Estimating the Opportunities for Enhanced Oil and Gas Production on Marginal State Leases

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Study Objectives

- Examine the nature of oil and gas production in Louisiana to determine:
  - (1) What does the future hold for marginal oil and gas production (are these expected to increase over the next several years, how are they expected to progress, and will marginal production be an important issue to consider)
  - (2) What would a program of royalty relief do to change the estimated disposition of marginal oil and gas production. Namely, how would incentives breath new life into the industry, how much “new life,” and what are the benefits associated with this production.

What is Marginal?

- Generally, a well close to the end of its useful life.
- Production-based definitions are commonly used.
- IOGCC definition:
  - Oil: 10 Bbls/day or less
  - Gas: 60 Mcf/day or less

Are Production Based Definitions Appropriate?

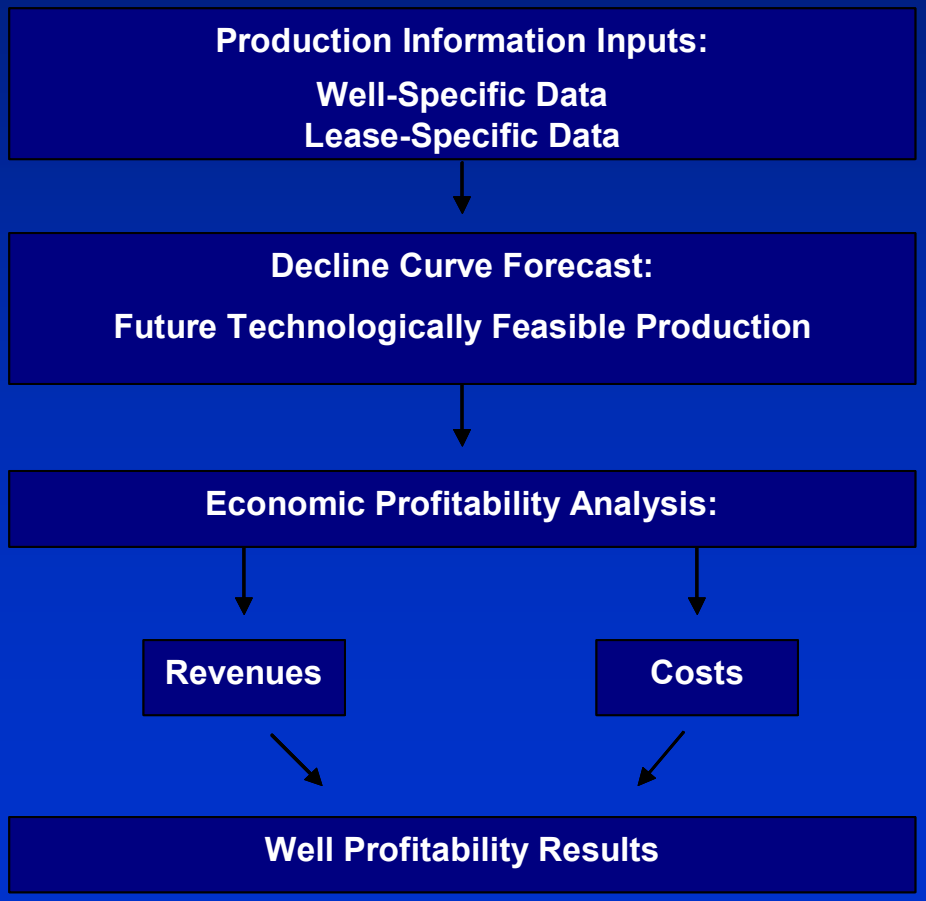
- Certainly one method of determining "challenged" production assets.
- Economic theory (and standard business practices) would suggest, however, that profitability is a more suitable measure of determining whether a property is challenged.
- Could have instances where a lease/well is unprofitable but not marginal, and vice versa.

Study Approach

- Use profitability as the standard of analysis. Short-run profitability (not life cycle profitability) – is the well facing challenging conditions that may signal the end of its useful life.
- Use wells as “unit of analysis.”
- Use PARS/SONRIS data from 1986-2002 for analysis purpose.

After data is reconciled, consistent annual production (historic and annual) are available

Profitability has to be estimated.



EIA Cost Information

- One study limitation is getting specific cost information.
- Cost information is proprietary and not collected by most government agencies.
- EIA has done an annual survey of production costs over the past decade.
- Cost is supposed to estimate typical operations in producing area.

Study Assumptions

The analysis is limited to state leases only.

The unit of analysis is limited to the well-level.

Only existing wells and production are used in the empirical analyses. No drilling activity was modeled or assumed.

In general, simple averages were used to develop all per-unit estimates where information is not directly reported (i.e., per-well, per-lease). No attempt was made to distribute or pro-rate any information unless otherwise specified in the text.

Average variable costs, as a proxy for LOE, were used. No capital or equipment costs were incorporated into the cost analyses. Given data limitations, costs were assumed to primarily be a function of depth and volume.

Study Assumptions (continued)

Depreciation expense was not considered. Only severance taxes were considered, no other taxes.

General royalty rates were set at each lease-level based upon the average age of the lease.

Oil and gas prices were set at the wellhead level as reported by DOE. All leases were assumed to face the same per unit wellhead price.

Abandonment costs and salvage were not considered.

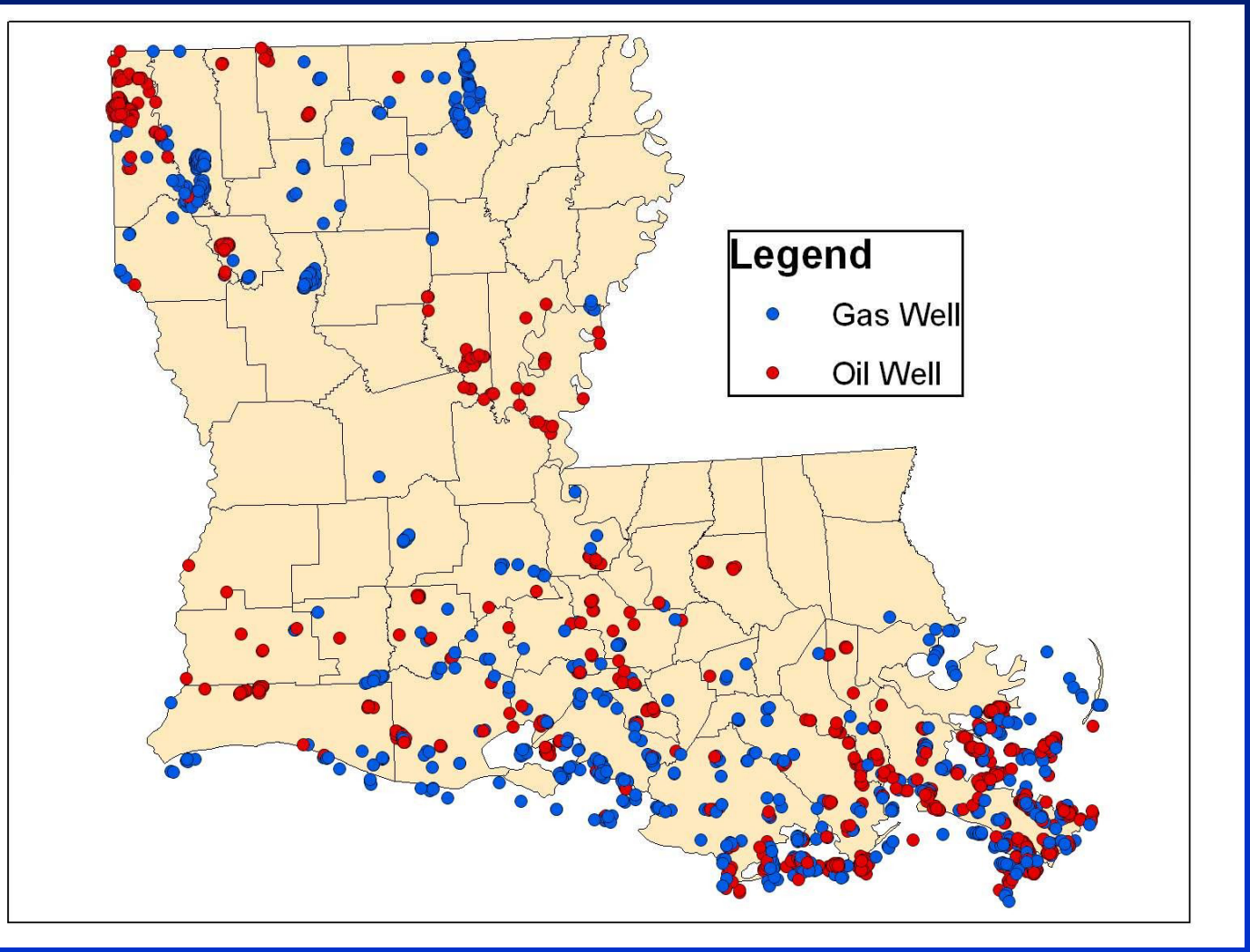
GOR of 5,000 was used to determine if a well was primarily gas or oil producing.

All production was assumed to be of commercial and uniform quality.

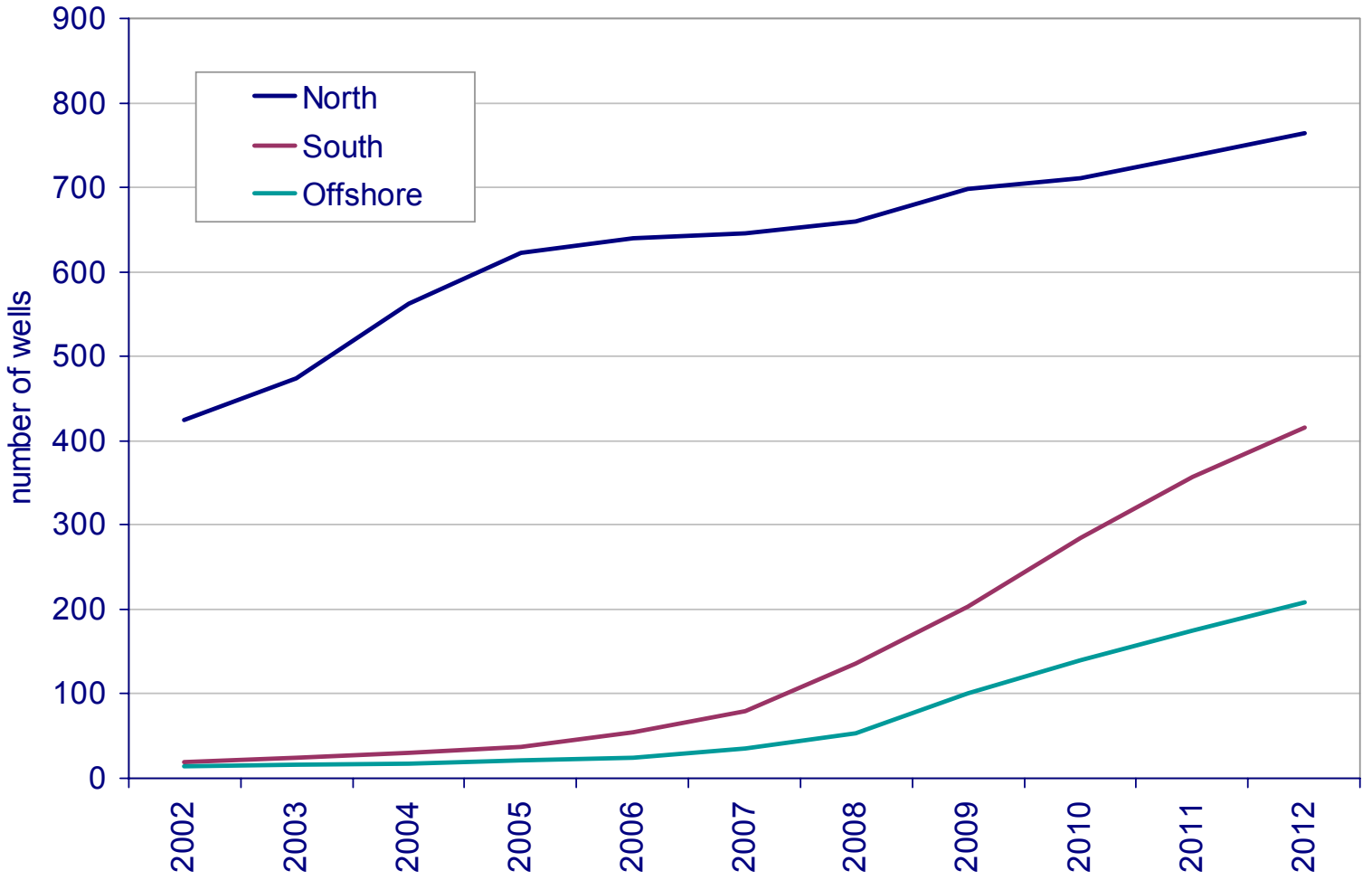
Missing and incomplete information was omitted from the analysis as was any information considered to be an anomaly or outlier.

State Production and Baseline Profitability

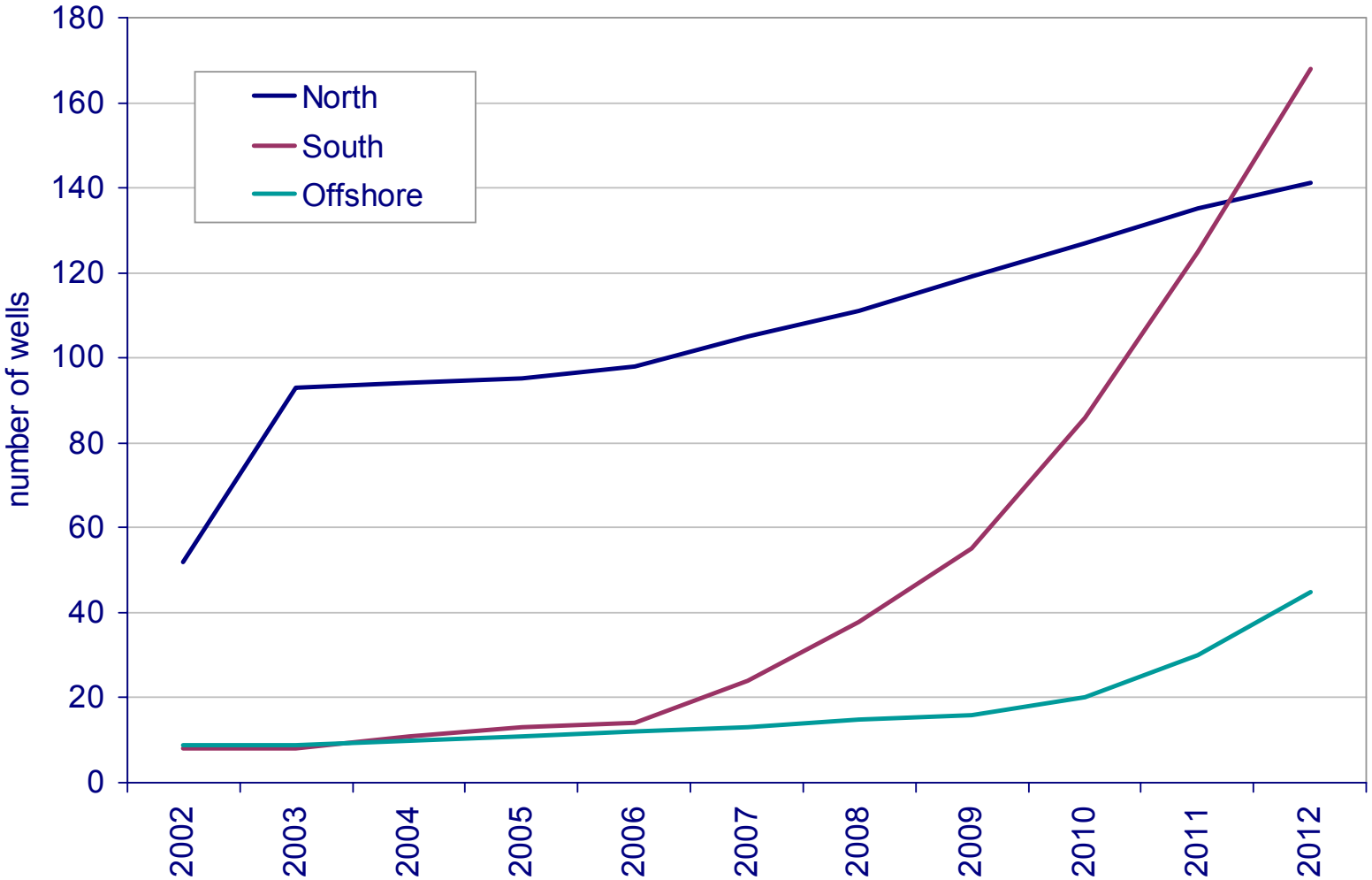
Active State Leases - 2002



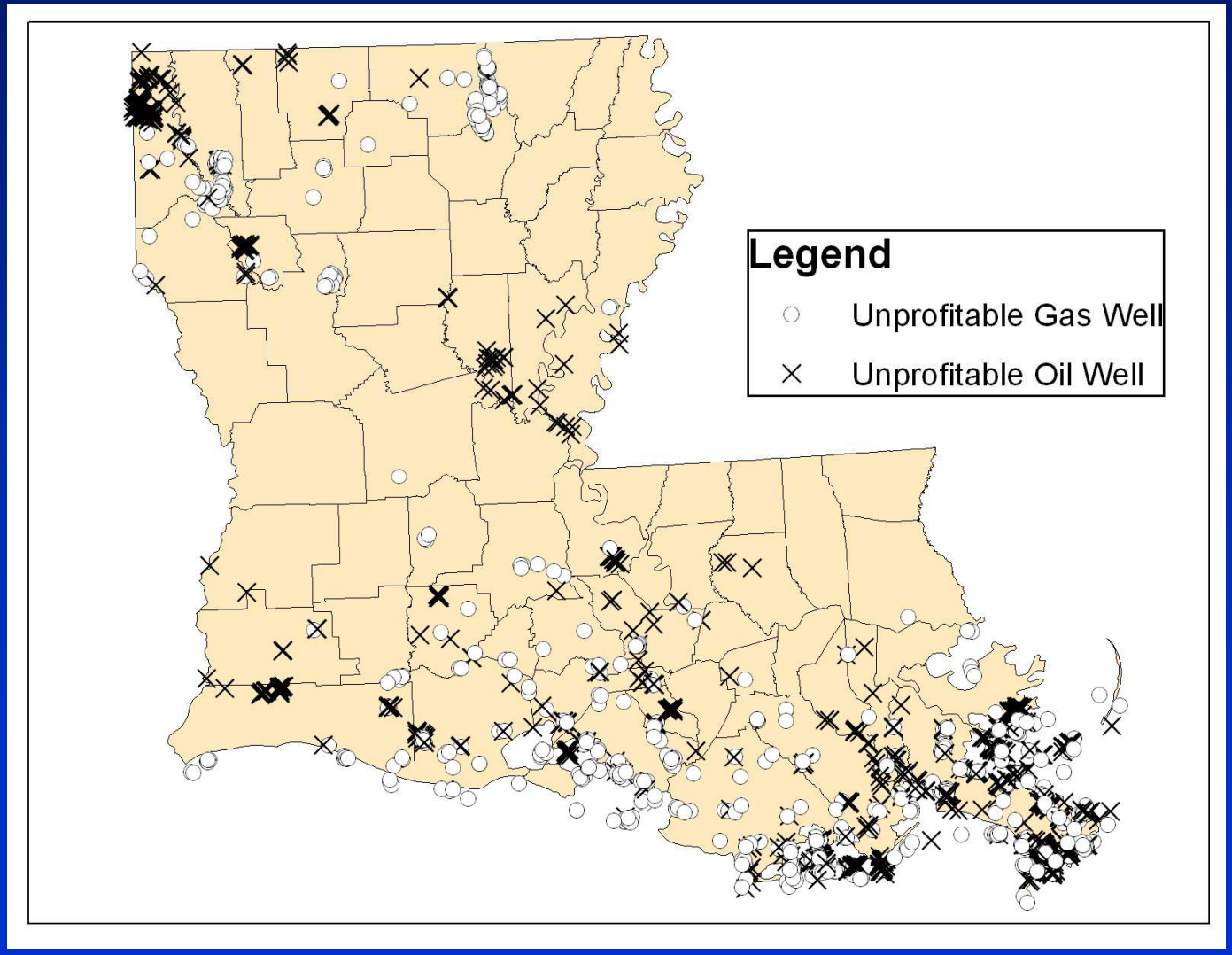
Forecasted Unprofitable Oil Wells



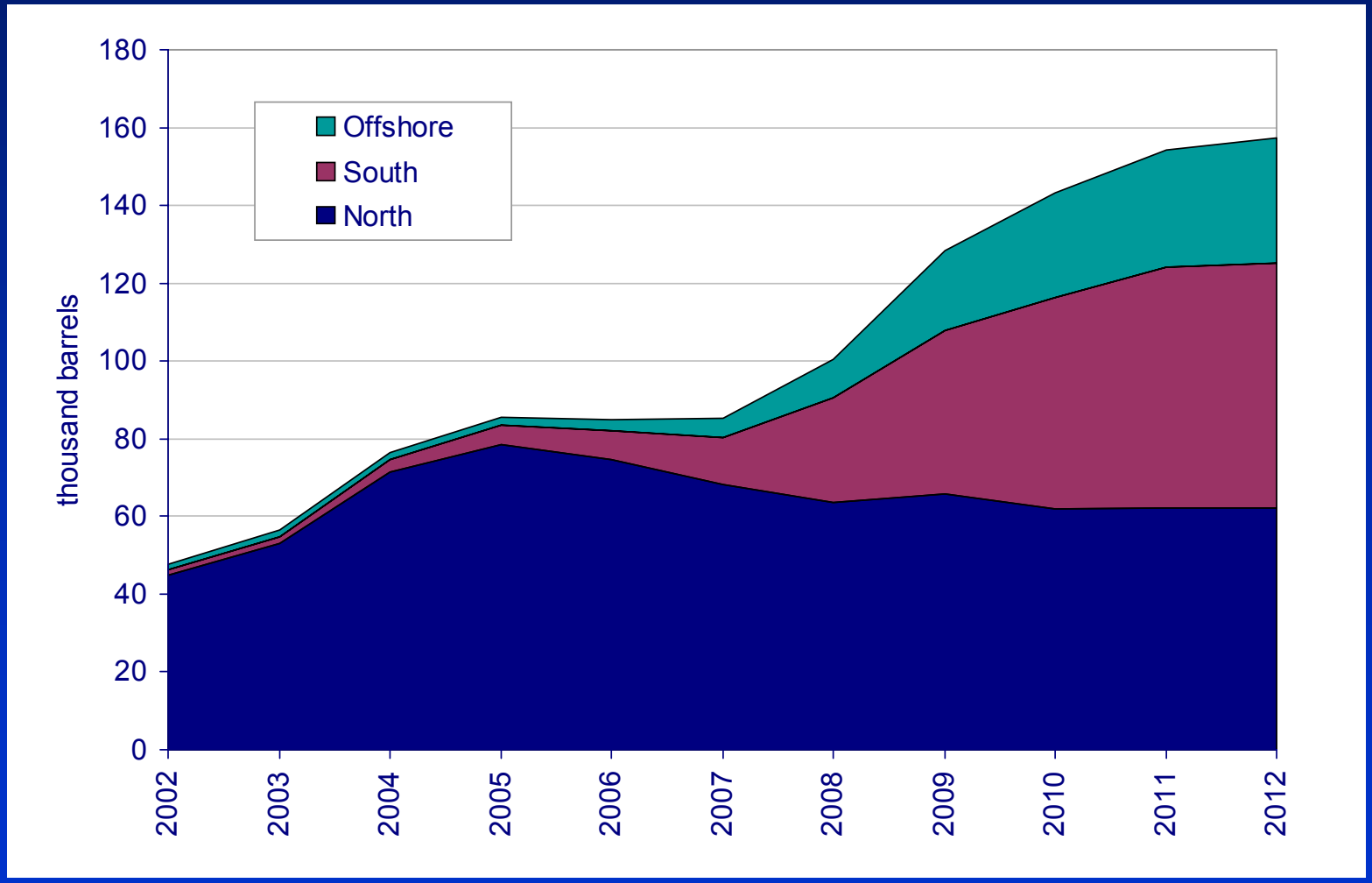
Forecasted Unprofitable Gas Wells



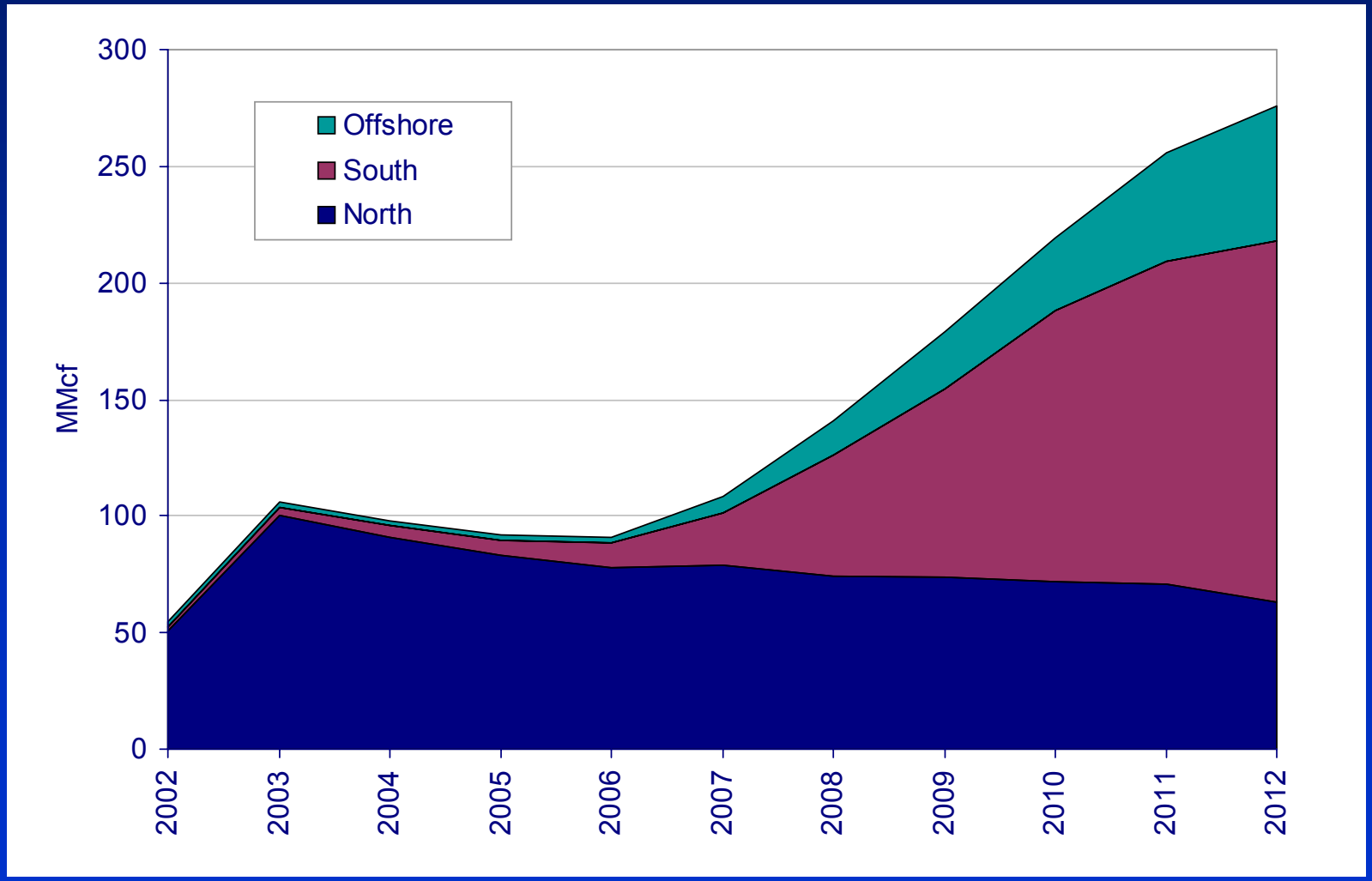
Location of Forecasted Unprofitable Wells -- 2012



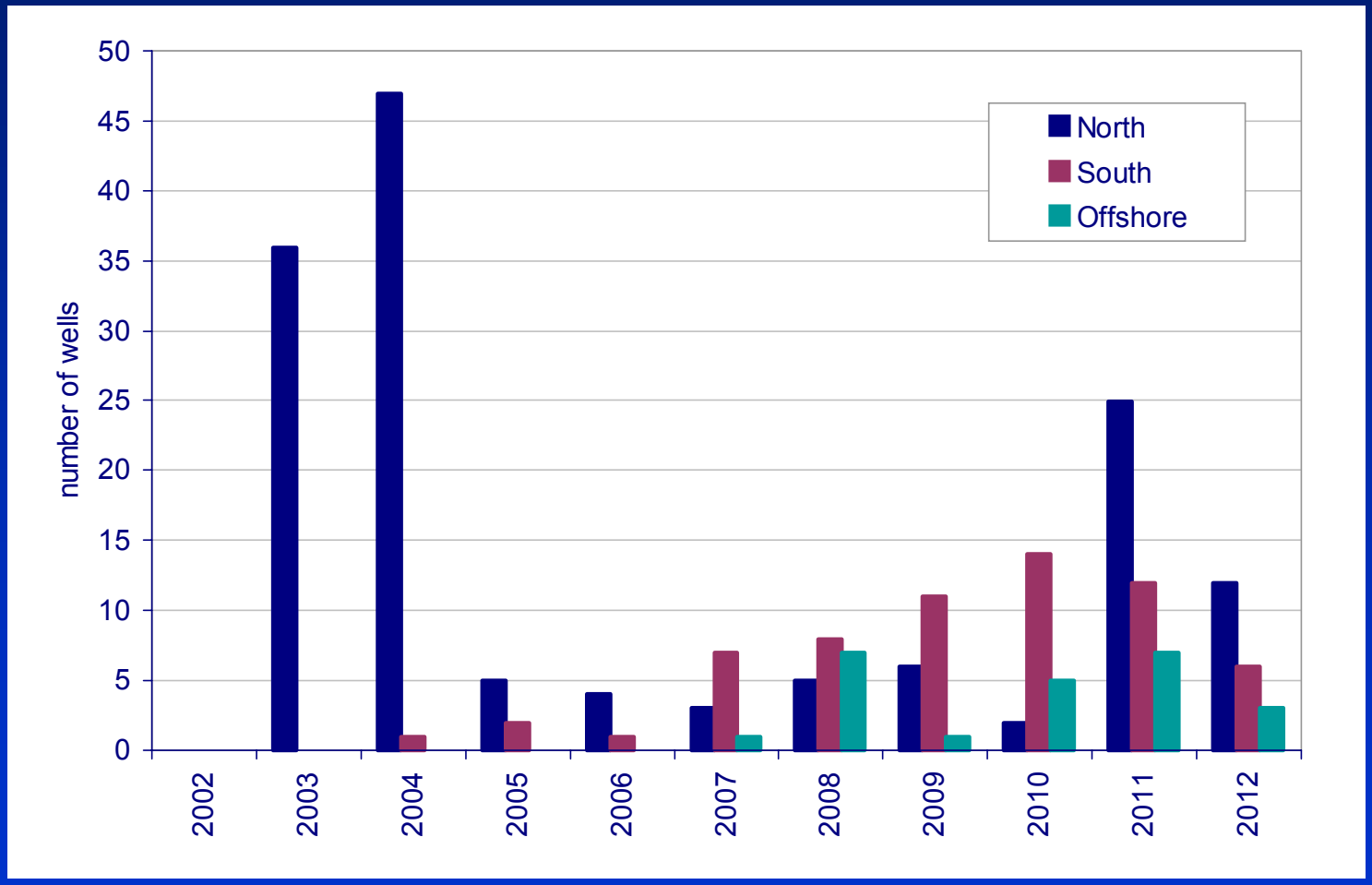
Forecasted Unprofitable Oil Production



Forecasted Unprofitable Gas Production



Impact of 25 Percent Break on Royalty Relief – Oil Wells Shifted to Profitable Status



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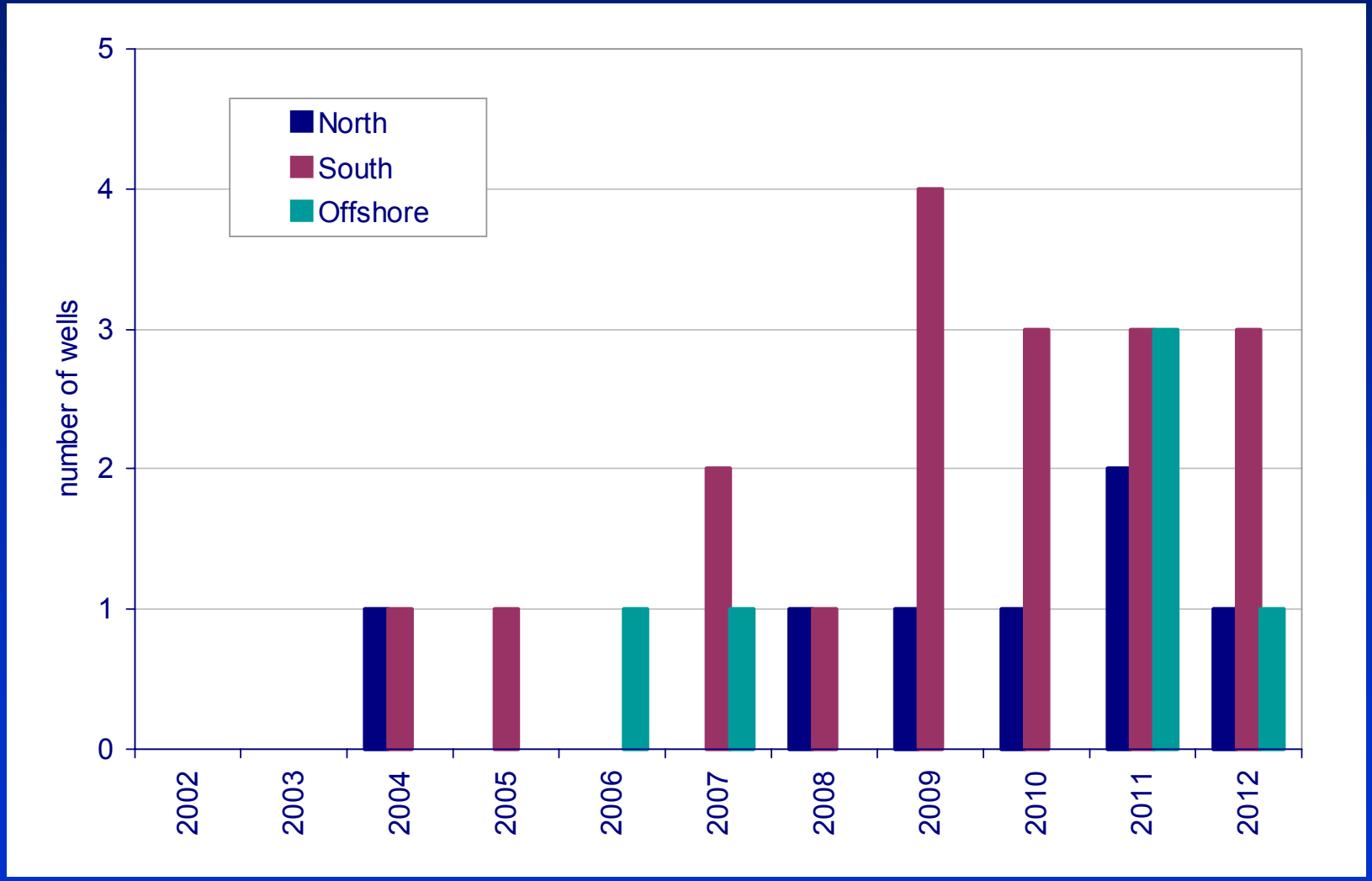
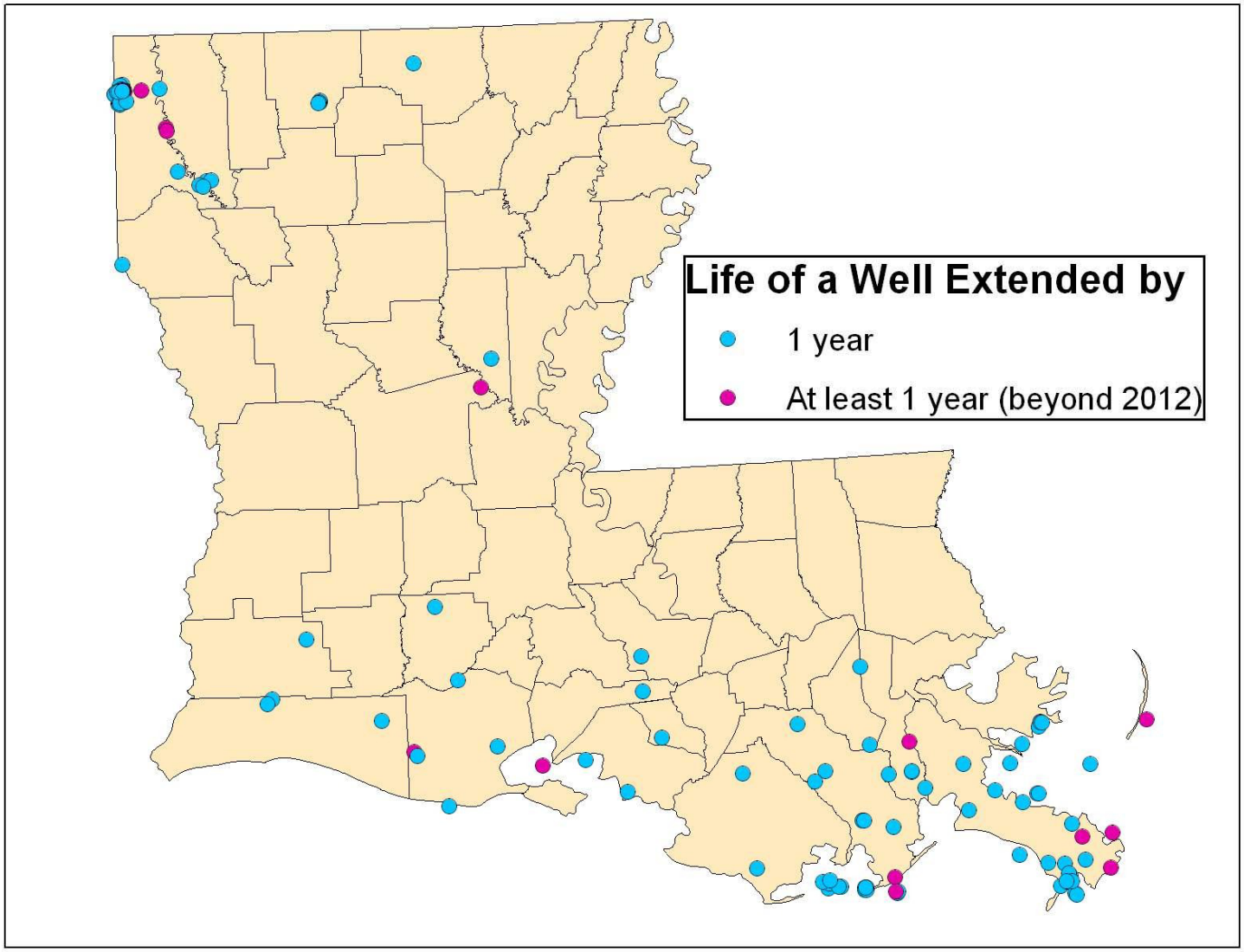
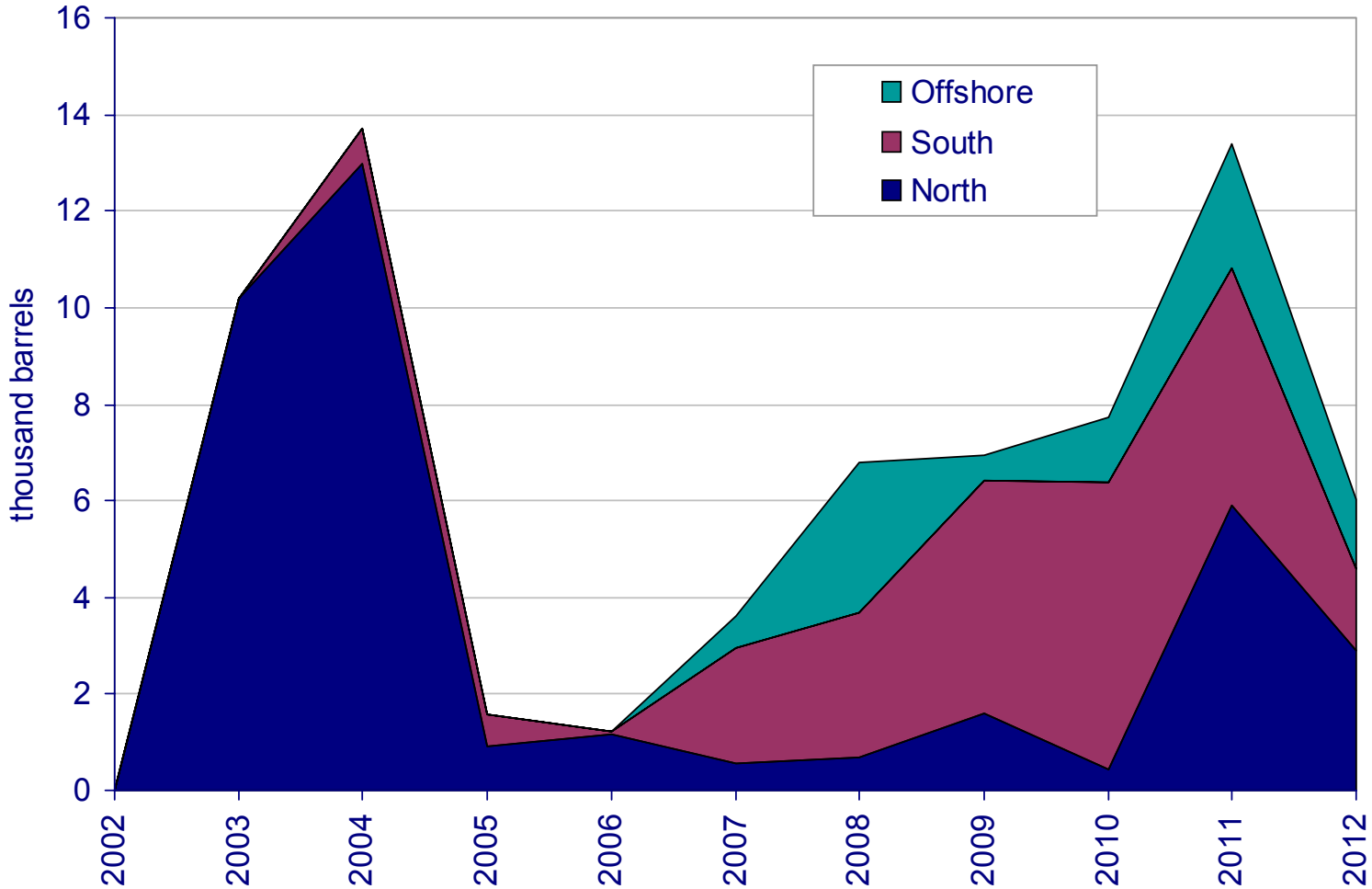


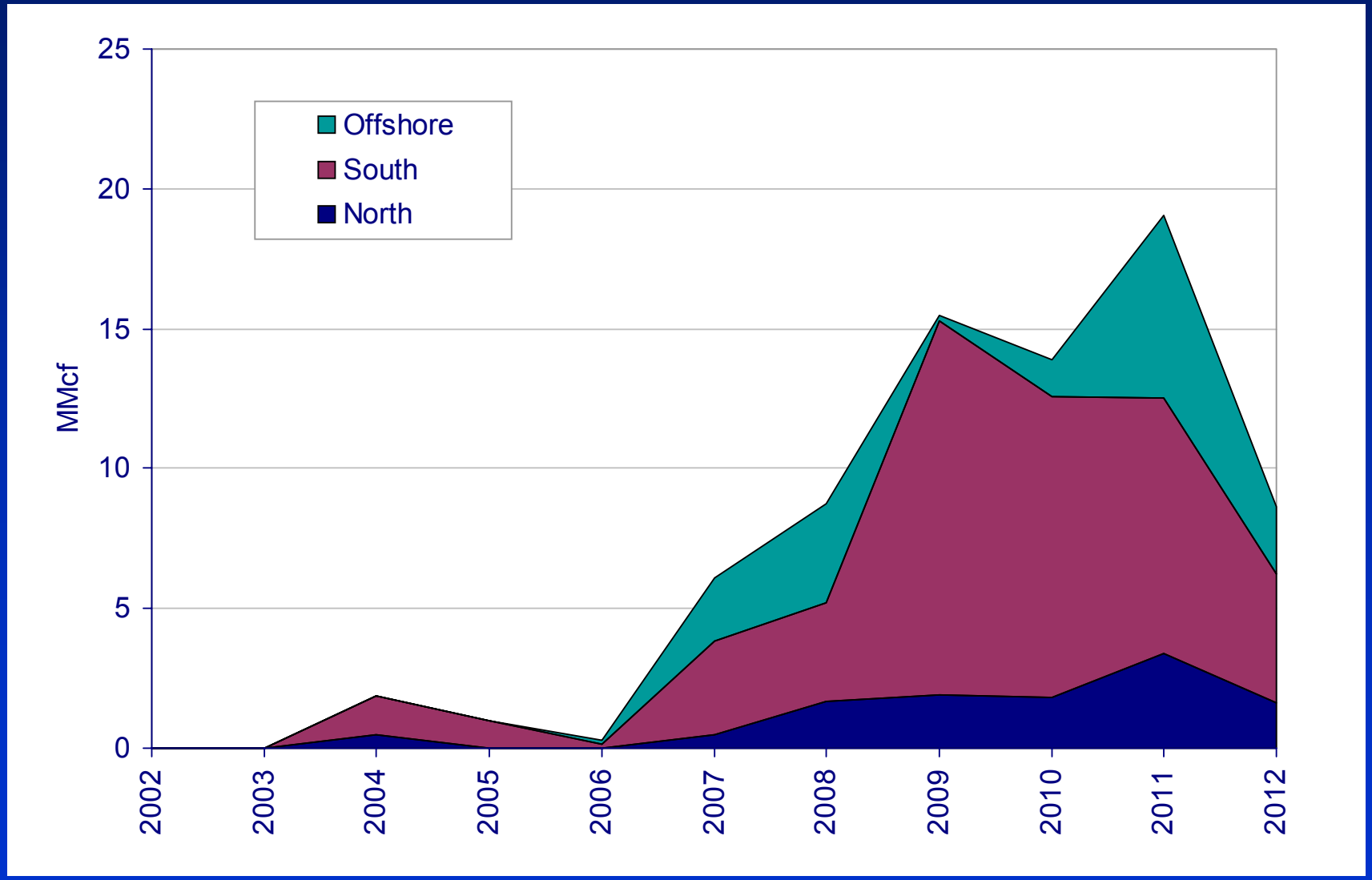
Location of Wells That Benefit From 25 Percent Royalty Break



Increased Oil Production From 25 Percent Royalty Break



Increased Gas Production From 25 Percent Royalty Break



Economic Impacts – 25 Percent Royalty Break

Year	Incremental Production (BOE)	Total Economic Impact ($)	State Tax ($)	Local Tax ($)	Indirect Impact on Jobs	Incremental Production (BOE)	Total Economic Impact ($)	State Tax ($)	Local Tax ($)	Indirect Impact on Jobs	Incremental Production (BOE)	Total Economic Impact ($)	State Tax ($)	Local Tax ($)	Indirect Impact on Jobs
	25 Percent Discount on Royalties -- Oil					25 Percent Discount on Royalties -- Gas					25 Percent Discount on Royalties -- Oil and Gas				
2002	-	$ -	$ -	$ -	-	-	$ -	$ -	$ -	-	-	$ -	$ -	$ -	-
2003	10,176	$ 57,148	$ 2,137	$ 1,425	0.28	-	$ -	$ -	$ -	-	10,176	$ 57,148	$ 2,137	$ 1,425	0.28
2004	13,694	$ 76,904	$ 2,876	$ 1,917	0.38	326	$ 1,832	$ 68	$ 46	0.01	14,020	$ 78,736	$ 2,944	$ 1,963	0.39
2005	1,577	$ 8,856	$ 331	$ 221	0.04	167	$ 938	$ 35	$ 23	0.00	1,744	$ 9,793	$ 366	$ 244	0.05
2006	1,223	$ 6,869	$ 257	$ 171	0.03	51	$ 287	$ 11	$ 7	0.00	1,274	$ 7,156	$ 268	$ 178	0.04
2007	3,598	$ 20,205	$ 756	$ 504	0.10	1,047	$ 5,880	$ 220	$ 147	0.03	4,645	$ 26,085	$ 975	$ 650	0.13
2008	6,784	$ 38,096	$ 1,425	$ 950	0.19	1,505	$ 8,451	$ 316	$ 211	0.04	8,289	$ 46,547	$ 1,741	$ 1,160	0.23
2009	6,956	$ 39,066	$ 1,461	$ 974	0.19	2,664	$ 14,958	$ 559	$ 373	0.07	9,620	$ 54,024	$ 2,020	$ 1,347	0.27
2010	7,727	$ 43,396	$ 1,623	$ 1,082	0.21	2,402	$ 13,487	$ 504	$ 336	0.07	10,129	$ 56,882	$ 2,127	$ 1,418	0.28
2011	13,395	$ 75,223	$ 2,813	$ 1,875	0.37	3,289	$ 18,470	$ 691	$ 460	0.09	16,684	$ 93,693	$ 3,504	$ 2,336	0.46
2012	6,049	$ 33,969	$ 1,270	$ 847	0.17	1,486	$ 8,345	$ 312	$ 208	0.04	7,535	$ 42,314	$ 1,582	$ 1,055	0.21
Total	**71,180**	**399,733**	**14,948**	**9,965**	**1.96**	**12,936**	**72,646**	**2,717**	**1,811**	**0.36**	**84,116**	**472,379**	**17,664**	**11,776**	**2.32**

Conclusions

- Oil Production throughout Louisiana is more "challenged" relative to gas production.
- Regionally – North Louisiana is the most challenged area of the state.
- Gas production is South Louisiana will be challenged by 2007 under historic pricing conditions.
- Could be large number of unprofitable wells, but account for small amount of production.

Conclusions (cont)

Oil – 2012

North = 90% wells;
1.5 % (production).

South= 45% wells;
5% production

Offshore = 32% wells;
5% of production

Gas – 2012

North = 52% wells;
2 % (production).

South= 28% wells;
1.5% production

Offshore = 19% wells;
0.8% of production

Conclusions - Recommendations

- Recommendation:
  - Conclusions need to be tempered because based upon average cost conditions.
  - Results tend to indicate that overall number of wells and overall production amounts are reasonable – developing a complete understanding of the "average production" from these wells, however, is not possible at this time.
  - May not be able to have standardized approach without:
    - Basing program on profitability.
    - Requiring documentation on profitability.
    - Show that reduction would shift to profitability for one year.
    - Would help reduce cost of program, "free rider" problem

Questions and Comments

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