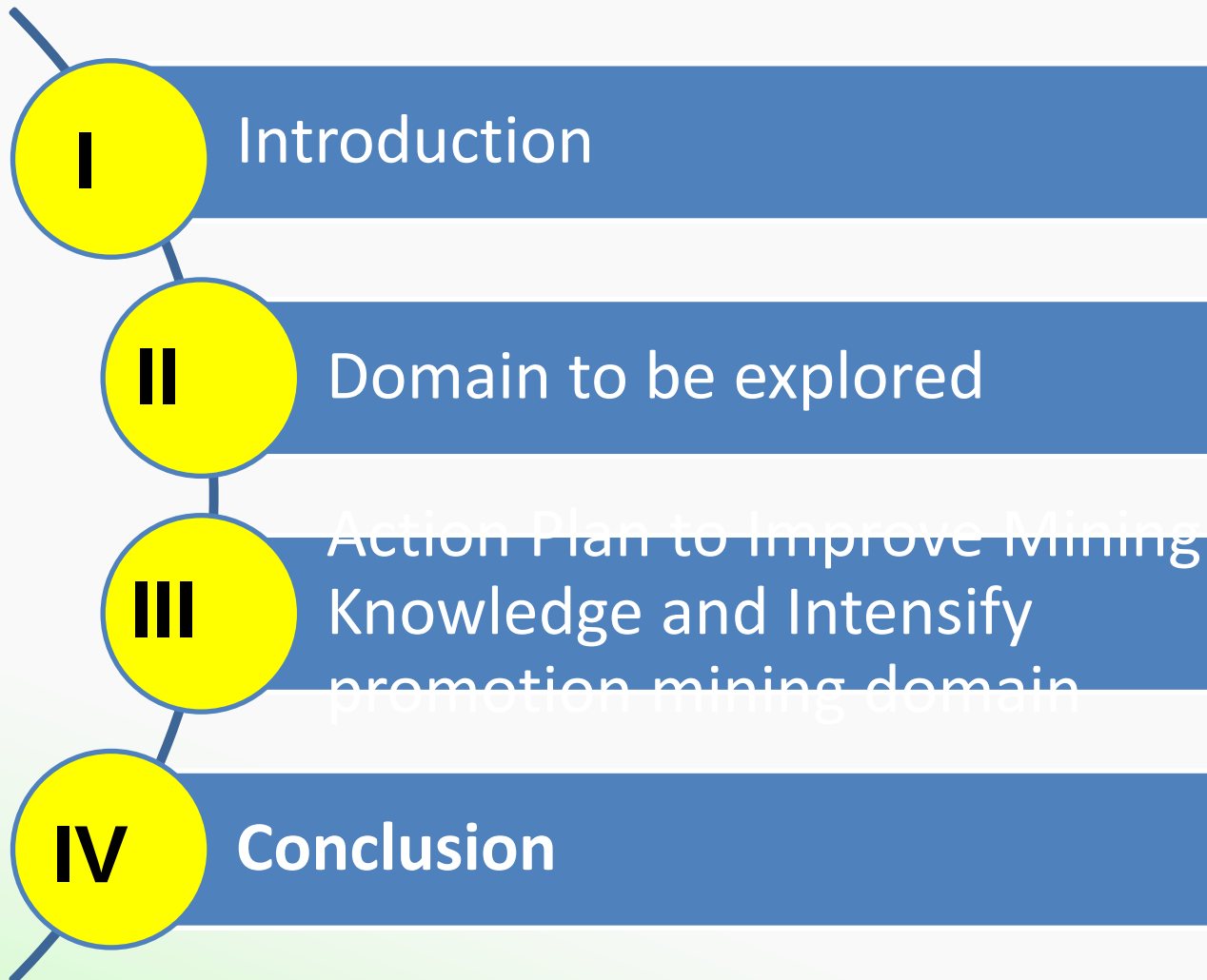




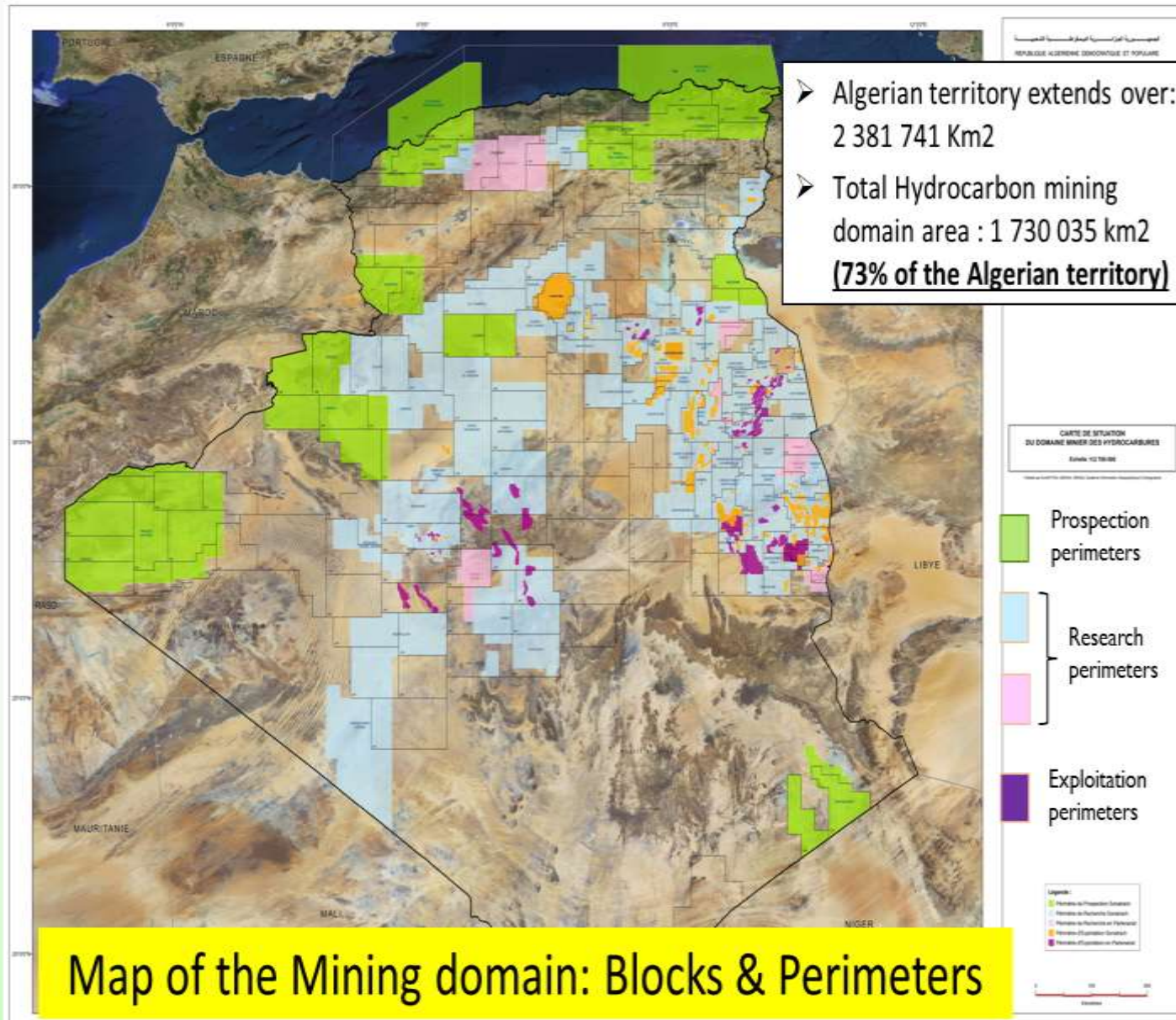
Oil and Gas E&P Opportunities available within the Algerian mining hydrocarbon domain



Summary



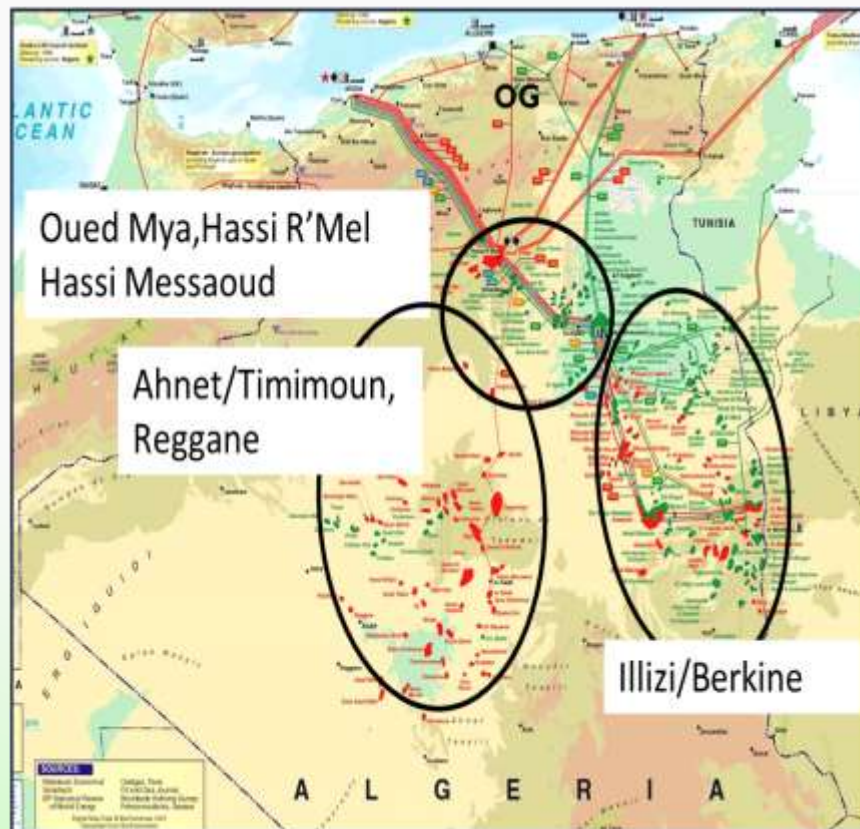
I. INTRODUCTION



I. Introduction : Presentation of the Mining Domain & Results

Map of fields, facilities and Transportation network

Gas field ● Oil Field ●



- 10 000 wells
- 500 Oil and gas fields
- 250 fields in Exploitation

- Underexplored:
15 wells/10 000 km²:
 - Mature basins :
 - Berkine 60 wells per 10 000 km²;
 - Illizi 40 wells per 10 000 km²
 - Frontier basins: 4 wells per 10 000 km²



Problématique de la sécurité énergétique pour l'Algérie à l'horizon 2030 et au-delà.

IFEG

Ben Aknoun

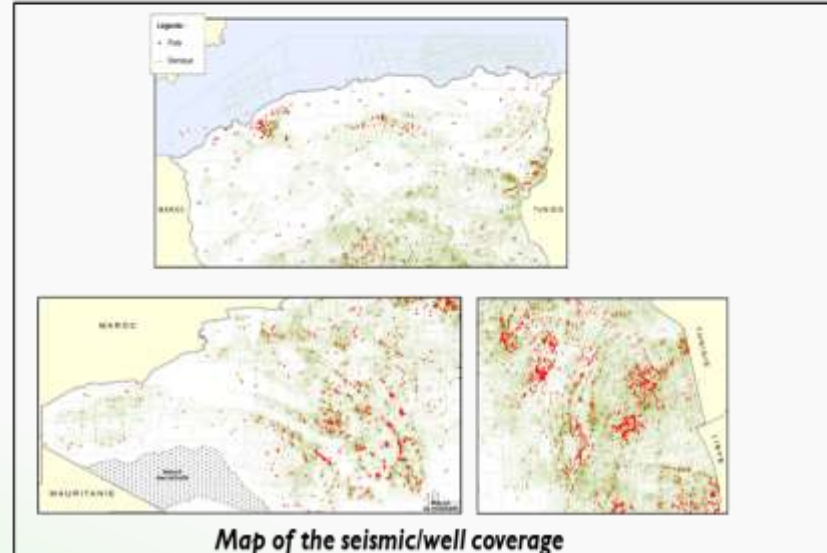
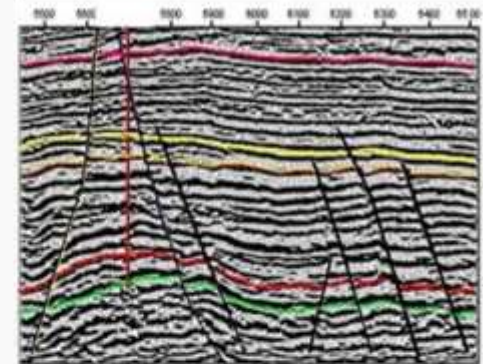
30 Juin 2018

I. Introduction : Hydrocarbons mining domain E&P DATA

Wide 3D/2D seismic coverage

Total of

- 670 000 Km 2D
- 180 000 Km² 3D
- 550 km of cores
- > 10 000 Wells



I. Introduction : Infrastructures

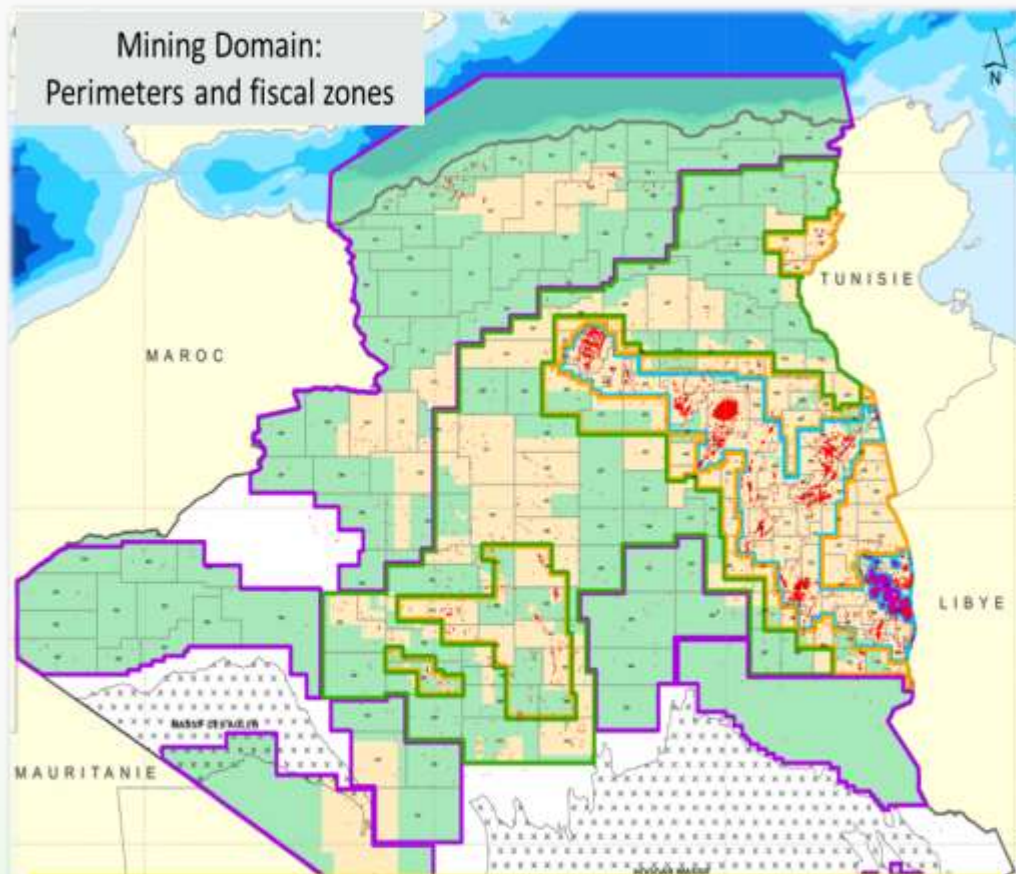
- 20 855 km of domestic pipelines;
- 3 pipelines connect Algeria to Europe 2 Tcf (54 BCM) / year;
- 88 Oil & Gas CPFs;
- 4 major natural gas liquefaction complexes: 56 BCM / year;



Problématique de la sécurité énergétique pour l'Algérie à l'horizon 2030 et au-delà.



2 - Domain to be explored



40% Perimeters covered by
R & E contracts

60% Areas free or covered by
prospecting Authorization



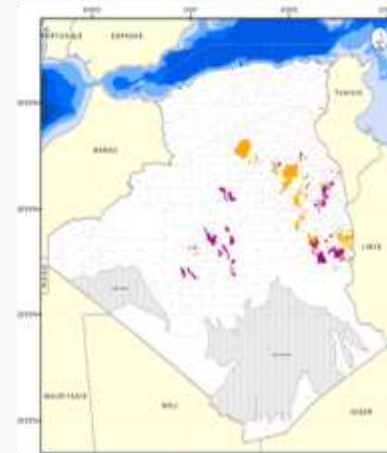
Large area, open to the partnership (around 1000 000 km², 2/3 of the mining domain): various plays and themes to be explored where high potential of conventional and unconventional resources is expected.



2 - Domain to be explored

Six (6) domains of opportunities

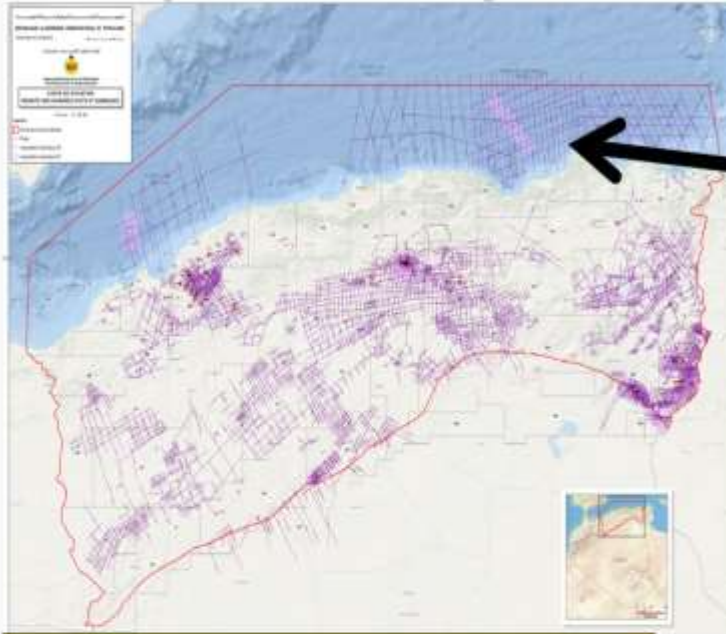
1. Prospection and Research in Frontier area
2. Explore Deep horizon, Stratigraphic & mixed traps, in Mature basins
3. Offshore exploration
4. EOR (mature fields): Enhancing Oil Recovery
RF from 30% to 40% = 6 Gbbls
5. Shale and Tight sand formations
6. Develop New discoveries
*Last 10 years 270 Discoveries ;
2P in place 32 Tcf of Gas and 9 Gbbls of oil.*



Studies to evaluate the potential of these opportunities



2.1 Offshore Domain: 3 blocks, 93 000 km²

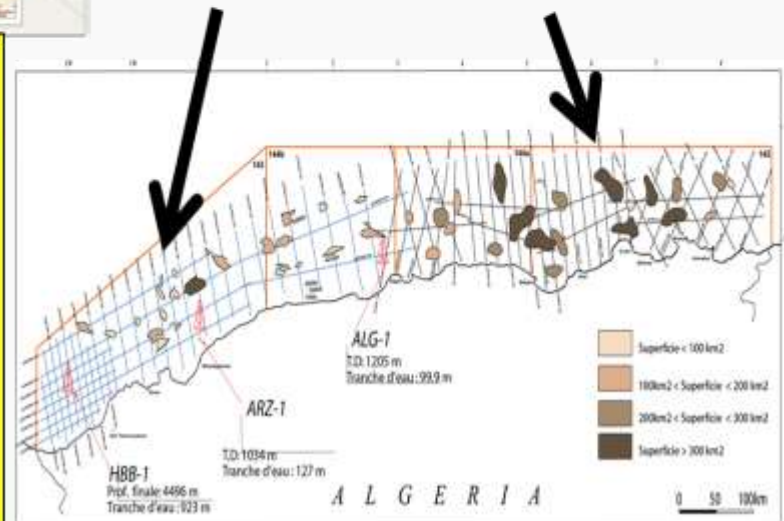


Seismic acquired :

- 20 000 km 2D
- 5 200 Km² 3D (in 2014)

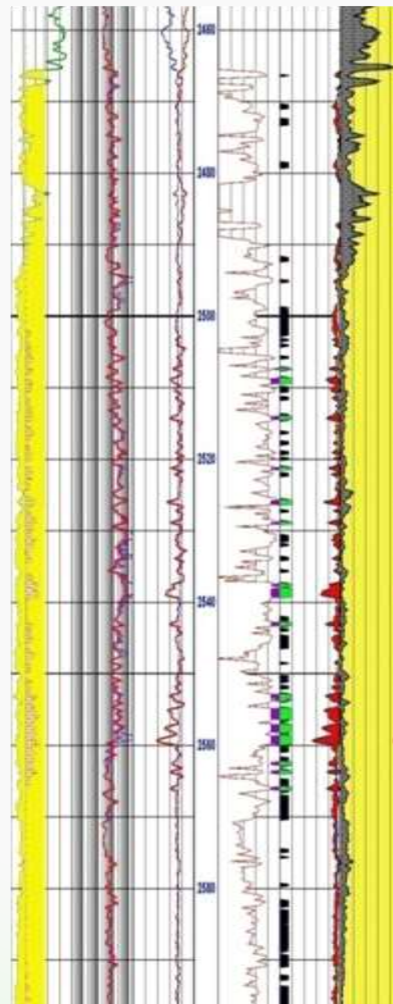
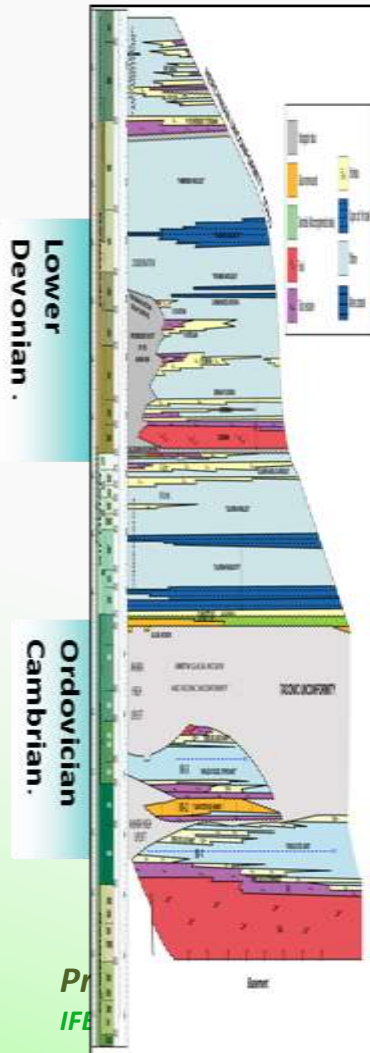
More than 20 big size Leads/prospects mapped

Offshore area are located around 1800 meters water deep.
Recent studies revealed high hydrocarbon potential.



2.3 Tight Sand Reservoirs

Devonian, Silurian,
Ordovician and Cambrian
Formations



Example of Ordovician
Tight sand (300 meters)

- Tight sand reservoirs are present in Berkine/Illizi, Hassi Messaoud, Ahnet/Timimoun and Bechar basins
- High potential is assessed in the Lower Devonian, Ordovician and Cambrian formations

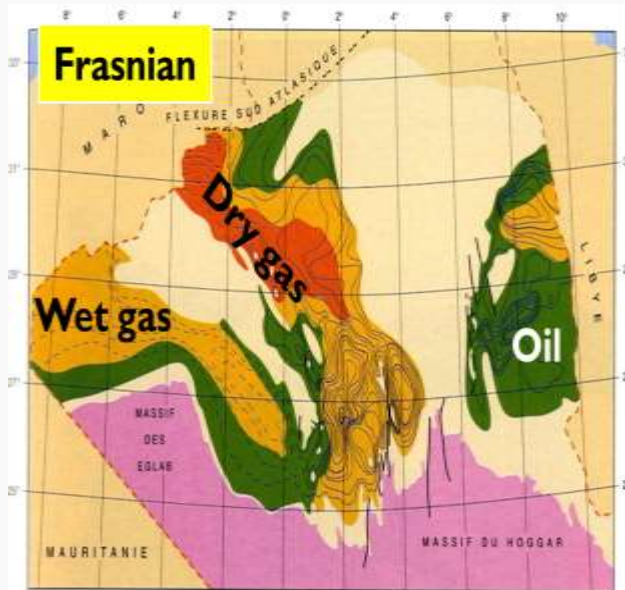
sécurité énergétique pour l'Algérie à l'horizon 2030 et au-delà.

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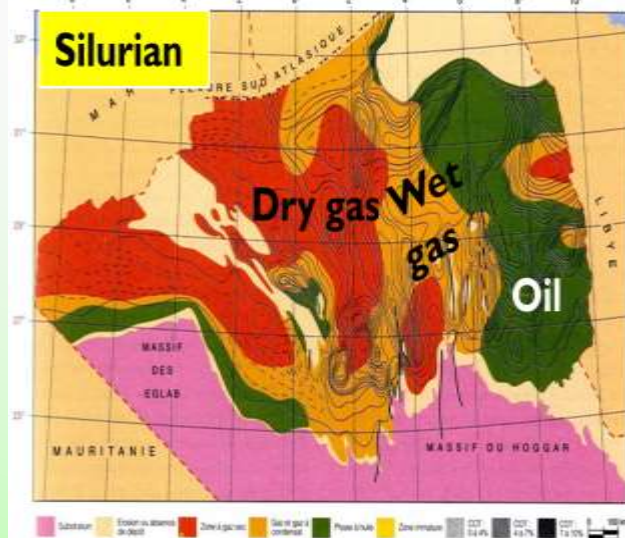
2.4 Shale Oil & Gas play



Frasnian

Frasnian: present in 50% of the Saharan Basins, 250 m thickness

- Eastern part: Oil and Wet Gas,
- Western part: Oil, Wet and dry gas



Silurian

▪ **Silurian:** Present in 90% of the Saharan basins; 60-80 m thickness

- Eastern part : Commonly Oil and Wet gas
- Western & Central part : Mostly Wet and Dry gas

Shale characteristics:

- Porosity: 6-8%; Permeability nano-darcy
- TOC : 4-17% ;
- Vitrinite reflectance (Maturity): $1.2 < Ro < 3.5$

Gas Resources in place 6500 TCF

Oil Resources in place: 170 Bbl

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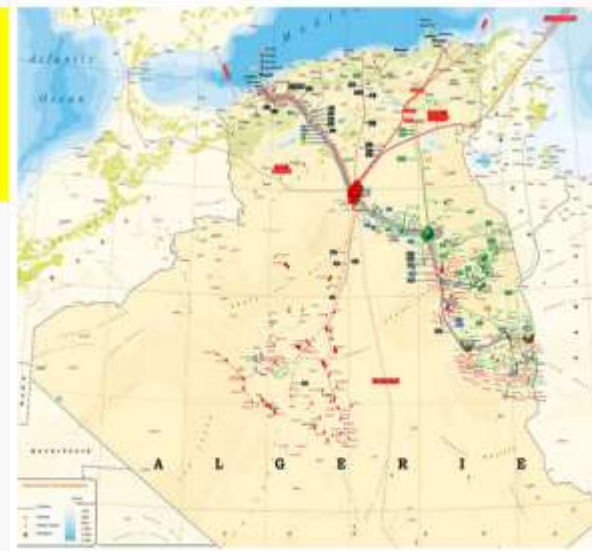


3. Action Plan to Improve Mining Knowledge and Intensify promotion mining domain

- Further promoting prospecting activity
- Call for Expressions of Interest (AMI), for evaluation and promotion studies;
- Conduct studies on little-known regions and on specific topics (Tight & Shale);
- Organize technical events (conferences, workshops) on the mining domain and on appropriate techniques and technologies;
- Take part in international events (Congresses, Conferences, Forums) for more promotion.



Conclusion : Algeria is a destination for investments



- Important mining domain:
 - Still underexplored
 - Open to the partnership
- 500 oil and gas fields discovered
250 fields in exploitation.
- High potential conventional and unconventional to be explored in offshore, frontier area and mature basins
- New discoveries and marginal fields to be developed around the existing facilities.
- Strategic location near Europe and US markets
- 3 Intercontinental Gas pipelines : Capacity 52 BCM/year
- Pipeline network (20 000 km length) well developed between Fields, processing plants and Shipping centers
- Important plants for gas liquefaction (56 millions M³/year) and hydrocarbon processing (LPG, Refining).



Thank you for your attention

National Agency for the
Valorization of Hydrocarbon
Resources

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