

A Geologic Perspective to the Shale Revolution

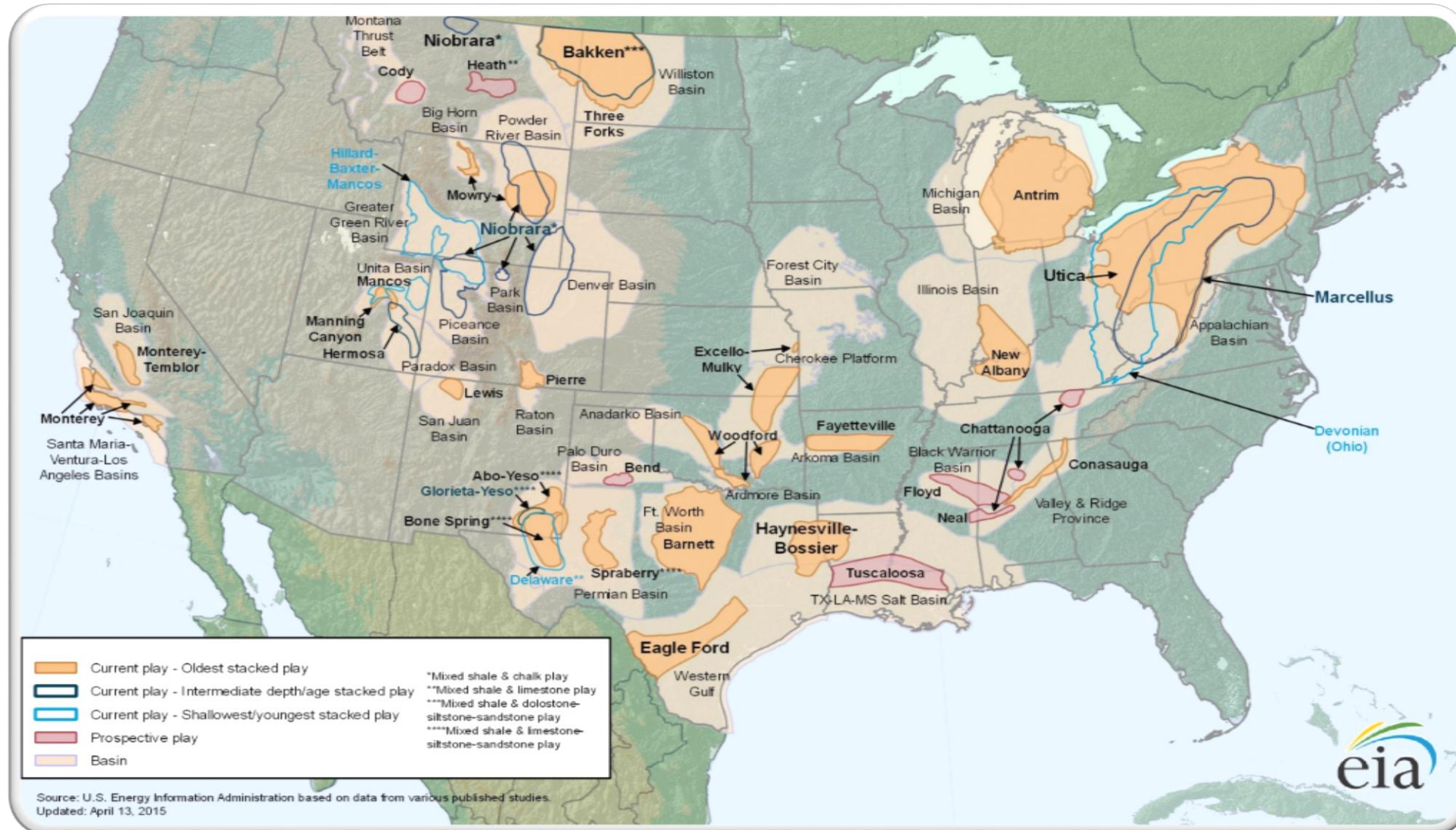
Mark Zatezalo

Member, WV House of Delegates

Here we are...



Shale Plays – Lower 48 States

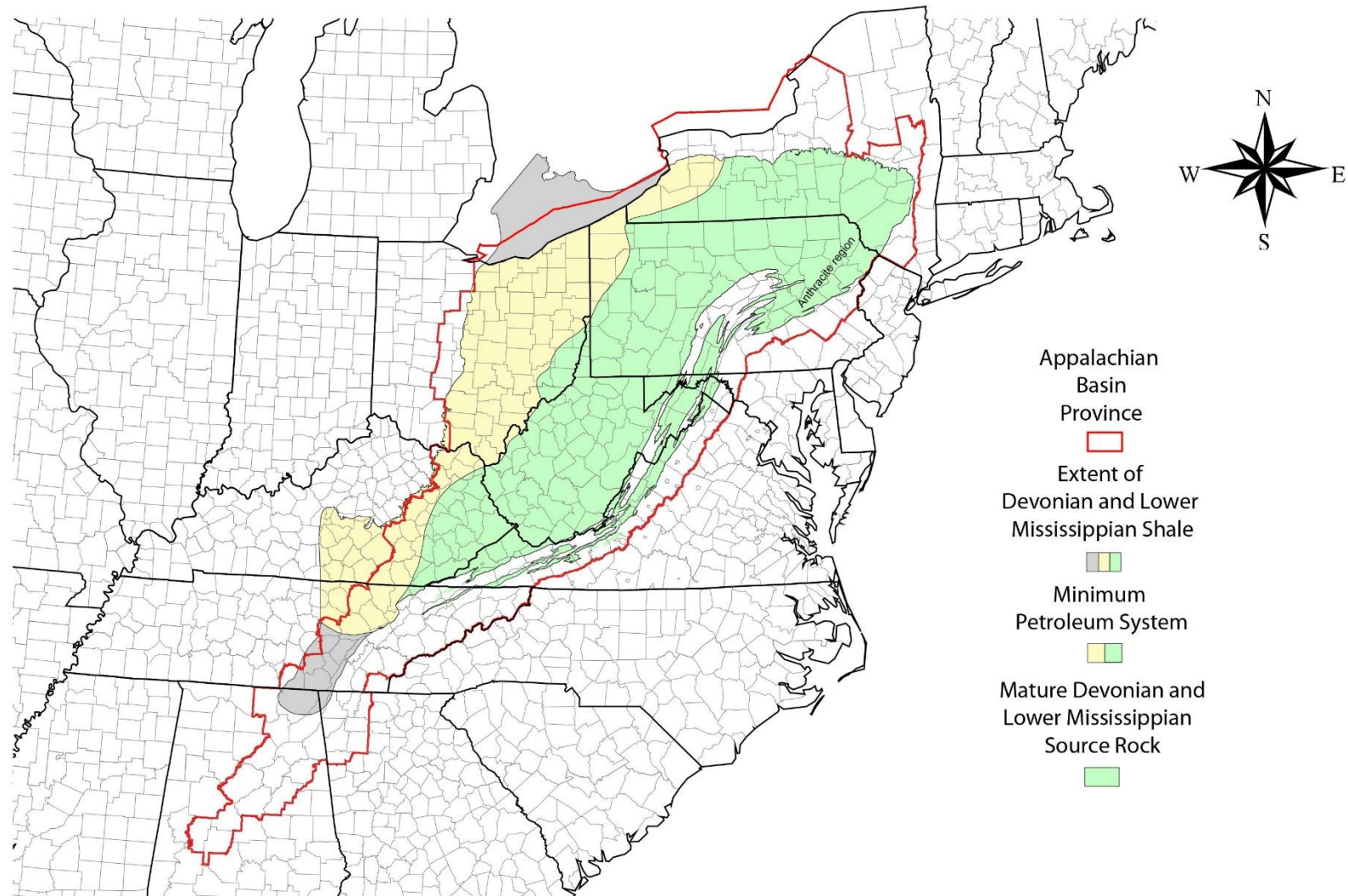


Endowed with ...

Mountains are
480 million
years old



Major Appalachian Plays



WV Stratigraphic Chart

Era		System	Series/Stage	Western WV	Eastern WV	
PHANEROZOIC PALEOZOIC	CEENOZOIC	Paleogene	Eocene		Igneous Intrusives	
	MESOZOIC	Jurassic			Igneous Intrusives	
	CARBONIFEROUS	PERMIAN				
			PENNSYLVANIAN (Subsystem)	Upper	Dunkard Group	
				Middle	Monongahela Fm. Conemaugh Group Allegheny Fm.	
		MISSISSIPPIAN (Subsystem)	Lower	Kanawha Fm. New River Fm. Pocahontas Fm.	Pottsville Group	
			Upper	Bluestone Fm. Princeton Sa. Hinton Fm. Bluefield Fm.	Mauch Chunk Group	
			Middle	Greenbrier Group		
			Lower	Maccrady Fm. (south)		
		DEVONIAN	Upper	Sunbury Sh. Berea Ss.	Price Fm.	
				Ohio Sh. Java Fm. West Falls Fm. Soynea Fm. Genesee Fm. Harrell Sh.	Hampshire Group Greenland Gap Group Foreknobs Fm. Scherr Fm.	
				Cleveland Sh. Chagrin Sh. Huron Sh. Hanover Sh. Pipe Creek Sh. Angola Sh. Rittonsville Sh. Cashaeque Sh. Middlesex Sh. West River Sh. Genesee Sh./Burket Sh.	Brallier Fm.	
	Hamilton Group Tully Ls. Mahantango Fm. Marcellus Sh.			Millboro Sh. Mahantango Fm. Marcellus Sh.		
	Onondaga Ls.			Huntersville Chert Needmore Sh.		
	Lower			Oriskany Ss.		
	SILURIAN		Upper	Helderberg Group		
				Bass Islands Fm.	Big Mountain Sh. Clyburn Forge Ss.	Keyser Fm.
				Salina Fm.	Lower Keyser Mbr. Tonoloway Fm.	
				Lockport Dol.	Wills Creek Fm. Williamsport Fm. McKenzie Fm.	Bloomersburg Fm.
				Rochester Sh. Keefer Fm. Rose Hill Fm. Tuscarora Ss.		
		Lower		Juniata Fm.	Juniata Fm.	Oswego Fm.
			"Martinsburg" Fm.	Reedsville Fm.	Martinsburg Fm.	
			"Trenton" Ls.	Trenton Group Dolly Ridge Fm.	Nealmont Ls.	
			Middle	Black River Group		
ORDOVICIAN		Upper	Wells Creek Fm.	St. Peter Ss.	Lincolnshire Fm. New Market Ls. Roe Park Ls.	
	Knox Group		Beekmantown Dol.	Beekmantown Dol. Pinesburg Station Dol. Rockdale Run Fm. Stonewenge Ls. Stouffertown Mbr.		
	Copper Ridge Dol.		Conococheague Fm.			
	Conasauga Group		Elbrook Fm.			
	Lower	Rome Group	Waynesboro Fm.			
			Tomstown Dol.			
		"Chilhowee Group"/ basal ss.	Antietam Fm. Harpers Fm. Weyertown Fm.			
				Catoctin Fm.		
CAMBRIAN	Lower		Swift Run Fm.			
PRECAMBRIAN						

Coal-bearing strata
0 – 1500 feet

Marcellus
6,000 – 8,000 feet

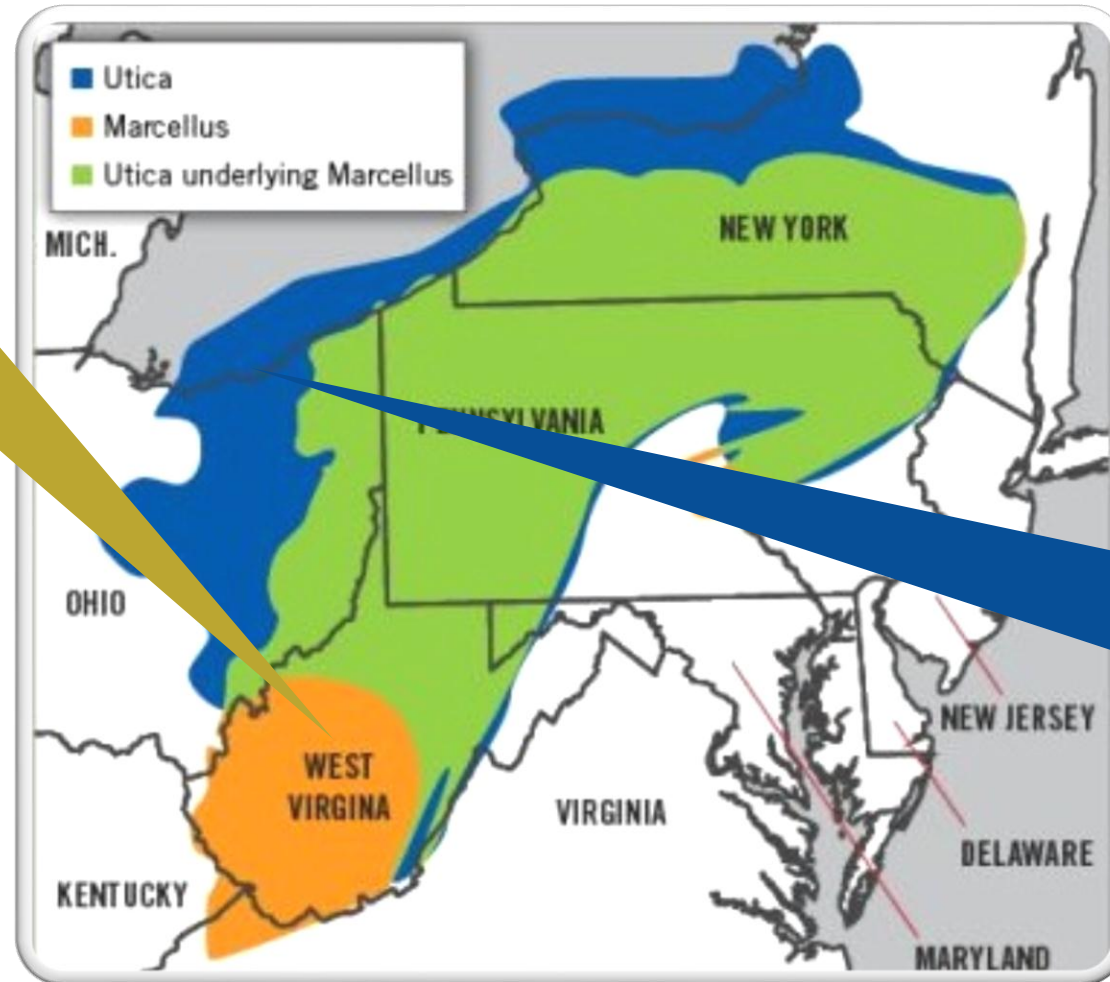
Utica
10,000 – 12,000 feet

Rogersville/ Cambrian
16,000 - 23,000 feet

Shale Plays – Marcellus & Utica

Marcellus

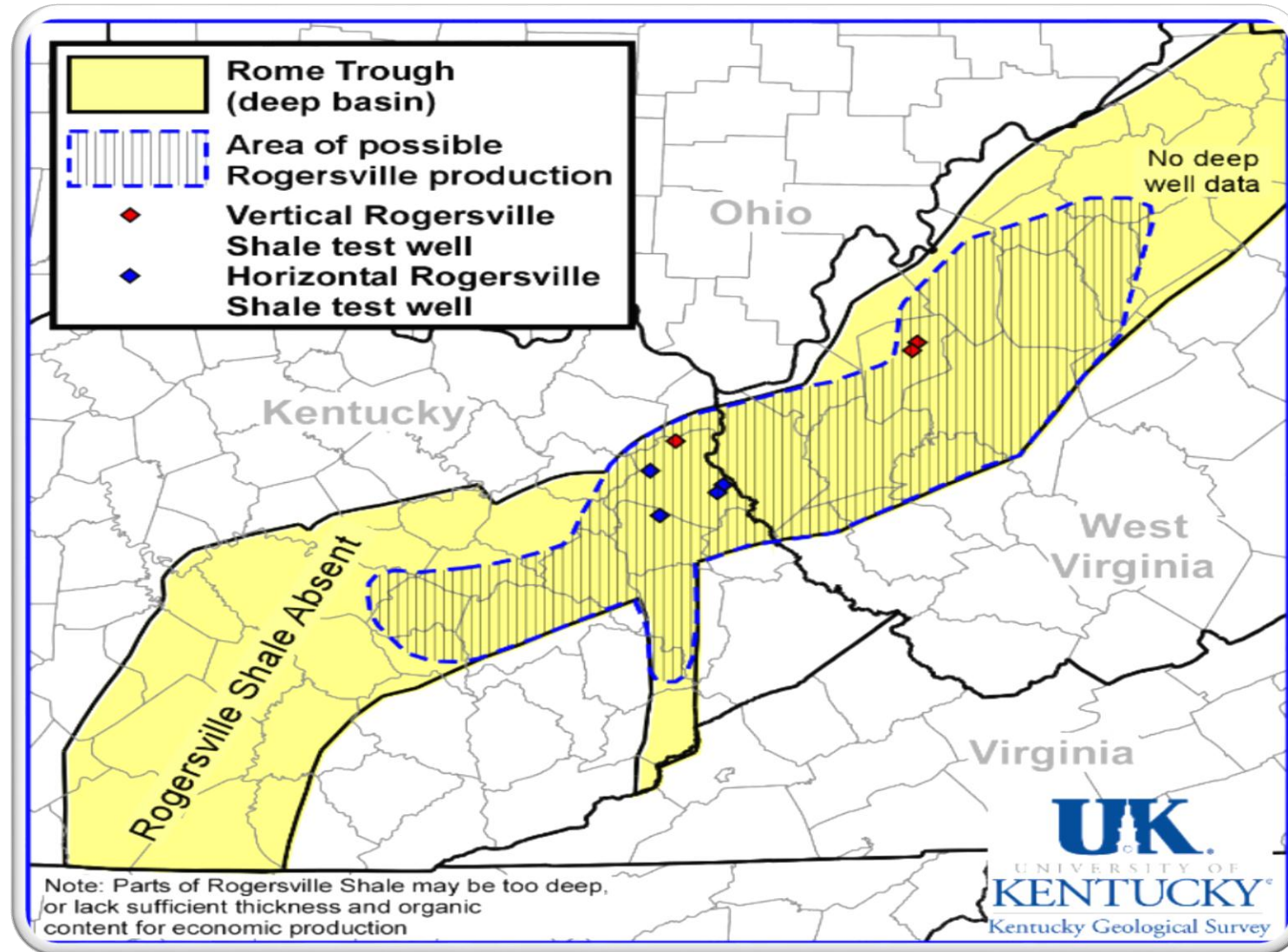
95,000 sq mi
4,000 – 8,000 ft deep
430 trillion cubic feet
of natural gas



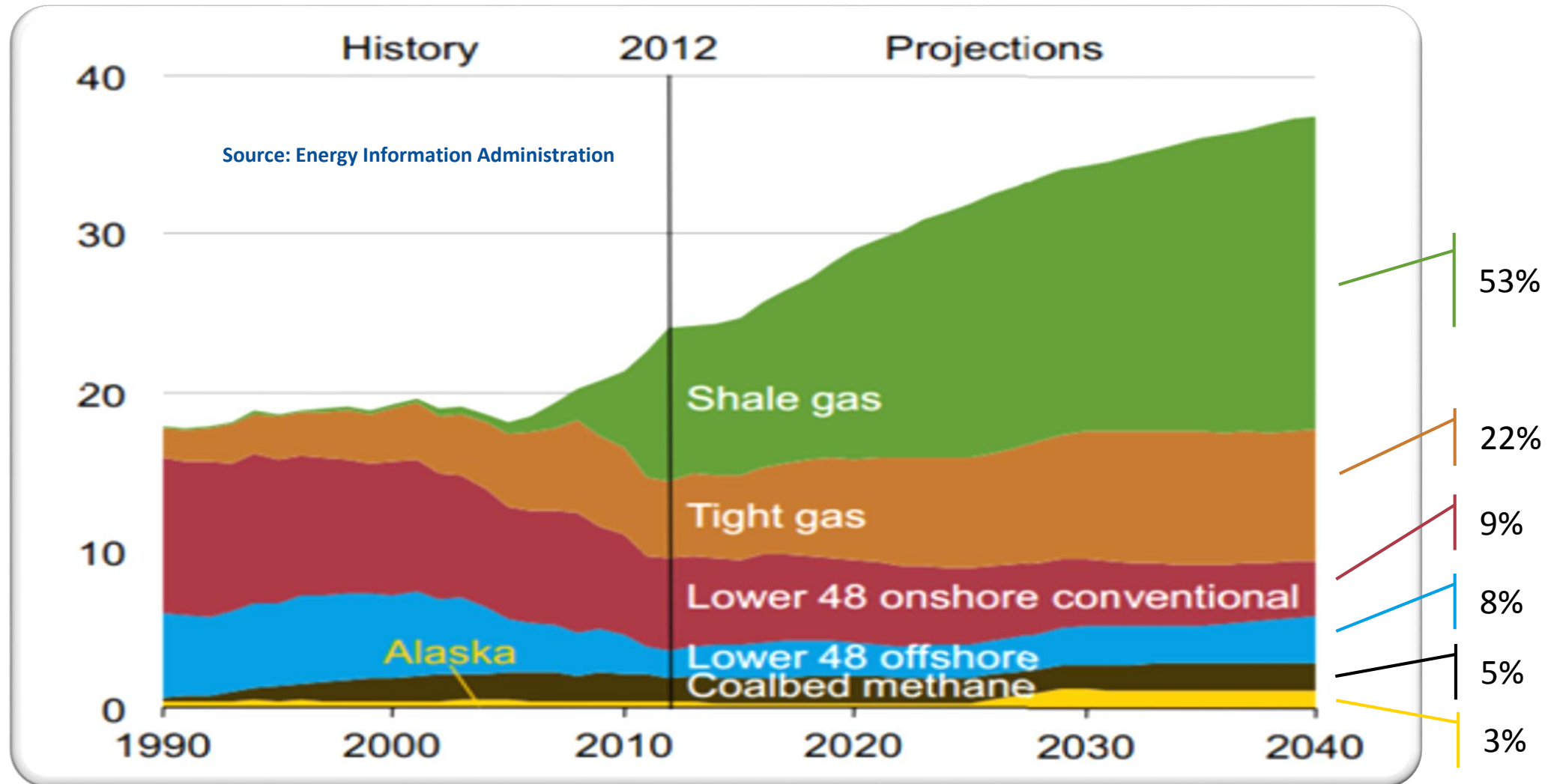
Utica

170,000 sq mi
10,000 – 15,000 ft deep
780 trillion cubic feet
of natural gas

Shale Plays – Rogersville

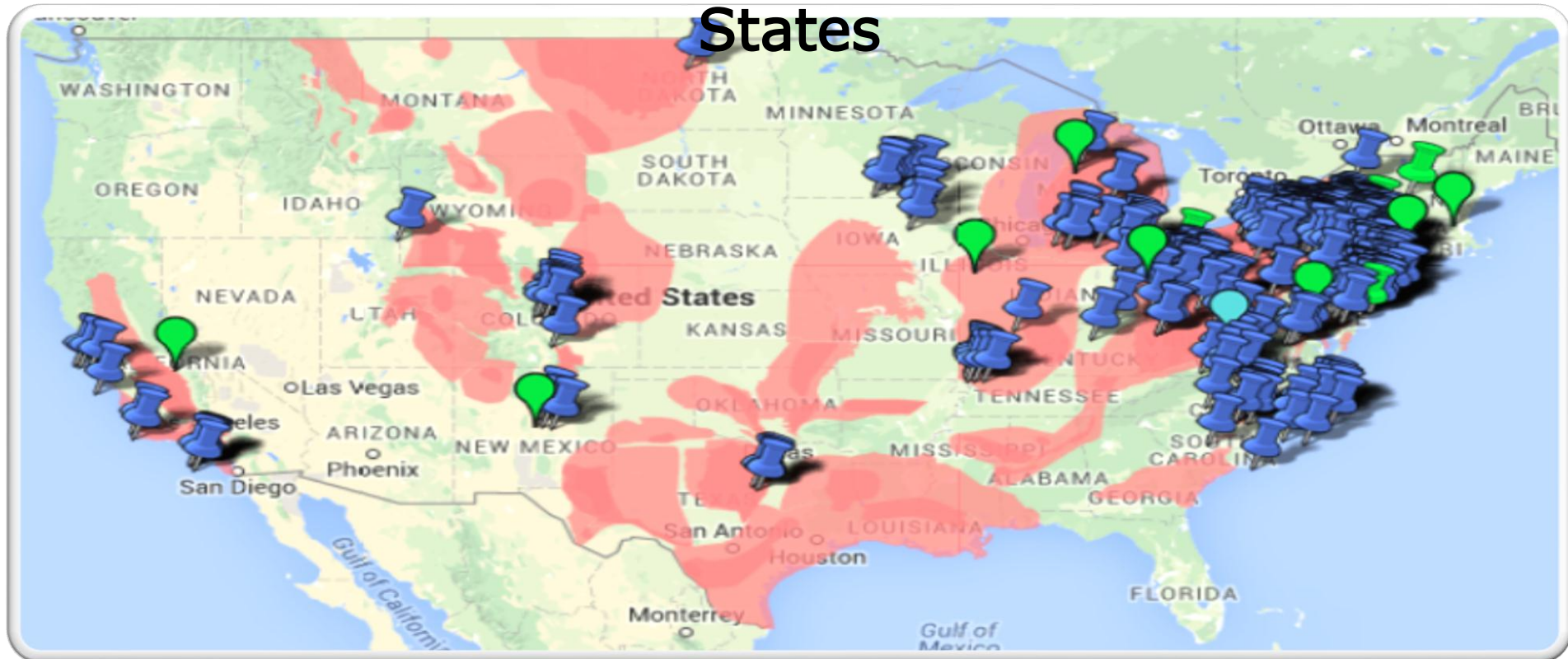


Projected Natural Gas Production



However...

464 Actions Across 26 States



State Measures (Passed)



State Measures (Pending)



Local Measures (Passed)



Local Measures (Pending)



Shale Plays



We thank the Governor's Summit
for this opportunity