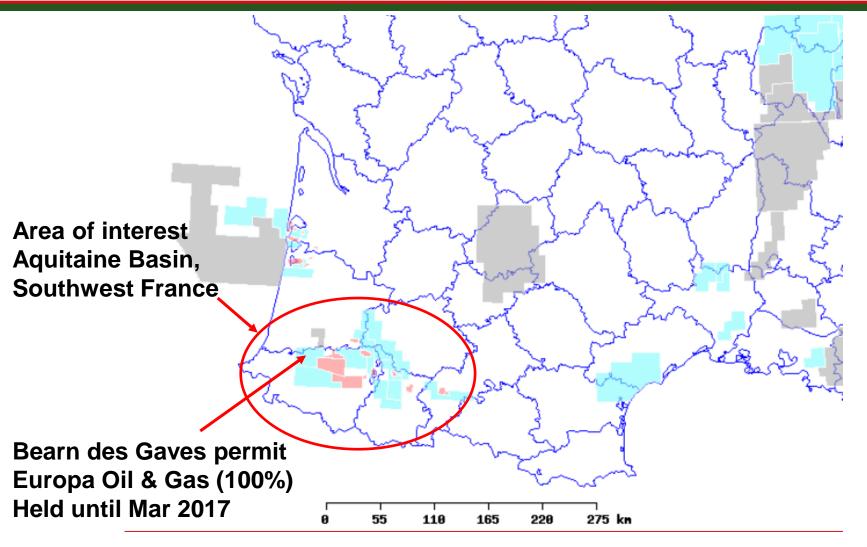
# Europa Oil & Gas

The Berenx Discovery An Overlooked Opportunity in the Aquitaine, France

> Rowland Thomas Chief Geophysicist- Europa Oil & Gas APPEX London 10-13 March 2014

> > www.europaoil.com

### **Location Map**



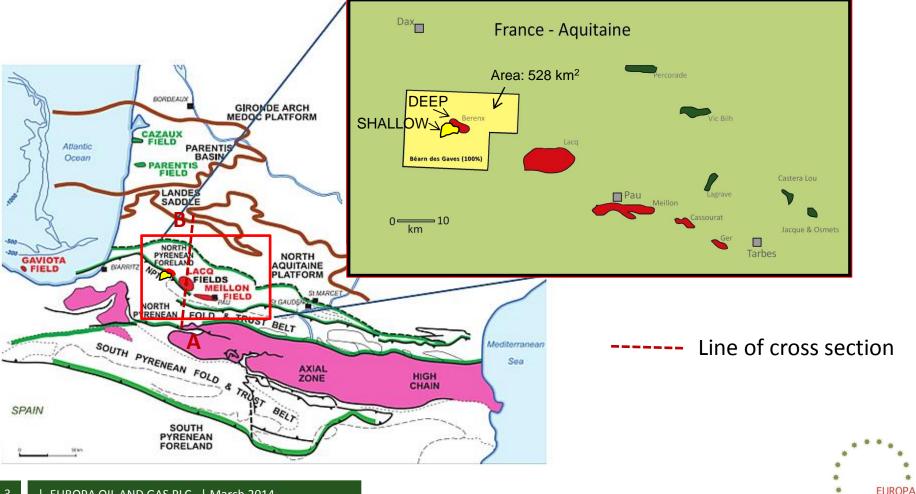


\* Licence map not up to date



### **Regional Structural Setting**

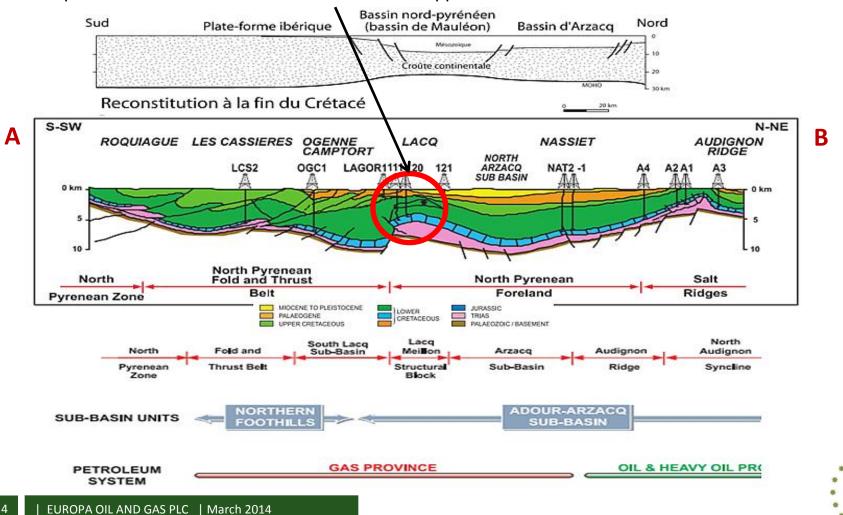
• Bearn des Gaves permit is set within the proven petroleum province of the North Pyrenean foothills formed by the overthrust Saint Suzanne nappes and foreland Arzacq sub-basin.



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### **Regional Structural Setting**

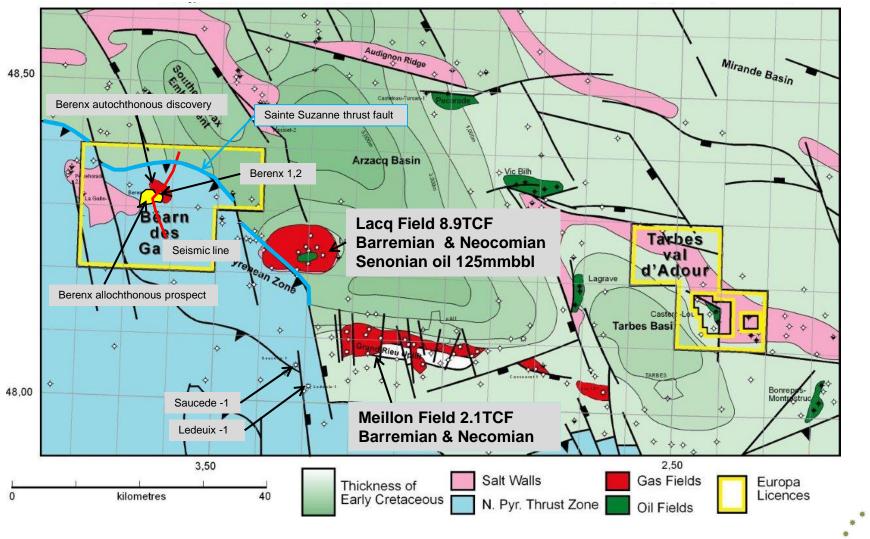
• Regional cross section illustrating structural style over Bearn des Gaves Licence within the foreland Arzacq sub-basin and over thrust Saint Suzanne nappes



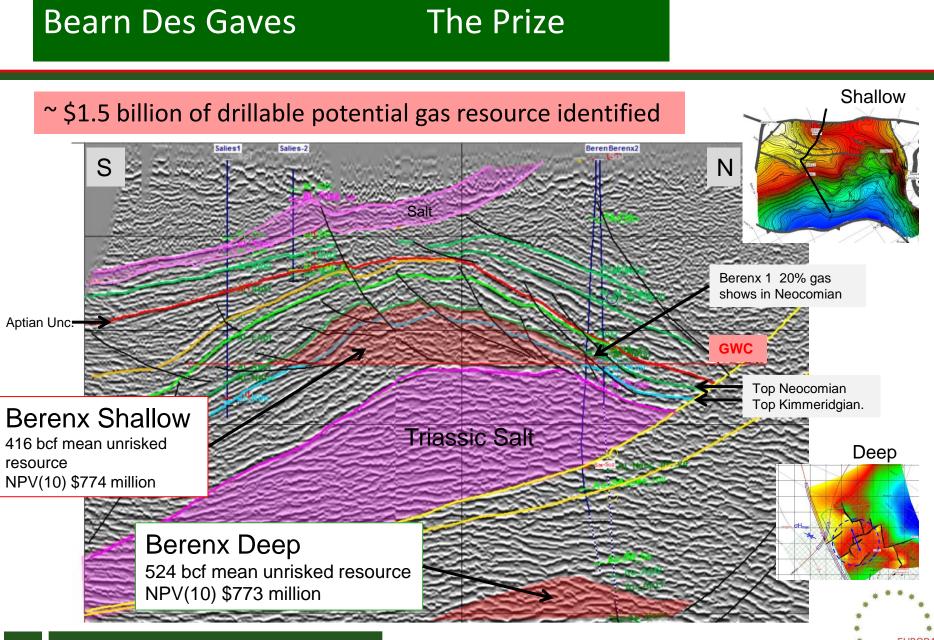
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### **General Geological Setting**

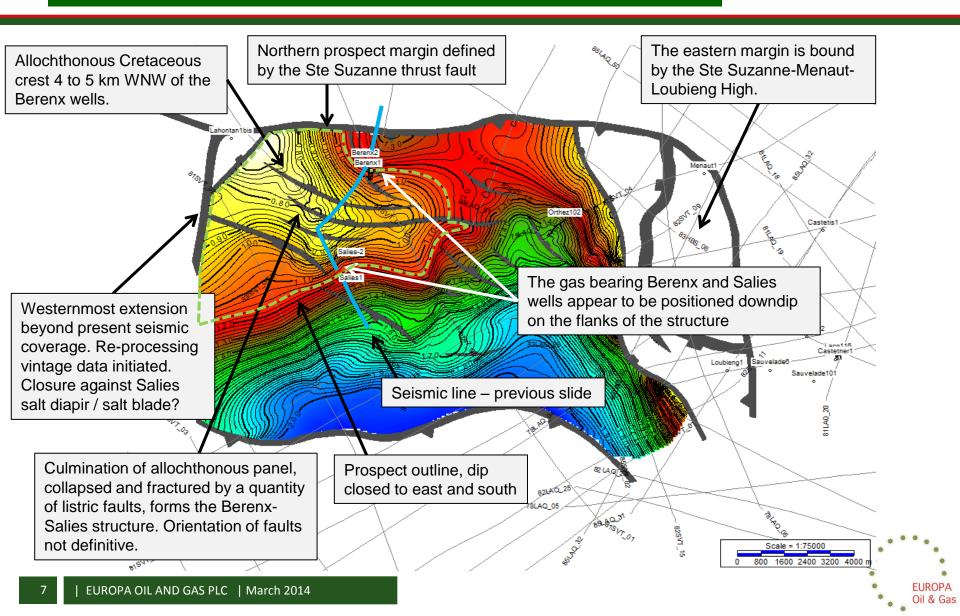


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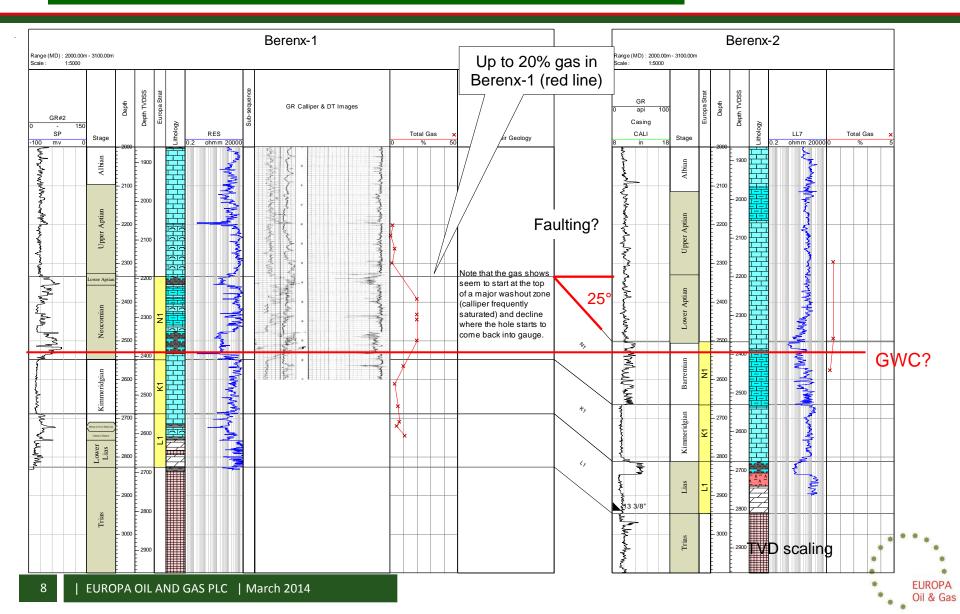


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### Berenx Shallow Top Neocomian TWT map



### Berenx Shallow Berenx-1 & 2 Well Correlation



### Proven Hydrocarbon Play

Reservoirs: Main reservoirs proven regionally in Jurassic and Cretaceous sections

> In Bearn Des Gaves Permit Barremian, Neocomian, Kimmeridge are the main potential targets.

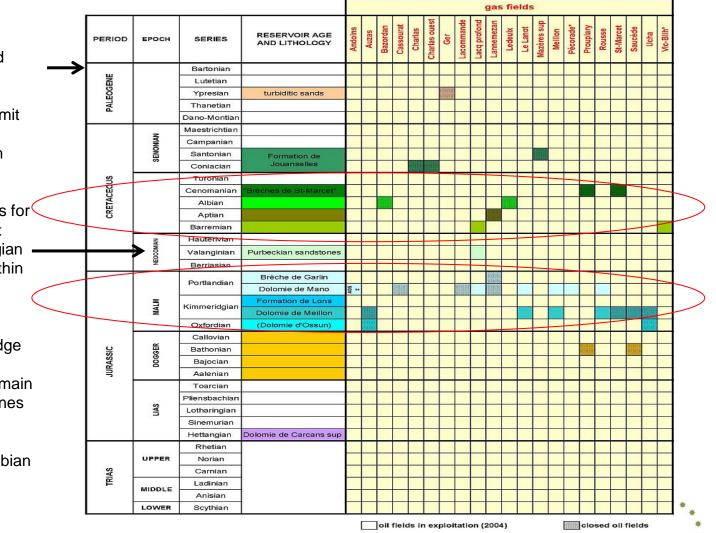
Note: no direct analogues for gas zone in Berenx 1 but Portlandian & Kimmeridgian – dolomites exist up dip within Berenx shallow closure.

Sources

Upper Jurassic Kimmeridge Clay Fm, Lons Fm Lower Cretaceous Barremain lime- stones and dolostones

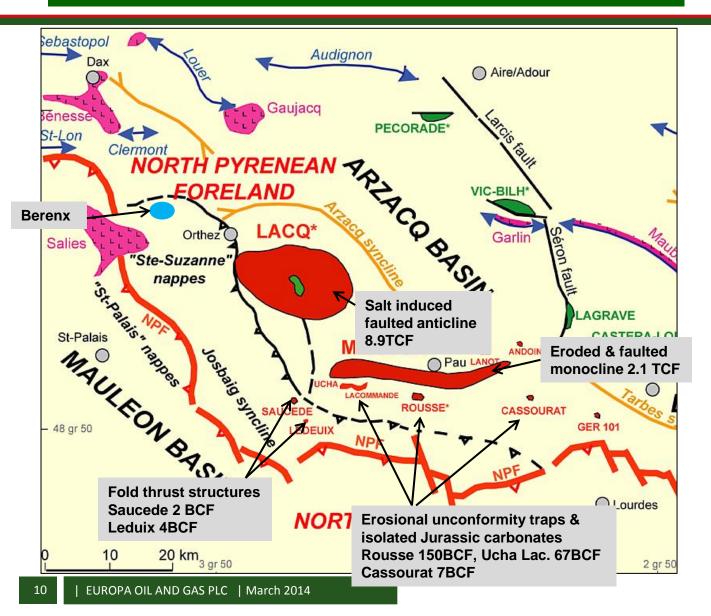
Seal

Lower Aptian shales & Albian shales. Lime-mudstones (intra-formational & unconformities)



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### Multiple proven trap types



#### Multiple proven trap types

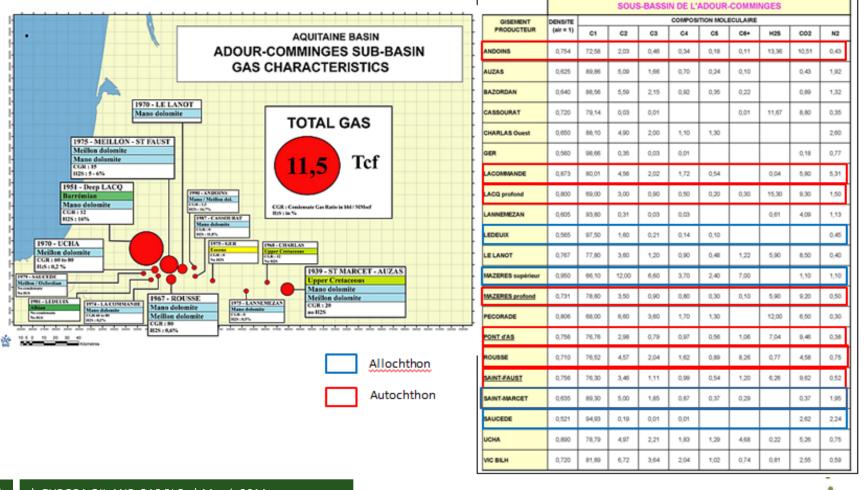
- Salt induced naturally fractured Barremian-Neocomian carbonates at Lacq
- Eroded and faulted Barremian-Neocomian carbonates at Meillon
- Fold and thrust structures at Saucede and Ledeaux
- Isolated eroded uncomformity traps in Jurassic carbonates at Rousse, Ucha -Lacommande and Cassourat

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### Gas discoveries and composition

- Autochthonous (sub thrust) and foreland produces sour, dry gas
- Allochthonous (supra thrust) sweet, wet gas

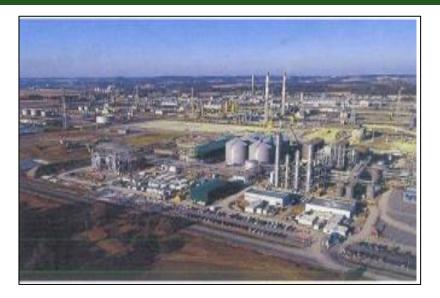


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## Lacq / Meillion processing plant



- Permit located over flat lying farm land
- Access and suitable drilling and development sites are not considered problematic.
- Area has a long history of field development

- Permit 20km from major industrial complex which processed gas from the Meillon and Lacq fields. Sulphur export.
- Rare opportunity to explore and appraise significant gas resources close to existing infrastructure.
- Rapid commercialisation possible into premium gas market



### Berenx Shallow summary

- Previous exploration (1950's -1970's) focussed on autochthonous structure Allochthonous plays generally overlooked.
- Prospect closure of ~40Km2 (most likely)
- Sweet, wet gas most likely hydrocarbon phase
  - Source: (Lons Fm) Kimmeridgian limestone
  - Reservoirs: Kimmeridgian to Barremian, limestones and dolomites,
  - Dual porosity system Matrix & Fractures
  - Seals: Intra formational Lime-mudstones, Aptian & Albian shales.
- Range of prospective resources estimated 263 408 579 BCF
- Risk: Trap definition / effectiveness, reprocessing initiated & additional seismic data? Allochthonous analogues: Saucede, Ledeuix discoveries
- Risk : Reservoir effectiveness , target open fracture system
- Scoping Economics suggest a value of ~ 14.1 \$/boe
- Mean unrisked potential NPV(10) of 774 \$mm

### Bearn des Gaves forward plan

- Re-processing vintage data to improve western definition of trap.
- Preference to drill shallow prospect rather than shoot more 2D seismic.
- Berenx Shallow well cost ~ \$6million. Goal to spud well early 2015.
- Preparations for well planning have commenced.
- In event of shallow success: acquire 200km<sup>2</sup> 3D seismic to evaluate shallow discovery and map Berenx deep.
   Acquisition late 2015, cost ~ US\$ 5-7 million
- If deep prospectivity confirmed: drill Berenx Deep well 2H 2016.
  Cost ~US\$ 52 to 65 million
- Permit expires in March 2017



## Suggested Farm-in Strategy

Two stage process.

STAGE 1

- Farm-in to shallow prospectivity <4000m section.</li>
- Pay share of back costs currently at ~US\$ 1.65 million.
- Promote on well costs (~US\$ 6 million) targeting Berenx Shallow prospect to earn 50%

### STAGE 2

- At farminees discretion pay 100% of acquisition and processing of 200km2 3D seismic survey (~US\$ 5-7 million) to earn 50% equity in Berenx Deep >4000m section
- Subsequent drilling discretionary and on ground floor terms.
  A deep well is likely to cost ~US\$ 52-65 million



### **Opportunity Summary**

- Onshore France: Aquitaine Basin proven hydrocarbon province with ~ 12 TCF developed gas to date
- Appraisal of the Berenx discovery in north Pyrenean foothills proven gas accumulations in allochthonous and autochthonous reservoir sequences
- Two accumulations with ~ 1TCF of resource potential
- Naturally fractured carbonate reservoirs
- Potential NPV(10) drilling success case (deep + shallow) ~ US\$1.5 billion
- Gross dry hole cost shallow prospect ~US\$ 6 million + back costs.



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