



25th world gas conference
"Gas: Sustaining Future Global Growth"

Role of Technology in Replicating the North American Shale Gas Revolution

Will it Happen in Europe?

By: Kyel Hodenfield, VP Schlumberger

Date: 06-Jun-12

Venue: Strategic Panel 4



Patron



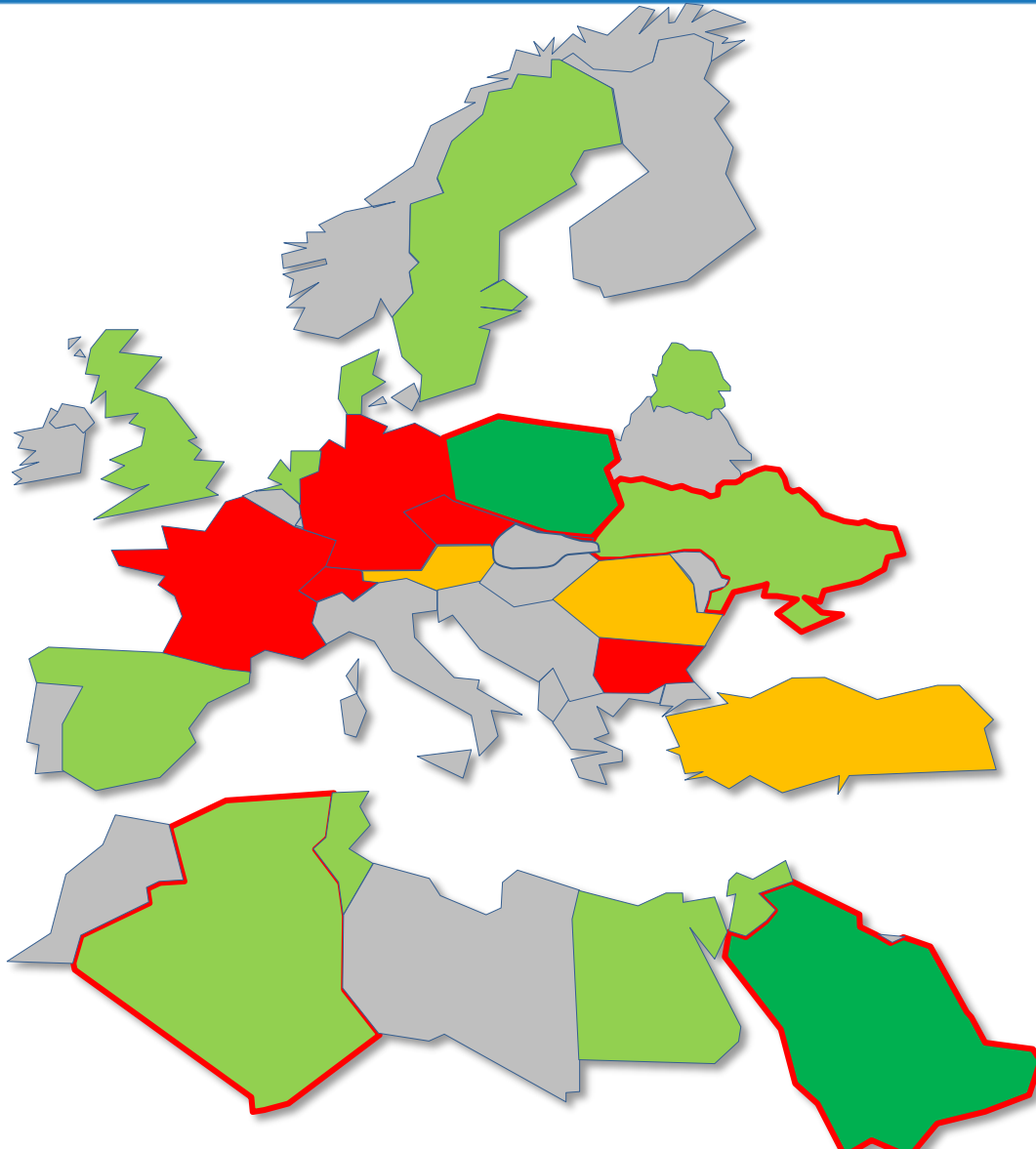
Host



Host Sponsor



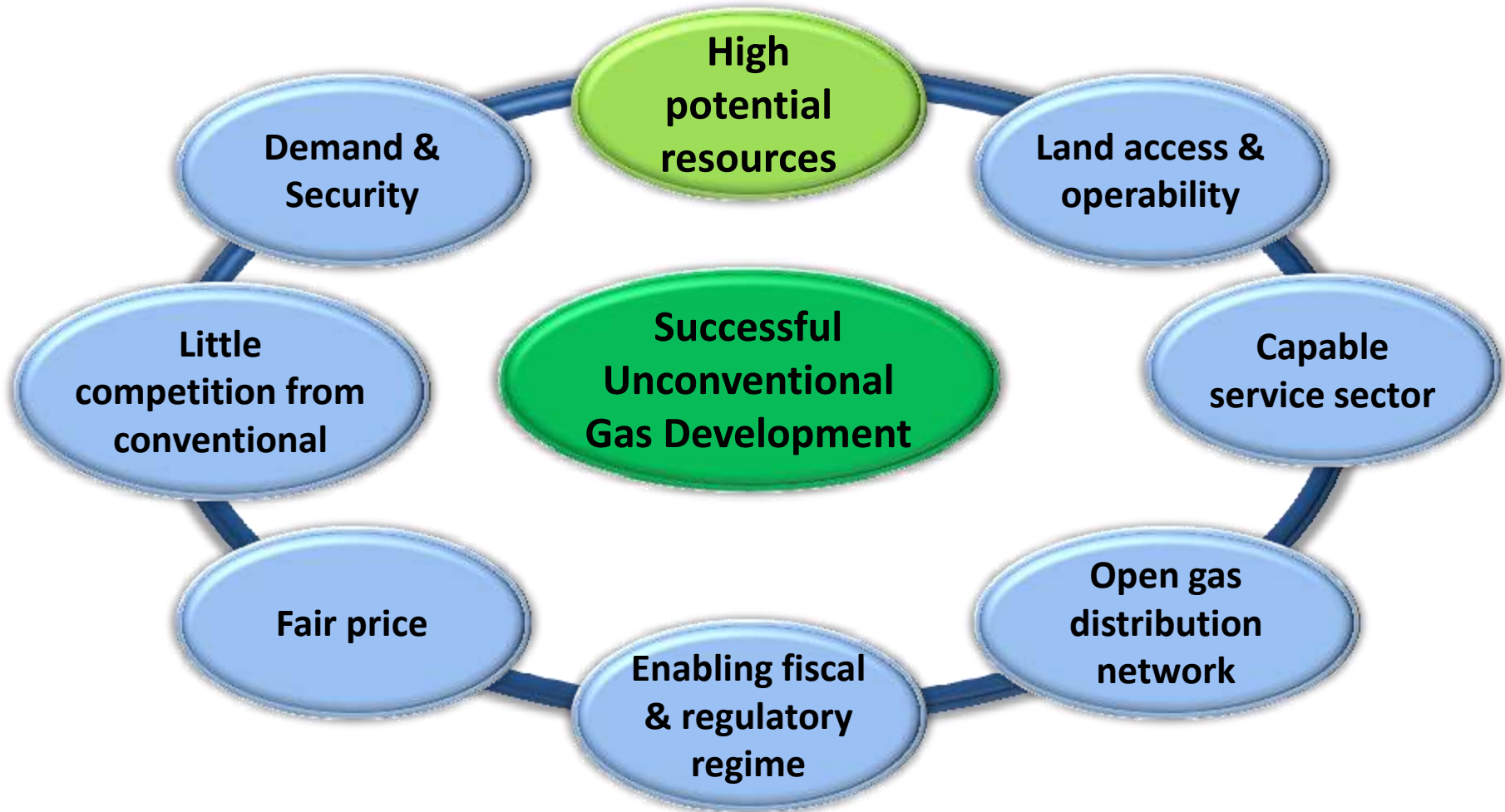
Europe and North Africa Shale Gas Activity



- Active drilling
- Future/past drilling
- Planned but contested
- Fracture ban
- Little to no activity

- Market
- Energy security
- Environment
- Regulation
- Fiscal terms
- Export or LNG?

Key Success Factors for Gas Shale Development



In addition to Market, Security, Environment, Regulation, Fiscal terms

USA

- 18,000 E&P companies
- Land/mineral owners
- Lease incentive to drill
- 640 – 1280 acre leases
- Big farms 4000 acres
- Established service sector
- Established support services
- Roads/pipelines/infrastructure
- Low well cost (efficiency)

International

- < 10 E & P companies per country
- Government mineral owners
- Longer term concessions
- Million+ acre concessions
- Small farms 100+ acres
- Lack of service sector
- Lack of support services
- Lack roads/pipelines/infrastructure
- Initial high well cost (efficiency)

Shale Development Impact: Technology Roles

- Seismic events?
- Fracture into groundwater?
- Wellbore integrity
- Sheer number of wells
- Surface disturbance
- Service intensity / well
- Truck traffic
- Resources required
- Noise/air emissions
- Complex reservoirs
- Production economics



Can Technology play a role to reduce impact?

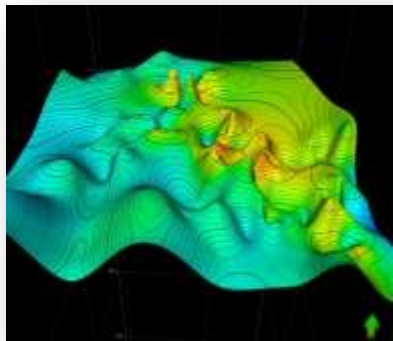
Key Challenges for Shale Development

“Drill Bit” APPROACH



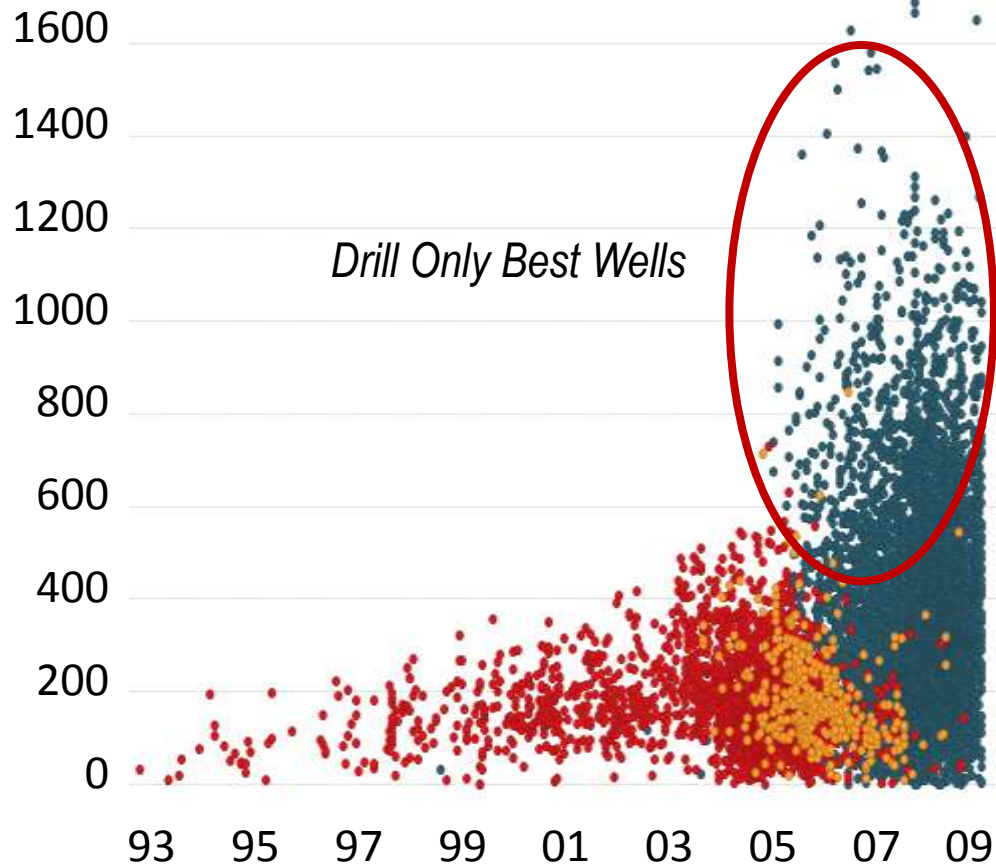
- Huge variation in well production
- Compensate by drilling more wells

“More with Less” Technology

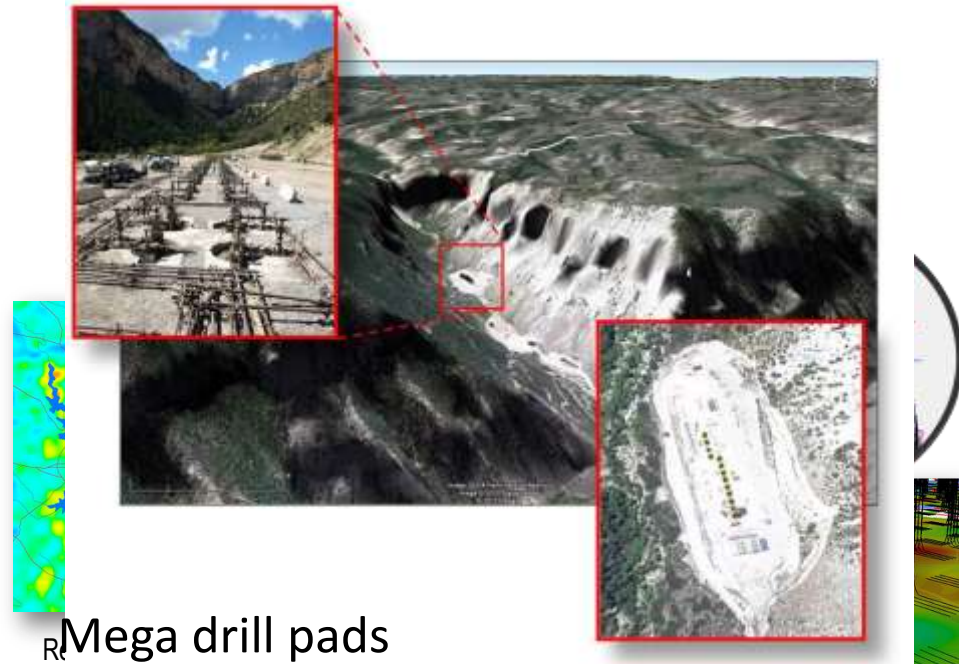
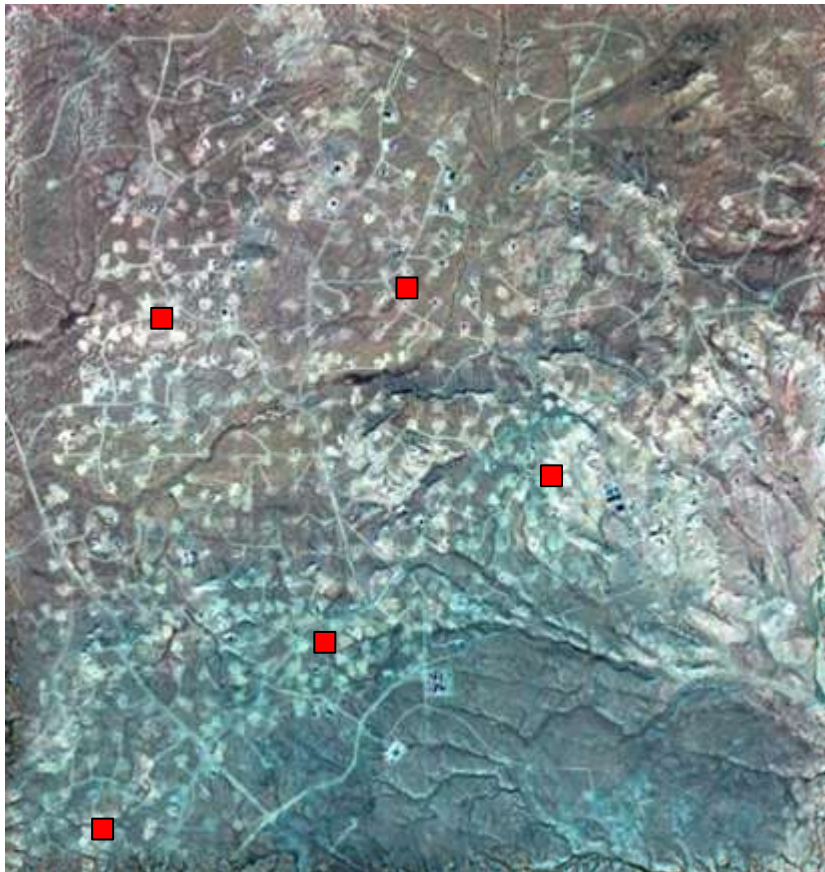


- Technology drives development
- Minimize footprint
- Optimize completions

Barnett
Best 12 Month Production (MMCF)



More Planning Less Footprint



Mega drill pads

Reservoir

Longer laterals

Reduced water

Reduced proppant

Reuse water

'sweet spots'

Surface restrictions

Pad Placement

Reservoir

Pad Well Design

and pad location

and pad location

Pad Well Design

Thank You

