

# National Energy Technology Laboratory Strategic Center for Natural Gas



## *Rocky Mountain E&P Technology Transfer Workshop*

*August 4, 2003*

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Gas Exploration, Production, and Storage**



# National Energy Technology Laboratory



- **One of DOE's 17 national labs**
- **Government owned/operated**
- **Sites in:**
  - West Virginia, Pennsylvania, Oklahoma, and Alaska
- **More than 1,100 federal and support contractor employees**
- **FY 03 budget \$785 million**
- **Primary focus is managing external Fossil Energy R&D**



# Strategic Center for Natural Gas



- Created December 1999
- One place within DOE for natural gas issues
- Borehole to Burnertip



**Exploration  
& Production**



**Pipelines  
& Storage**



**Fuel Cells**



**Combustion  
Turbines**



# Gas E&P Program

## *Mission*

**Develop technologies to help ensure an abundant, economical, domestic supply of natural gas with minimal environmental impact**

**Meet expected 30 - 35 TCF demand by 2020**





## Gas Exploration & Production Program Goals

- **Recover more from existing fields (Near-Term)**
  - Effective technology transfer
  - Locate by-passed zones in conventional reservoirs
  - Enhance stripper well production
- **Exploit marginal/unconventional resources (Mid-Term)**
  - Reduce drilling cost
  - Improve success rates in finding gas in tight sands
  - Decrease environmental impact
- **Encourage E&P of frontier resources (Long-Term)**
  - Deep (>20,000 feet) gas
  - Methane Hydrates



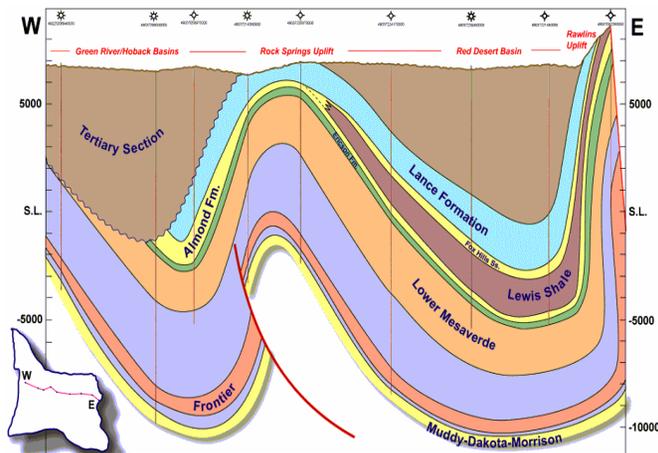
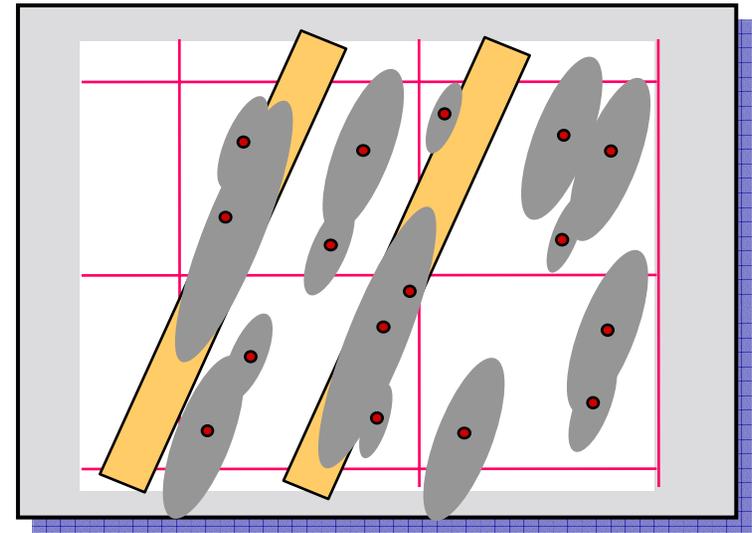
# Partnership Approach

- **Careful Planning with Significant Industry Input**
  - Technology roadmaps; advisory committees; consortiums; merit reviews.
- **Cost-shared R&D conducted with partners**
  - Industry; fed agencies; National labs; universities.
- **Modest budget/Balanced Project Portfolio**
  - Approximately \$30 Million/year.
  - Over 80 projects ongoing.
- **Technology transfer**
  - Successful field demonstrations; PTTC; Web Site; workshops; Gas TIPS.



# Gas E&P Program Highlights

- **Infill Drilling Optimization (NMT)**
  - 8 Tcf added reserves San Juan Basin
  - Deviation from standard well placement approved by Commission
  - New tools and approaches developed
  - Transferred to other basins

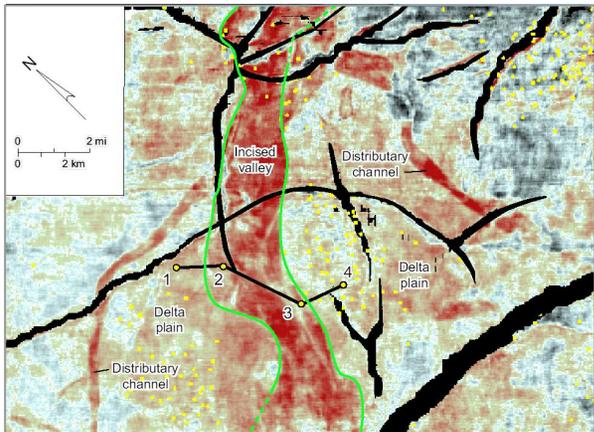


- **Resource/Technology Assessments**
  - Completed GGRB and WRB
  - Unprecedented level of detail
  - CD available
  - Uinta and Anadarko basins to be completed by June 2004



# Gas E&P Program Highlights

- **Massive VSP (Paulsson Geophysical)**
  - Highest resolution 3D-imaging (400L)
  - Multiple field tests complete
  - Additional field tests: 2003/2004
  - Increase reserves/decrease dry holes



- **Reserve Growth Northern Gulf (BEG)**
  - Advanced technologies applied
    - High resolution seismic stratigraphy
    - Stratal-slicing & neural network
    - Up to 625 Bcf of bypassed reserves
  - Up to 1 TCF new gas potential
    - 54 opportunities identified
    - First 3 wells added 8.5 bcf reserves



# Gas E&P Program Highlights

- **Composite Drill Pipe (ACPT)**

- Half weight of steel, extend rig fleet
- Ultra-short radius to horizontal
- High speed data capable
- Field test completed Nov 02  
Oklahoma



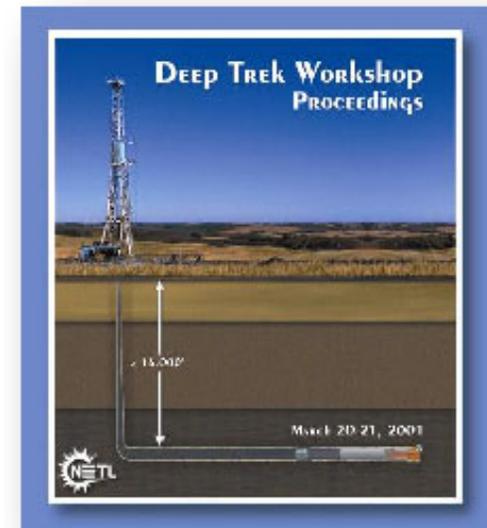
- **Arctic Platform (Anadarko)**

- Good for environment (reduced footprint)
- Good for industry (longer drilling season)
- Deployed in AK in March 2003



# Deep Trek Program

- **Purpose**
  - Develop very deep drilling & completion technologies
  - High-temp, high pressure, hard rock, corrosive environment
- **6 active projects**
  - APS Tech Inc.: Downhole vibration control
  - E-Spectrum: Wireless EM telemetry
  - Penn State: Seamless coiled tubing
  - Pinnacle Tech: Deep completion study
  - Terra Tek: Test cutters & fluids
  - Holdich Res Tech: Benchmark drilling costs
- **3 new selections for award**
  - Honeywell: High-temp electronics
  - Schlumberger: High-temp MWD
  - Cementing Solutions: Super Cement



# Stripper Well Consortium

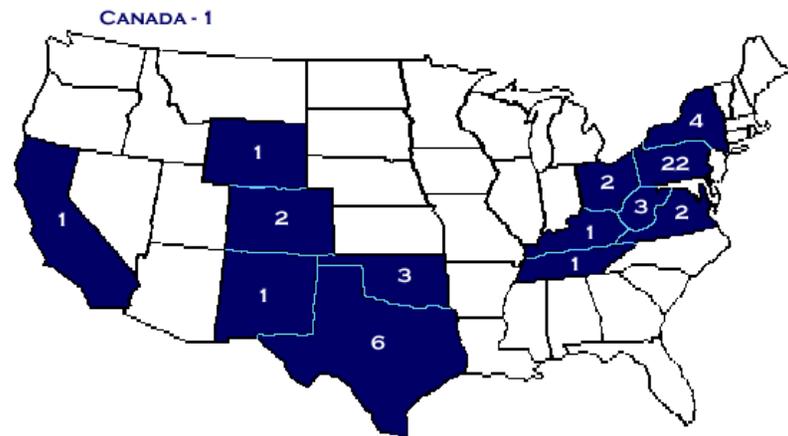


- Industry-driven consortium est. Oct 2000
- Funded by NETL, NYSERDA, members (60)
- FY 2001-2002: 27 projects valued at \$3.7M
- FY 2003: 13 projects valued at \$2.0 M
- Target: small independents
- Projects: 1 year duration

- **Products:**

- GOAL PetroPump
- METEOR software
- Low-cost oil/water separator
- Vortex flow unit

- [www.energy.psu.edu/swc](http://www.energy.psu.edu/swc)



# Strategic Center for Natural Gas Website

- R&D Project Info
- Solicitations
- Latest Progress
- Contacts/Links/Events

The screenshot shows the homepage of the Strategic Center for Natural Gas website. At the top, it features the NETL logo and the text "NATIONAL ENERGY TECHNOLOGY LABORATORY STRATEGIC CENTER FOR NATURAL GAS". A navigation bar includes links for Home, Search, Site Index, and Feedback. The date "March 19, 2001" is displayed in the top right corner. The main heading is "The Strategic Center for Natural Gas". Below this, there are three main sections: "Methane Hydrates Solicitation", "Honeywell Hybrid Fuel Cell Tech. To be Added to DOE/SCNG R&D Program", and "Lasers Studied for 21st Century Oil, Natural Gas Drilling". Each section includes a brief description and a "Read More!" link. On the right side, there is a circular graphic with the text "Integrating All Elements of DOE's Natural Gas Research From Borehole to Burner Tip" and a list of research areas: Strategic Planning & Policy Support, Exploration and Production, Transmission, Distribution & Storage, and Gas Processing & End Use. A sidebar on the left lists various site sections: News, Events, Contacts, Overview, Key Initiatives, Strategy, Exploration, Distribution, End Use, Projects, and Links. At the bottom, there is a "Return to top of page" link, a "Last Update: 03/13/01" timestamp, and a footer with the text "2001 National Energy Technology Laboratory U.S. Department of Energy".

**Internet Location:** [netl.doe.gov/scng/index.html](http://netl.doe.gov/scng/index.html)



*Strategic Center for Natural Gas*

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**Colorado Convention Center**  
**Denver, CO**  
*August 4, 2003*



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