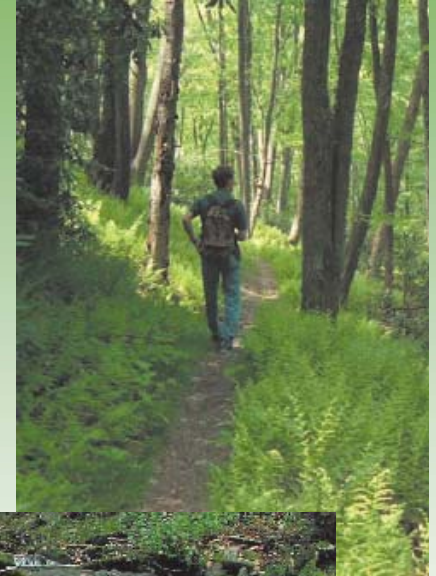


# DCNR Oil & Gas Program

## Managing Impacts, Balancing Tradeoffs

- Consistent with Ecosystem Management principles
- FSC Certification standards
- Compatibility with other uses



# DCNR Oil & Gas Program

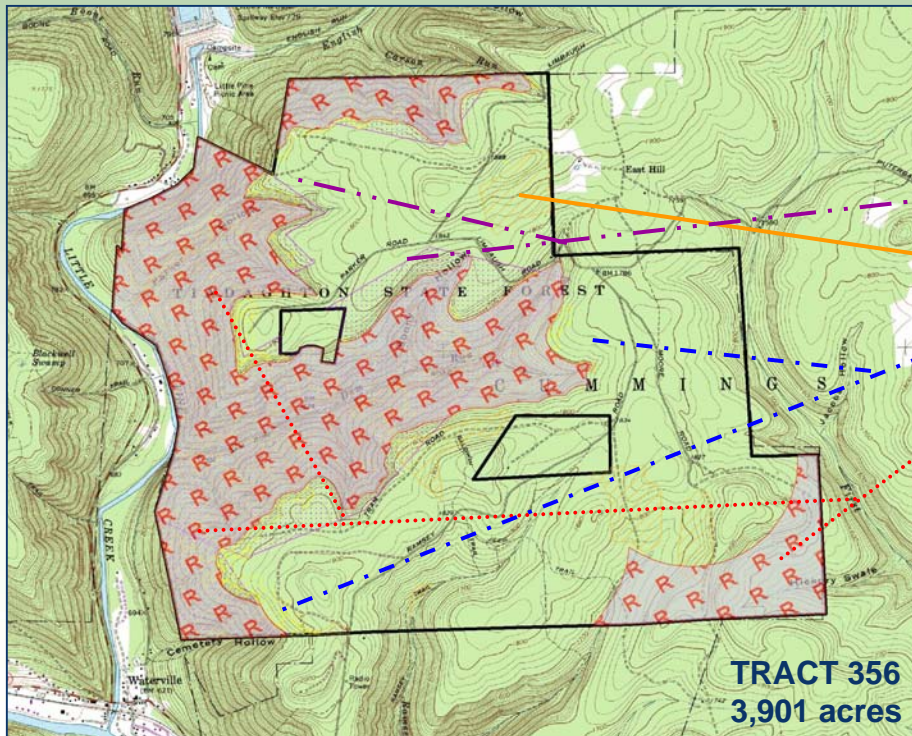
## Managing Impacts, Balancing Tradeoffs

- Aesthetics and recreational impacts
- Wild and Natural Areas excluded
- Forest fragmentation, water quality, plant and animal habitats of concern
- Environmental Review
- Comprehensive lease, provides optimal control



# • AREAS OF SPECIAL CONSIDERATION:

- \* New to 2008 Lease Agreement
- \* “Special” Areas Delineated Before Sale
- \* Areas Include – Recreation, Slope, Viewshed, Ecological, Timber



**ECO – 1,522 acres**  
**TIMBER – 728 acres**  
**VIEWSHED – 1,404 acres**  
**REC & SLOPE – 1,628 acres**  
**Total AoSC – 5,282 acres**



**pennsylvania**  
DEPARTMENT OF CONSERVATION  
AND NATURAL RESOURCES

- **SETBACKS/BUFFERS:**
  - Streams: 200 Ft (300 Ft Exceptional Value)*
  - Roads, Trails, ROW: 300 Ft*
  - Buildings: 200 Ft*
  - Lease Boundary: 300 Ft*
  - State Parks/Wild and Nat Areas: 600 Ft*
- **WELL PAD SITES:**
  - Approval of District Forester (location & size)*
  - Pre-Allocated # of Maximum Pad Sites*
- **PIPELINES, ROADS, RIGHTS-OF-WAY:**
  - Approval of District Forester*
  - Standard Department Agreements (Off-Lease)*

- **DCNR LEASE AGREEMENT** (*70 Pages in Length*)
- **SURFACE USE AGREEMENT** (*Severed Ownership - similar to lease agreement*)
- **SURETY BONDS** (Performance and Plugging)
- **COMPREHENSIVE OVERSIGHT** (*Forest Management & Geology*)
- **WELL LOCATION APPROVALS** (*Forest Management & Geology*)
- **TIMBER DAMAGES** (*2x FMV*)
- **PLUGGING CLAUSE** (*1 Mcf/d avg*)

[www.dcnr.state.pa.us](http://www.dcnr.state.pa.us)



# FUTURE LEASE SALE CONSIDERATIONS

- Proposed Tracts Submitted to Forest District(s) For Analysis
- On-The-Ground Analysis
- GIS-based Analysis
- Areas of Special Consideration
- Non-Development Areas

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(AAPG 2008)

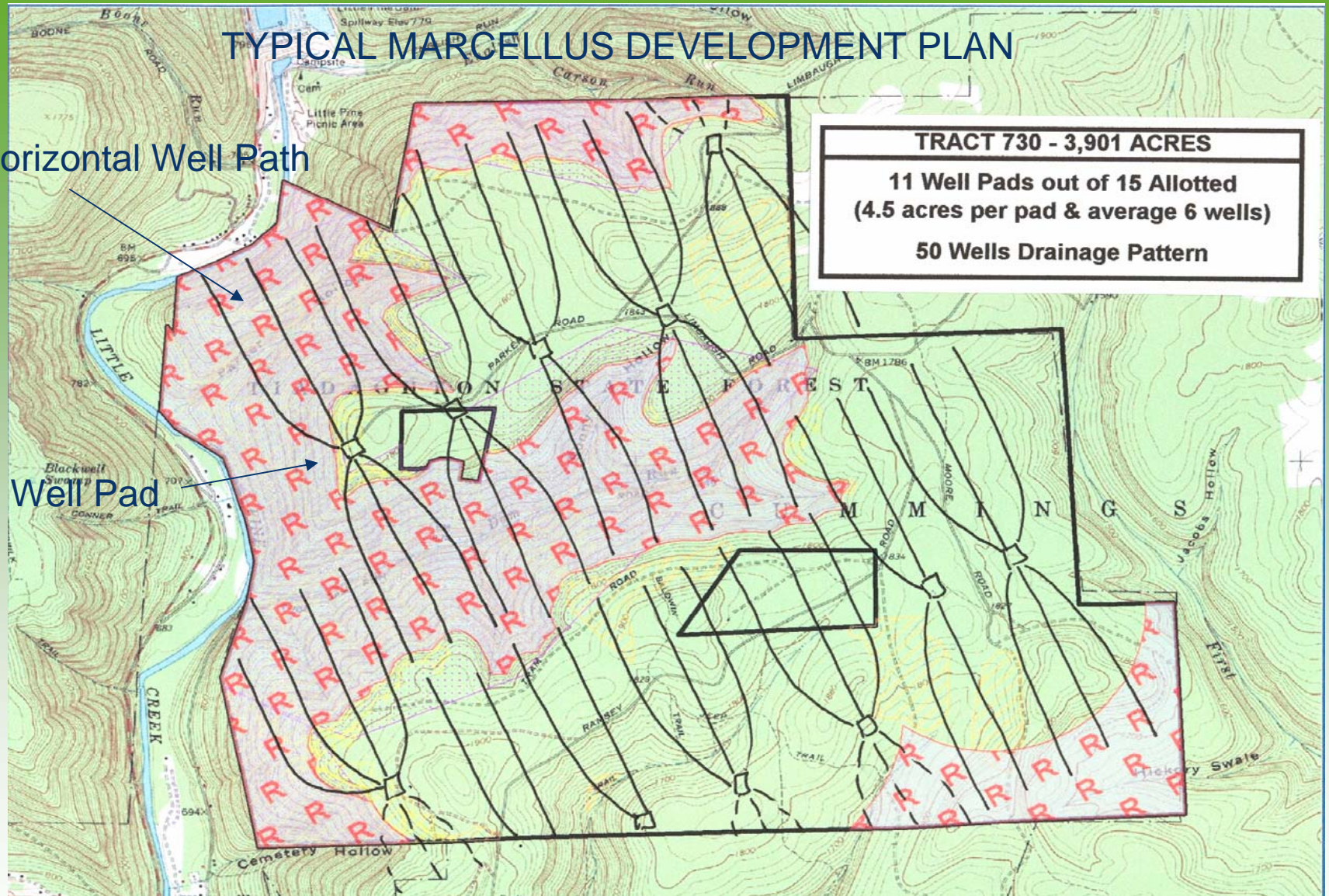


# TYPICAL MARCELLUS DEVELOPMENT PLAN

Horizontal Well Path

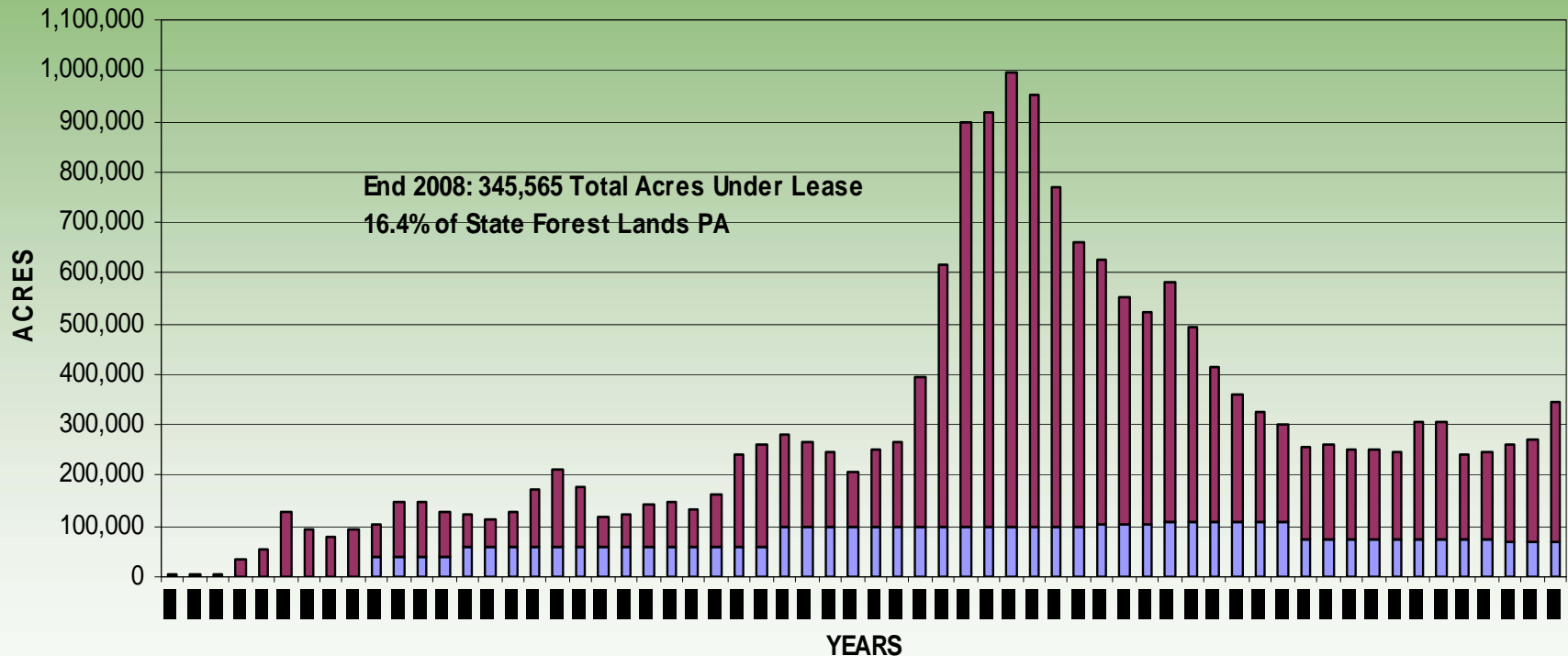
Well Pad

**TRACT 730 - 3,901 ACRES**  
**11 Well Pads out of 15 Allotted**  
**(4.5 acres per pad & average 6 wells)**  
**50 Wells Drainage Pattern**



# HISTORIC LEASED ACREAGE

ANNUAL CUMULATIVE LEASED ACREAGE AS OF DECEMBER 31 OF EACH YEAR  
FOR PRIMARY OIL AND GAS DEVELOPMENT & GAS STORAGE



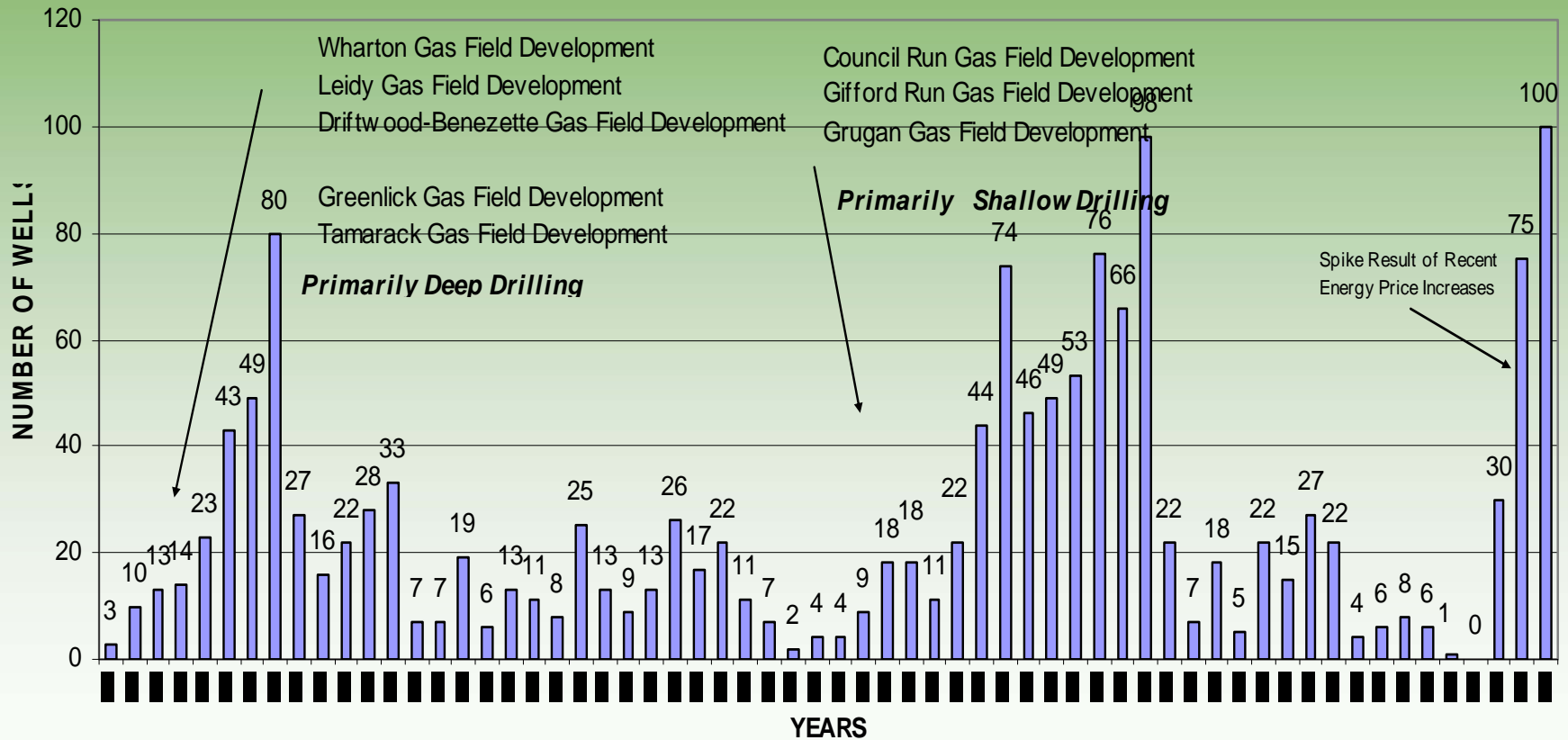
MINERALS SECTION





# HISTORIC WELL COUNT

HISTORICAL SUMMARY OF WELLS DRILLED ON STATE FOREST LANDS  
ADMINISTERED THROUGH A COMMONWEALTH LEASE AGREEMENT  
(Total of 1,437 Wells Over 60 Years)



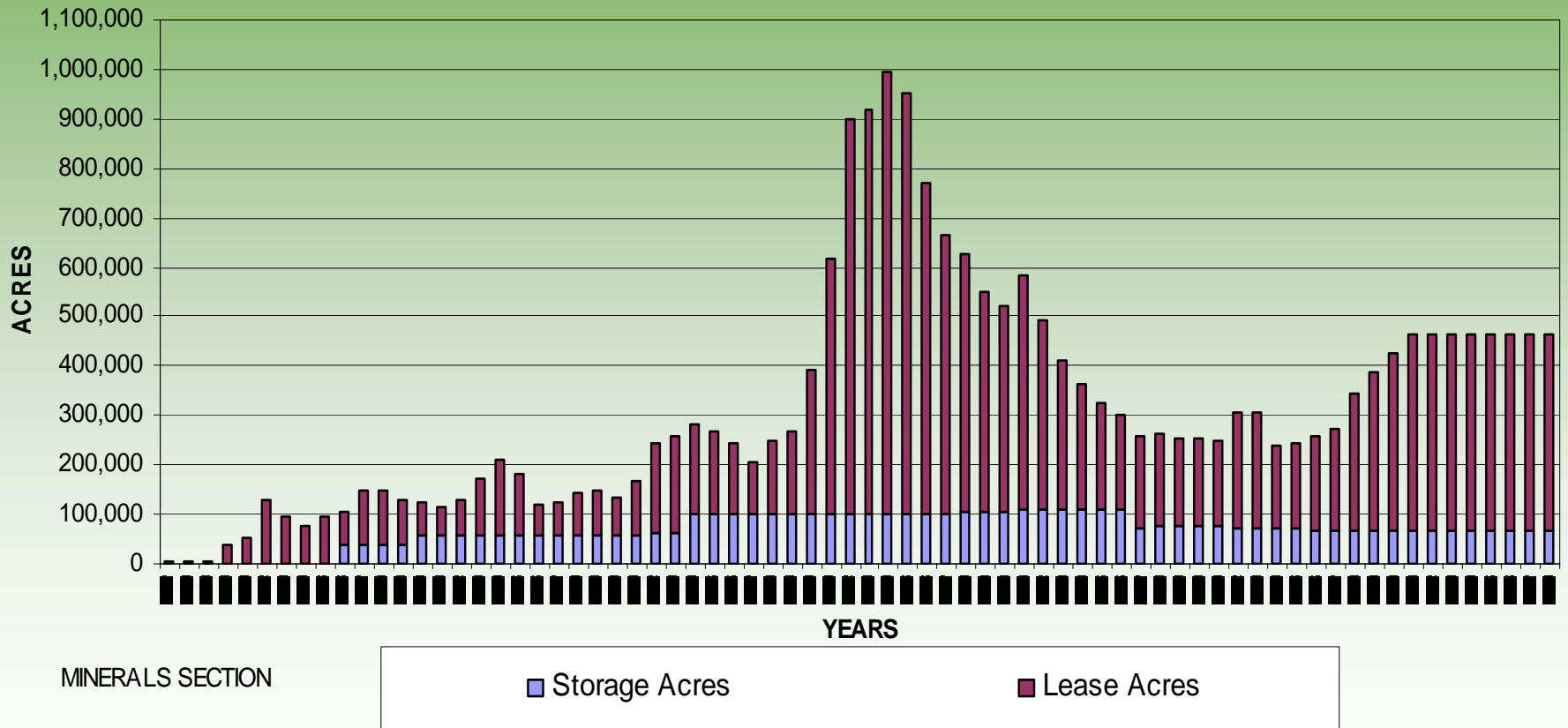
MINERALS SECTION

[www.dcnr.state.pa.us](http://www.dcnr.state.pa.us)



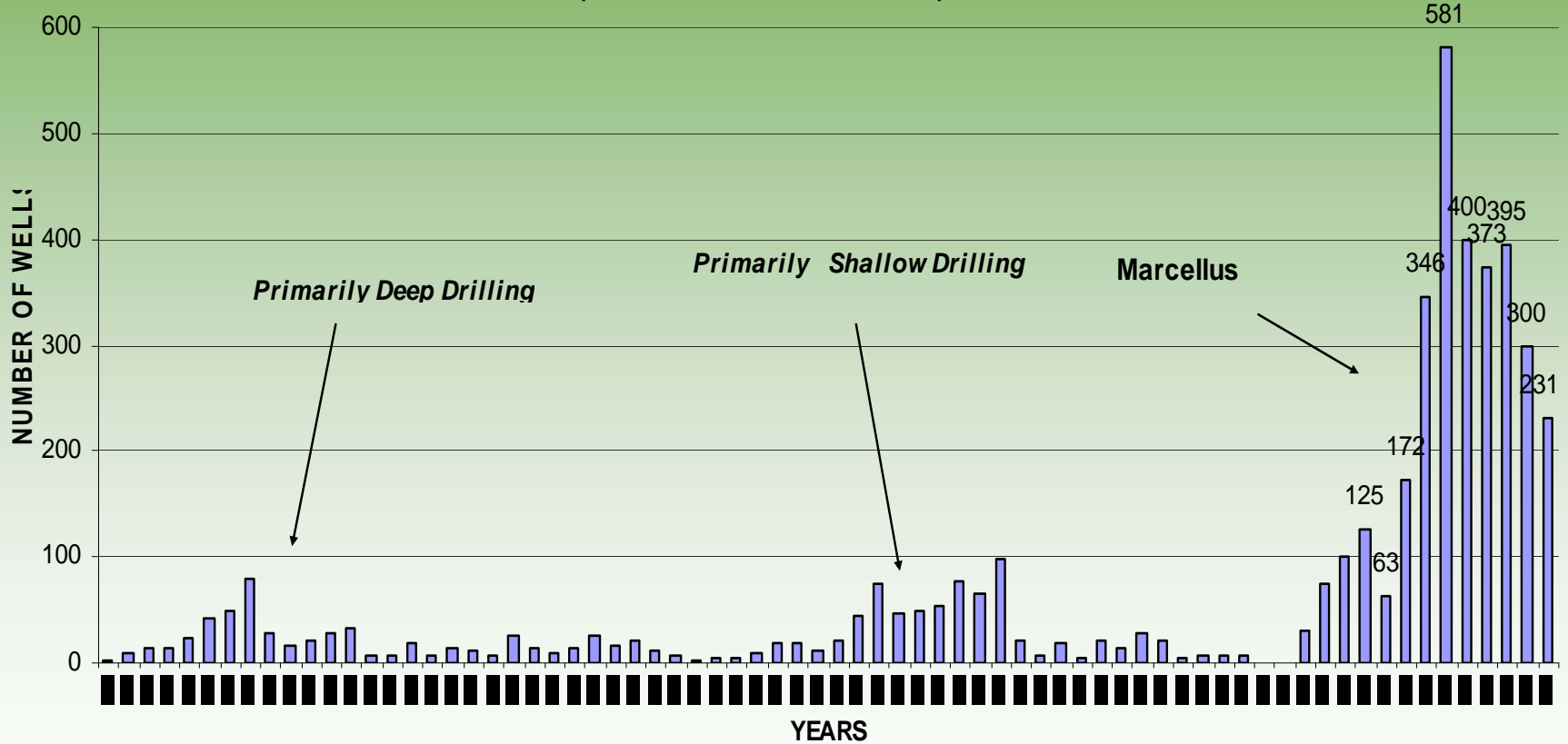
# PROJECTED LEASE ACREAGE

ANNUAL CUMULATIVE LEASED ACREAGE AS OF DECEMBER 31 OF EACH YEAR & PROJECTED ACREAGE TRENDS FOR PRIMARY OIL AND GAS DEVELOPMENT & GAS STORAGE



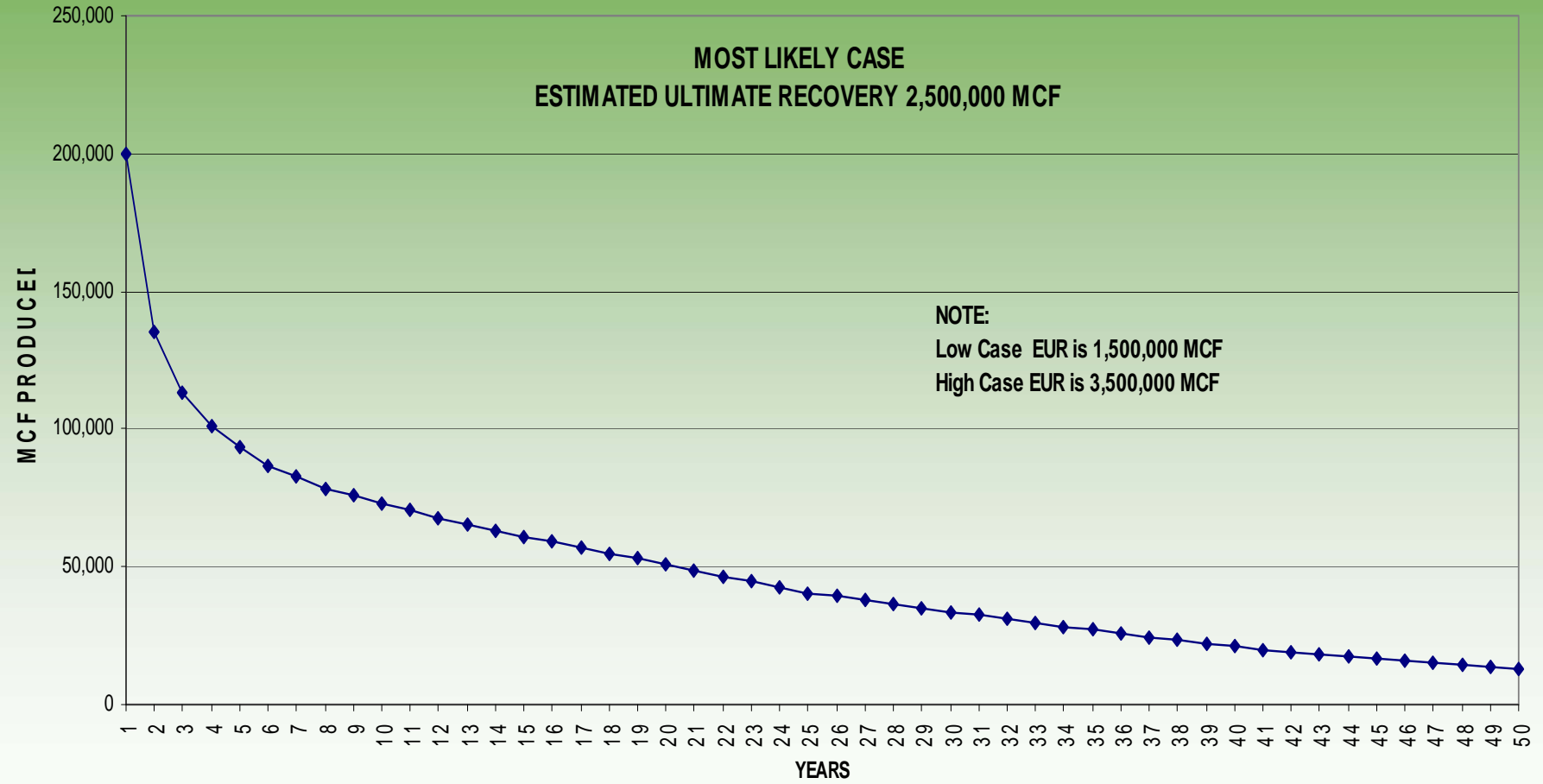
# PROJECTED WELL COUNT

PROJECTED & HISTORIC WELLS DRILLED ON STATE FOREST LANDS  
 ADMINISTERED THROUGH A COMMONWEALTH LEASE AGREEMENT  
 (Total of 4,303 Wells Thru 2018)



MINERALS SECTION

# MARCELLUS TYPE WELL



Hyperbolic Decline vs. Exponential Decline

[www.dcnr.state.pa.us](http://www.dcnr.state.pa.us)



# PROGRAM IMPACTS

- Large Numbers of New Wells (less than ANF's 10,000)
- Small Number of Pad Sites (477 at 5 Acres Each – 2,385 Acres Initial Total)
- Large Production Increase on SF Lands
- Assumed Revenue Increase
- Necessary Reorganization of Staff Resources to Manage Program