

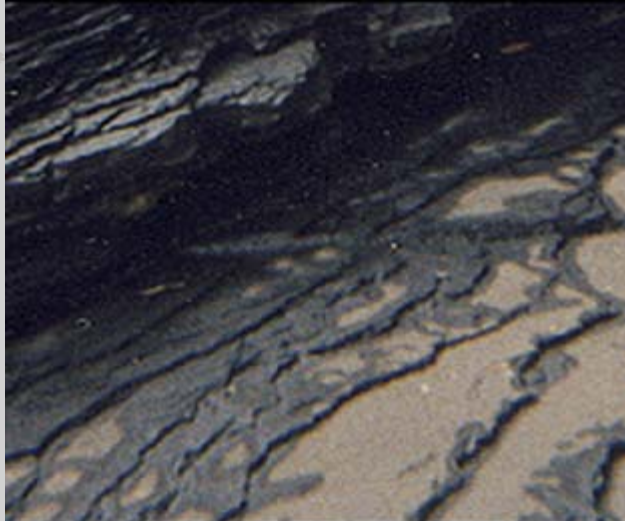
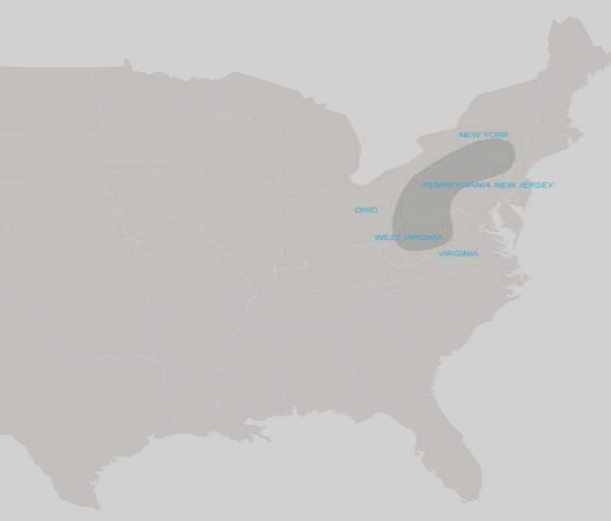


# **Chesapeake/StatoilHydro - Marcellus black shale**

November 2008

*(photo: Chesapeake)*

**StatoilHydro**



## Forms strategic alliance with major US gas player

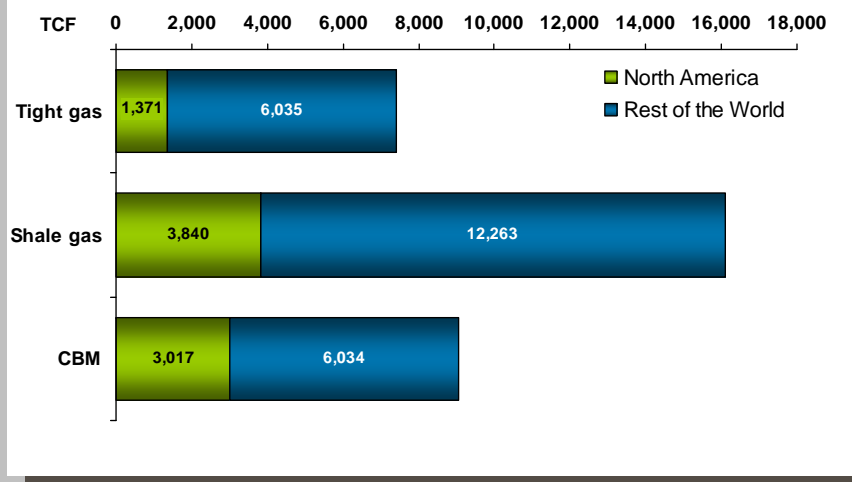
- **Why enter Unconventional Gas?** Steinar Eikaas
- **Shale Gas - What is it and what is the Marcellus Shale** Ketil Vestbakke
- **Key commercial considerations** Lene Landøy
- **Q & A**



## Acquires share in Marcellus shale

- Acquires 32.5% of Chesapeake's interest in the Marcellus shale
- 1.8 million net acres (0.6 million net to StatoilHydro)
- Recoverable StatoilHydro equity resources of 2.5 - 3.0 bn boe
- Total consideration of USD 3 375 million
  - USD 1 250 million to be paid at closing
  - Remaining as well-carry
- Average consideration per acre is USD 2 100 and USD 5 800 including carry
  - Value per individual acre may vary considerably.
- Right to 32.5% participation in Chesapeake's future lease acquisitions in Marcellus

*(photo: Chesapeake)*



# Unconventional Gas Resources

- **Tight Gas**
  - Sandstone or carbonate reservoirs with low permeability (<0.1 mD)
  - Large amount of hydraulic fractured wells
- **Shale Gas**
  - Large continuous accumulations provides both source, reservoir and seal for the gas
  - Extremely low permeability
  - Large amount of hydraulic fractured wells
- **Coal Bed Methane**
  - First production phase involves dewatering
  - Large amount of hydraulic fractured wells



# Why we pursue Unconventional Gas

- **Unconventional resources offers**

- Position in significant long term resource base with a large Yet To Find (YTF) potential
- Access to gas value chain projects
- Large technology upside (drilling & completion)

- **Unconventional resources requires**

- High gas prices
- Efficient operations, low well cost and successful well design
- Overcome environmental challenges (e.g., footprint, water management, air quality and wildlife)



# Unconventional expected to fill Gas Supply Gap

## Implications

- Development pace of new supply uncertain
  - Price key driver on supply
  - Industry capacity
- Large uncertainty on production beyond 2015
  - Further growth vs. peak
- Less need for LNG



# Health Safety and Environment

- StatoilHydro and Chesapeake have similar HSE goals and requirements
- The use of horizontal wells minimise the surface impact
  - Significant fewer drilling pads compared to unconventional gas fields with vertical wells
  - The distance between the drilling pads is 1.5 - 2 km
- Water management is critical in shale gas operations. Chesapeake has high focus on minimising impact by
  - Obtaining water rights
  - Aiming at increasing amount of water recycling
  - Aiming at using deep disposal wells (rather than cleaning and discharge to surface water)
- Greenhouse gas emissions are at a low level during the production phase

*(photo: Chesapeake)*



## Incentives and Governance - Deal Structure

- **Motivate Chesapeake to deliver on Marcellus Development Plan**

- Solution: Time-Limit on Carry: “Use it or lose it”
  - Deadline for carry chosen based on development plan
  - Some flexibility for Chesapeake

- **Ensure Chesapeake is cost effective during Carry Period**

- Solution: Chesapeake should carry some of its costs (25%)
  - Carry is absolute and has a time limit:  
Inefficient drilling (cost and time) leads to fewer carried wells





# Potential Beyond Marcellus

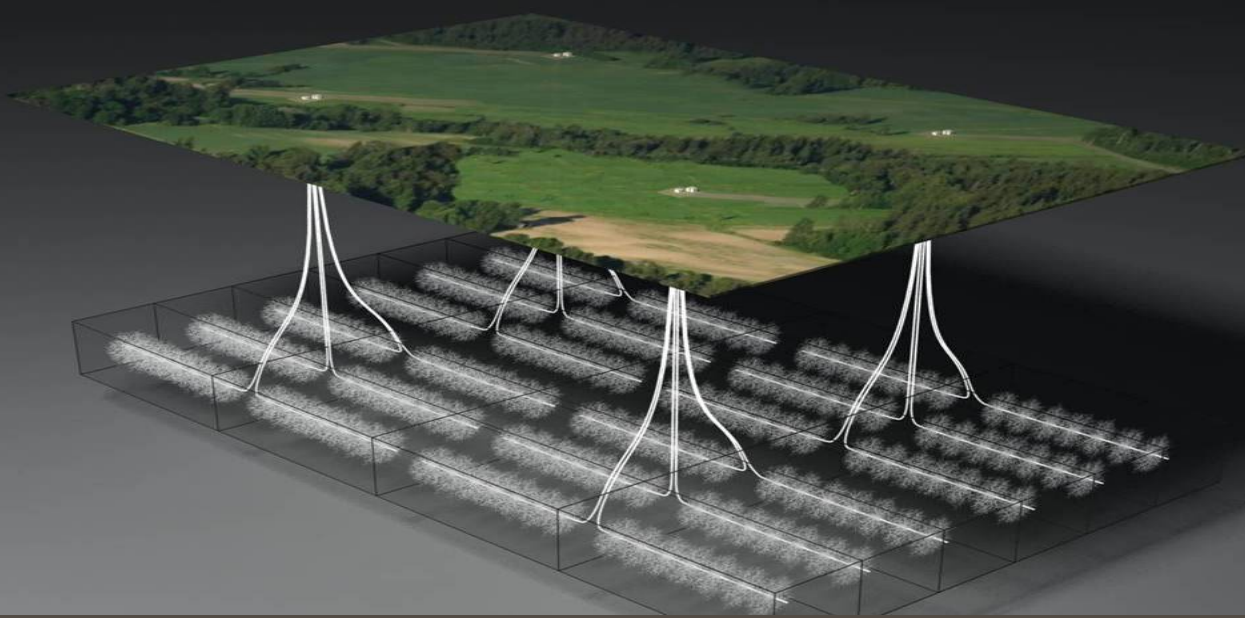
- **Marcellus Upside**

- Longer Horizontal Sections
- Deeper Formations
- Expanding acreage position

- **International Opportunities**

- Gas Shales outside the US
- Fiscal Regime (Risk/Reward)
- Location (Gas Market)
- Service Industry (Cost)

*(photo: Chesapeake)*

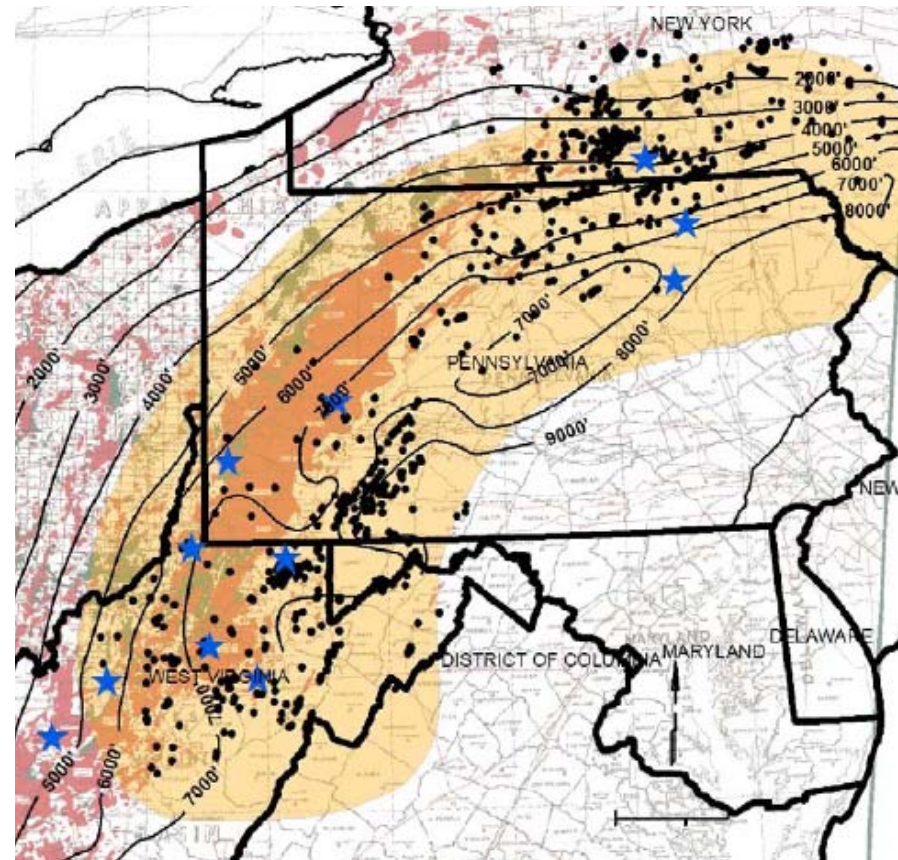


## Production from Marcellus shale gas reservoir

- The shale is its own petroleum system (source, seal and reservoir)
- Key characteristics of a shale gas play:
  - Every well is a field / Statistical play
  - Development scheme provides maximum optionality and limits the risks
  - Estimated Ultimate Recovery (EUR) mainly dependant on three factors;
    - horizontal well length,
    - the number of fractures in the horizontal well,
    - the quality of the shale (thickness, TOC, pressure, permeability etc).

# Basis for subsurface model

- Approx 1 000 data points
- 11 cored wells. 6 CHK cored wells
- StatoilHydro assessed 400 wells with logs
- Divided acreage into three categories
- Chesapeake has 18 wells in production
  - 6 horizontal wells
  - 12 vertical wells
- Development plan with horizontal wells only:
  - 2 of CHK's 6 horizontal Marcellus Shale wells reportedly average IP of ~7 mmcfe/day and combined EUR of ~11 Bcfe
  - 7 latest RRC horizontal Marcellus Shale wells reportedly well average IP of ~4.9 mmcfe/day

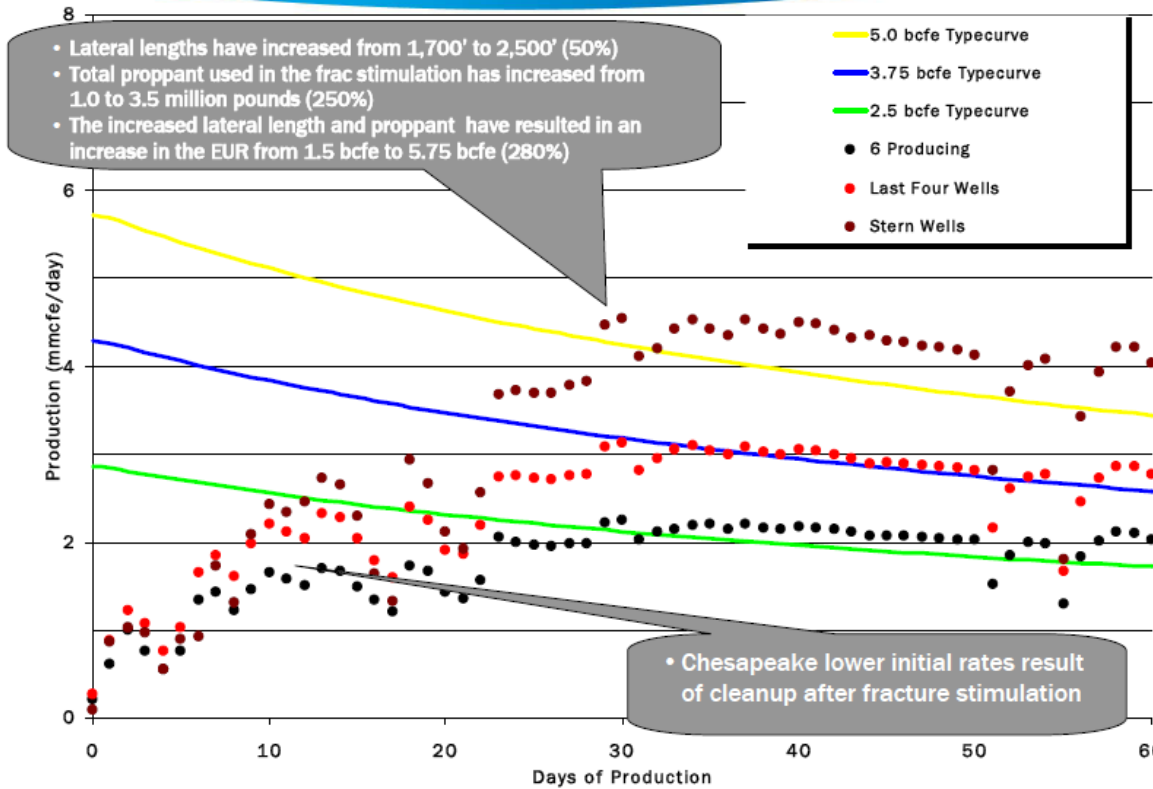


Source: Chesapeake 2008 Investor and Analyst meeting

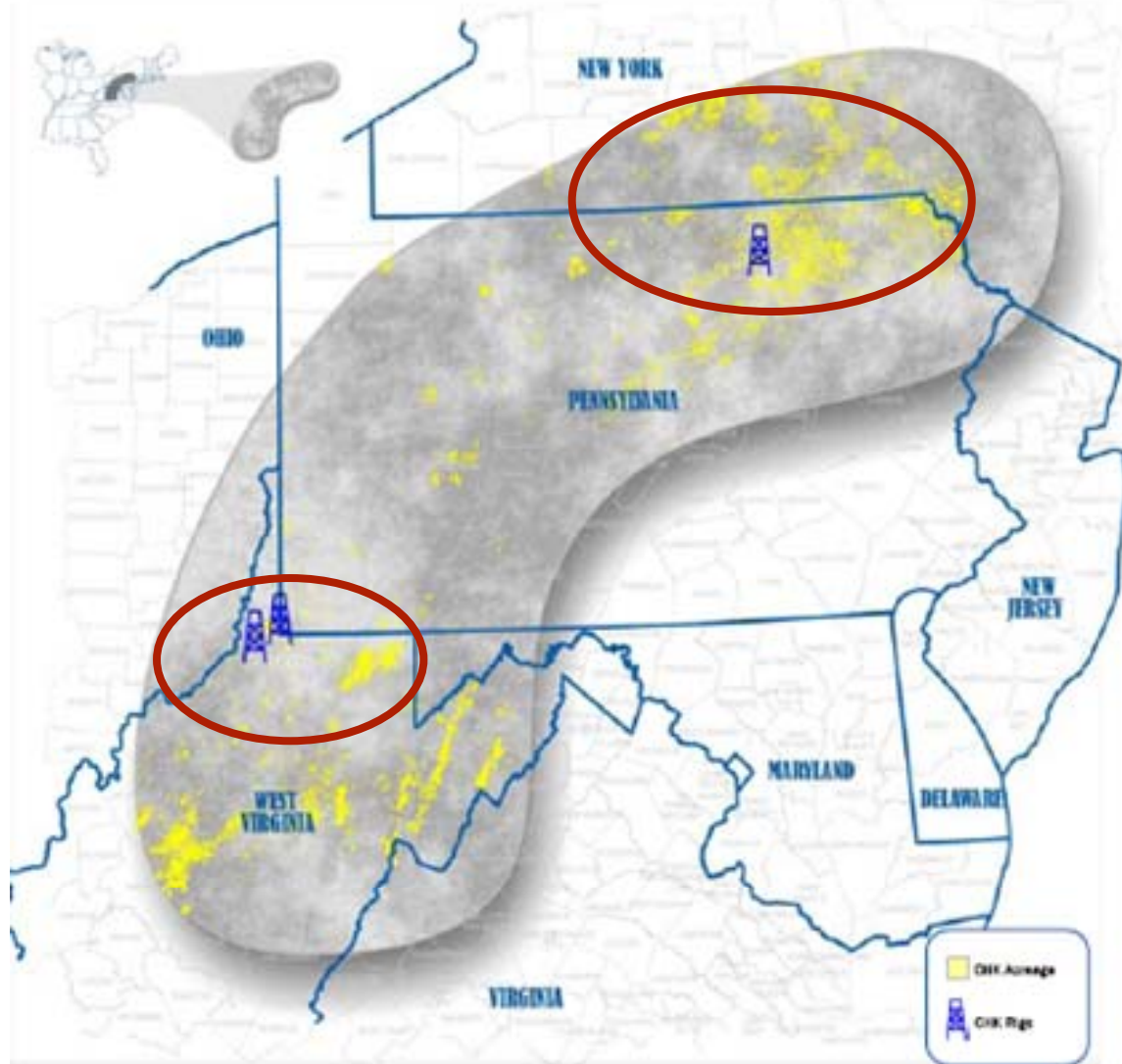
★ Core site

● Data point

# Marcellus Shale – Horizontal Well Performance



# Initial focus areas



# Expected development programme

- Current rig fleet of 3 rigs
- Expected plateau rate of 40-50 rigs by 2013
- Chesapeake needs to deliver a minimum development programme in order to earn full amount of carry
- 25-40% of acreage is considered non-commercial and will not be developed mainly due to lease continuity and relinquishment
- Assumed average well spacing of 80 acres
- Expected number of wells to be drilled is 13 500 – 17 000 within 2030
- This is a larger development plan compared to Chesapeake 5 500 wells without partner in Marcellus (Source: Chesapeake October 2008 Investor Presentation)

1.8 mill acres



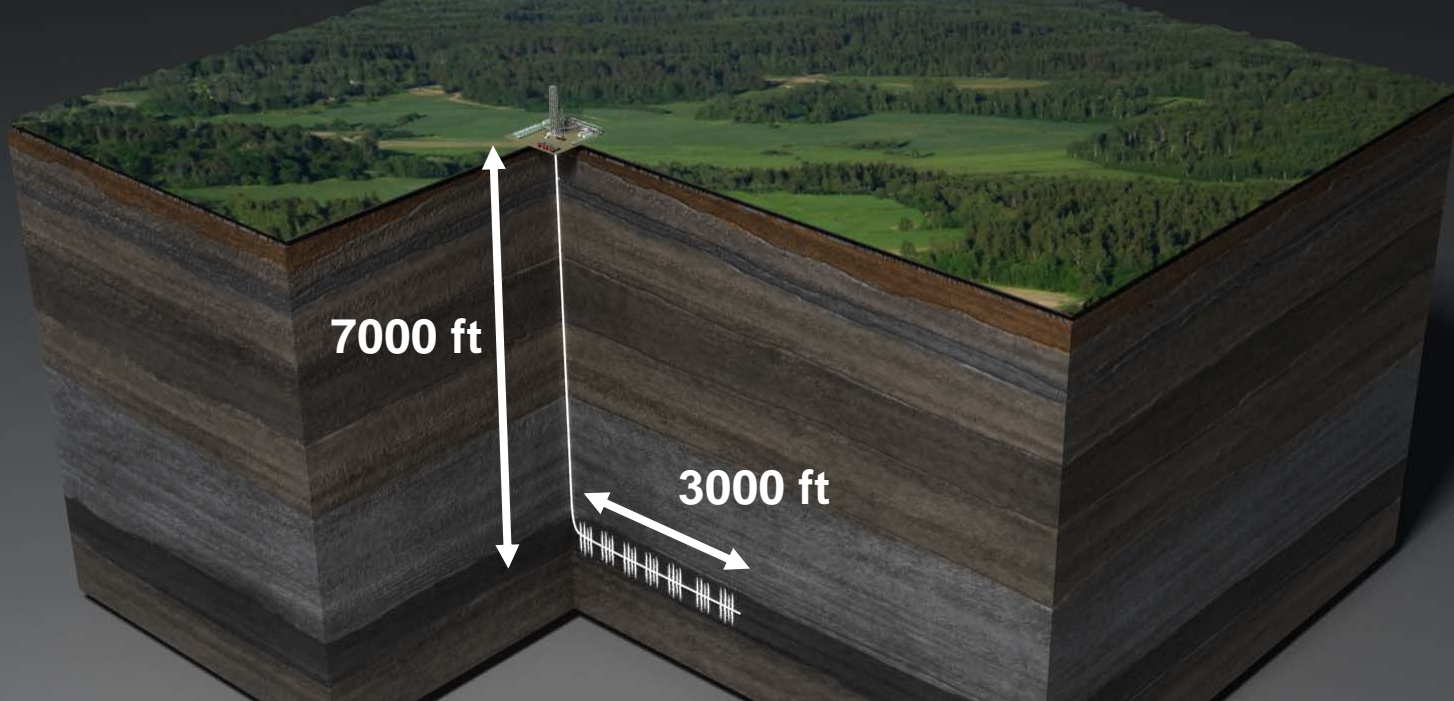
25% - 40% risk



80 acre spacing



13 500 – 17 000 wells



## An average Marcellus shale gas well

- Depth of reservoir varies across the fairway; 3,000 – 9,000 ft
  - 7,000 ft is a representative average depth
- All development wells will be horizontal wells
- StatoilHydro has assumed an average lateral length of 3,000 ft
- StatoilHydro has assumed hydraulic fracture stages every 500 ft; 6 stages in an average well
- Average drilling time per well currently 30 days and is anticipated to decline through learning curve effects

# Key commercial considerations

## Current financial turmoil

- Contractual downside protection
- Nature of the industry provides an option to hold back investments
- Chesapeake incentivized to deliver on Marcellus

## Price of natural gas

- US is the largest gas market in the world
- Production cost and option for power generators to switch between fuel is expected to establish a floor for long term gas prices
- Marcellus location provides access to markets with positive basis differentials

## Value chain positioning

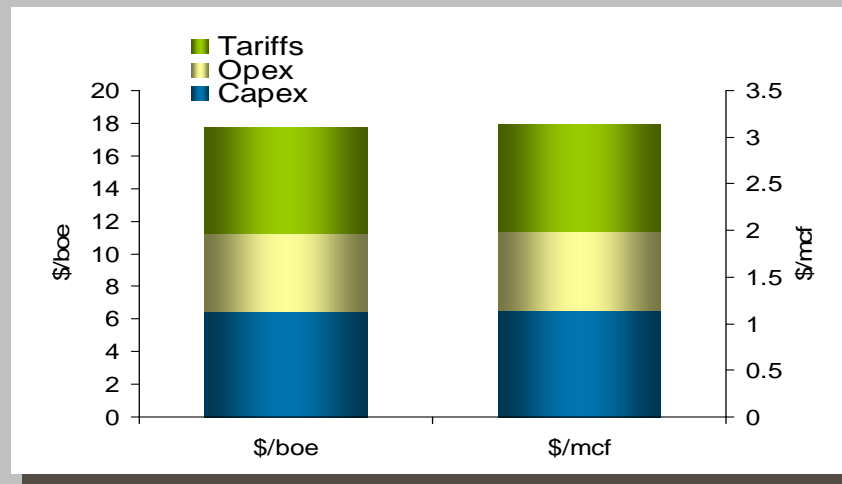
- Option to participate in midstream gathering and to market own gas

## Fragmented land ownership with more than 32 200 leases

- Joint Venture with Chesapeake –strong land management skills





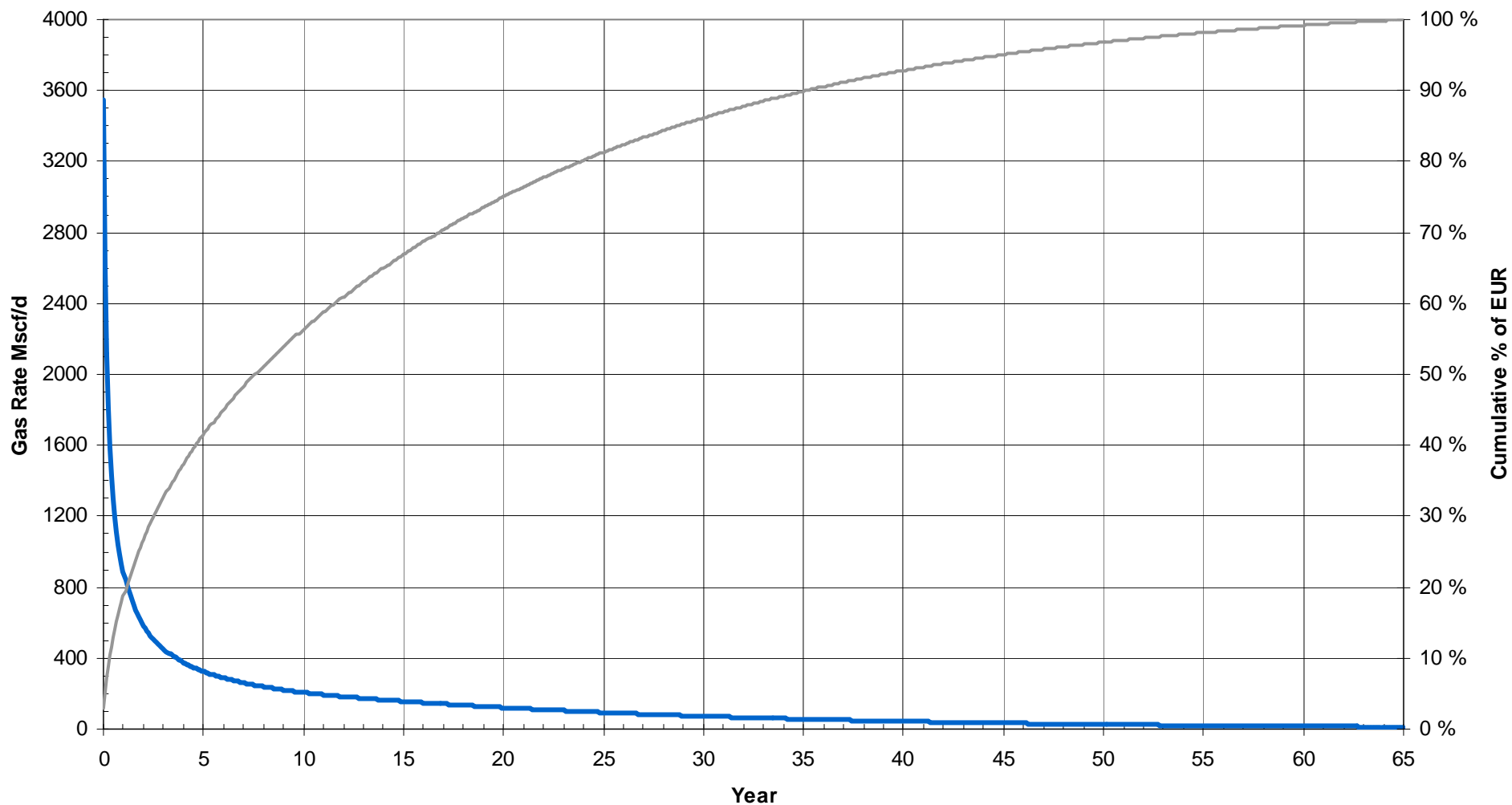


## Basis for valuation

- Estimated recoverable resources (StatoilHydro equity) 14 -17 Tcf (2.5 – 3.0 bn boe)
- Estimated number of wells (100%) 13 500 - 17 000
- Average recovery per well (100%) 3.1 Bcf (560 000 boe)
- CAPEX/well 30days (100%)<sup>1)</sup> ~ \$ 3.5 million (\$ 6.0-7.0 /boe)
- OPEX excluding transportation (100%) ~ \$ 4.5-5.0 /boe
- Tariffs (100%) ~ \$ 6.0-7.0 /boe
- Expected production peak (StatoilHydro equity) ~ at least 200 000 boe/day after 2020
- StatoilHydro's net revenue interest ~ 87% - as Chesapeake
- Price assumptions should reflect proximity to premium market
- Taxes (State Income and Federal Income taxes, Severance taxes)

<sup>1)</sup> Additional capex expected early years due to learning effects

# Expected production – 3.1 Bcf Proforma curve



Based on Chesapeake 3.75 Bcf proforma curve and scaled down according to StatoilHydro more conservative assumptions

Source for Chesapeake 3.75 Bcf Proforma curve: Chesapeake 2008 Investor and Analyst meeting

**StatoilHydro**



## Project considerations

### Capex

- SH capex: \$ 4- \$ 6bn next 5 years (including cash consideration and carry) and ~\$ 1bn annually thereafter
- Approximately 90% of capex is related to drilling
- Small capex addition would be required for gathering
- 100% project capex ~ \$ 47 - 60 bn

### Cash flow

- Positive net cash flow from 2013 at current forward prices

# Forward looking statements

This presentation and statements regarding our strategic alliance with Chesapeake Energy Corporation contain certain forward-looking statements that involve risks and uncertainties. In some cases, we use words such as "believe", "intend", "expect", "anticipate", "plan", "target" and similar expressions to identify forward-looking statements.

All statements other than statements of historical fact, including, among others, statements such as those regarding: plans for future development and operation of projects; reserve information; expected exploration and development activities and plans; expected start-up dates for projects and expected production and capacity of projects; the expected impact of the "sub-prime" financial crisis on our financial position to obtain short term and long term financing, the expected impact of USDNOK exchange rate fluctuations on our financial position; oil, gas and alternative fuel price levels; oil, gas and alternative fuel supply and demand; the completion of acquisitions; and the obtaining of regulatory and contractual approvals are forward-looking statements.

These forward-looking statements reflect current views with respect to future events and are, by their nature, subject to significant risks and uncertainties because they relate to events and depend on circumstances that will occur in the future. There are a number of factors that could cause actual results and developments to differ materially from those expressed or implied by these forward-looking statements, including levels of industry product supply, demand and pricing; price and availability of alternative fuels; currency exchange rates; political and economic policies of Norway and other oil-producing countries; general economic conditions; political stability and economic growth in relevant areas of the world; global political events and actions, including war, terrorism and sanctions; the timing of bringing new fields on stream; material differences from reserves estimates; inability to find and develop reserves; adverse changes in tax regimes; development and use of new technology; geological or technical difficulties; the actions of competitors; the actions of field partners; the actions of governments; relevant governmental approvals; industrial actions by workers; prolonged adverse weather conditions; natural disasters and other changes to business conditions. Additional information, including information on factors which may affect StatoilHydro's business, is contained in StatoilHydro's 2007 Annual Report on Form 20-F filed with the US Securities and Exchange Commission, which can be found on StatoilHydro's web site at [www.statoilhydro.com](http://www.statoilhydro.com).

Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot assure you that our future results, level of activity, performance or achievements will meet these expectations. Moreover, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. Unless we are required by law to update these statements, we will not necessarily update any of these statements after the date of this review, either to make them conform to actual results or changes in our expectations.

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