### Domestic Natural Gas Supply: A Large Resource Base Does Not Guarantee Low Long-Term Prices

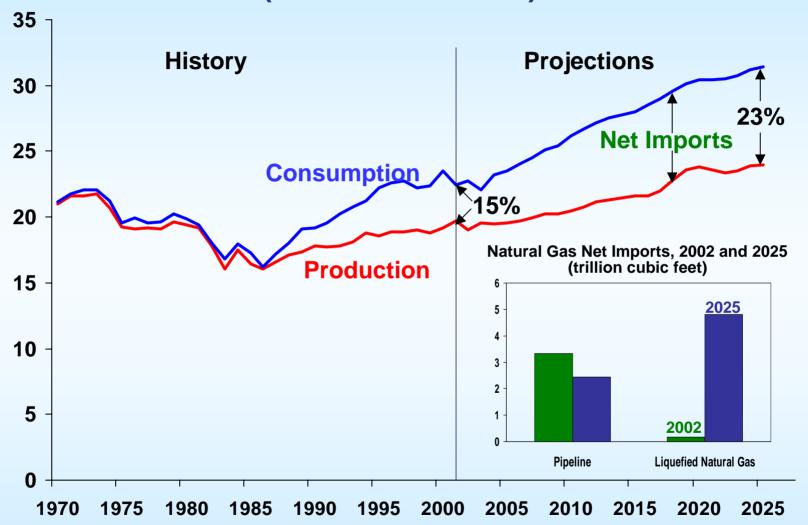
#### Dana Van Wagener Energy Information Administration

dana.vanwagener@eia.doe.gov

NEMS/AEO Conference March 23, 2004

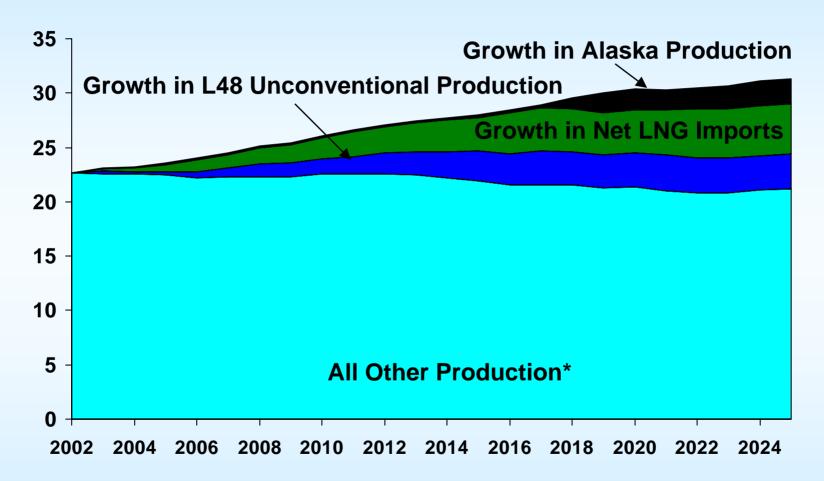


## Natural Gas Production, Consumption, and Imports (trillion cubic feet)





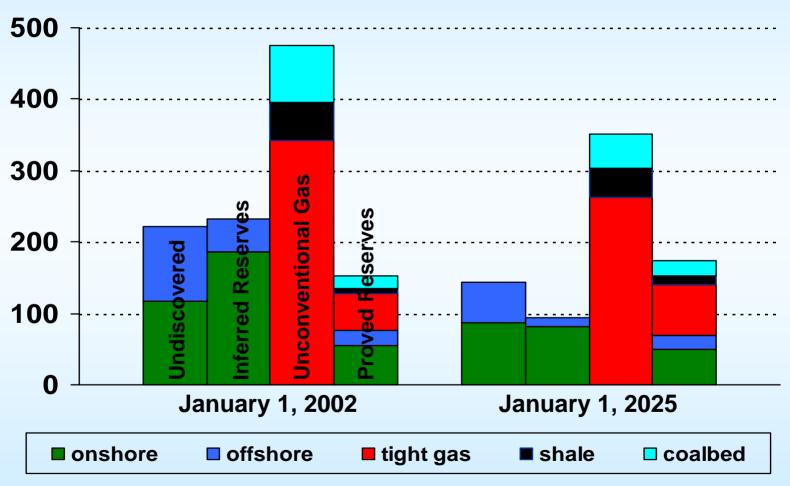
## Major Sources of Incremental Natural Gas Supply (trillion cubic feet)



\*Includes total associated-dissolved, non-associated conventional, lower-48 offshore, supplemental natural gas production, Canadian, and Mexican imports.

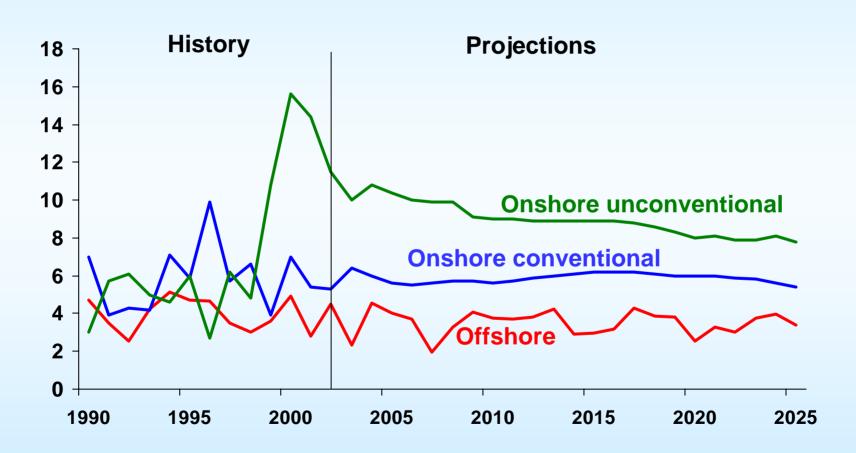
w.ela.dge.ggv

### Lower-48 Technically Recoverable Nonassociated Natural Gas Resources, 2002 and 2025 (trillion cubic feet)



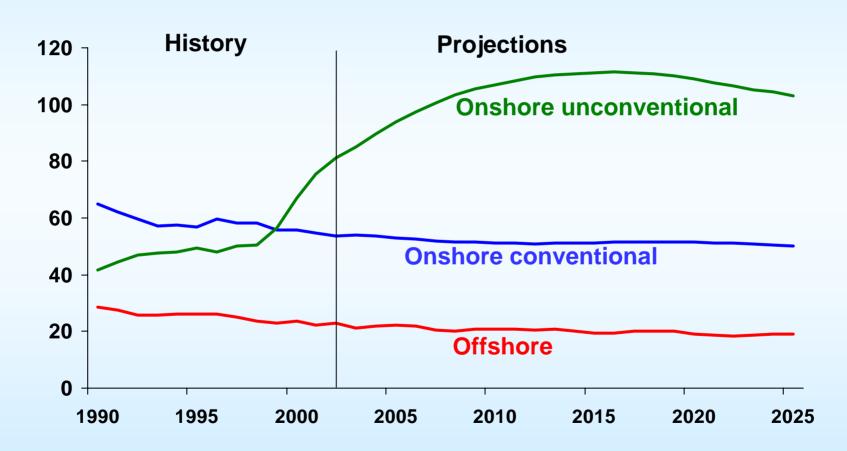


## Lower 48 Nonassociated Natural Gas Reserve Additions (trillion cubic feet)



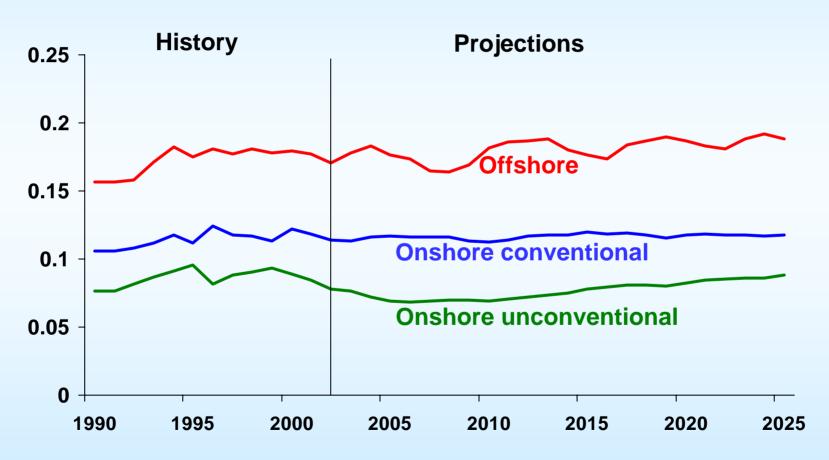


#### Lower 48 Nonassociated Natural Gas End-of-Year Reserves (trillion cubic feet)





#### Lower 48 Nonassociated Natural Gas Production-to-Reserve Ratios



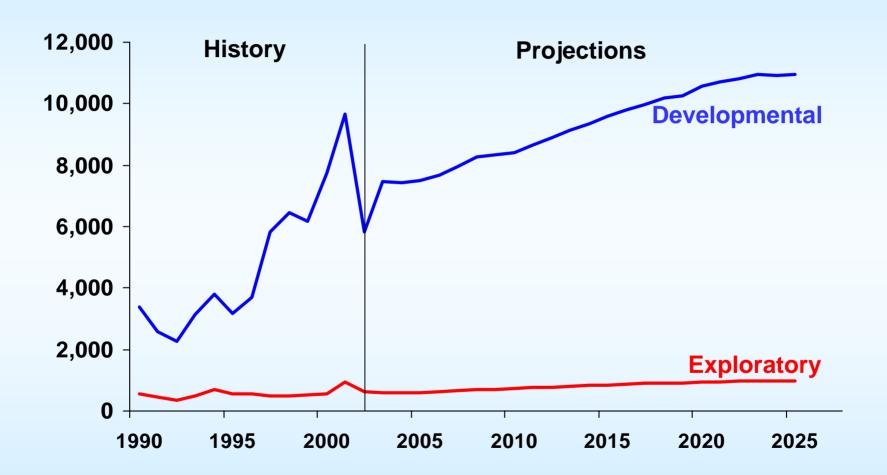


## **Technology Improvement Factors for Conventional Onshore Resources**

Category	Improvement Rate	
Drilling costs	1.87 %/year	
Lease equipment costs	1.20 %/year	
Operating costs	0.54 %/year	
Finding rates	2.84 %/year	
Success rates	0.5 %/year	

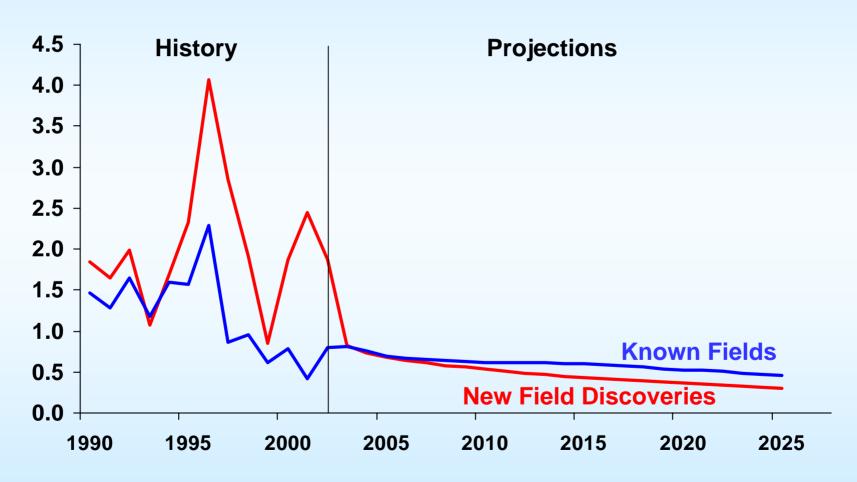


## Conventional Onshore Natural Gas Wells Drilled (number of wells)



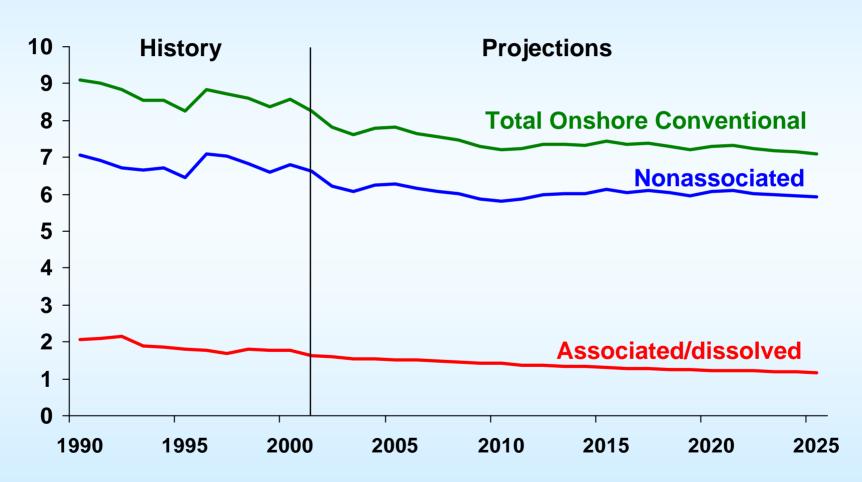


### Conventional Onshore Nonassociated Reserve Additions Per Well (billion cubic feet)





## Onshore Conventional Natural Gas Production (trillion cubic feet)



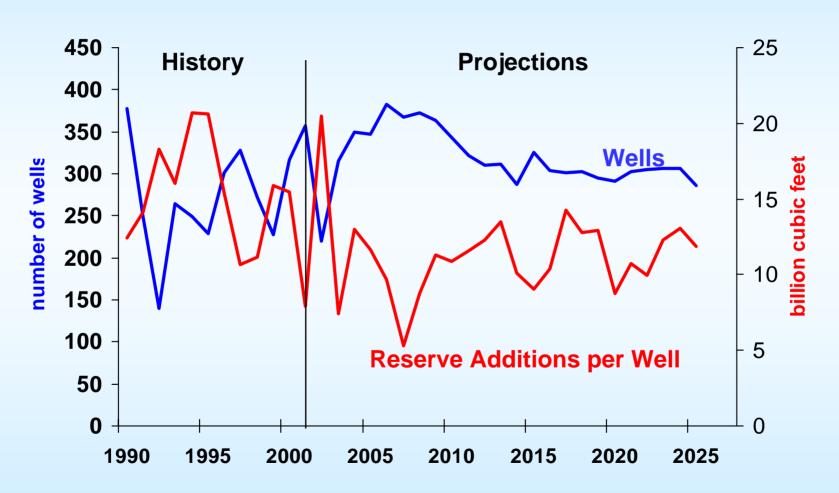


## **Technology Improvement Factors for Offshore Resources**

Category	Improvement Rate
Exploration success rates	0.80 %/year
Delay to commence first exploration and between exploration (years)	0.60 %/year
Drilling costs	1.20 %/year
Operating costs	1.20 %/year
Time to construct production facility (years)	0.60 %/year
Production facility construction costs	1.20 %/year
Initial production rate	0.80 %/year

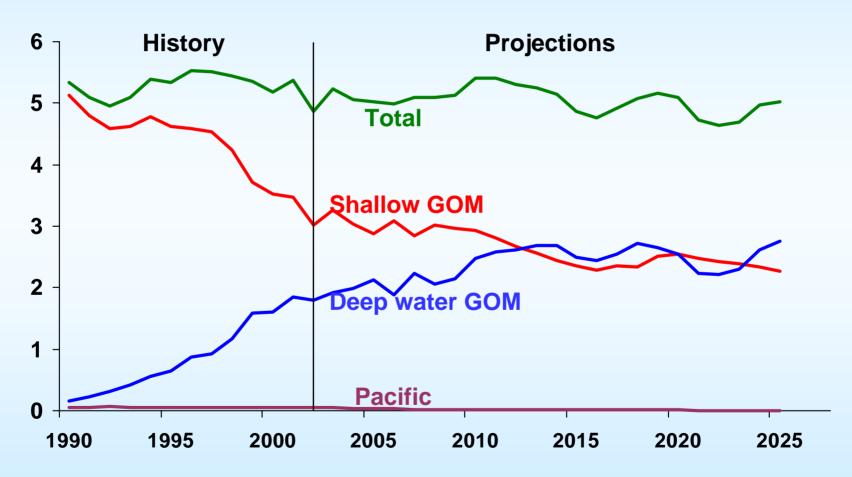


## Offshore Natural Gas Wells and Reserve Additions per Well



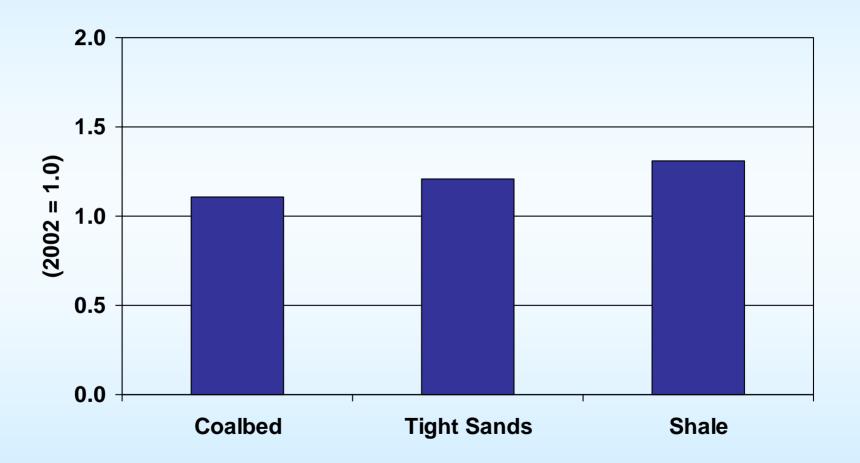


## Offshore Natural Gas Production (trillion cubic feet)





# Technology Improvement Factors for EUR/Well\* for Unconventional Resources in 2025 Relative to 2002



<sup>\*</sup> Estimated Ultimate Recovery per Well

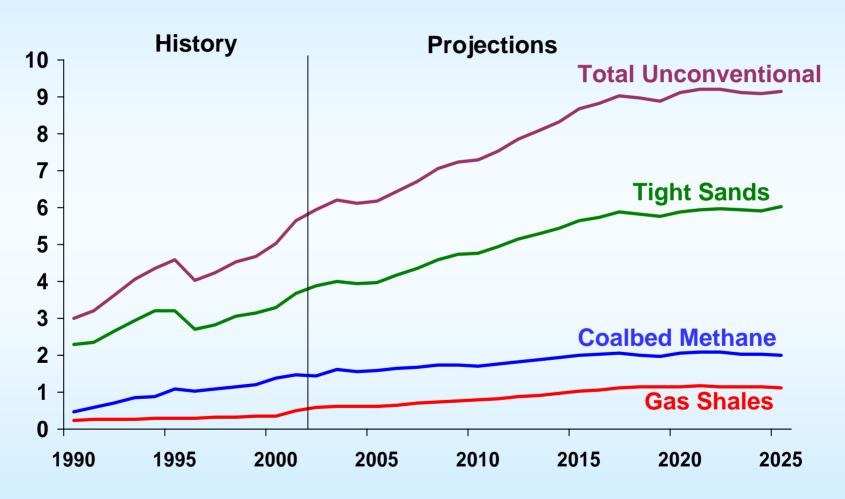


# Access Status of Undeveloped Unconventional Natural Gas Resources in the Rocky Mountain region, January 1, 2002 (trillion cubic feet)

Access Status	Resources
Officially inaccessible	23.44
Inaccessible due to development constraints	83.71
Accessible with lease stipulations	47.51
Accessible under standard lease terms	172.92
Total	327.58

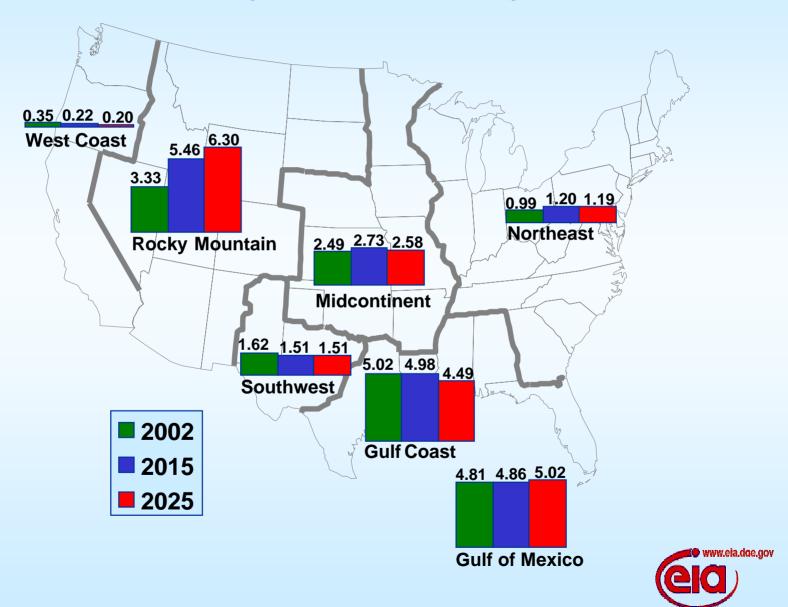


## Lower 48 Unconventional Production by Type (trillion cubic feet)





## Regional Natural Gas Production, 2002, 2015, 2025 (trillion cubic feet)



## Natural Gas Wellhead Prices (2002 dollars per thousand cubic feet)

