ENCANA
energy for people

"Unconventional" Discovery Thinking in Resource Plays: Haynesville Trend & John Amoruso Field, East Texas

Marvin D. Brittenham
Team Lead - New Ventures USA
AAPG/DPA Discovery Thinking Forum | Denver, CO | June 8, 2009

www.encana.com

Learnings & Values

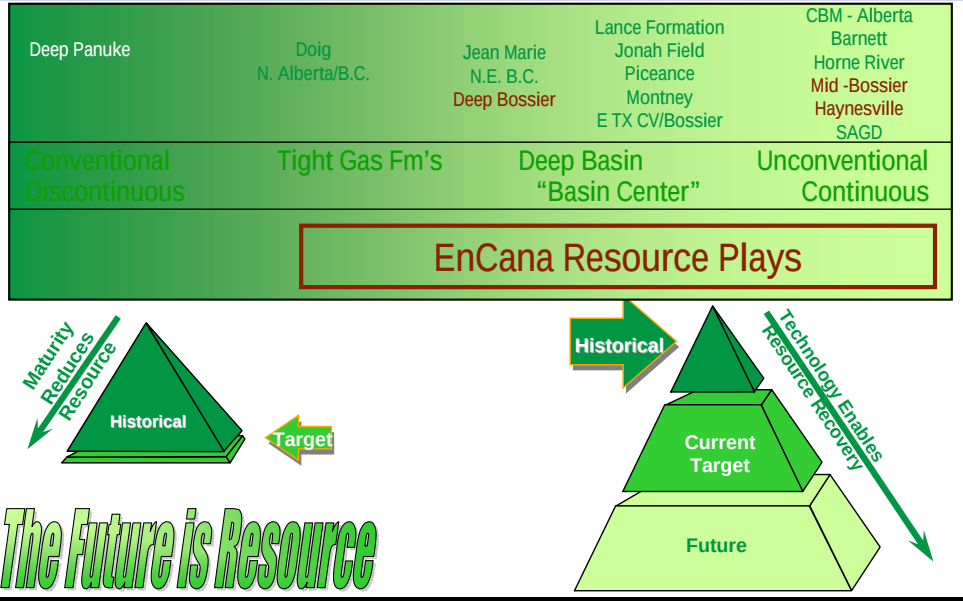
- ***Value Professional, Mentor & Peer Relationships***
- ***Challenge Dogma & Paradigms (with data and scientific thinking)***
  - *"there are no more large fields to be found"*
  - *"deep is bad – high temperature, high pressure, high stress, poor porosity"*
- **IOIIOIIOI*: Imagine, Observe, Interpret***
  - *Re-iterate*
  - *Avoid "paralysis by analysis"*
- ***Employ Multiple working hypotheses***
- ***Fully Utilize evolving technologies***
- ***Don't be shy about size / scale***

Unconventional Discovery Thinking

Take-aways:

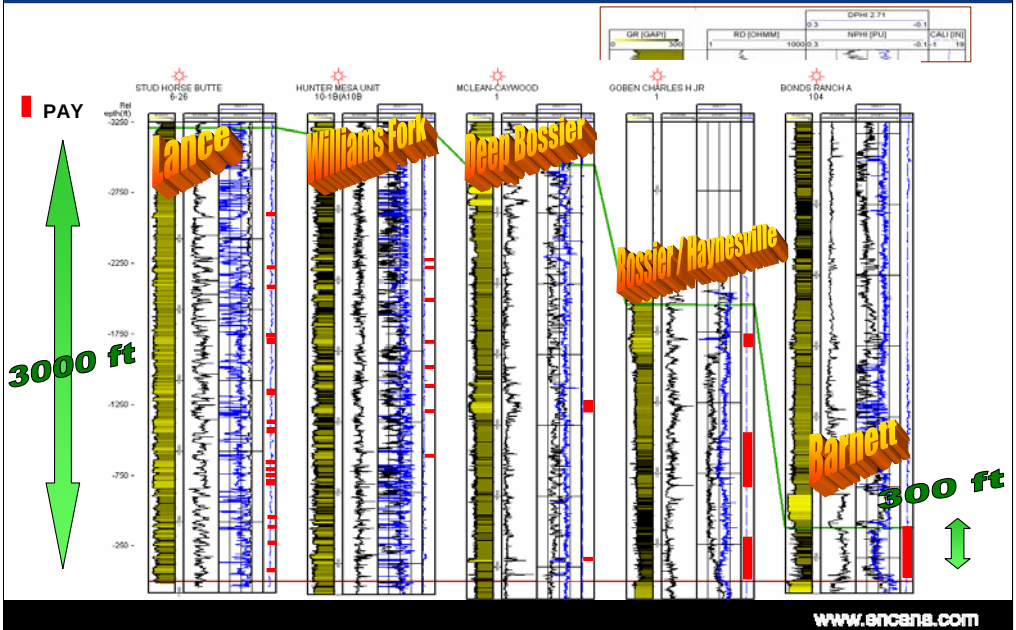
- ***Resource Plays require exceptional collaboration & leadership***
- ***Resource Plays are more than unconventional***
- ***Resource plays often have a long history – require persistence***
- ***Resource plays aren't all low rate / return***
- ***Mega gas shale plays will be game changers***
- ***Supply and demand will be a continuing challenge***

Resource Plays
A Continuous Spectrum



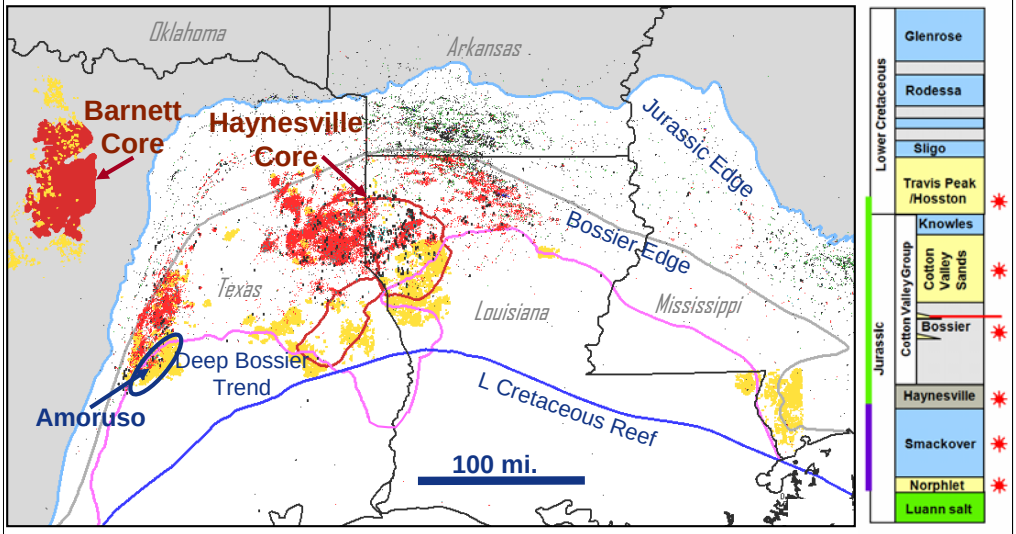
Key & Emerging Resource Plays

EnCana Oil & Gas (USA) Inc.

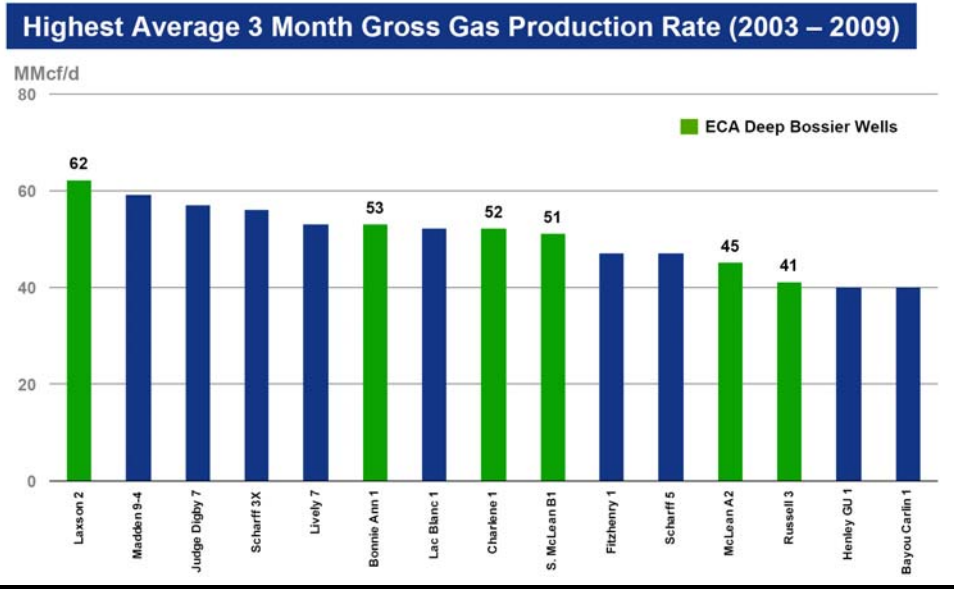


Gulf Coast Jurassic Trend

> 1 Million Acres on Trend

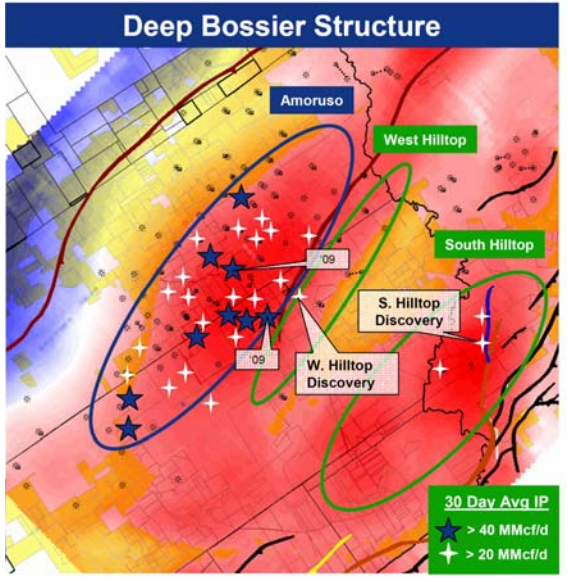


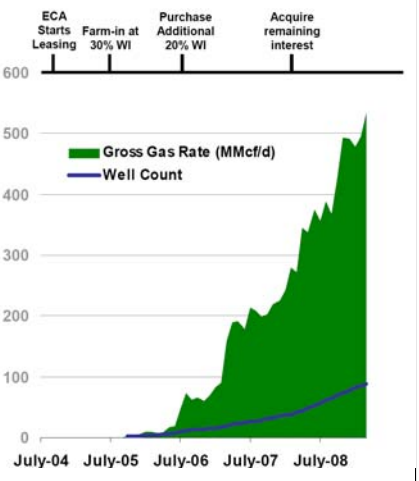
Deep Bossier Amoruso
Exceptional Rates / Reserves



Source: HPDI

Deep Bossier Amoruso History / Status

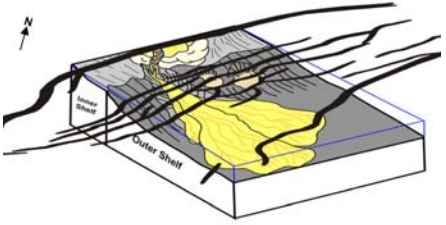




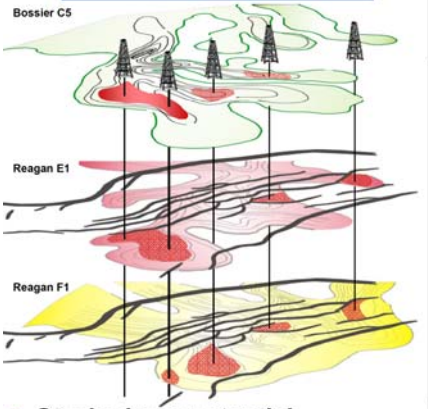
Deep Bossier Amoruso Subsurface

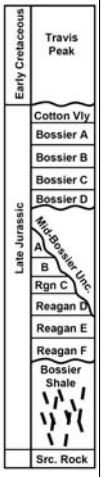
Deep Bossier

- Basinward to SE
- Submarine fans and turbidites
- Abnormally pressured – porosity preserved
- High porosity sands in Outer Shelf
- Thicker, tighter sands within Shelf Margin



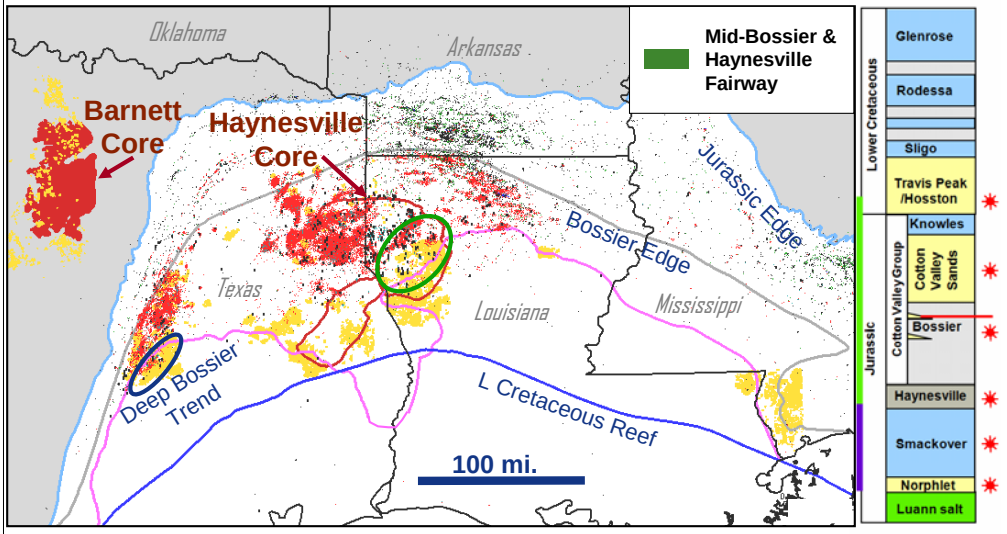
Amoruso



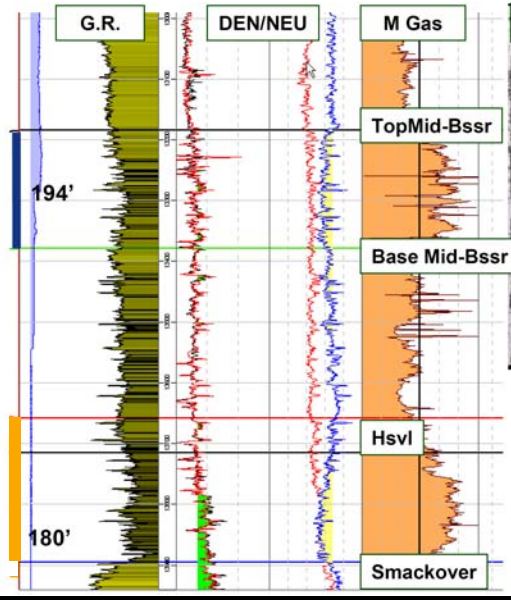


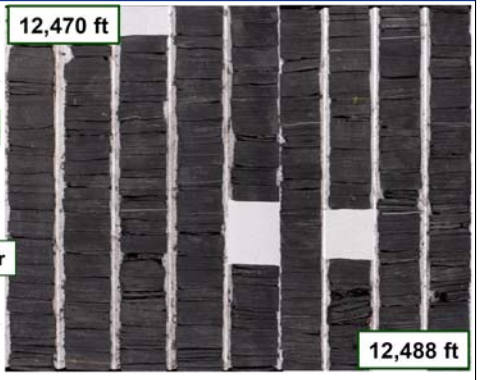
- Stacked pay potential
- Continuous and compartmentalized
- Stratigraphic traps and fault separation

Gulf Coast Jurassic Trend
Haynesville / Bossier Shale Fairway



Haynesville / Bossier Play
Fairway Stack Pay



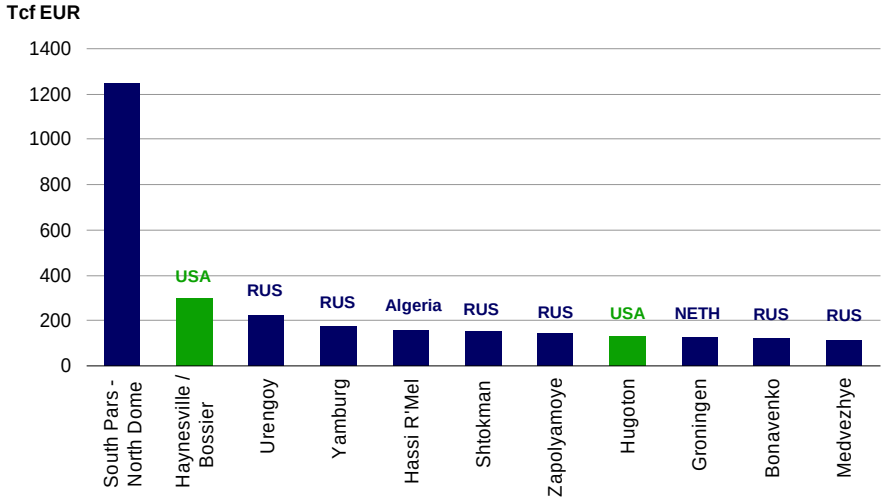


Fissile, grayish black, slightly silty shale

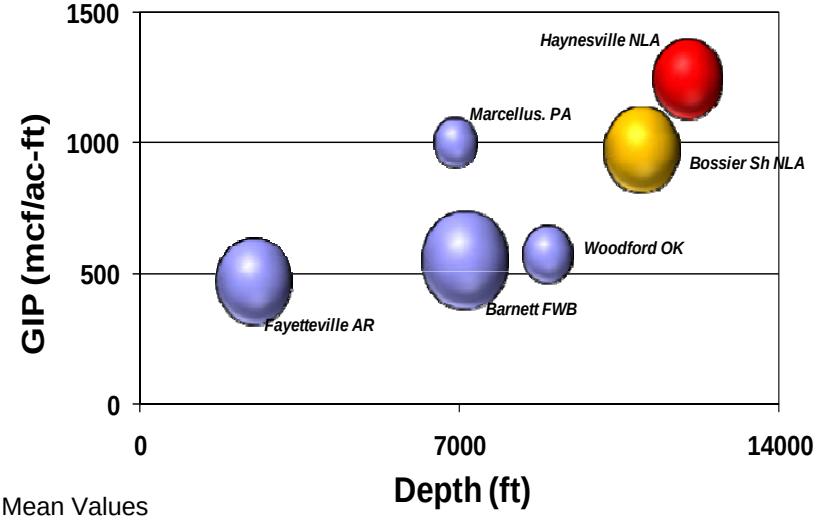
Haynesville Shale Average Values

- TOC (total organic content) – 3.2%
- Ø (porosity) – 8.44%
- K (permeability) – 0.38 micro D
- Ro (vitrinite reflectance) – 2.19

Haynesville / Bossier Play
World Class Resource



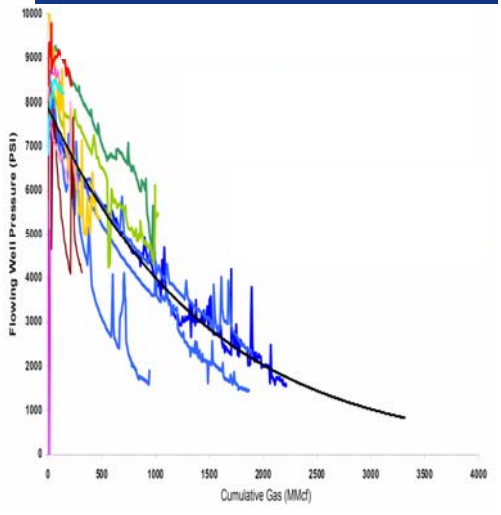
Haynesville / Bossier Play
World Class Resource



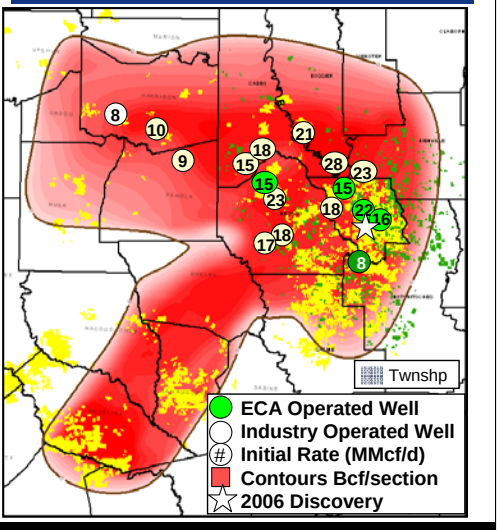
Play Mean Values
Bubble size – relative thickness

Haynesville Play Status
Well Performance

Potential to produce over 3 Bcf before hitting line pressures



Exceptional OGIP Developing Fairway



www.encana.com

Presenter's Notes: EnCana has drilled 16 horizontal wells and over that period it has decreased well costs by 30% to about $9 million per well, increased IPs, decreased cycle time from 60 days to 50 with the most recent wells in the 40's.

Haynesville Play Status
Well Performance