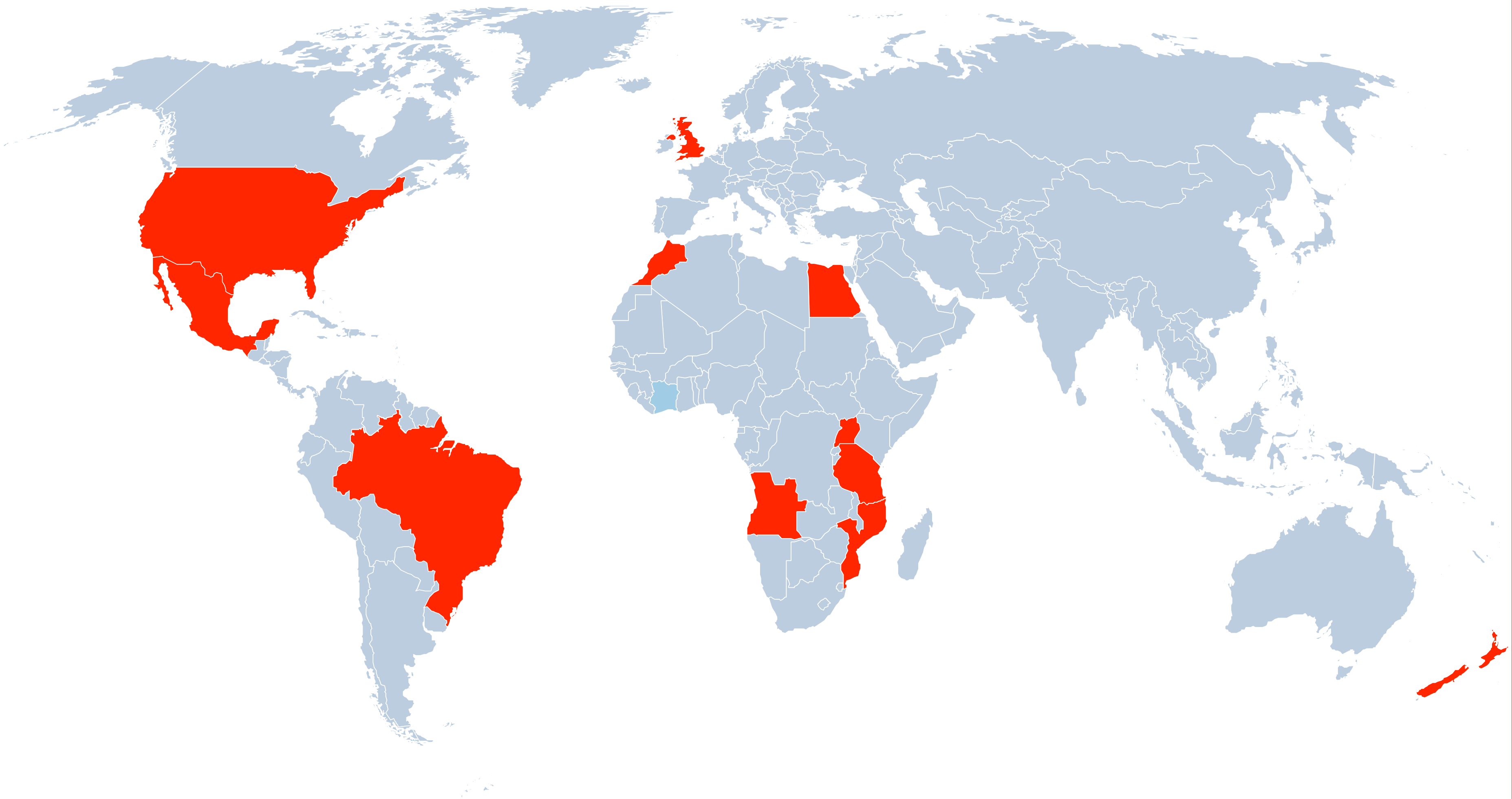
NEW AREAS (rounds) for EXPLORATION in 2015/2016
(Main Opportunities)



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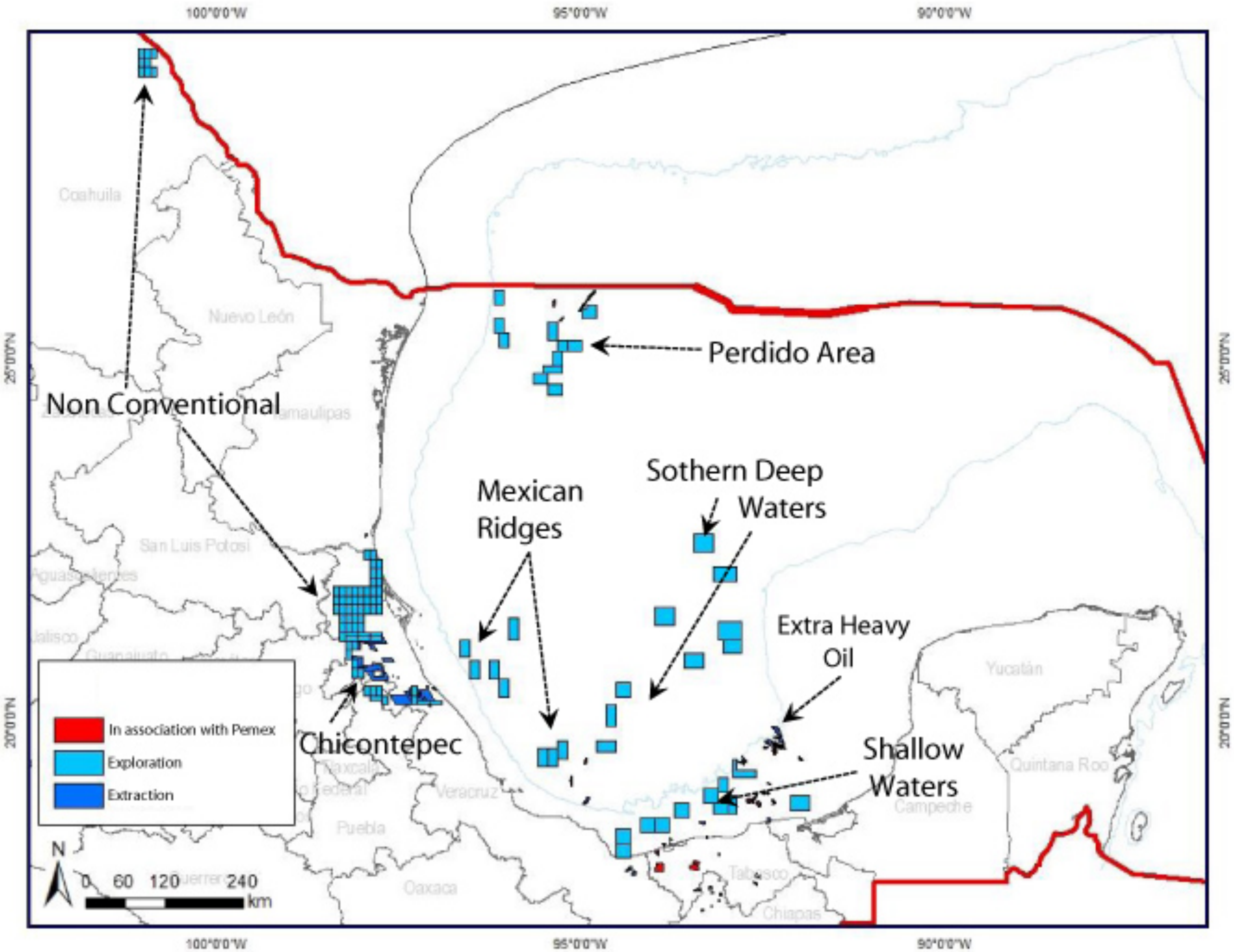
MEXICO Ronda 1



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NEW AREAS IN 2015 : AMERICAS

- MEXICO : 1st Bidding Round (from CNH/SENER website on 10 June 2015) ending a 76 year state monopoly !
  - L01 : Shallow waters 2blocks allocated/14 explo blocks : bad contractual terms
  - L02 : 2/ 5 DRO (+ explo possible around and below) blocks (same area) allocated : one to ENI (100 Mb) and one to PAN American
  - L03 : Onshore fields, explo and **Unconv**. : 54 mexican companies but also TOTAL and Sinopec
  - L04 : Deep offshore : packages released on 23/09/15 ; new Gigante 2D seismic (186 000 km) started by TGS with 5 vessels ; delivery mid 2016

- USA :
  - March 2016 DO GOM Sales : Louisiana, Albama, Mississipi : 7919 (central) and 175 (Eastern) blocks deep waters and seven SW blocks
  - DOI and DOE cancell the two Artic Offshores Rounds scheduled 2016 (Chuksi) and 2017 (Beaufort)

- BRAZIL
  - 13th Ronda results : 37 blocks received bids / 266 ! É Offshore (Sergipe) and rest onshore: The **worst bid** for ANP since beginning ; Engie present
  - 1st 2D seismic shot onshore Parecis frontier Basin : Shale gas ?

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NEW AREAS IN 2015 : AFRICA

- MOZAMBIQUE : 5th Round , July 2015
  - 2 ultra deep waters (Angoche Abrupt margins, Eastern Rovuma close to Comores) , one SW Zambezi Delta, 2 onshore areas : **7 applications received by INP : ENI/Sasol/Statoil , Exxon/Rosneft, TOTAL/SNL**,
  - **Amazing results (see next slide)**
- OUGANDA : 1st round, March 2015
  - 6 blocks (3000 sqkm) onshore and offshore in Edouard (1 bl) and Albertine (4b) Lake Grabens and one block in the North of the country :

  16 applications received by DOP : ONGC, Tullow, Sasol, Oranto,Tatneft
- TANZANIA/ZANZIBAR : July 2015
  - Tanzania Petroleum Act opens **Shell old inked blocks** around Zanzibar : blocks 9-10-11-14
- MOROCCO: September 2015 : 2 large permits allocated for REPSOL in the Boudnib (Bechar) Basin (34000 sqkm) for Silurian SG? and SHELL (87000 sqkm !) in the Missour Basin (between Middle and High Atlas) for Triassic and Carboniferous Plays in inverted Triassic Grabens
- EGYPT : 2015 EGAS Round : 2 blocks allocated in Nile Delta : block 7 to ENI (op 37.5%) /TOTAL/BP and block 4 to BP(op 50%) /ENI

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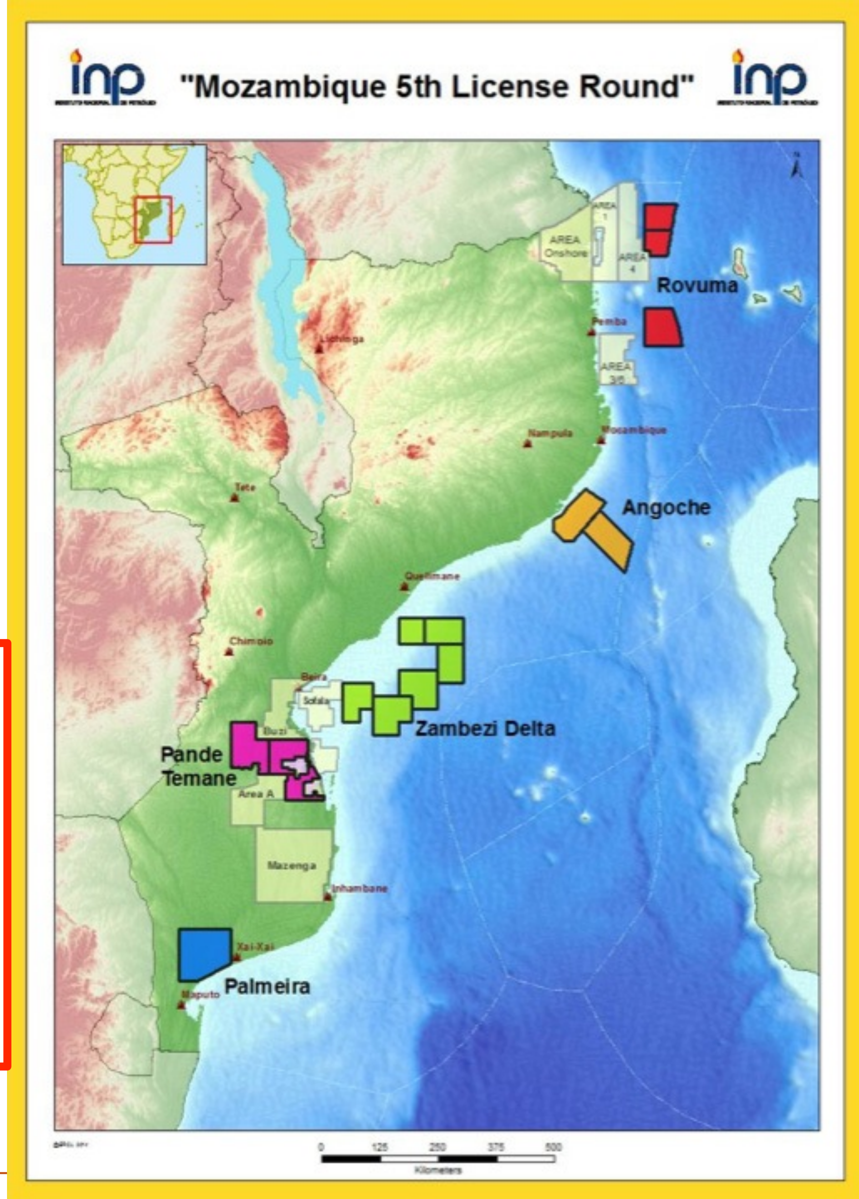
MOZAMBIQUE 5TH ROUND 2015 FIRST AMAZING RESULTS

- East Rovuma Tertiary Clastics
- **Angoche Abrupt margin (NW) and Davies Ridge (SE)**
- Zambezi DO Delta and Beira high
- Pande Tename Onshore
  (around field ? 5tcf RR 2P reserves)
- Palmeira onshore
- TOTAL : 15 blocks for 80 000 sqkm



- **Results** (as per 02/11/2015) :

Two winners :

1) EXXON/Rosneft : 3 blocks : Angoche South with 8000 sqkm 3D and 2 wells !
And two Zambezi blocks

2) ENI/Statoil with Angoche North

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NEW AREAS IN 2015 : EUROPE AND ASIA

- UK 14th onshore Round (October 2014) : 100 application received on 27 blocks awarded in Gainsborough Trough (east Midlands) and South Cleveland Basin for Unconventional shales O&G.

  Igas (35%)/Total (50%)/Egdon(15%) biggest winner (5 blocks) , INEOS (3), Hutton (3) Cuadrilla (2) , GDF (1)

- NORWAY : 23rd Round results in 12/2015: opening of a totally never drilled province1st time since 1994
  - **34 blocks in SE Barents Sea** (Western part of the Fedynski High)
  - 20 blocks in remaining Barents and 3 in Norvegian Seas

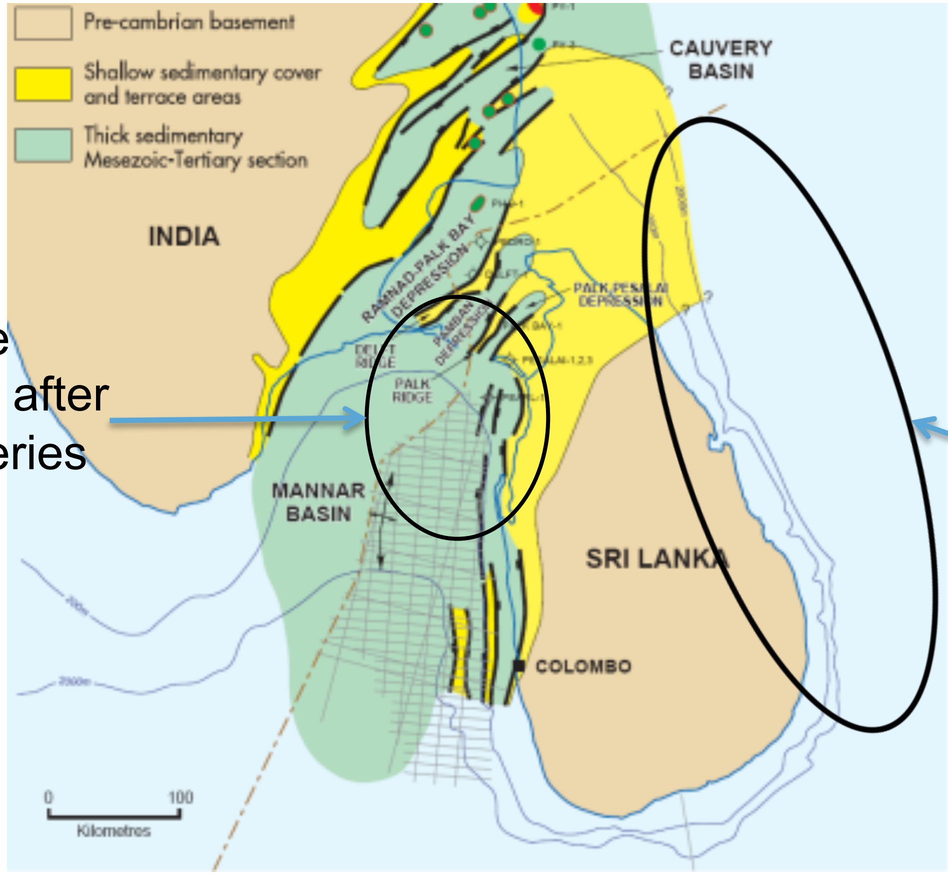
- RUSSIA : Yakutia (Eastern Siberia) 1st opening auction in December

- BANGLADESH : after resolution of maritime dispute with India
  - 5th Offshore round : 10 blocks at India border **(Bengale Basin)**
  -

- SRI LANKA : new round to come in the northern waters ?
  - But Exit of Cairn in Mannar Basin ? After their 2013 Gas discovery ?

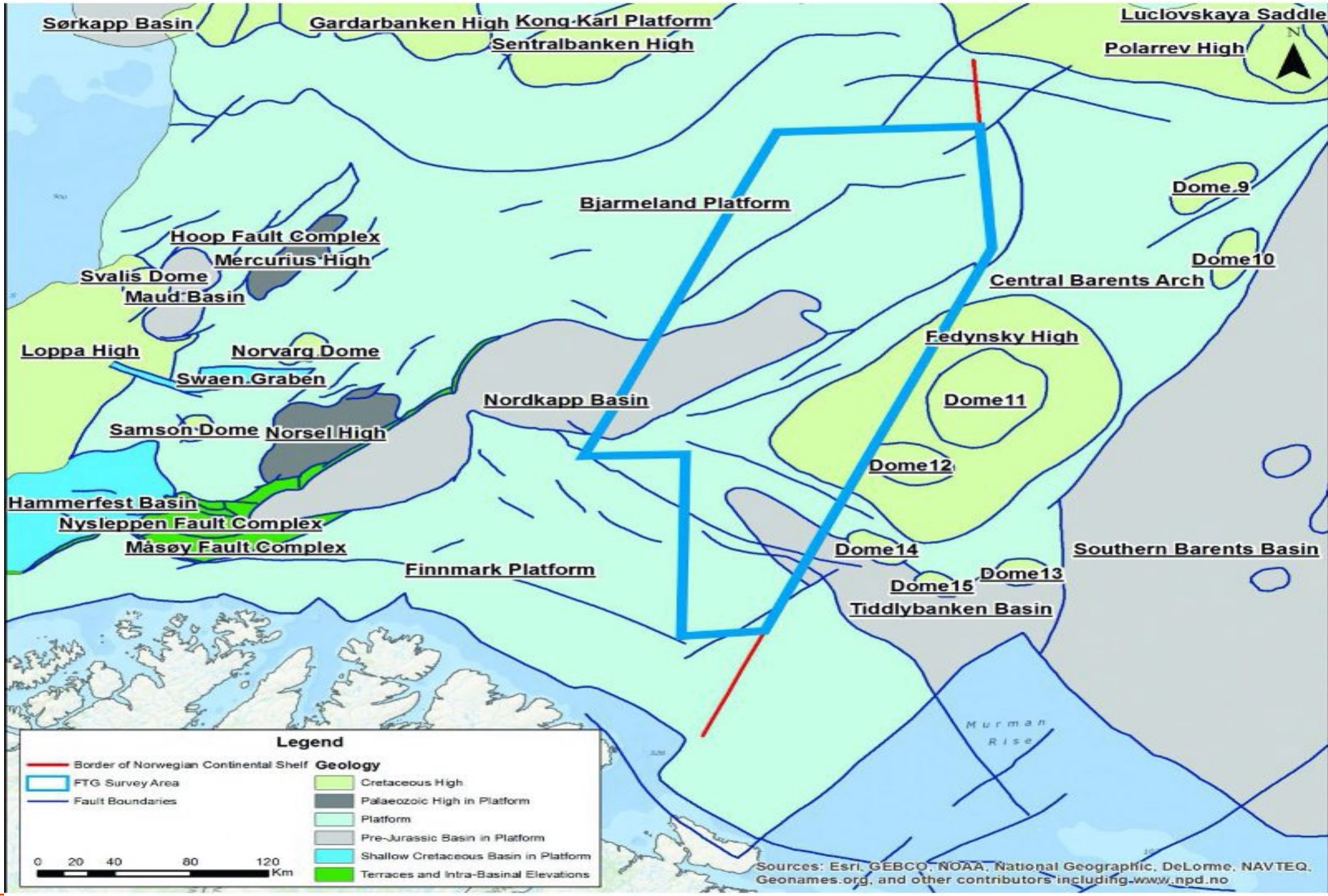
SRI LANKA : A FIRST ROUND IN THE EASTERN WATERS ? TOTAL, SHELL AND EXXON LEADING THIS FRONTIER RACE

Cairn exits the Mannar Basin after 2 gas discoveries



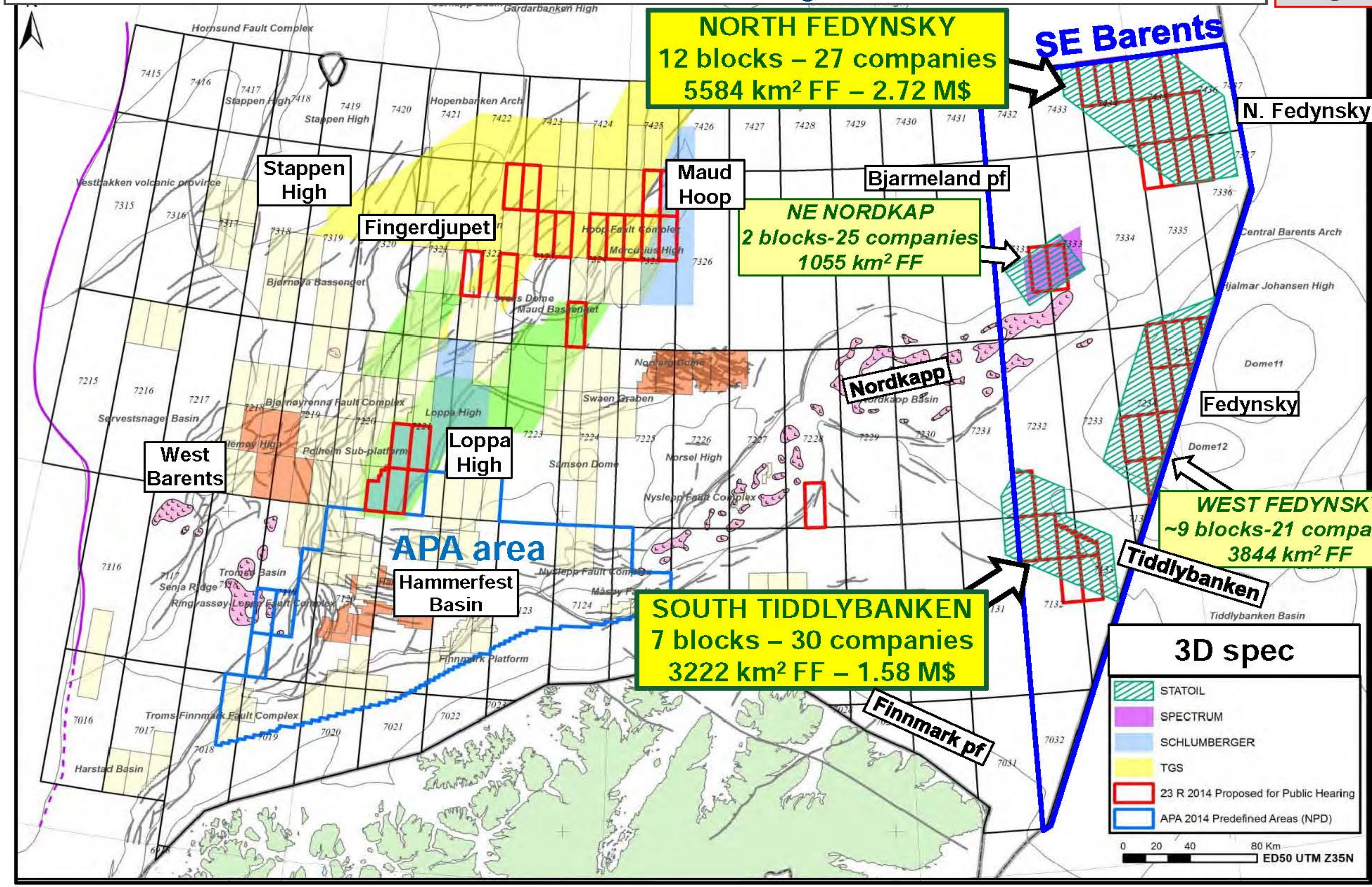
Eastern Abrupt Margin

NORWAY/RUSSIA : FEDYNSKY HIGH : THE LARGEST UNDRILLED STRUCTURE IN EUROPE :15000 KM2 : 4/5 IN RUSSIAN WATERS (ROSNEFT-ENI PERMIT)

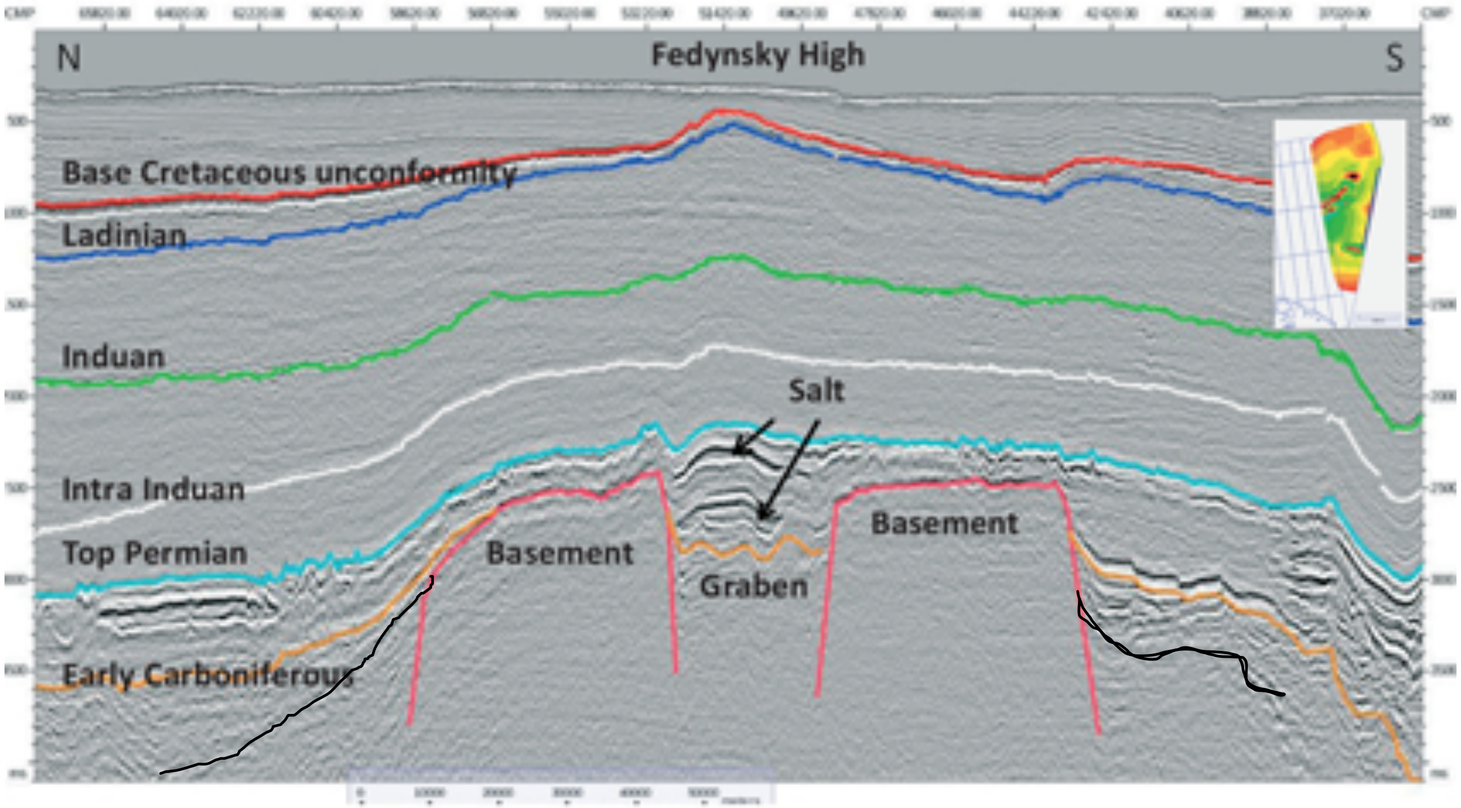


BARENTS SEA 23rd ROUND: 3D MC surveys & nominated blocks

Fig.16

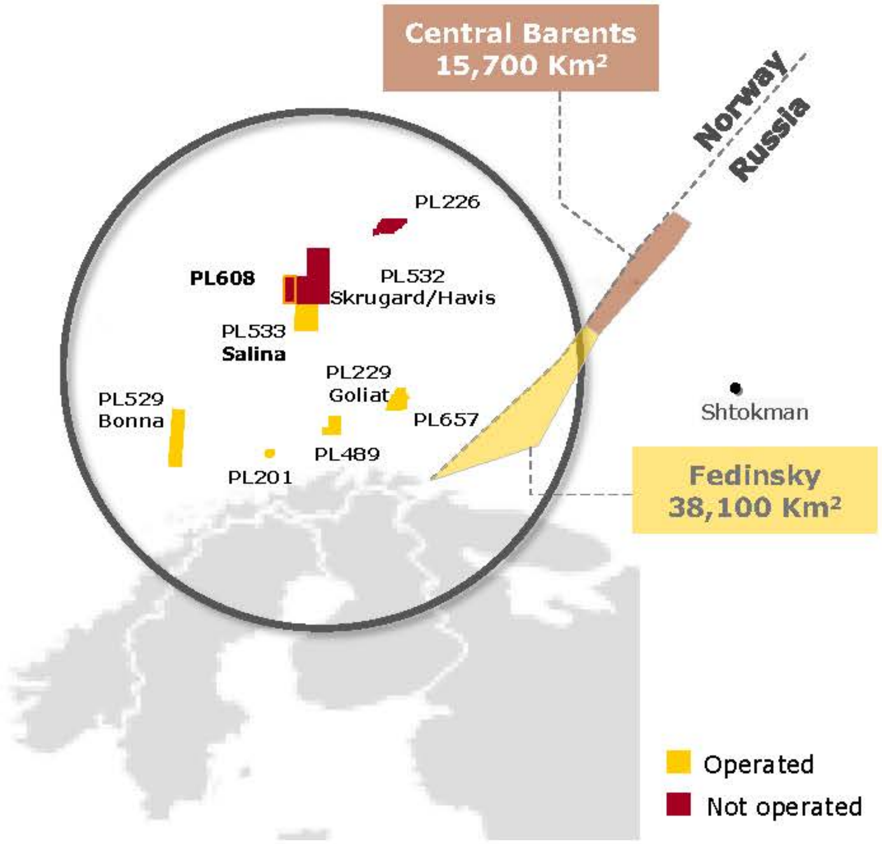


THE FEDINSKY CALEDONIAN ? PALEO HIGH : TRIASSIC SANDSTONES AND/OR PERMO-CARBONIFEROUS CARBONATES



From ENI website on 05/11/15

Barents Sea: emerging high-materiality basin



- Norway: with Statoil, leadership position in the area
  - 500 Mbbl recoverable in Skrugard and Havis, upside of 500 Mboe (100%)
  - 5 wells in 2013
- Russia: implementing strategic agreement with Rosneft
  - Strategic agreement signed in April 2012
  - Implementation agreements well under way
  - 2D-3D seismic acquisition in 2013-2014

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FEDYNSKY HIGH EXPLORTAION STATUS ; RUSSIAN SIDE

- 7 June 2011 Border delimitation agreemeent (Varanger line) between Russia and Norway ratified : 4/5 on the structure in Russia
- Fedynsky 38 000 sqkm and Central Barents Blocks allocated to Rosneft and ENI (2/3;1/3 interest) in April 2012
- Program : 6500 km of 2D and 1000 km2 of 3D before 2017
- Exploration well before 2019
- 2D Seismics acquired by Polarcus in 2014/2015
- ENI and Rosneft targets a 20 Gboe and 7 Gboe in Fedinsky and Central blocks respectively.

O&G DEALS : OIL PRICE FALLING CONSEQUENCES

- Schlumberger buys Cameron for 12.7 Gus$ becoming the world's largest « pore to pipe » integrated oil services company ; agreement of cameron board needed
- SUNCOR proposed 3.3 G$ (+2.3 G$ debt) for Canadian Oil Sands partner with 37 % in Syncrude Oil sands (Alberta) : production 300 Kb/d (mine) and Reserves : **5 Gb of 2P (1.1$/b)** and 12 Gb of 3P
- SUNCOR buys 10% in Fort Hills from TOTAL for 230 M$; new association : Suncor 51%, Total 29%, Tec? 20% ; production : 180 Kbopd after start-up in 2017. Reserves : ???
- Encana sells its Colorado Assets to Canadian Pension Plan Investment for 900 M$ (present prod : 15 Kbopd and 52 Mscft/d) for **100 Mboe (40% gas) 2P reserves (= 9 $/boe)**

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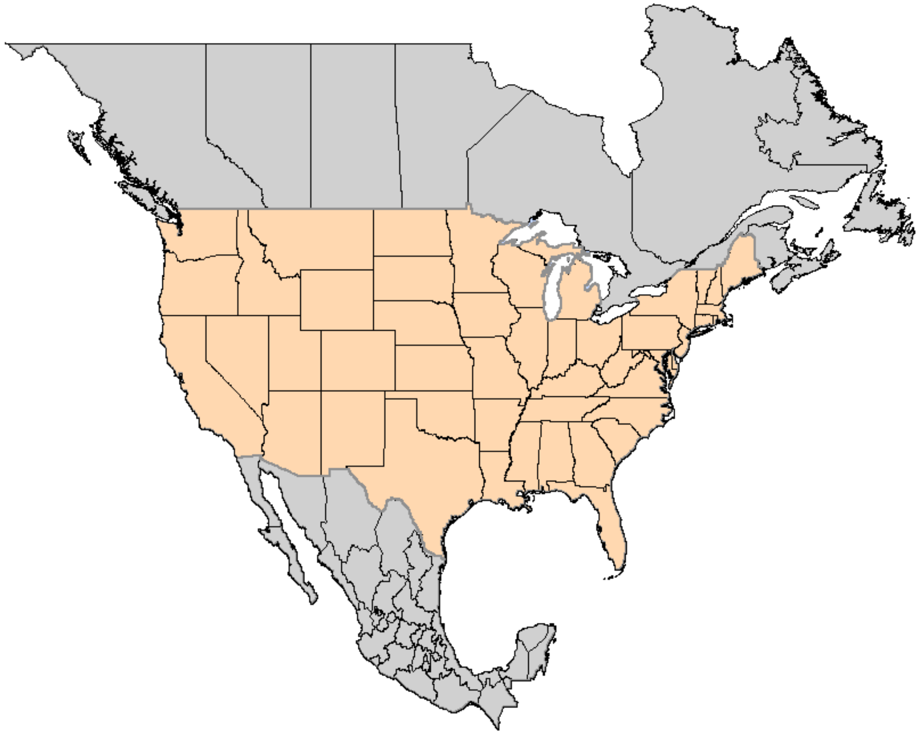
THE APPROVED USA AND CANADA LNG EXPORT PROJECTS
(20/10/2015)

Name	Owner	Capacity	Status	1st Cargo
Sabine Pass, Louisiana	Cheniere	2.8 bcf/d	Under Constr	End 2015
Corpus Christi, Texas	Cheniere	2.2 bcf/d	Under Constr	Early 2017
Freeport, Texas	Freeport LNG Conoco	1.8 bcf/d	Under Constr	2019
Hackberry, Louisiana	Sempra Cameron	1.7 bcf/d	UnderConstr	2019
Cove Point, Maryland	Dominion	1.8 bcf/d	Under Constr	June 2017
Kitimat , British Col.	LNG Canada	3.2 bcf/d	NUC	
Port Hausker, New Scotl;	Bear Head LNG	0.5 bcf/d	NUC	

ONGOING PROPOSED PROJECTS TO FERC AGENCY
(20/10/2015)



PROPOSED TO FERC
Pending Applications:
1. Coos Bay, OR: 0.9 Bcfd (Jordan Cove Energy Project) (CP13-483)
2. Lake Charles, LA: 2.2 Bcfd (Southern Union – Lake Charles LNG) (CP14-120)
3. Astoria, OR: 1.25 Bcfd (Oregon LNG) (CP09-6)
4. Elba Island, GA: 0.35 Bcfd (Southern LNG Company) (CP14-103)
5. Lake Charles, LA: 1.07 Bcfd (Magnolia LNG) (CP14-347)
6. Sabine Pass, TX: 2.1 Bcfd (ExxonMobil – Golden Pass) (CP14-517)
7. Pascagoula, MS: 1.5 Bcfd (Gulf LNG Liquefaction) (CP15-521)
8. Freeport, TX: 0.34 Bcfd (Freeport LNG Dev) (CP15-518)
9. Cameron Parish, LA: 1.41 Bcfd (Venture Global Calcasieu Pass) (CP15-550)
10. Hackberry, LA: 1.41 Bcfd (Sempra - Cameron LNG) (CP15-560)

Projects in Pre-filing:
11. Plaquemines Parish, LA: 1.07 Bcfd (CE FLNG) (PF13-11)
12. Plaquemines Parish, LA: 0.30 Bcfd (Louisiana LNG) (PF14-17)
13. Robbinston, ME: 0.45 Bcfd (Kestrel Energy – Downeast LNG) (PF14-19)
14. Jacksonville, FL: 0.075 Bcf/d (Eagle LNG Partners) (PF15-7)
15. Brownsville, TX: 0.54 Bcfd (Texas LNG Brownsville) (PF15-14)
16. Brownsville, TX: 0.94 Bcfd (Annova LNG Brownsville) (PF15-15)
17. Port Arthur, TX: 1.4 Bcfd (Port Arthur LNG) (PF15-18)
18. Brownsville, TX: 3.6 Bcfd (Rio Grande LNG – NextDecade) (PF15-20)
19. Freeport, TX: 0.72 Bcfd (Freeport LNG Dev) (PF15-25)
20. Corpus Christi, TX: 1.4 Bcfd (Cheniere – Corpus Christi LNG) (PF15-26)
21. Plaquemines Parish, LA: 2.80 Bcfd (Venture Global LNG) (PF15-27)
22. Nikiski, AK: 2.55 Bcfd (ExxonMobil, ConocoPhillips, BP, TransCanada and Alaska Gasline) (PF14-21)

PROPOSED TO U.S.-MARAD/COAST GUARD
23. Gulf of Mexico: 1.8 Bcfd (Delfin LNG)

PROPOSED CANADIAN SITES
24. Kitimat, BC: 1.28 Bcfd (Apache Canada Ltd.)
25. Douglas Island, BC: 0.23 Bcfd (BC LNG Export Cooperative)
26. Prince Rupert Island, BC: 2.74 Bcfd (Pacific Northwest LNG)
27. Squamish, BC: 0.29 Bcfd (Woodfibre LNG Ltd)

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THE ON-GOING USA AND CANADA LNG EXPORT PROJECTS

- Approved and UC projets account for 10.3 bcf/d around 25 % of the shale gas production (40 Bcf/d in 2014)

- More over 30 + new projects have been proposed for DOE and FERC authorizations for around 60 % ! of the present marketed production (73 bcf/d in 2014) , more than the total SG production !
- Not at all sustainable ! First arrived first served !

- Irony ? The main buyers of Cheniere projects (SP and CC) LNG gas are …EDF (50 cargoes/y = 200 MMbtu/y) from 2017 in Dunkirk and…ENGIE (12 cargoes/y) from 2018 in Montoir as well as … TOTAL (2 Mtpa = 100 Mmbtu/y)

- HH Price evolution ?

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