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Economic, Market and Valuation Analysts

The Impact of Abandoned Fracking Sites on Brownfield Funding

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Who We Are

- 39-year-old firm with offices in Seattle, WA, and Cartersville, GA
- Real estate valuation, economic research, survey design and administration, specialty in complex valuation issues (e.g. real estate patents)
- Recent cool project: using MLS data to determine a reasonable rent for land under a liquid asphalt terminal

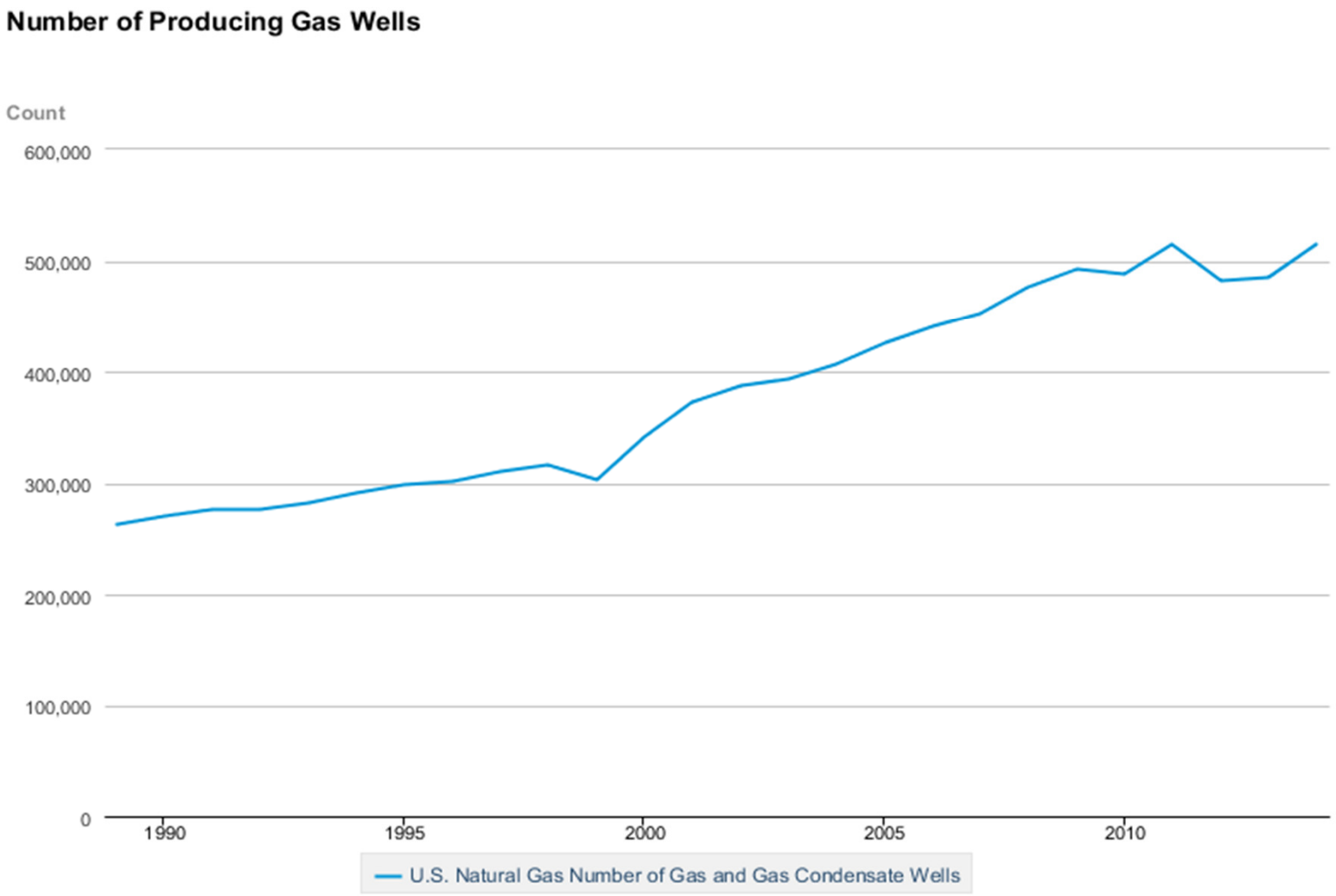
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The Issues

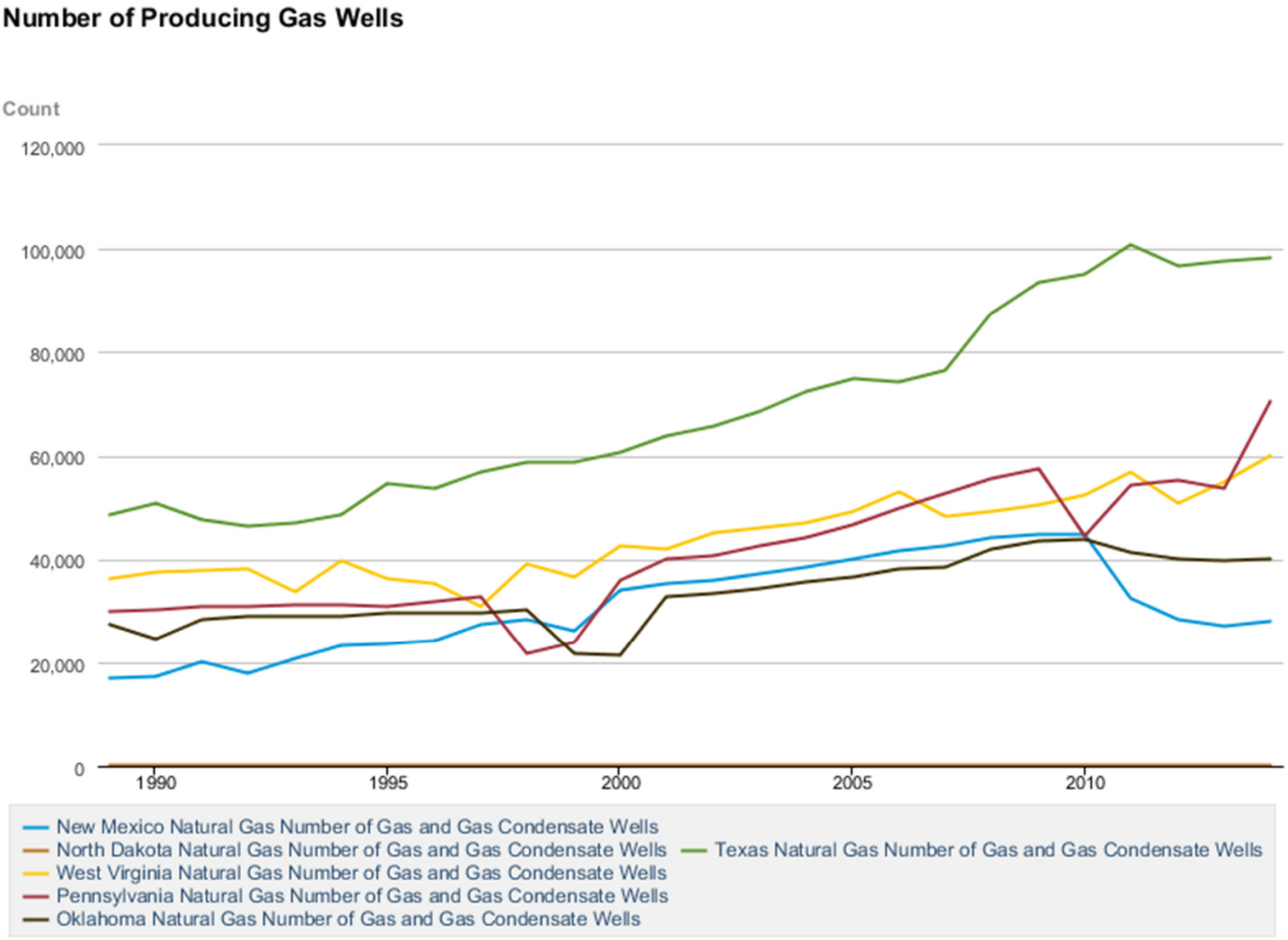
- 1.1 million active oil and gas wells in U.S.
- Fracking companies lease mineral rights and have limited access to surface rights
- When wells run dry and sites become abandoned, are they eligible for “brownfield” funding?
- If so, how will this impact future funding?

U.S. Gas Producing Wells



eia Source: U.S. Energy Information Administration

Gas Producing Wells In Key States



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Research Question

- Under the classic definition, are unconventional shale oil/gas (fracking) sites "brownfields"?
  - Real property?
  - Actual or potential contamination?
  - May cause reuse/redevelopment issues?
  - Does this make them eligible for state and/or federal **funding**? If so, then what do future funding needs look like?

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A Short History

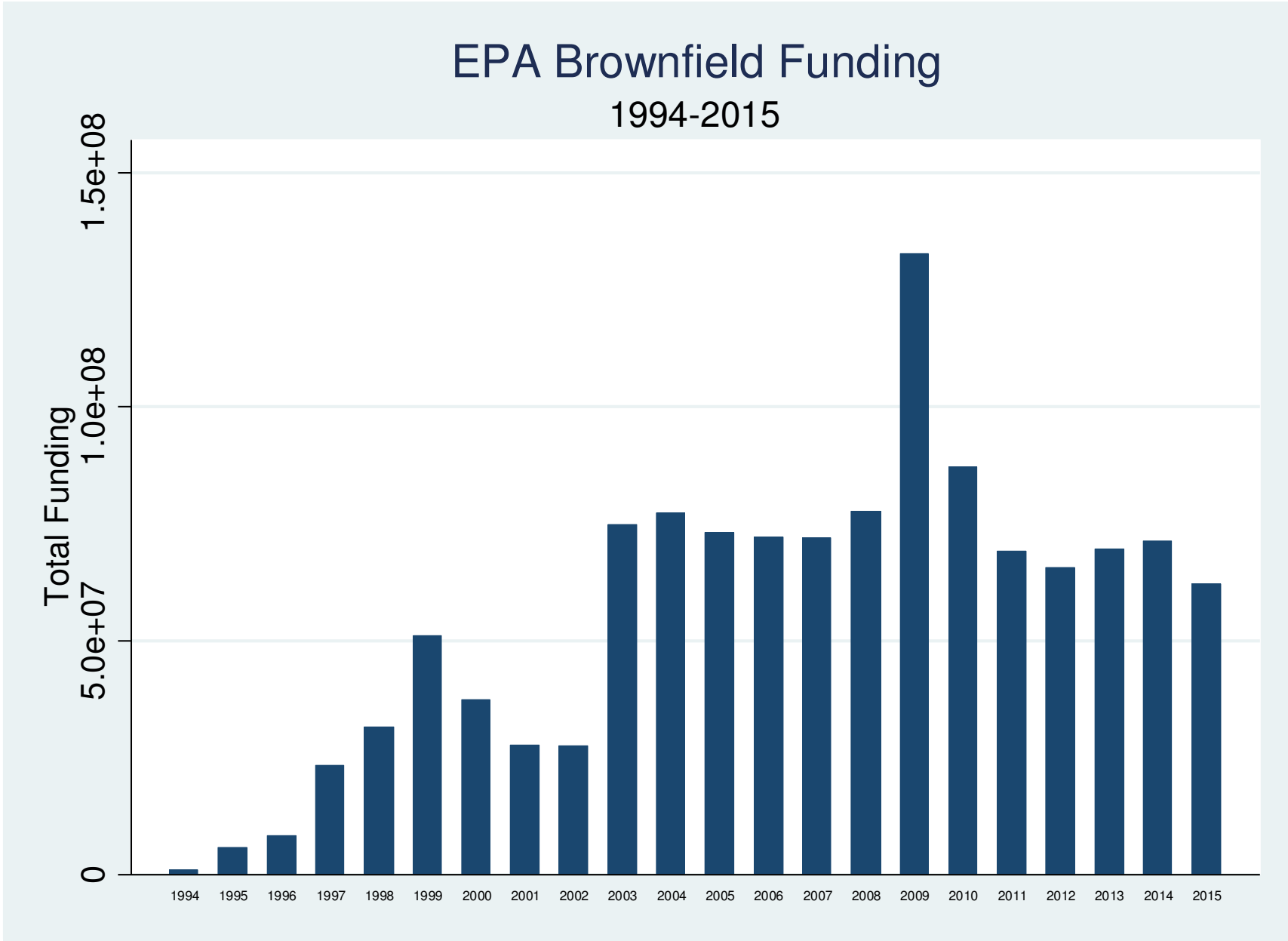
- 2002 – Small Business Liability Relief and Brownfields Revitalization Act amended CERCLA and clarified liability protection for new owners who were not responsible for the original contamination
- Actual or potential contamination may be present at:
  - auto shops
  - salvage yards
  - dry cleaners
  - illegal drug labs
  - former gas stations

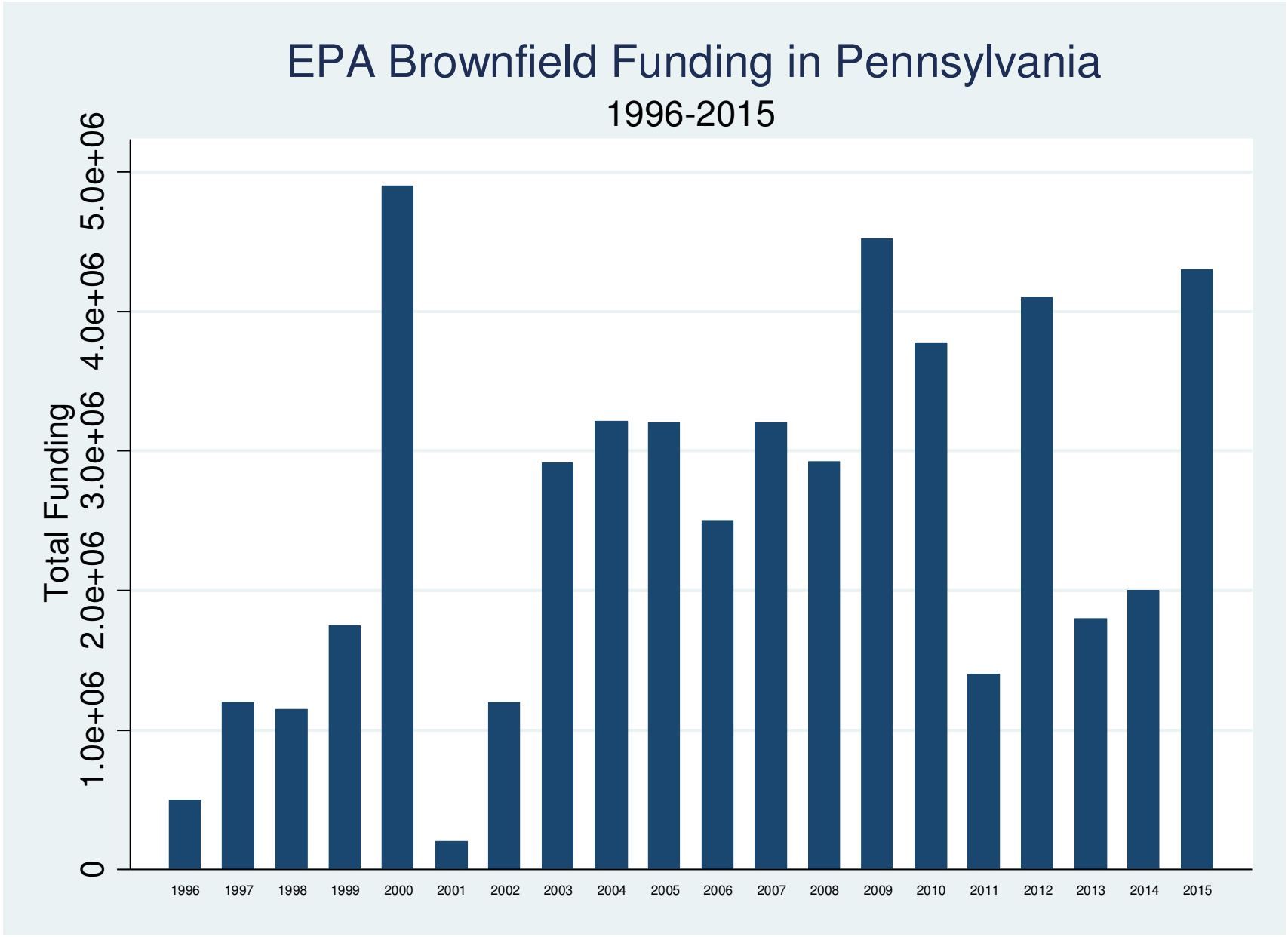
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Supply of and Demand for Funding

- Supply of funding over time
- Demand for funding
  - Influenced by property owners
  - Funding requested when wells are abandoned (after 7-15 year well lifespan)
  - Do property owners realize this is an option?


EPA Brownfield Funding
1994-2015
Total Funding
0
5.0e+07
1.0e+08
1.5e+08
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015


EPA Brownfield Funding in Pennsylvania
1996-2015
Total Funding
0
1.0e+06
2.0e+06
3.0e+06
4.0e+06
5.0e+06
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

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Trends in Abandoned Wells

- Pennsylvania as a case study (Kang 2014 Ph.D dissertation)
- Orphaned wells (no responsible party can be identified) are a subset of abandoned wells
- Estimated abandoned wells in PA: 300,000-500,000 (only 12,127 on PA DEP website as of 2014)
- Marcellus Legacy Fund (part of Act 13) dollars can be used to close abandoned and orphaned oil/gas wells

Source: http://dataspace.princeton.edu/jspui/bitstream/88435/dsp019s1616326/1/Kang_princeton_0181D_10969.pdf , p. 57-59, 76, 83,

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New Wells Drilled in Pennsylvania

- 38,166 wells were drilled between 1/1/2004 and 3/30/2015 (includes oil and gas)
- Extent of lower oil prices in slowing down development of new fracking sites?
- Will this give funding sources time to adjust?

	Conventional	Unconventional	Total
Total	29,138	9,028	38,166

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Conclusions

- Lots of abandoned wells will come on line in the future
- Continued low interest rate environment could continue to make brownfield investments an attractive alternative to investors
- Continued lower oil prices could slow down development of new fracking sites, which would bring fewer abandoned sites online (and make them eligible for funding)

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