

# Atlantic Margin Emerging Plays David Sturt – SVP Technical

# Legal disclaimer



The information contained in this presentation (hereinafter, this "Presentation") has been prepared by Azimuth Limited and its affiliated group companies (hereinafter, together, the "Company"). This Presentation does not constitute or form part of, and should not be construed as, an offer or invitation to sell or issue or any solicitation of an offer to purchase or subscribe for any securities in the Company in any jurisdiction. The Presentation, its contents, references and its distribution, should in no way form the basis of, or be relied upon in any connection with, or act as an inducement in relation to, a decision to purchase, subscribe for or enter into any contract or make any other commitment whatsoever in relation to any such securities. In particular, details included in this Presentation are subject to updating, revision, further verification and amendment and refer to events as having occurred which may not have occurred at the date of this Presentation, but which are expected to happen in the future.

Reliance on this Presentation for the purposes of engaging in any investment activity may expose an individual to a significant risk of losing all the property or assets invested. The contents of this Presentation are confidential and may not be copied, published or reproduced in whole or in part, or disclosed or distributed by recipients to any other person. No reliance may be placed for any purpose whatsoever on the information or opinions contained in the Presentation or on its completeness, accuracy or fairness. No representation or warranty, express or implied, is made or given by or on behalf of the Company or any of its directors, officers, employees, agents or advisers as to the accuracy, completeness or fairness of the information or opinions contained in the Presentation and no responsibility or liability is accepted by any of them for any such information or opinions. In particular, no representation or warranty is given as to the achievement or reasonableness of, and no reliance should be placed on, any projections, targets, estimates or forecasts and nothing in this Presentation is or should be relied upon as a promise or representation as to the future. The information contained in this Presentation is not for publication, distribution or redistribution.

This Presentation includes forward-looking statements. The words "believe", "anticipate", "expect", "intend", "aim", "plan", "predict", "continue", "assume", "positioned", "may", "will", "should", "should", "risk" and any other similar expressions that are predictions of, or indicate, future events and future trends identify forward-looking statements. These forward-looking statements include all matters that are not historical facts. Attendees of this Presentation should not place undue reliance on forward-looking statements because they involve known and unknown risks, uncertainties and other factors that are in many cases beyond the Company's control. By their nature, forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future. Forward-looking statements are not guarantees of future performance and the Company's actual results of operations, financial condition and liquidity, and the development of the industry in which it operates may differ materially from that made in or suggested by the forward-looking statements contained in this Presentation. The cautionary statements set forth in this disclaimer should be considered in connection with any subsequent written or oral forward-looking statements that the Company, or persons acting on its behalf, may issue. These forward-looking statements are made as of the date of this Presentation and are not intended to give any assurances as to future results. The Company undertakes no obligation to update the forward-looking statements contained in this Presentation.



- The Atlantic Margin continues to dominate the exploration scene, particularly after recent discoveries such as Lisa, SNE and Tortue.
- Simple reason In the success case affords fantastic value creation.
- Throughout the downturn there has been a group of companies that continued to believe in the deep water Atlantic Margin plays
- These are now seeing considerable renewed interest.

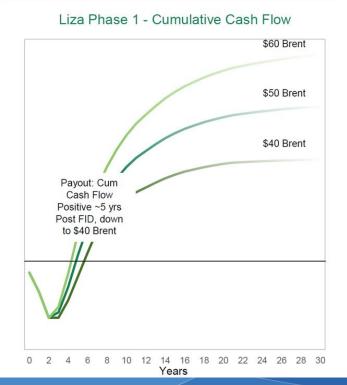


# **Offshore Guyana:**

## **Low Development Costs and Outstanding Financial Returns**



	<b>Guyana</b> Liza Phase 1 Development <sup>1</sup>	Delaware Basin Illustrative 50,000 Net Acre Development <sup>2</sup>
Peak Production	120,000 BOED	120,000 BOED
Peak Production Oil	120,000 BOD	86,000 BOD
Initial Investment to Peak Production	3 years	10+ years
Reservoir Quality	Multi Darcy	Micro Darcy
Total Production Wells	8	1,400
Avg. EUR / Production Well	56 MMBO	0.9 MMBOE 0.6 MMBO
Development Capex	\$3.2 Billion	\$10.5 Billion
Unit Development Costs	~\$7/BO	~\$9/BOE ~\$12.5/BOE
Cost Environment	Deflating	Inflating
Required WTI price for 10% Cost of Supply	~\$35/bbl	~\$45/bbl



# Why take an Atlantic Margin position?



### **Successes**

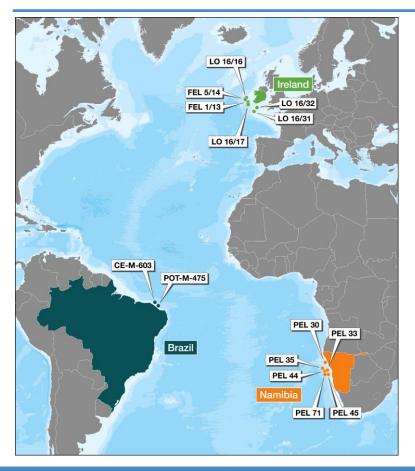


### More to come?



# Atlantic Margin Emerging Plays (Azimuth Group)





- 14 Licences covering 72,396km² Offshore Ireland, Namibia and Brazil equatorial margin
- Significant 3D seismic data base ~ 33,990km²
- Operators in Namibia and Ireland
- Partners include; Tullow, ExxonMobil, Woodside, ONGC, Maurel et Prom, Chariot Oil & Gas, Eco Atlantic Oil & Gas and Namcor.

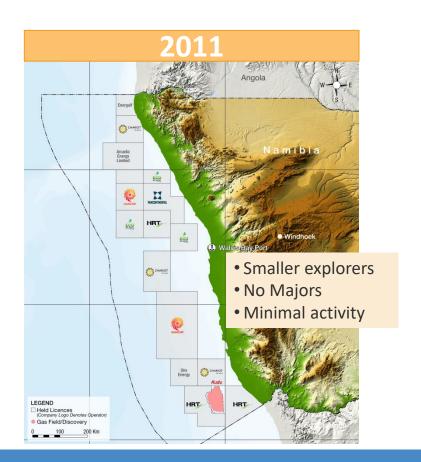
# Why take an Atlantic Margin position?



- Namibia Walvis Basin
- Ireland Porcupine Basin
- Brazil Equatorial Margin

# Why take an Atlantic Margin position? (Namibia is now an 'emerging play')

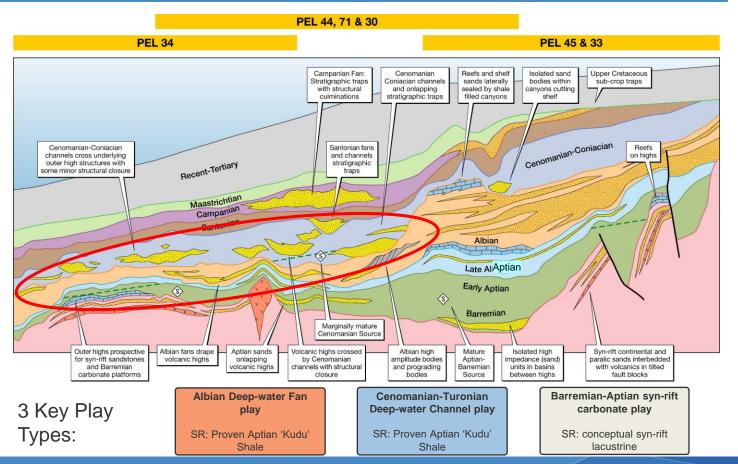






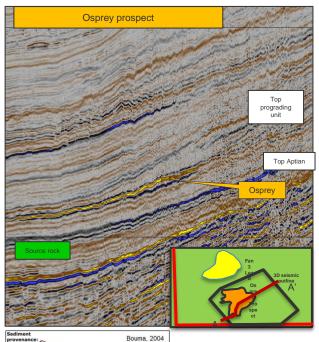
# Why take an Atlantic Margin position? (Emerging Play Diagram)

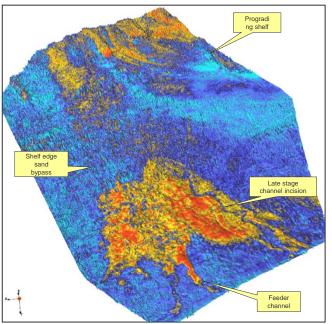


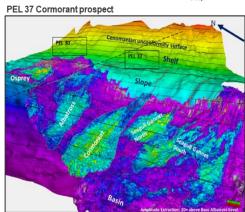


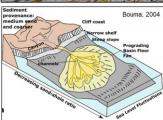
# Walvis Basin: Osprey Prospect



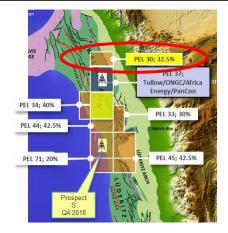






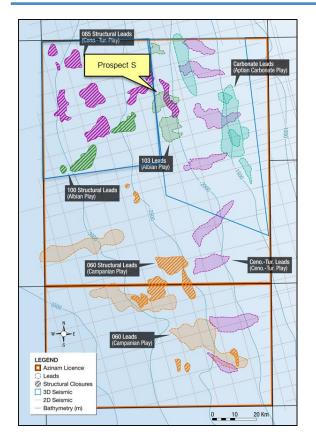


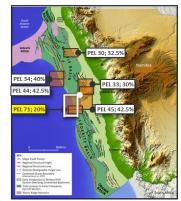
- Albian turbidite system characterized by canyon fed fan at the base of the slope, depositional architecture a result of narrower shelves and steeper slopes
- Typically coarser grained proximal to sand provenance, these systems often have a larger areal extent with high net:gross that declines basinward



# Walvis Basin: Prospect S – Dual Target (Albian & Cenomanian)

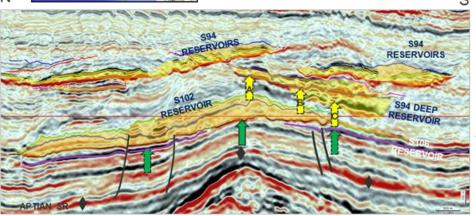






### **Summary PEL71**

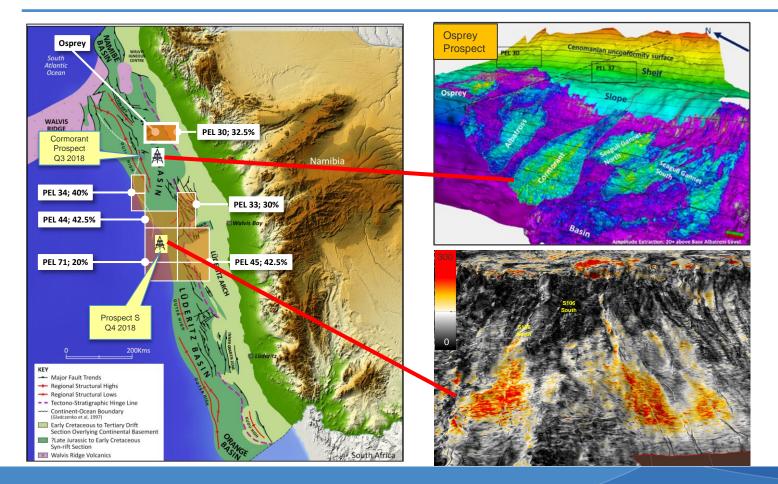
Working Interest
 AziNam 20%
 Chariot Oil & Gas 65% (Op)
 Namcor 10%
 Ignitus 5%



115 Amplitude (-)

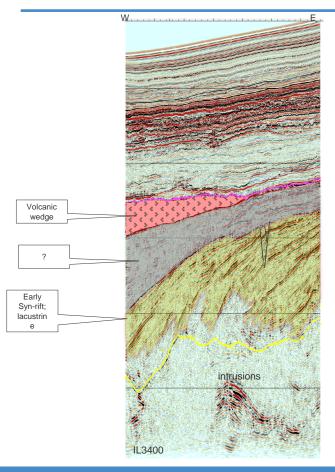
# Walvis Basin, Aptian/Albian Fan Play – pervasive through the Basin



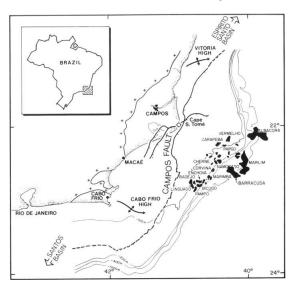


# Namibia: Walvis Basin – Evolution of Source Rock Understanding





- The synrift source potential has historically mainly been overlooked in the Walvis Basin
- Potential small analogue Basin in South Africa Aja-1
- Perhaps more importantly is the analogue to the Lagoa
   Feia formation in the Campos Basin



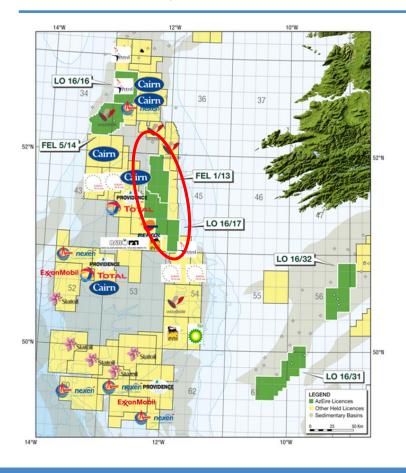
# Why take an Atlantic Margin position?



- Namibia Walvis Basin
- Ireland Porcupine Basin
- Brazil Equatorial Margin

# Ireland, Porcupine Basin (Azeire)





### 2012

Acquired Strike Oil Ltd. who held a 40% interest in LO 11/10 which was operated by 2C's – now FEL 5/14 operated by Woodside

### 2013



Acquired Charge Oil who held 100% interests in LO 13/1 and 13/2 in the Fastnet and North Celtic Sea Basins.

### 2016



Partnership 1,400km<sup>2</sup> 3D seismic FEL 5/14

Awarded LO 16/16 & 16/17 in the Porcupine Basin and LO 16/31 & 16/32 in the Fastnet and North Celtic Sea Basins

Acquired Antrim Energy (Ireland Ltd) who operate FEL 1/13

### 2017

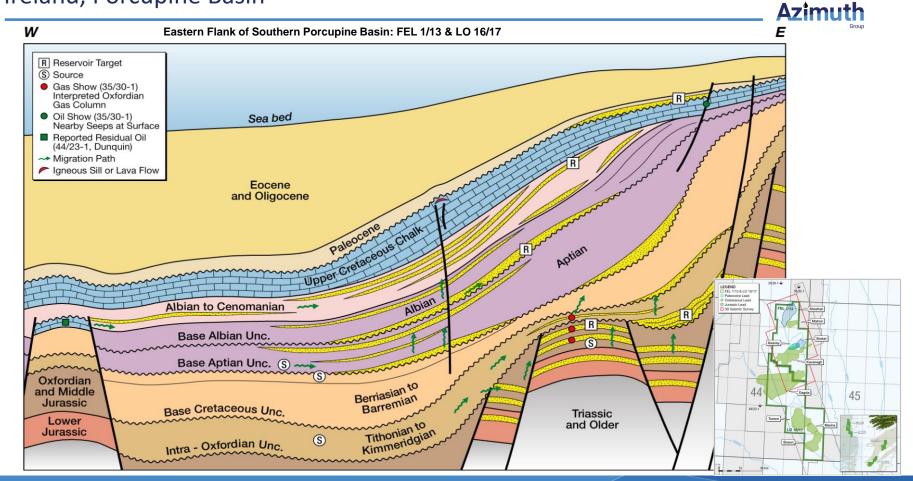


Delivery of Breanann 3D over FEL 5/14

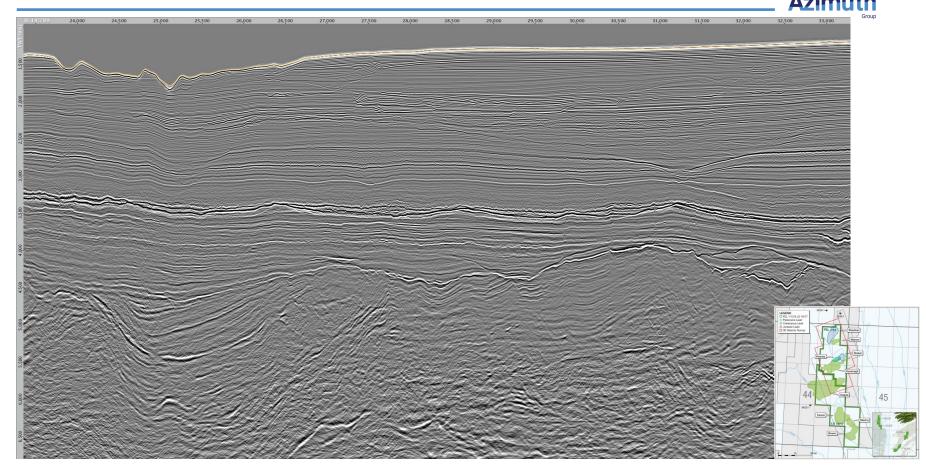
Delivery of PSDM reprocessing over FEL 1/13

Licence	Working Interest
LO 16/16	100%
FEL 5/14	40% Woodside Operator
FEL 1/13	100%
LO 16/17	100%
LO 16/32	100%
LO 16/31	100%

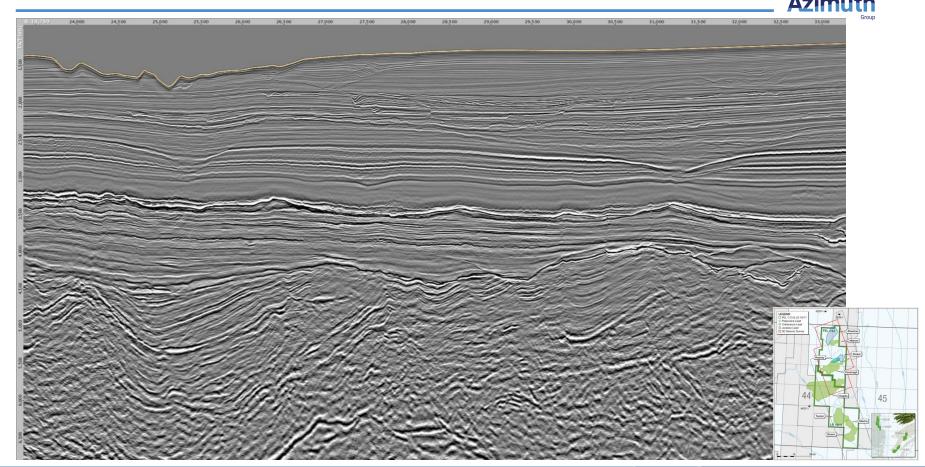
# Ireland, Porcupine Basin



# FEL 1/13 Legacy 2014 3D seismic data

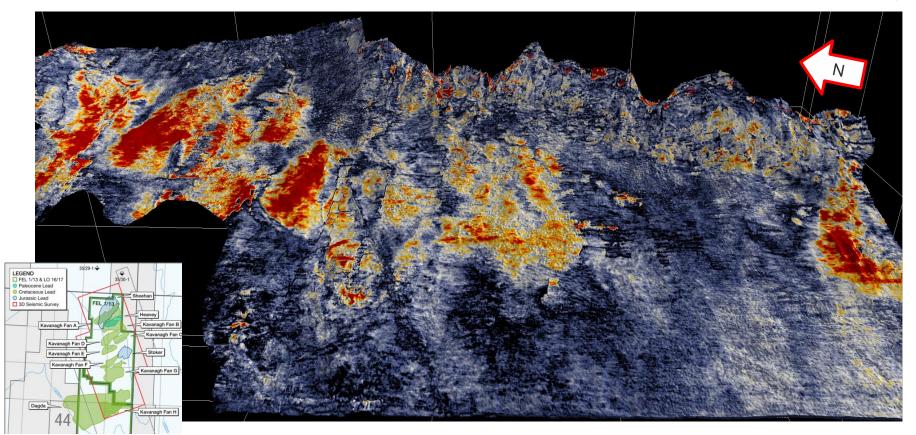


# FEL 1/13 Legacy 2014 3D seismic data (Reprocessed)



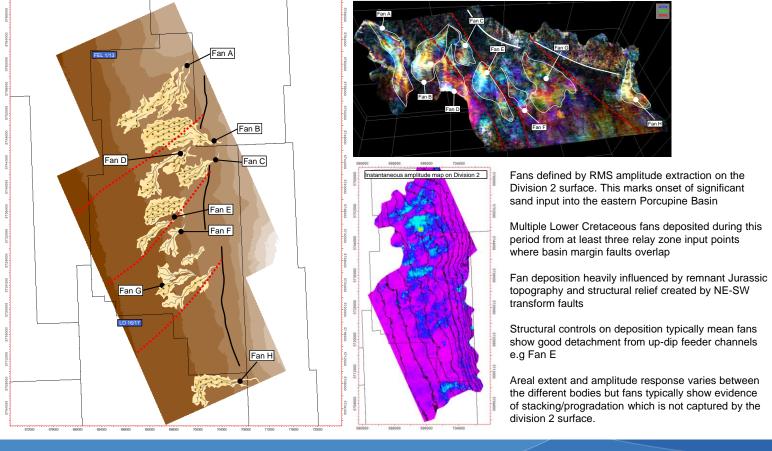
# FEL 1/13: Lower Cretaceous Inst. Amp. Extraction – Kavanagh Div 2





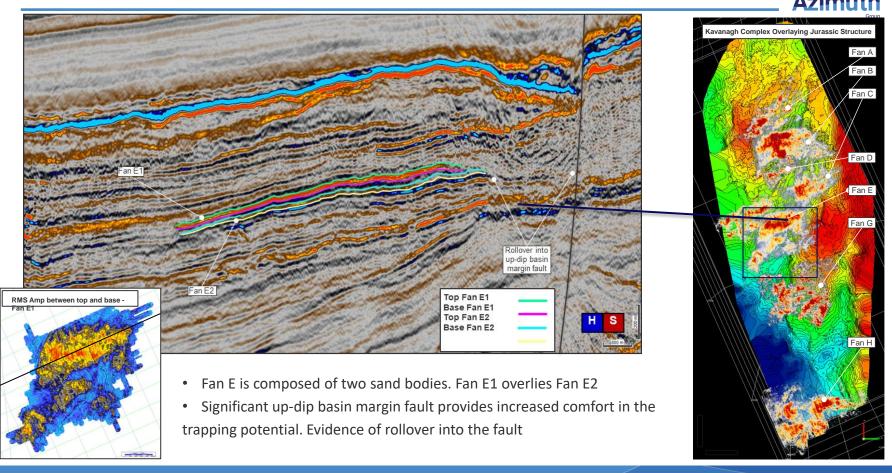
# FEL 1/13: Lower Cretaceous Fan Control





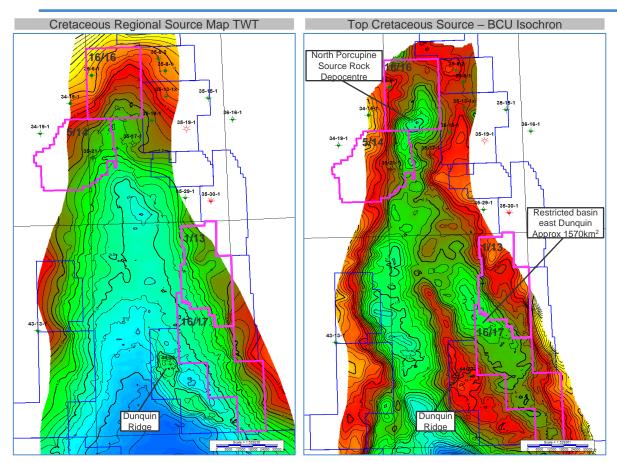
Spectral decomposition - Division 2, -28 to +28

# FEL 1/13: Kavanagh Fan 1 & 2



# Ireland Porcupine Basin Aptian Source Potential





### 1. 35/2-1 Hot Shale

Dating Barremian - Lower Aptian

# 2. 35/6-1 Callovian-Oxfordian Oil Shows typing

Oil shows in Callovian-Oxfordian sands not typed to Jurassic, points to Aptian?

### 3. Revised dating 35/8-1 test sand

Aptian-Barremian from Barremian (Chemostrat/Petrostrat (2015))

# 4. Regional low frequency seismic package above Base Aptian unconformity

Age equivalent to 35/2-1 hot shale and global anoxic event.

### 5. Lower Cretaceous restricted basins

Based on Lower Barremian to BCU isochron, and Base Aptian – Base Albian

# 6. Galicia Margin laminated black claystones

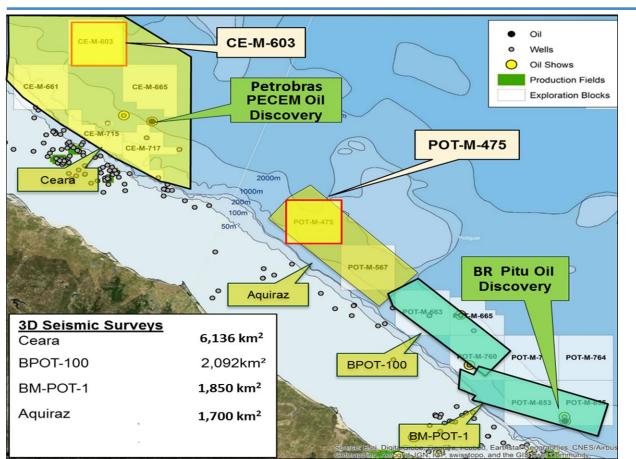
HI 290 (DSPD 641)

# Why take an Atlantic Margin position?



- Namibia Walvis Basin
- Ireland Porcupine Basin
- Brazil Equatorial Margin

# Brazil: Equatorial Margin





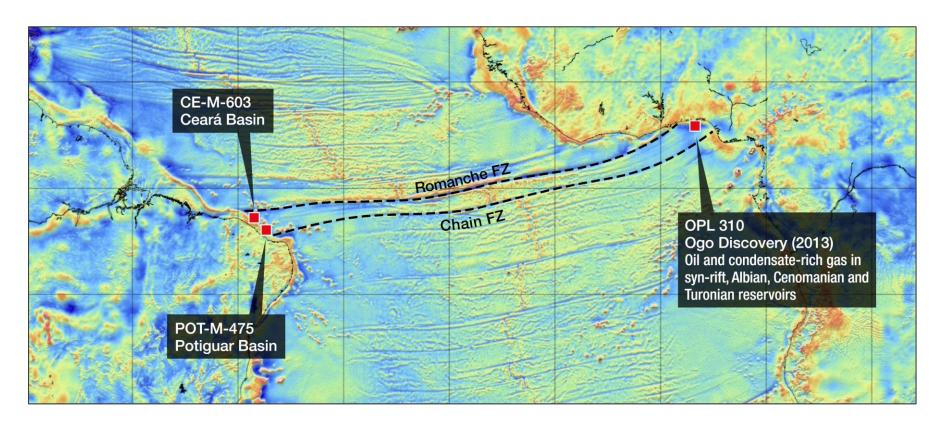
**CE-M-603** 

ExxonMobil 50% AziLat 50%

POT-M-475

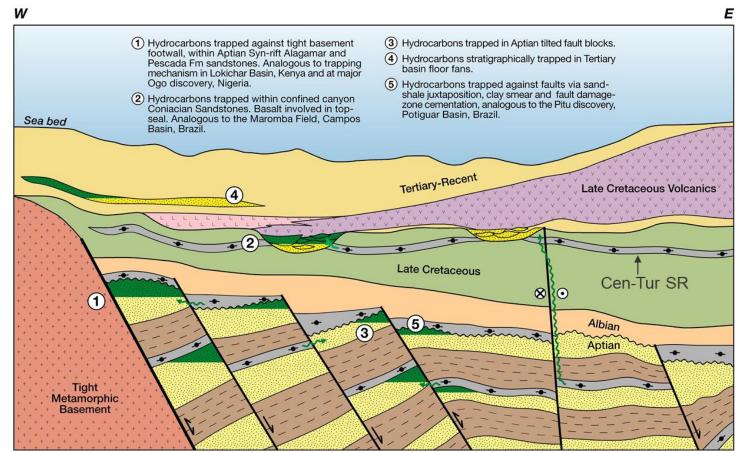
ExxonMobil 35% AziLat 65%





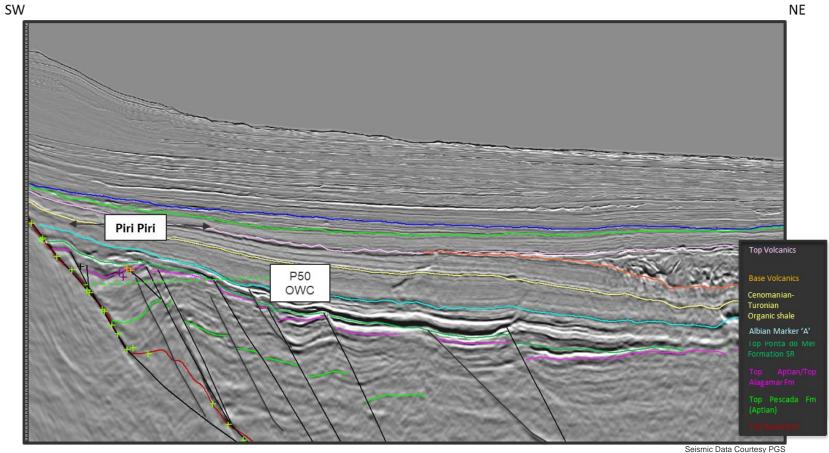
# Brazil: Potiguar Basin Play Diagram



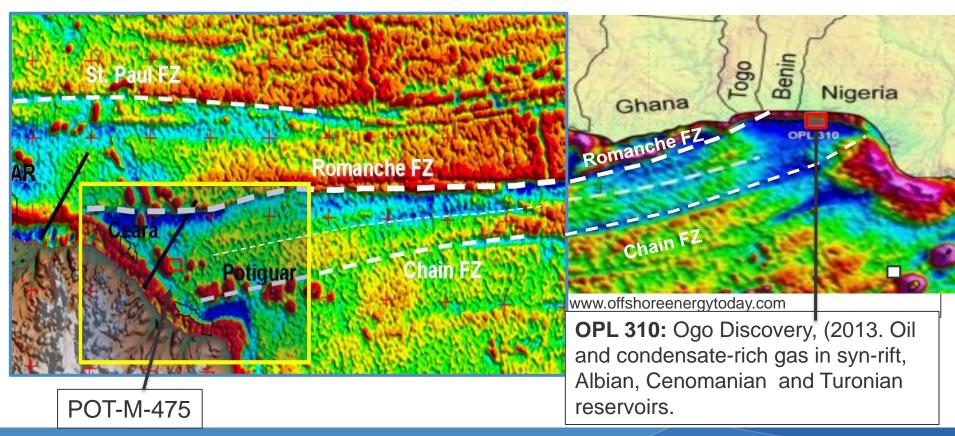


# Brazil: Potiguar Basin – Piri Piri Prospect

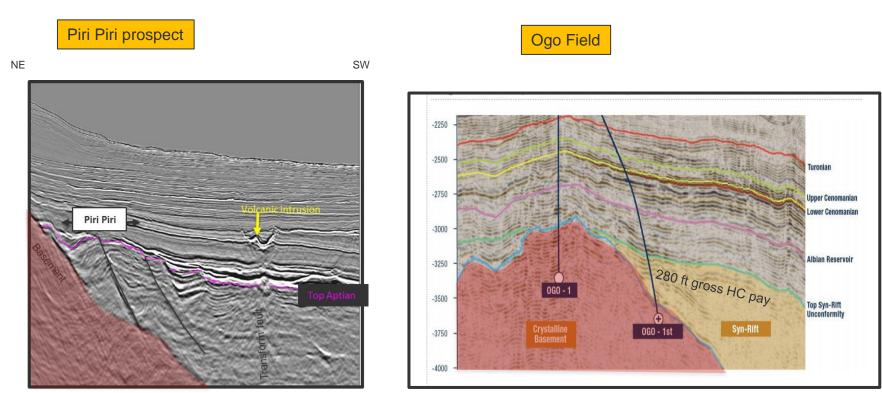












Both the Piri Piri Prospect and the Ogo discovery (Aptian syn-rift target) rely upon a lateral basement seal.



# Summary

- Atlantic Margin continues to dominate frontier exploration
- Need to take a critical view challenging 'conventional wisdom'
- Reinvigorated drilling plans set to test some of these 'emerging plays'