

26th World Gas Conference

1 – 5 June 2015 – Paris, France



SP or TS or ISC number

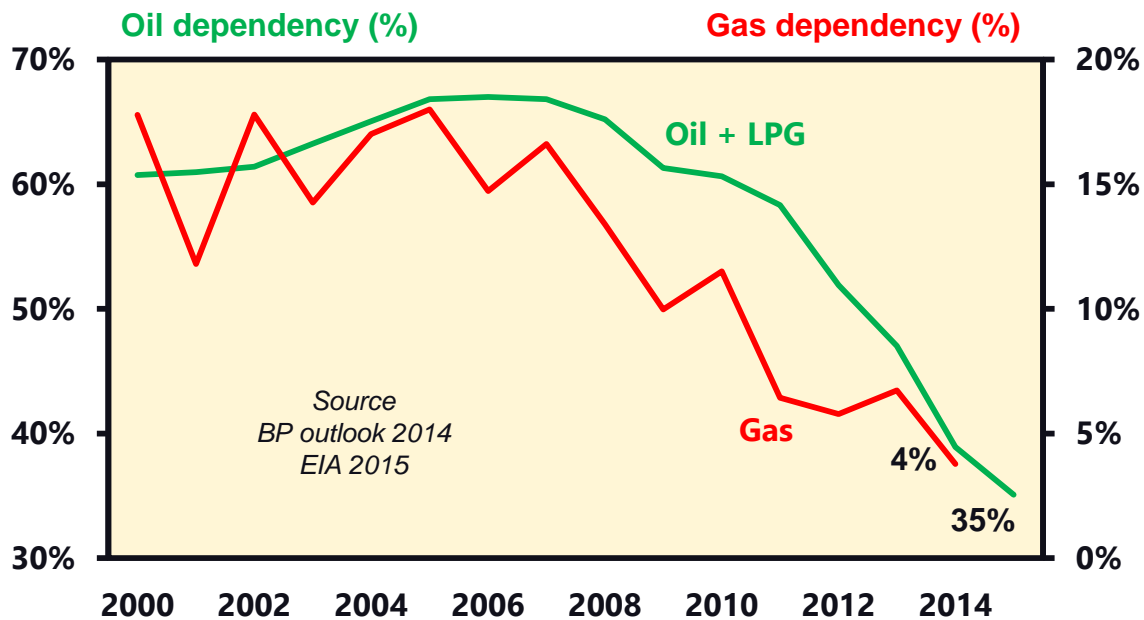
How to export the Unconventional
Revolution Out of North America ?

Philippe A. Charlez

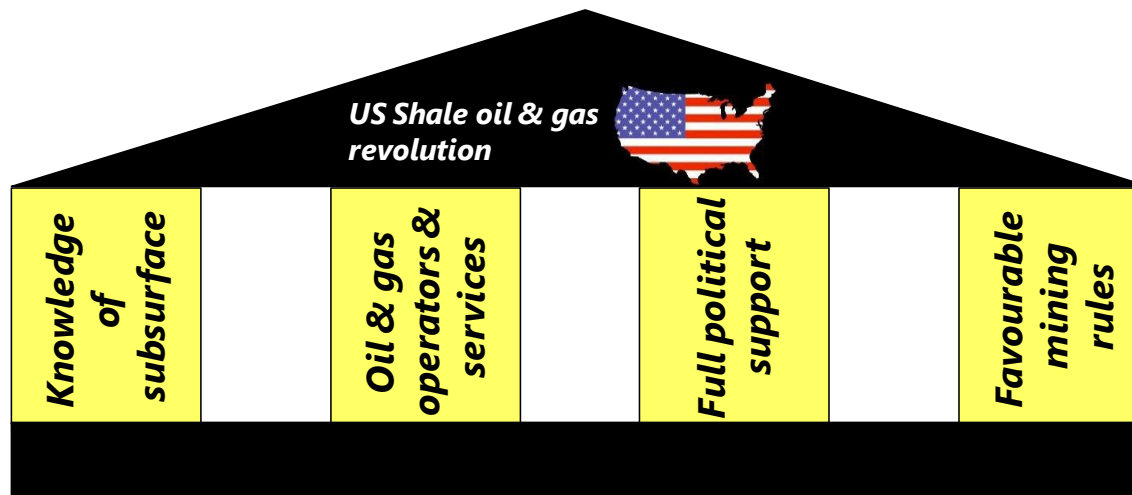
Total



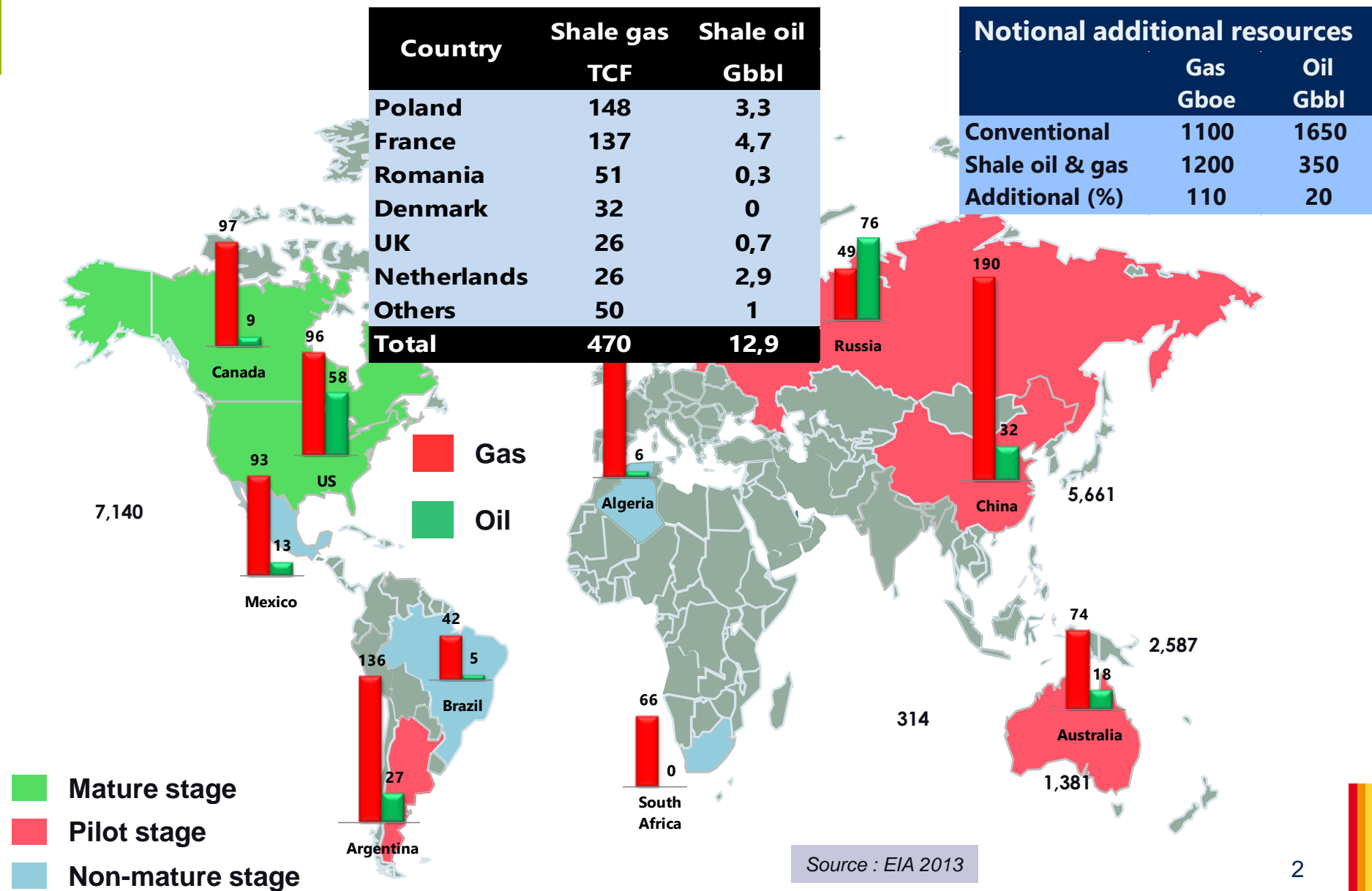
The US revolution relies on 4 main pillars



	Oil (MMbopd)	LPG (MMbopd)	Gas (Bdf/day)
Total	11,6		70,7
Shale	4,2	1,8	41,3
%	52%		58%

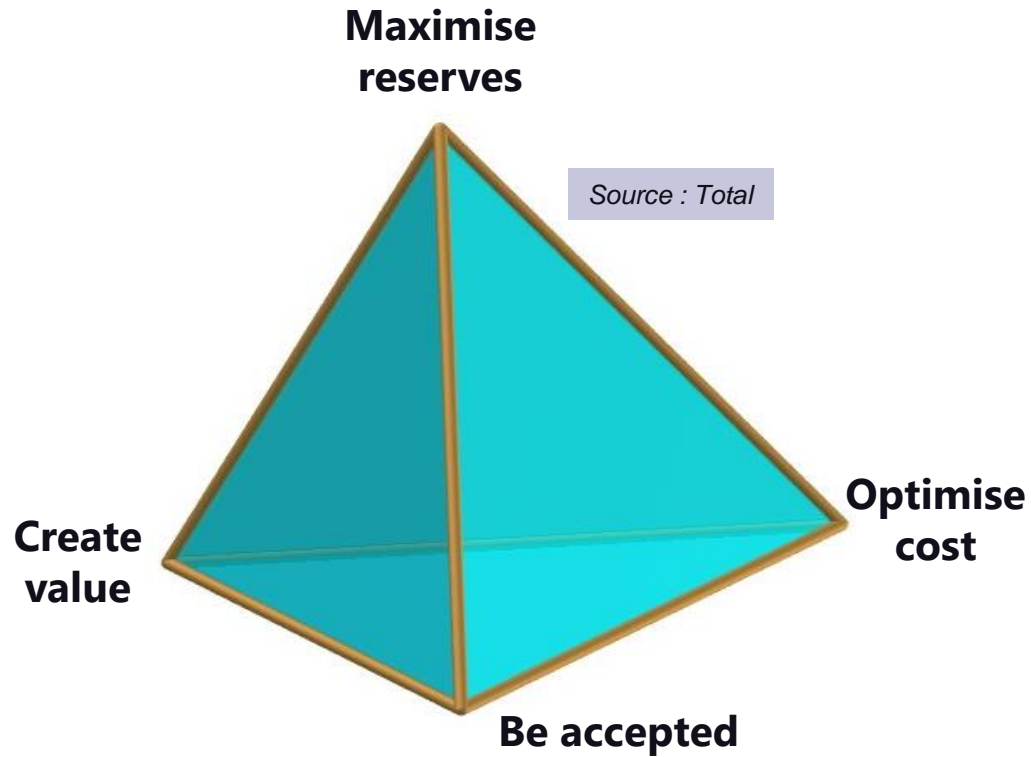


The world wide resources (EIA 2013)



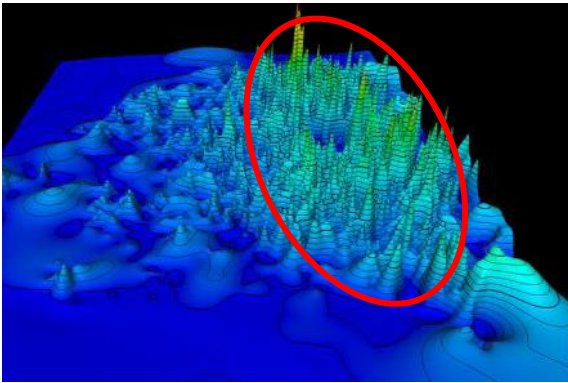
Source : EIA 2013

The four leverages of the exportation



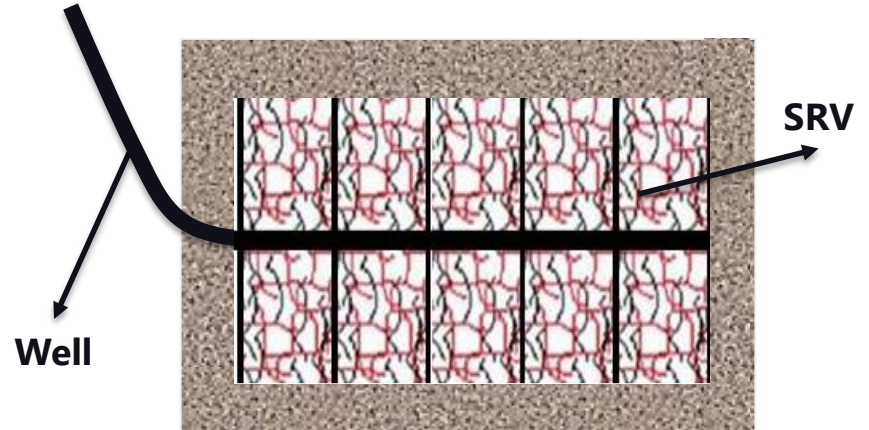
Increase reserves per well

1. Identify « sweet » spots



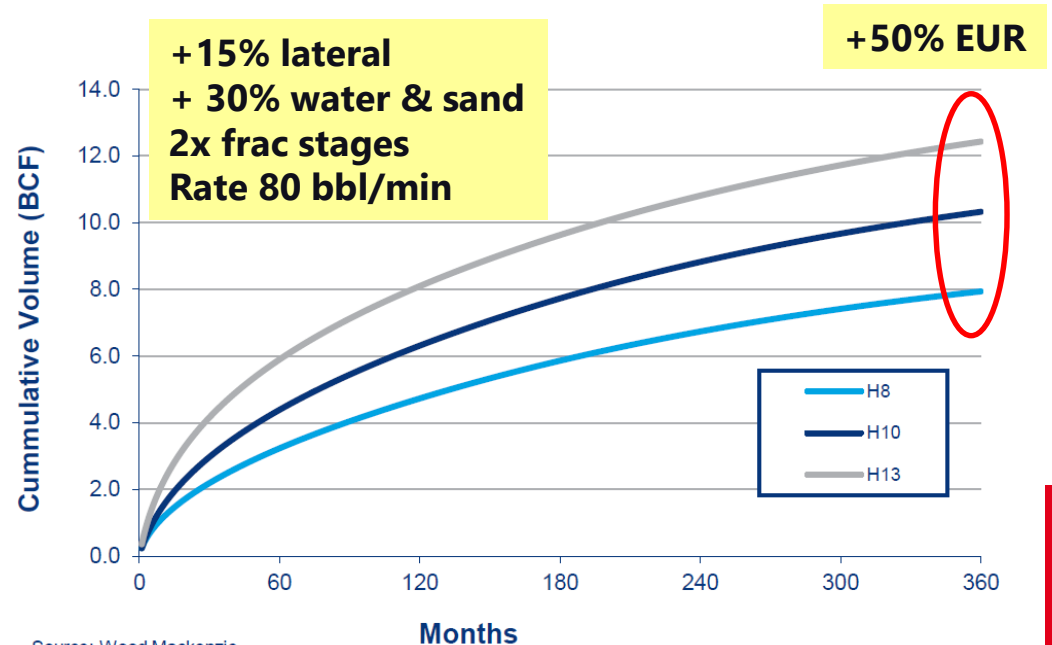
Sweet area

2. Optimise completion strategy (i.e. SRV complexity & extension)



Sweet spot : when seraching it?

- Derisk during a pilot phase
 - number wells required ?
 - risk of false negative/positive
 - ignore lateral resources
 - very conventional approach
- Naturally during area development

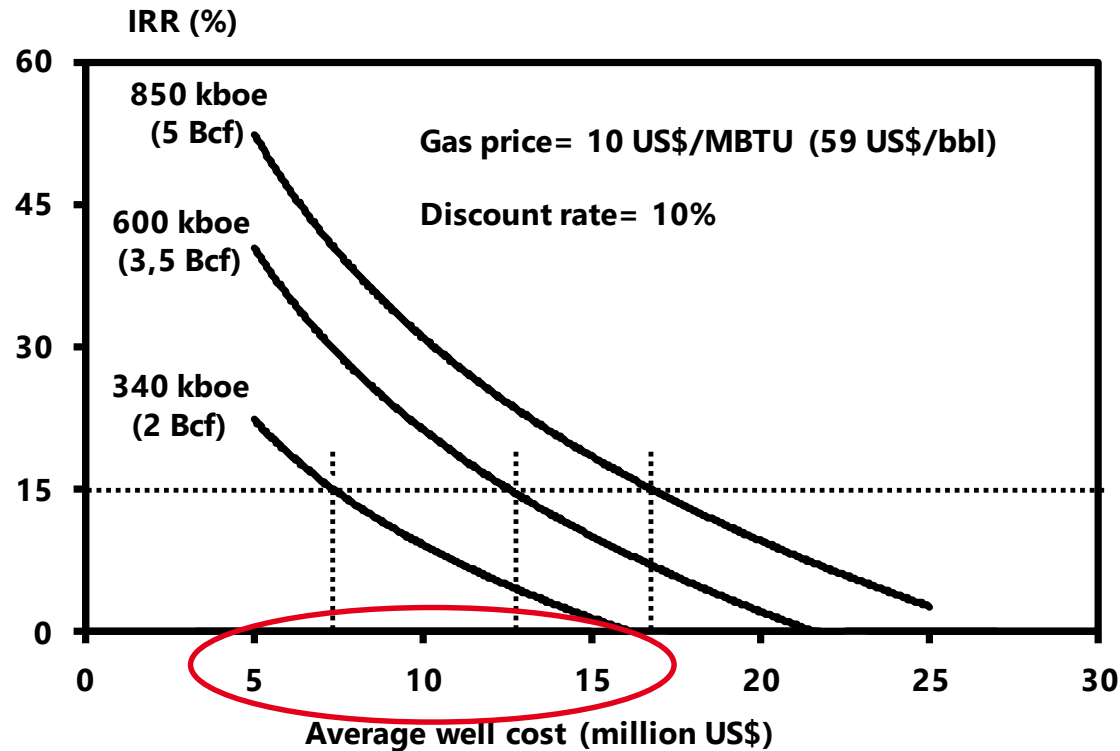


Optimize integrated well cost

In the European context (10\$/MBTU) a 15% pre-tax IRR requires an integrated well cost in the range of 12,5 M\$

Leverages on drillex

1. Time (drilling, connexion)
2. Fixed costs (mud, cement, OCTG*, sand, chemicals,....)



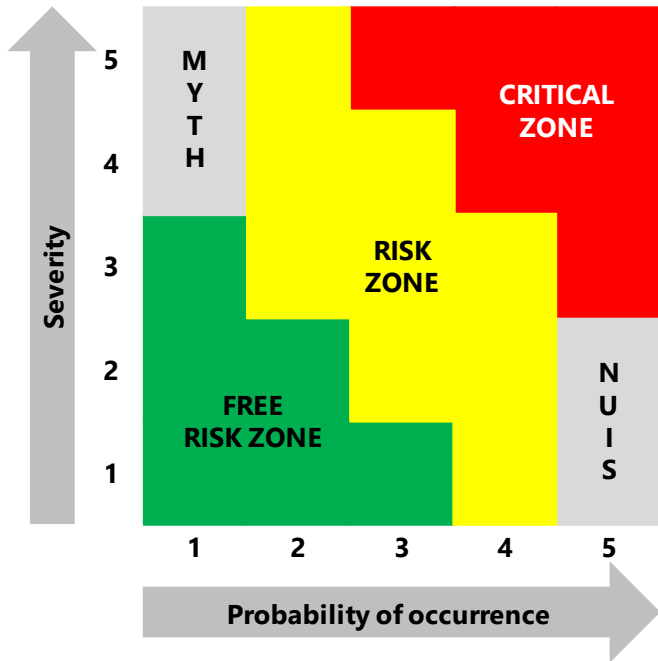
Primary leverages

- Light well architectures
- Standardization of the equipment
- Wholesale contracts

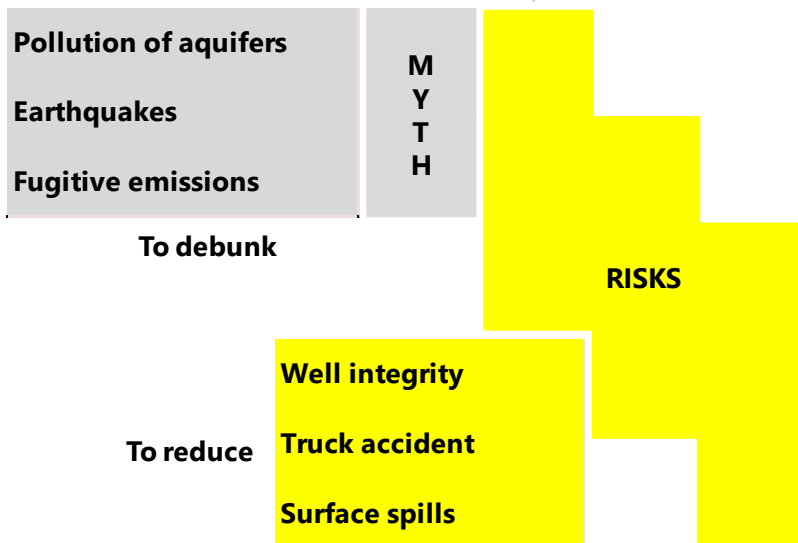
Secondary leverages

- Drilling learning curve
- Time to connexion

Be accepted : main risks at surface



A
Train accident
Deraiment of a train carrying sand

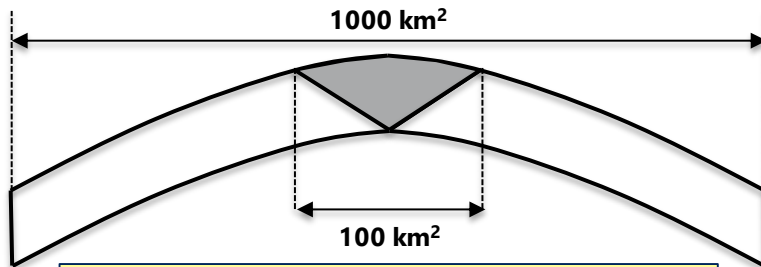


Well integrity problem



Create value for all stakeholder

1. Sweet spotting versus core area



Two strategies

- Focus on sweet spot
 - High risk/high reward
 - Low NPV & high IRR
 - IOC medium term view
 - Leave lateral resources
- Develop full area
 - High risk/share reward
 - High NPV & low IRR
 - Host Country long term
 - Maximise resources

Strategy

Derisk the whole blok with attractive tax regime

2. Opportunities for all stakeholders

Gas and electricity prices



Energy dependency

Economic growth



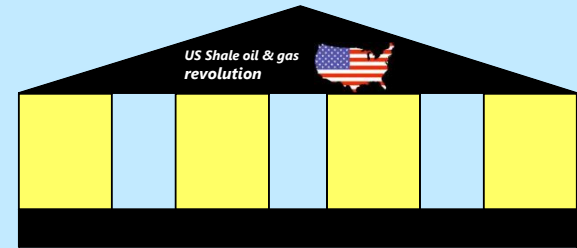
Employment (direct/indirect/
Induced)



Conclusion

The american revolution relies on four pillars

- Knowledge of subsurface
- Competitive market of services
- Full political support
- Favourable mining rights



Its exportation relies on four leverages

- Reserve per well : sweet area and optimum completion
- Well costs : time parameters and fixed drillex
- Acceptability : nuisance, surface and subsurface risks, myths
- Value for all stakeholders : full area dev with attractive tax regime

