

# Nevada Division of Minerals

*2014 Nevada Mineral, Oil and Geothermal Production update*  
*Division of Minerals Activities Update*

**Nevada Mining Association**

**Board Presentation**

**July 9, 2015**

**Richard Perry, Administrator**



# **NEVADA DIVISION OF MINERALS**

- **State Agency and part of the Commission on Mineral Resources NRS 513**
- **CMR is 7 members appointed by the Governor from Minerals(5), OGG(2), Public(1)**
- **Offices in Carson City (8 employees) and Las Vegas (2 employees)**
- **All fee revenues, no General Fund**
  - **\$8.50 per claim fee on mining claims: 77 %**
  - **AML securing fees: 5%**
  - **OGG permitting/operating: 7 %**
  - **federal AML assistance: 6%**
  - **management of reclamation bond pool: 5 %**



# **ACTIVITIES DEFINED BY STATUTES**

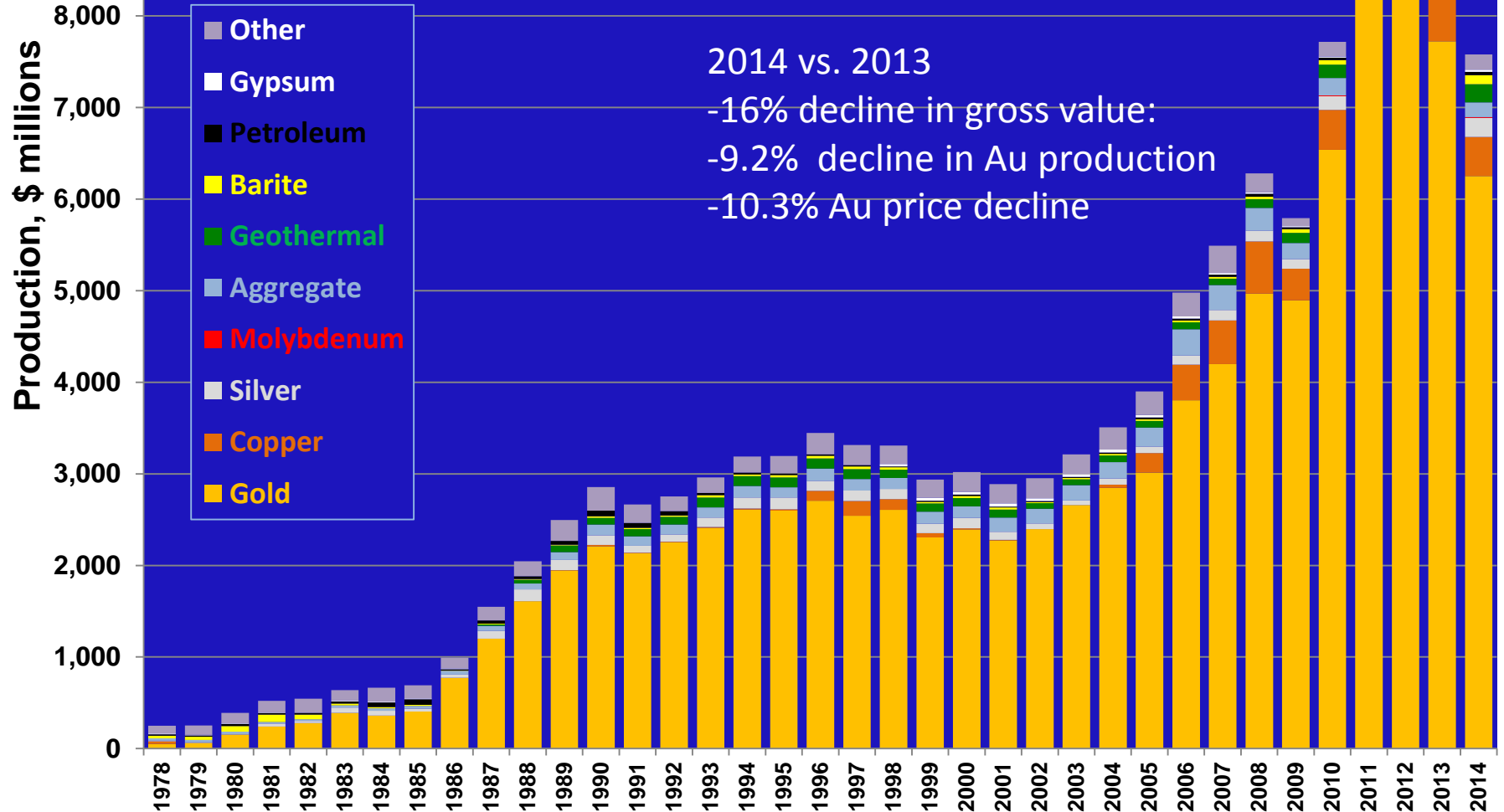
- **“Encourage and assist in the exploration for and production of oil, gas, geothermal energy and minerals within this state”  
– NRS 513**
  - **Minerals Education to public, schools, organizations**
  - **Supply information on the minerals industry**
  - **Abandoned Mine Lands Program – public safety**
  - **Record annual production of mines, oil & gas, and geothermal energy.**
- **Permit Oil and Gas drilling & production NRS 522**
- **Permit Geothermal drilling & production NRS 534A**
- **State Reclamation Bond Pool NRS 519A.290**
- **Mining Claims, Mill Sites and Tunnel Rights NRS 517**

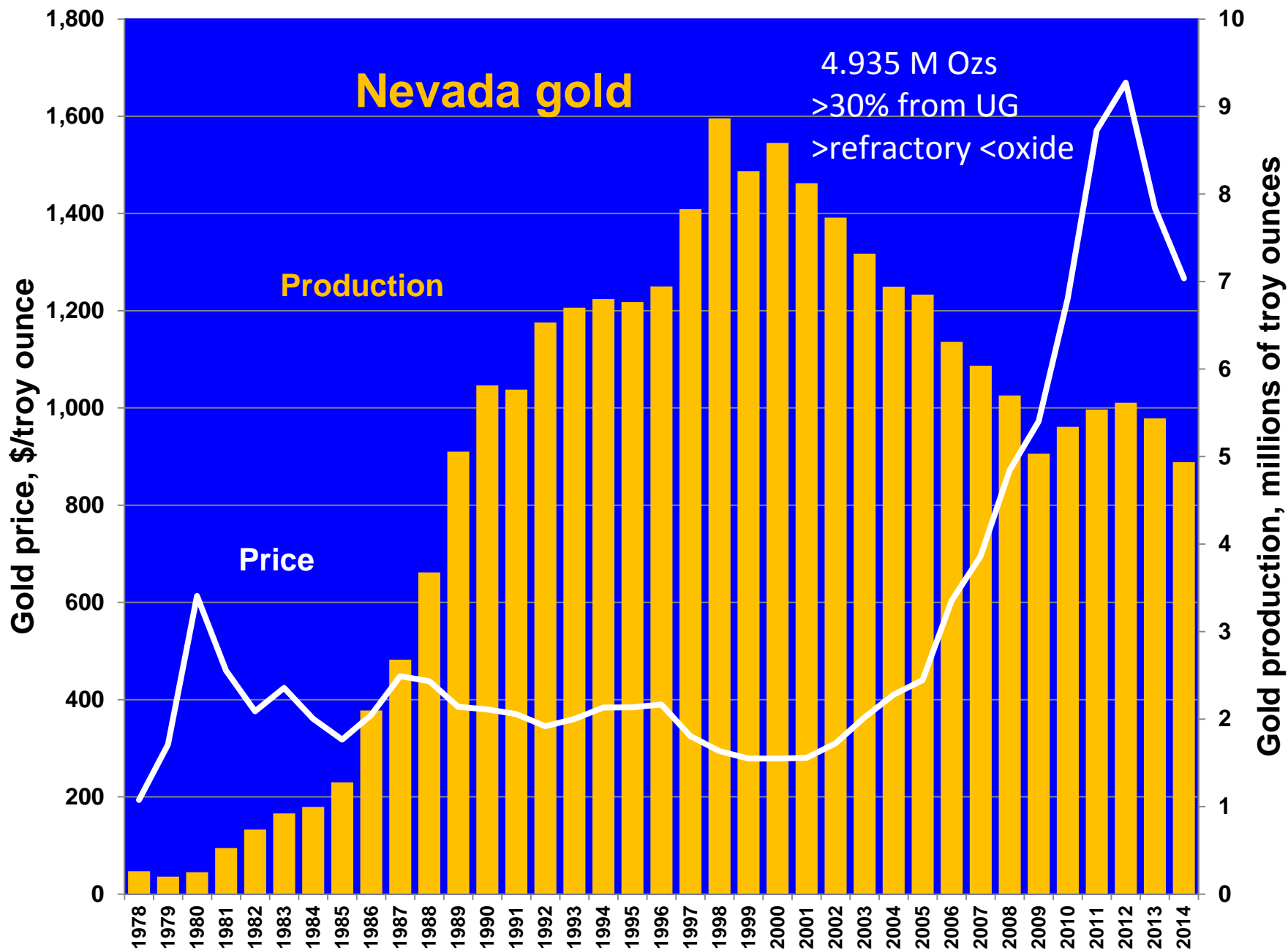


# PERFORMANCE MEASURES

Activity	Description		FY-14 Actuals	FY-16	FY-17
General Administration	Number of abandoned mine land (AML) and minerals education presentations		196 /11 FTE's = 17.8	12	12
Abandoned Mines	Number of hazardous abandoned mine openings secured, expressed as a percentage of the total number inventoried		14,492 secured/18,331 inventoried = 79.1%	70%	70%
Oil, Gas, and Geothermal	Monitoring of Oil, Gas, and Geothermal Wells		556 Wells Inspected in FY14)/ 558 Permitted Wells = 99.6%	33%	33%
Oil, Gas, and Geothermal	% of Permits Processed in Ten Working Days		42 permits processed / 42 total permits processed = 100%	N/A	N/A

# Nevada mineral and energy production





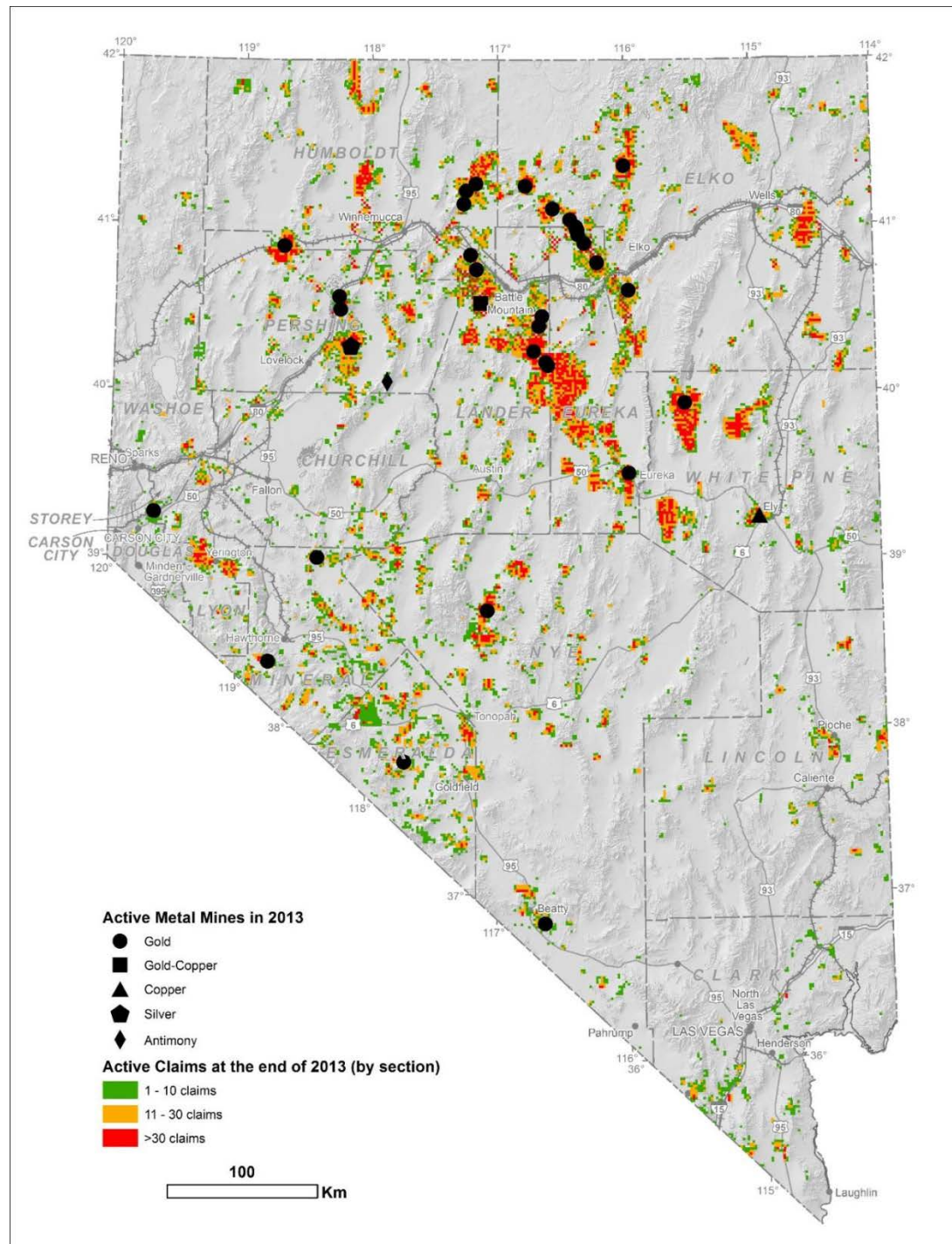


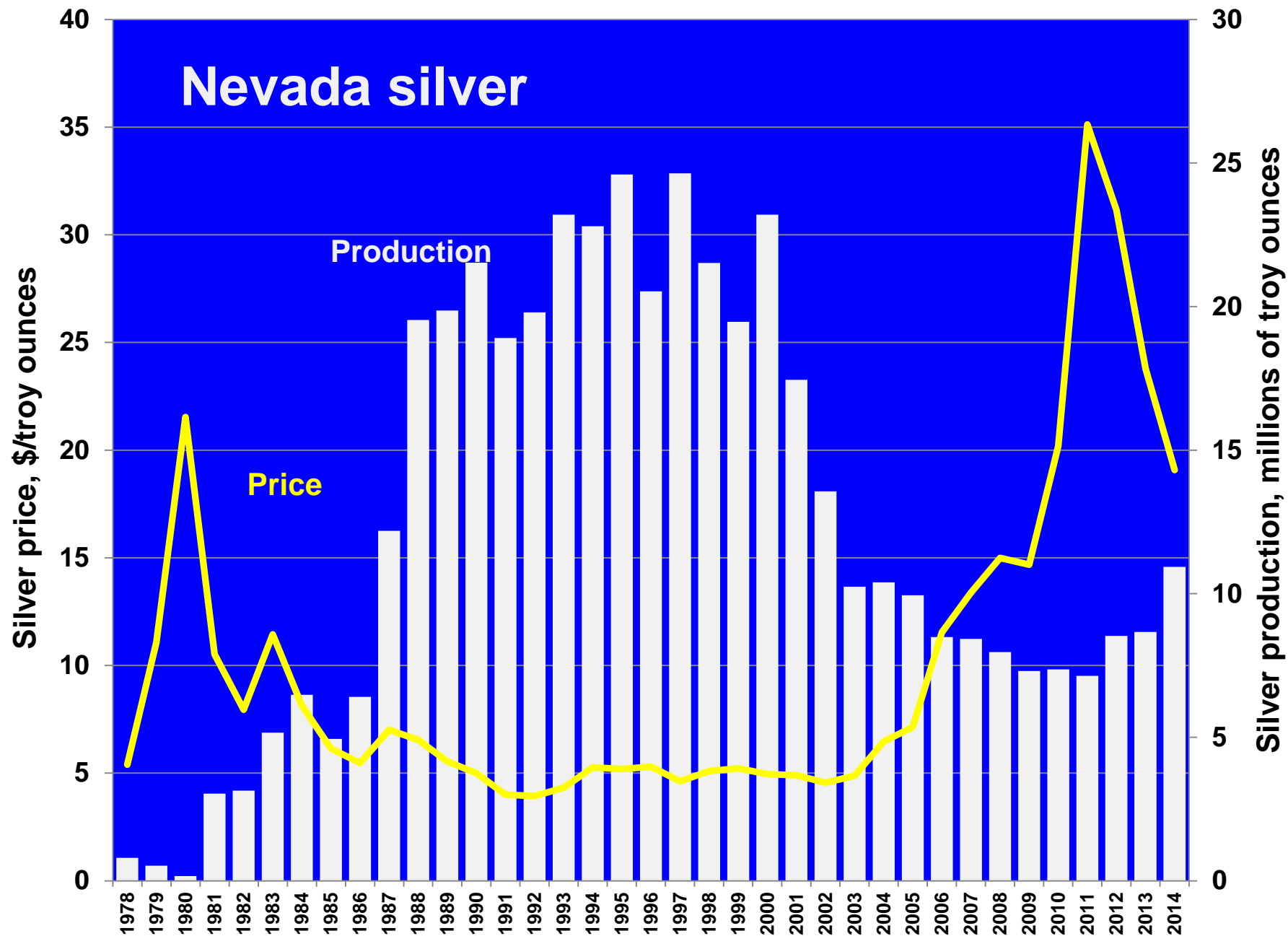


**2014 Metal Production**  
**4,935,997 ozs gold**  
**10,993,704 ozs silver**  
**132,616,318 lbs copper**

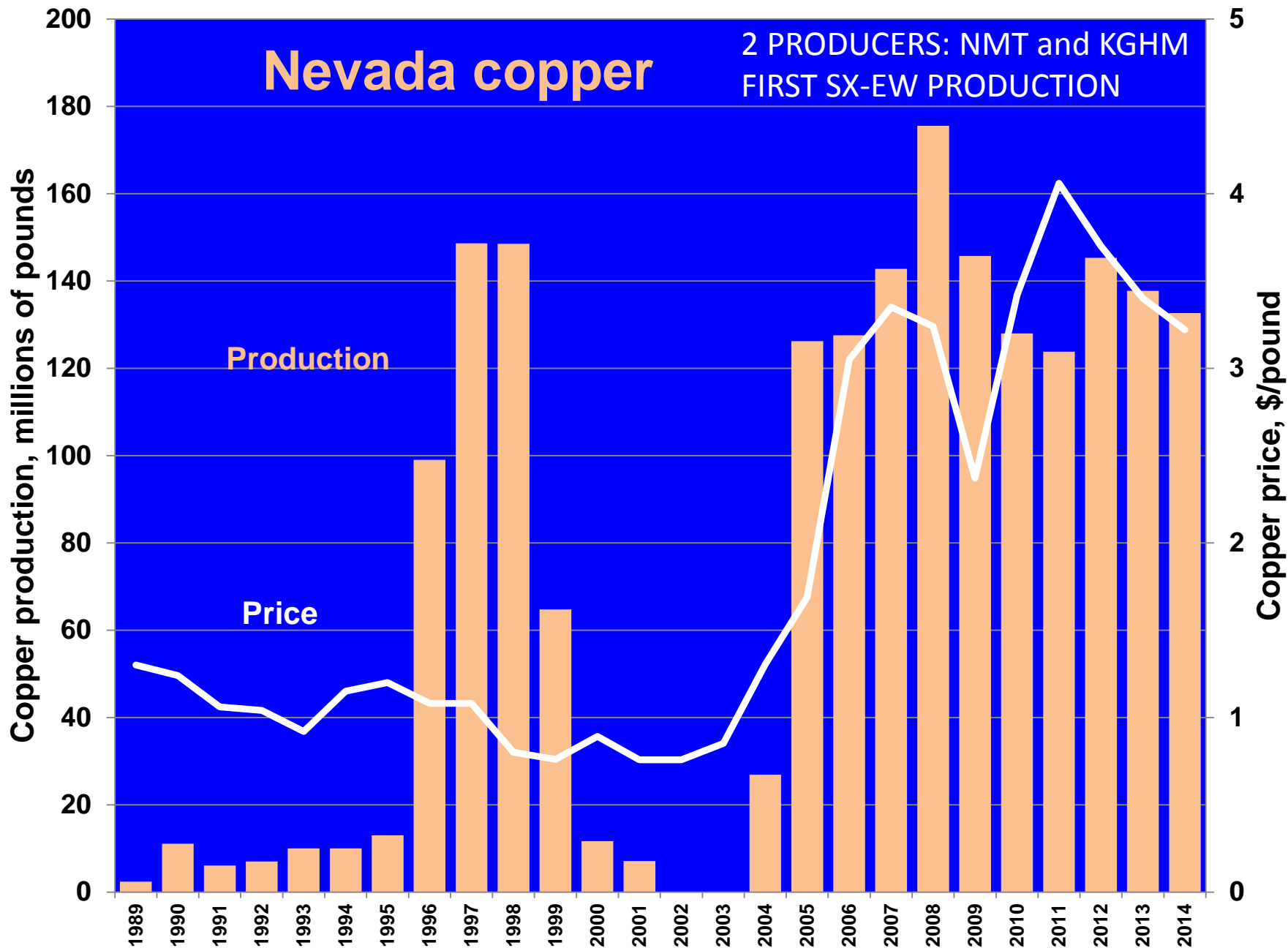
### Major metal miners in Nevada, 2014:

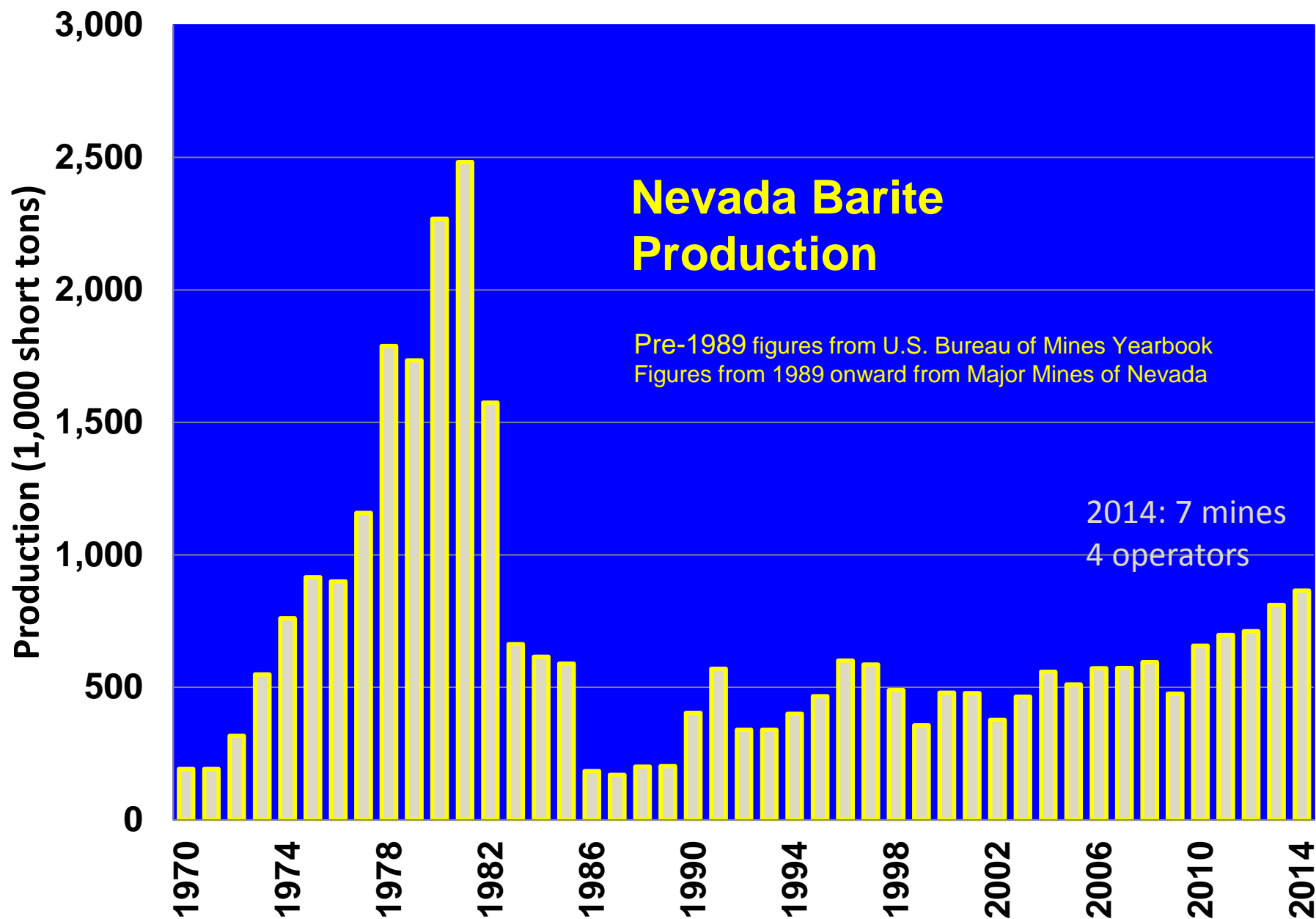
- Barrick – Au, Ag
- Newmont- Au, Ag, Cu
- Round Mountain – Au, Ag
- Allied Nevada – Au, Ag
- Silver Standard – Au, Ag
- Veris – Au, Ag
- Coeur – Ag, Au
- KGHM – Cu, Au, Ag
- Klondex – Au, Ag
- Jipangu – Au, Ag
- Rawhide – Au, Ag
- Comstock – Au, Ag
- Borealis – Au, Ag
- **2014:**
  - 30 gold producers
  - 26 silver producers
  - 2 copper producers

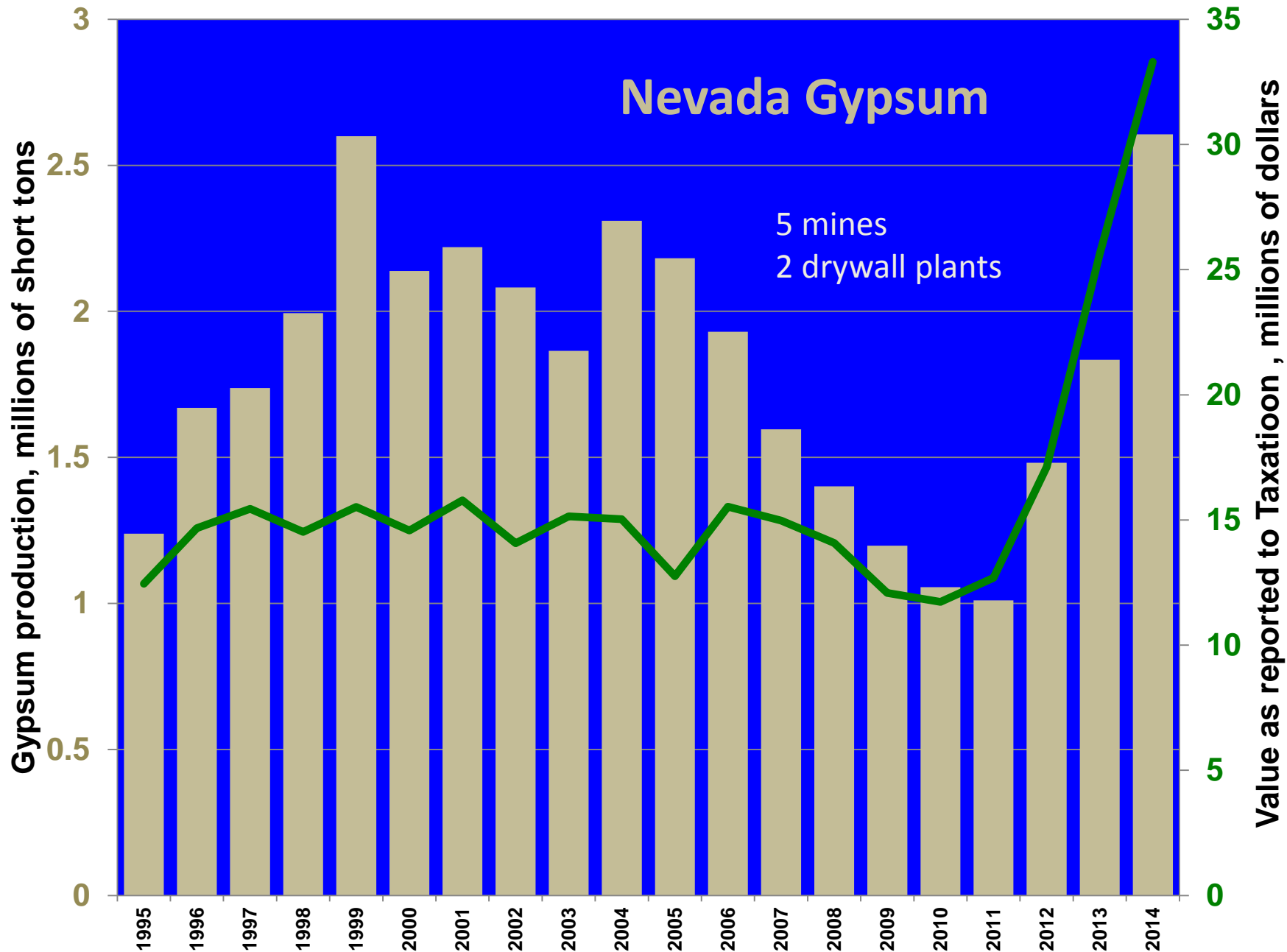










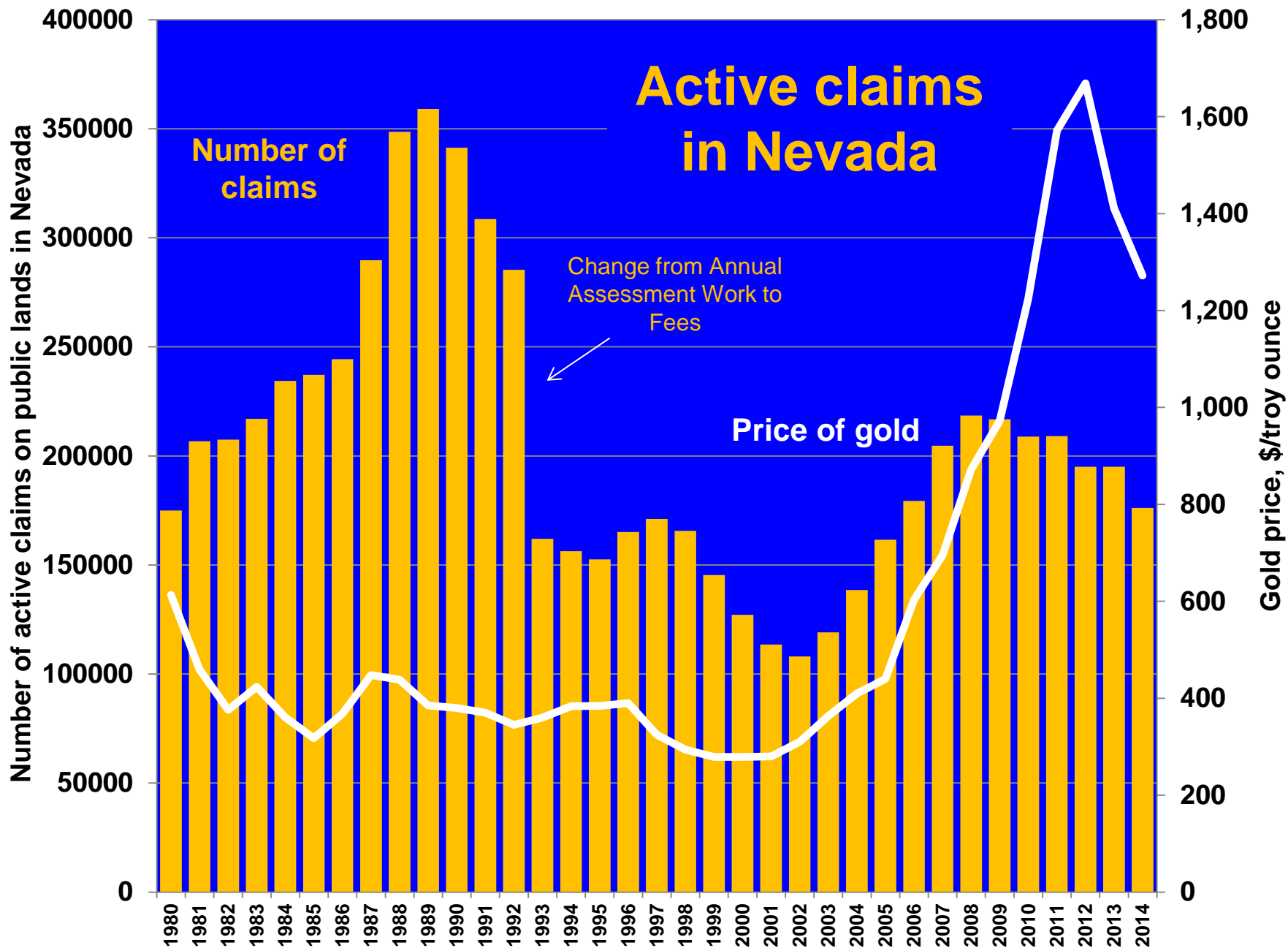


# Other Industrial Minerals Produced, 2014

- 8,830,000 lbs of lithium compounds
  - $\text{Li}_2\text{CO}_3$ ,  $\text{LiOH} \cdot \text{H}_2\text{O}$ ,  $\text{LiOH}$
- 7,898,592 tons of Limestone - 7 mines
  - Used to produce chemical lime and cement
- 430,385 tons of  $\text{MgCO}_3$
- 17,000 tons of salt
- 6,371 tons of zeolites
- Aggregate production – not yet compiled







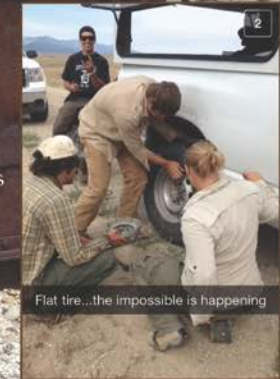
# 2014 SUMMER INTERN PROGRAM

Eight UNR-UNLV students investigated 4,012 abandoned mine features in 13 counties, logged 451 hazards and secured 284

## NEVADA DIVISION OF MINERALS ABANDONED MINE LANDS 2014 SUMMER INTERN PROGRAM



Many Thanks to These  
Hard Working Students:  
Sean Diggins  
Alain Nowakowski  
Ralston Pedersen  
Vince Ugalde  
Sarah Ullrich  
Nolan Weintz  
Alex Wheatley  
Gunnar Young





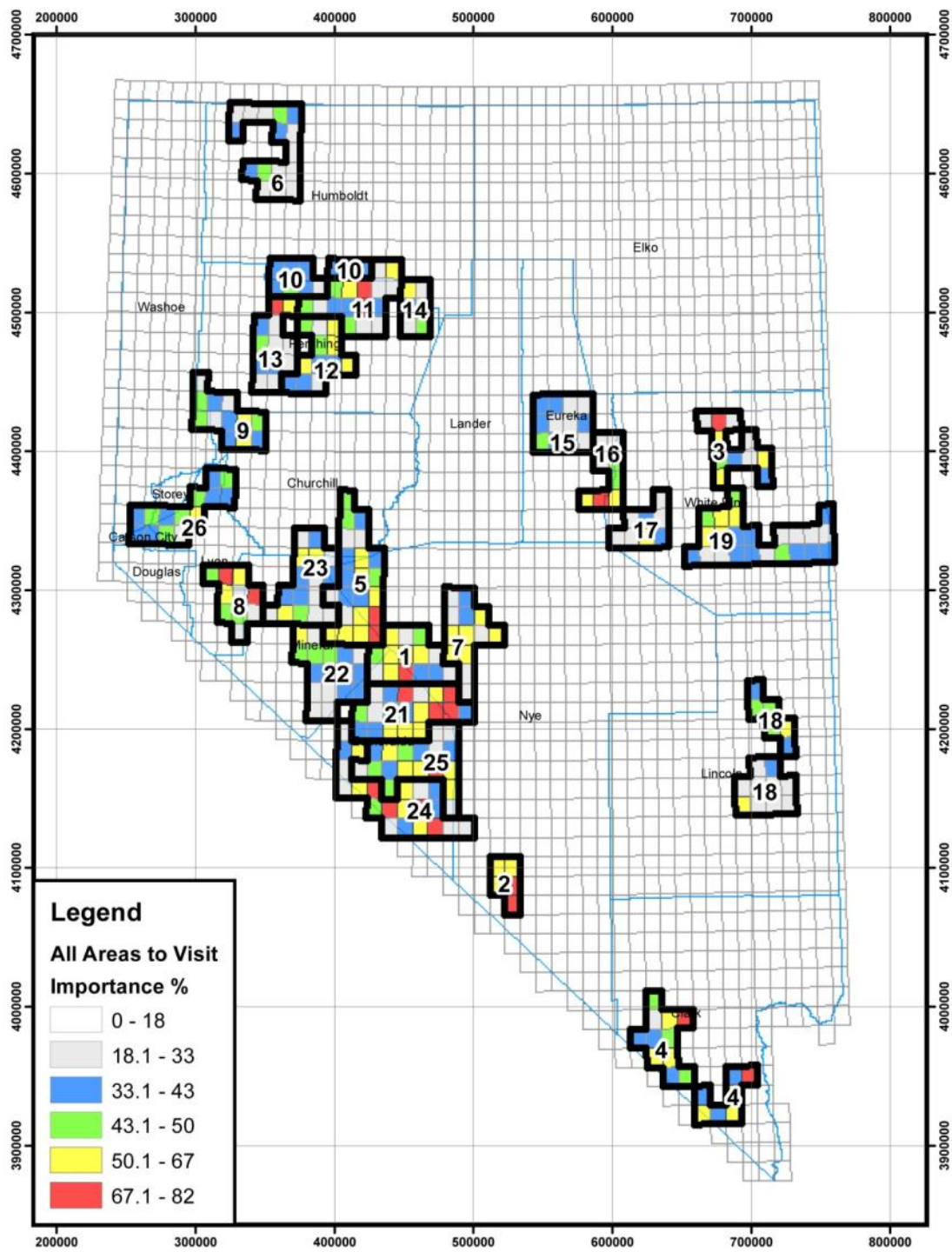
# AML Activities by County

COUNTY	SITES DISCOVERED	SITES SECURED	% SECURED	TOTAL UNSECURED	% UNSECURED STATEWIDE
Carson	76	76	100%	0	0.00%
Churchill	707	570	81%	137	3.74%
Clark	2,151	1,686	78%	465	12.68%
Douglas	204	201	99%	3	0.08%
Elko	783	579	74%	204	5.56%
Esmeralda	2,793	2,376	85%	417	11.37%
Eureka	774	709	92%	65	1.77%
Humboldt	797	700	88%	97	2.65%
Lander	591	508	86%	83	2.26%
Lincoln	722	576	80%	146	3.98%
Lyon	1,035	962	93%	73	1.99%
Mineral	1,620	1,355	84%	265	7.23%
Nye	2,614	1,958	75%	656	17.89%
Pershing	1,593	1,141	72%	452	12.33%
Storey	197	186	94%	11	0.30%
Washoe	445	402	90%	43	1.17%
White Pine	1,554	1005	65%	549	14.98%
<b>TOTAL (Since 1987)</b>	<b>18,656</b>	<b>14,990</b>	<b>80%</b>	<b>3666</b>	<b>100.00%</b>

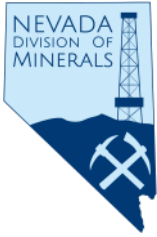




SECURING  
ACTIVITIES  
PRIORITIZED  
ANNUALLY  
USING A RISK  
EQUATION  
2015 >>>>>>>



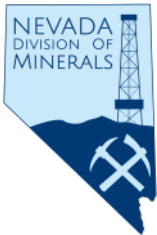




# AML BACKFILL PROJECTS

3,125 Backfills thru January 2015





# EAGLE SCOUT SECURING PROJECTS



**154 projects since 1992 resulting in 696 securings**  
(through 12/31/2014)





# MINERALS EDUCATION



## 2014 ACTIVITIES:

- 167 educational presentations by staff that reached 7,408 citizens
  - 113 classroom presentations
  - 28 to civic groups, clubs and trade orgs.
  - 21 to Boy Scout and youth organizations
  - 88 in Northern Nevada
  - 72 in Southern Nevada



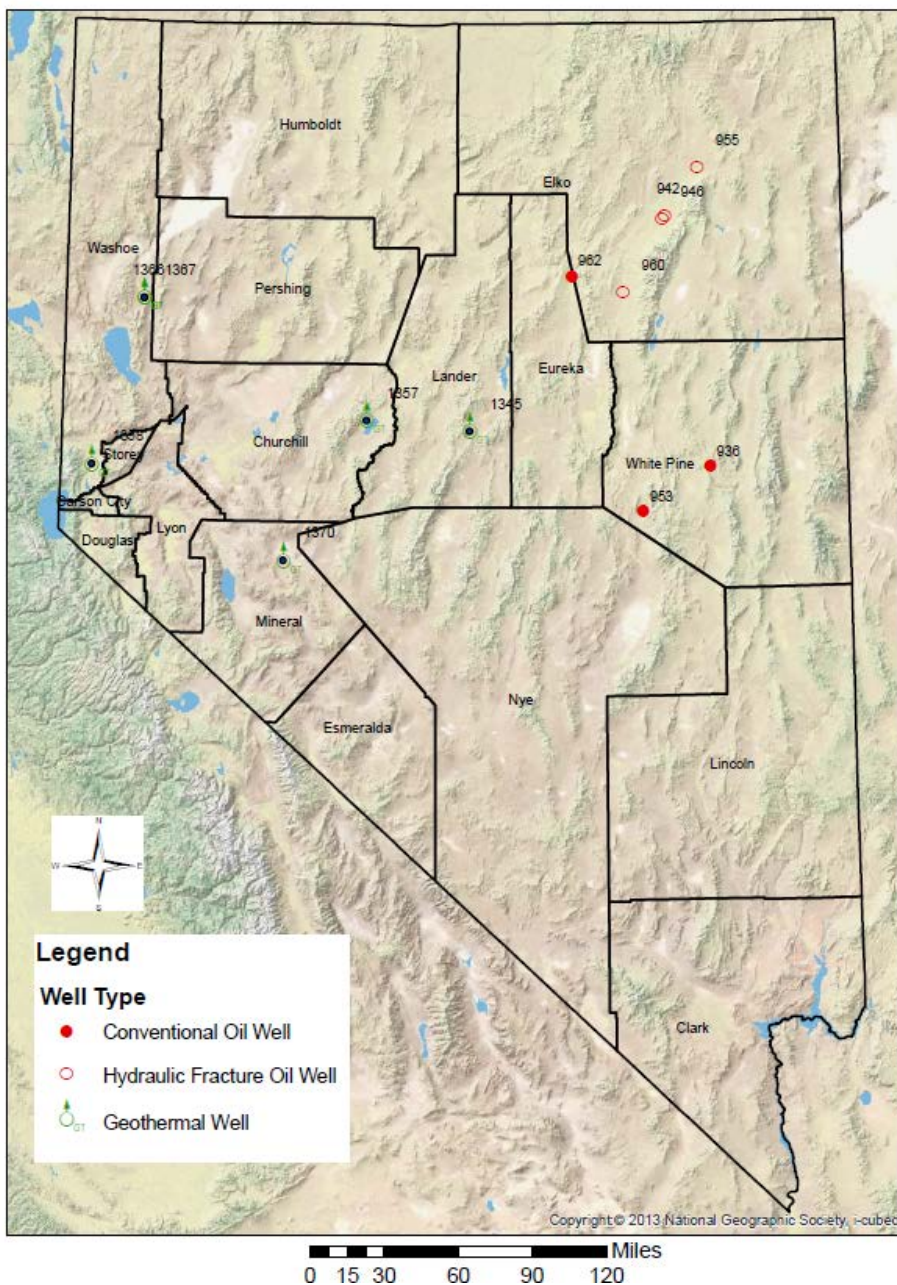
<b>Reclamation Bond Pool Status Report</b>		<b>Current to:</b>	<b>5/29/2015</b>					
<b>Plan-level Bonds -Company</b>	<b>Project</b>	<b>Entry Date</b>	<b>Bond Amount</b>	<b>% of Pool</b>	<b>Comments</b>	<b>Deposit</b>	<b>Premiums Paid</b>	<b>% Bond Whole</b>
Custom Details	Bovie-Lew	11/17/2006	\$25,364.00	0.85%		\$ 12,217.11	\$18,280.79	120.2%
Nevada Rae	Black Rock Canyon	4/15/2005	\$369,255.00	12.33%		\$ 197,937.54	\$220,729.65	113.4%
So. NV Liteweight	Money Pit	5/21/2004	\$395,514.00	13.21%		\$ 213,055.61	\$219,653.66	109.4%
Specialty Clays	Bentonite	12/11/1997	\$209,900.00	7.01%		\$ 31,485.00	\$179,351.94	100.4%
Western Mine Dev.	Victorine Mine	5/24/2000	\$45,875.39	1.53%	terminated	\$ -	\$0.00	
Western Mine Dev.	Kingston Mill	5/24/2000	\$100,450.00	3.36%	terminated	\$ -	\$0.00	
Western Mine Dev.	Manhattan Mill	5/24/2000	\$114,288.77	3.82%	terminated	\$ -	\$0.00	
TNT Venture	Big Canyon	1/27/2010	\$78,161.00	2.61%		\$ 39,615.03	\$31,901.84	<b>91.5%</b>
Dun Glen Mining	Dun Glen	8/11/2014	\$359,155.00	12.00%		\$ 192,159.52	\$30,287.99	<b>61.9%</b>
<b>Statewide Notice-Level</b>	<b>Various</b>	<b>various</b>	<b>\$1,296,942.00</b>	<b>43.32%</b>	<b>107 Notice-level bonds</b>			
<b>Total Bond Amount</b>			<b>\$2,993,905.16</b>					
<b>Cash in Pool's Account (From BSR - 5/29/15)</b>			<b>\$3,899,253.32</b>					
<b>Unfunded Amount</b>			<b>-\$905,348.16</b>					
<b>Percent funded</b>			<b>130.2%</b>					





## FLUID MINERALS PERMITTING AND DRILLING ACTIVITY

- 7 OIL EXPLORATION  
WELLS DRILLED
- 5 GEOTHERMAL  
EXPLORATION OR  
PRODUCTION WELLS  
DRILLED



# Nevada Geothermal Energy

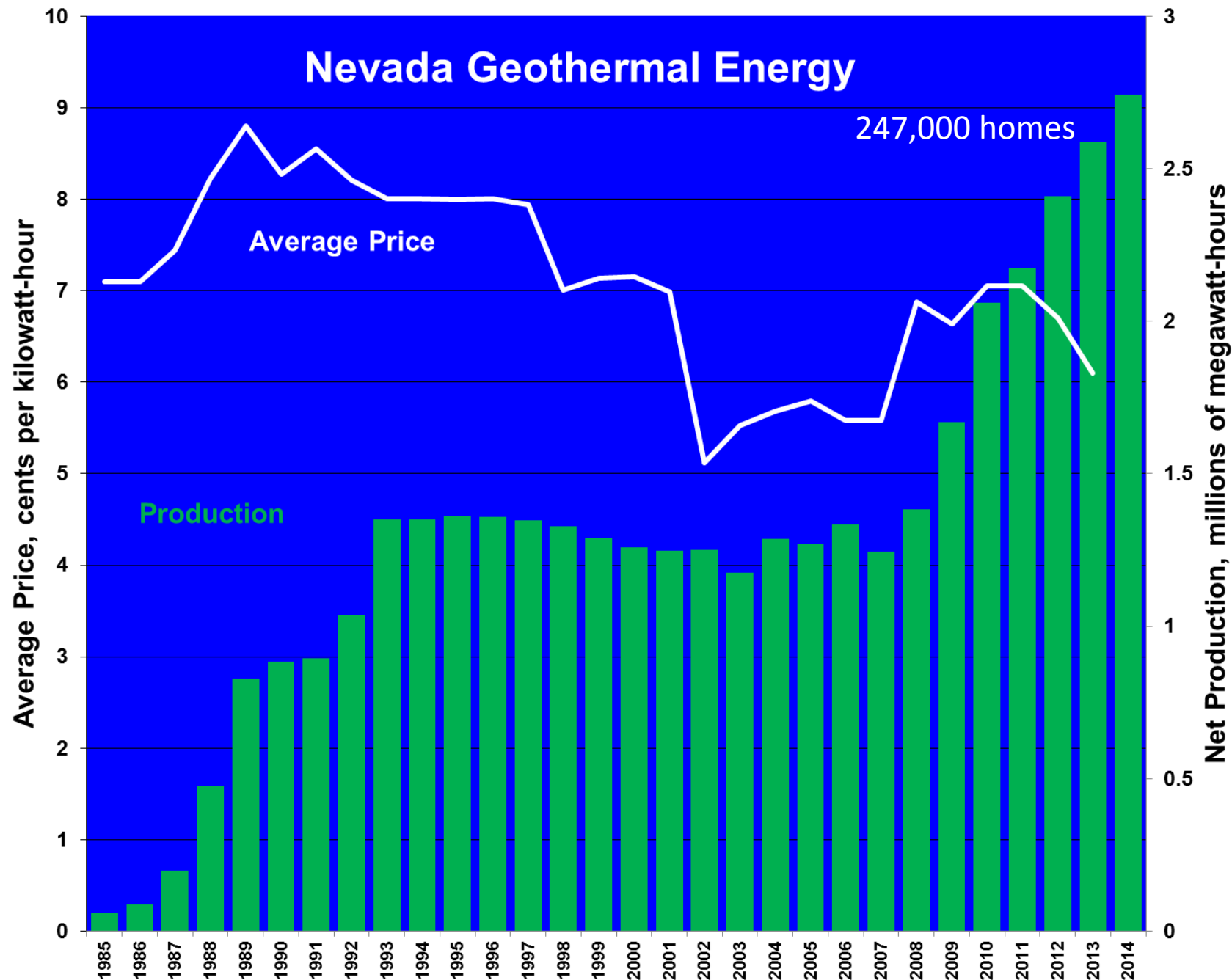
247,000 homes

Average Price, cents per kilowatt-hour

Average Price

Production

Net Production, millions of megawatt-hours





## Power Plants

▲ Pre-2005

■ 2005-2011

● 2012

◆ 2013

▲ 1. Beowawe I - 16.6 MW

■ 2. Beowawe Bottoming - 1.9 MW

■ 3. Blue Mountain - 49.5 MW

▲ 4. Brady - 26.1 MW

■ 5. Desert Peak II - 23 MW

▲ 6. Dixie Valley - 64.7 MW

◆ 7. Don A. Campbell (Wild Rose) - 22.5 MW

▲ 8. Empire/San Emidio - 4.8 MW

● 9. San Emidio Repower - 11.8 MW

● 10. Florida Canyon - 0.075 MW

■ 11. Burdette (Galena 1) - 30 MW

■ 12. Galena 2 - 13.5 MW

■ 13. Galena 3 - 30 MW

■ 14. Jersey Valley - 23.5 MW

● 15. McGinness Hills - 52 MW

◆ 16. Patua - 30 MW

■ 17. Salt Wells - 23.6 MW

▲ 18. Soda Lake 1, 2 - 23.1 MW

▲ 19. Steamboat 1, 1A - 10.8 MW

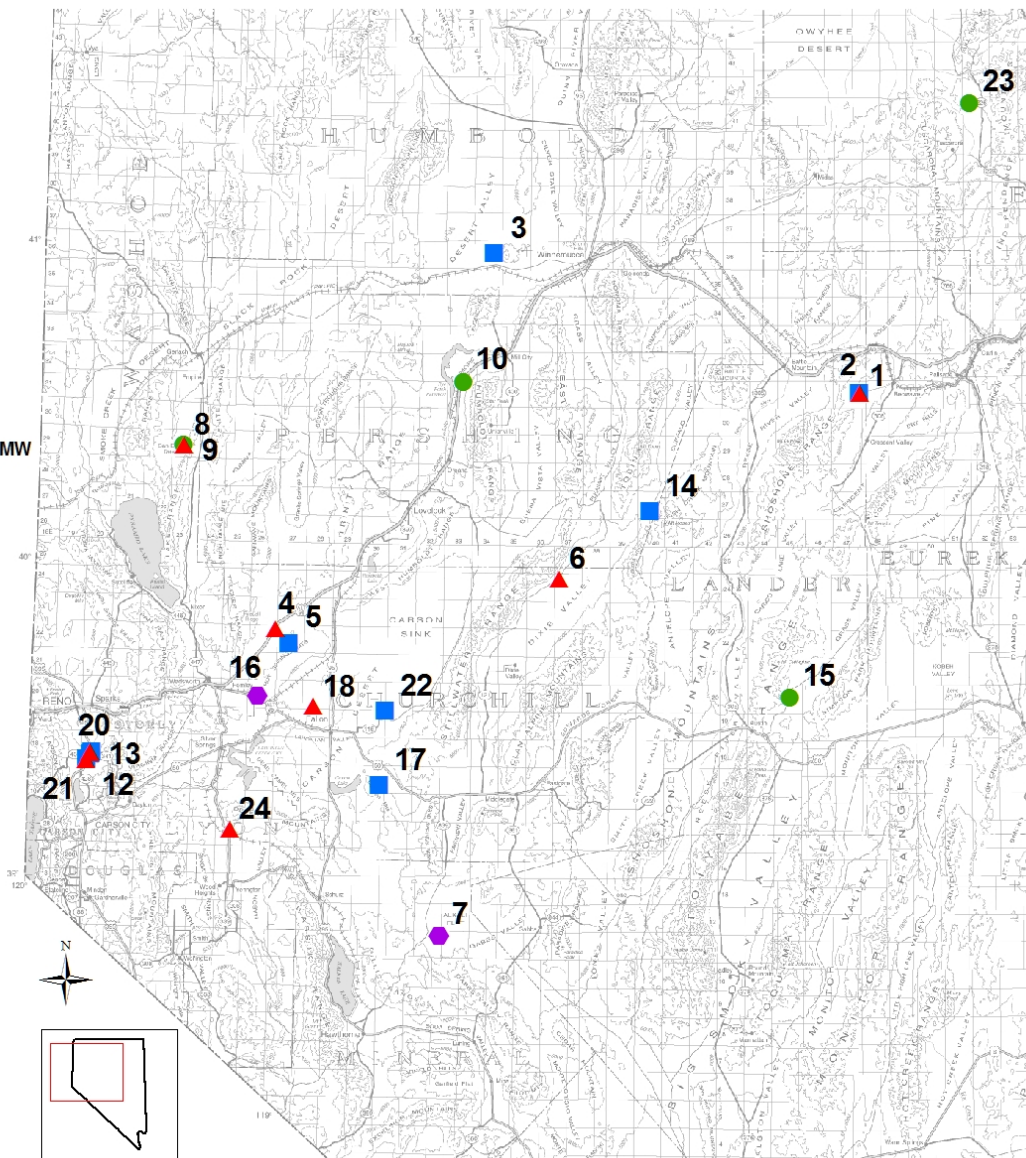
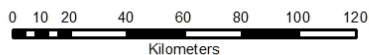
▲ 20. Steamboat 2, 3 - 47.8 MW

▲ 21. Steamboat Hills - 13.2 MW

■ 22. Stillwater 2 - 47.2 MW

● 23. Tuscarora - 32 MW

▲ 24. Wabuska - 5.6 MW



From: Lisa Shevenell, Atlas Geosciences, Inc.





# Ormat Technologies Inc: McGinness Hills

Located in Lander County northeast of Austin  
*Geothermal Power Plant*



## General

- First explored for gold in the 1980's due to exposure of high-sulfidation and low-sulfidation hydrothermal alteration products
- In 2004 Newcrest Resources encountered hot water during exploration drilling
- Each 300 meter exploration hole punctured the sinter cap and intercepted near-boiling waters
- Geysering action was observed in one hole
- Ormat leased the McGinness Hills Property in 2009
- Phase I at 30 MW began operations on June 15, 2012
- Phase 2 of commercial operation began February 4, 2015. Total = 72 MW





# NEVADA OIL PRODUCTION

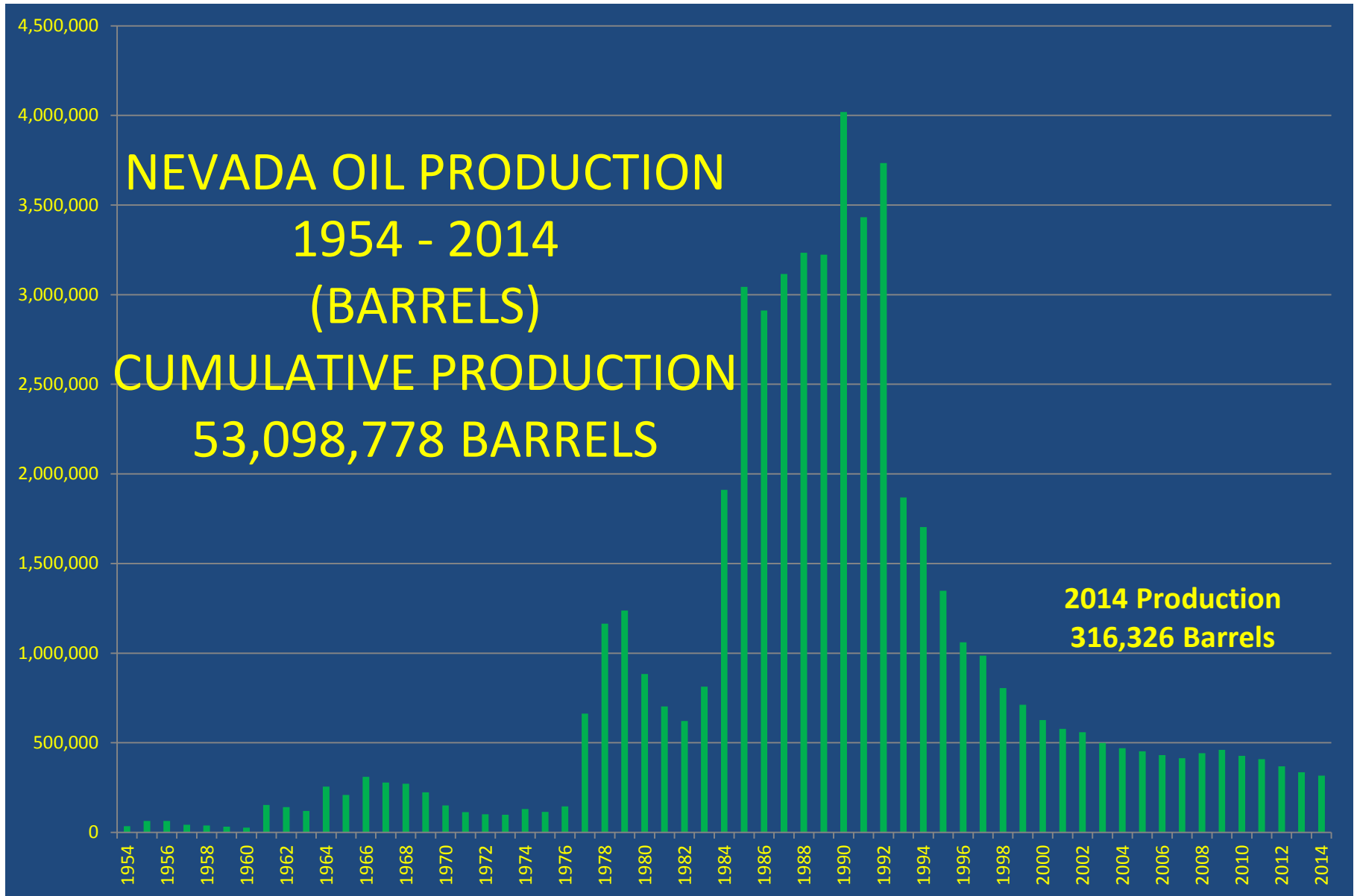
1954 - 2014

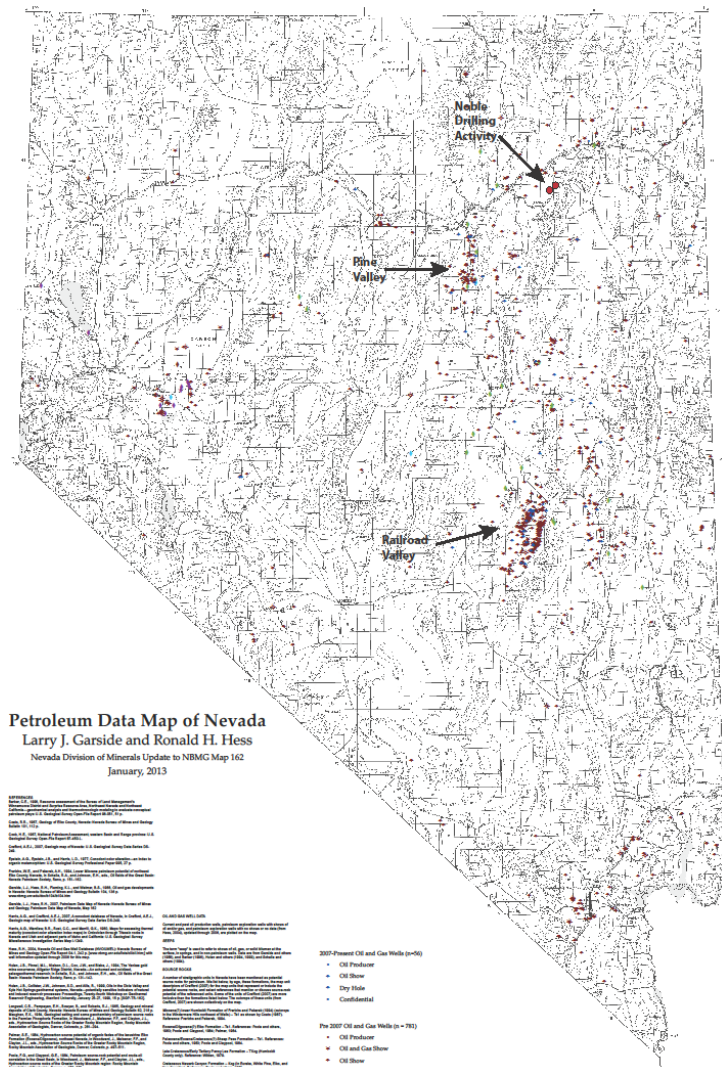
(BARRELS)

CUMULATIVE PRODUCTION

53,098,778 BARRELS

**2014 Production**  
**316,326 Barrels**





# PETROLEUM EXPLORATION WELLS AND PRODUCTION FIELDS IN NEVADA

826 oil & gas exploration wells drilled since 1907

FIELD	BBLS OIL (2014)
Eagle Springs	34,217.00
Trap Spring	136,651.30
Bacon Flat	6,223.00
Currant	143.00
Grant Canyon	46,263.00
Kate Spring	28,933.76
Duckwater	124.00
Sans Spring	1,604.00
Ghost Ranch	15,563.93
Sand Dune	7,467.00
<b>Total RR Valley</b>	<b>275,341.99</b>
Blackburn	32,217.00
Tomera Ranch	1,916.00
<b>Total Pine Valley</b>	<b>34,133.00</b>
Humboldt	2,755.77
Huntington	2,247.52
<b>Total Elko County</b>	<b>5,003.29</b>
<b>Total Nevada</b>	<b>316,326.28</b>

## OIL FROM SHALE

DIRECTLY SOUTH OF THIS POINT AND ACROSS THE VALLEY FLOOR ARE THE REMAINS OF A SHORT-LIVED EXTRACTION PLANT, WHICH REACHED THE PEAK OF ITS PRODUCTIVE CAPACITY IN THE EARLY TWENTIES. DRIVING OF THE MAIN SHAFT BEGAN IN 1916. OF SEVERAL TRIES AT EXTRACTING OIL FROM SHALE, THIS WAS THE ONLY SUCCESSFUL OPERATION IN NEVADA.

ROBERT M. CATLIN, SR. SPENT MANY YEARS EXPERIMENTING ON THE EXTRACTION OF CRUDE OIL FROM THESE BEDS BEFORE BEGINNING THE COMMERCIAL PRODUCTION OF OIL. AFTER A PRODUCTION PERIOD OF LESS THAN TWO YEARS, THE PLANT WAS CLOSED IN THE FALL OF 1924. HI-POWER CATLIN OIL WAS TOO EXPENSIVE TO COMPETE WITH THE FOSSIL OILS OF THAT DAY.

EASILY 50 YEARS AHEAD OF HIS TIME, CATLIN DID, FOR A FEW YEARS GIVE ELKOANS AND NEVADANS, A DREAM AND THE COMMUNITY AN OIL BOOM IN THE ROARING TWENTIES.



# Noble Energy: NE Nevada Oil Play

Unconventional Oil Prospect/Wilson Project

## Exploration Stage Unconventional Oil Prospects

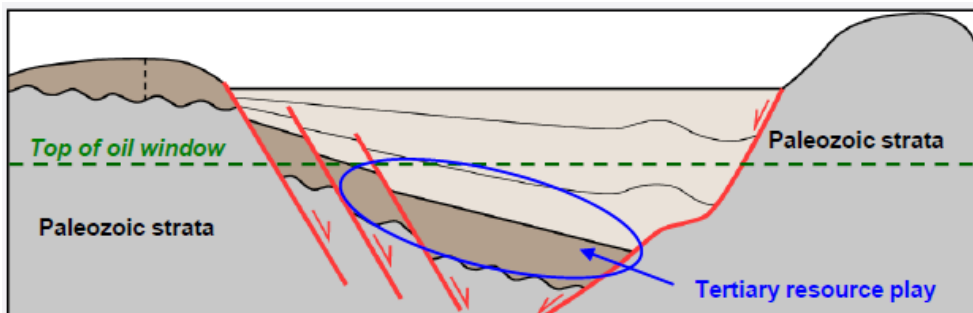
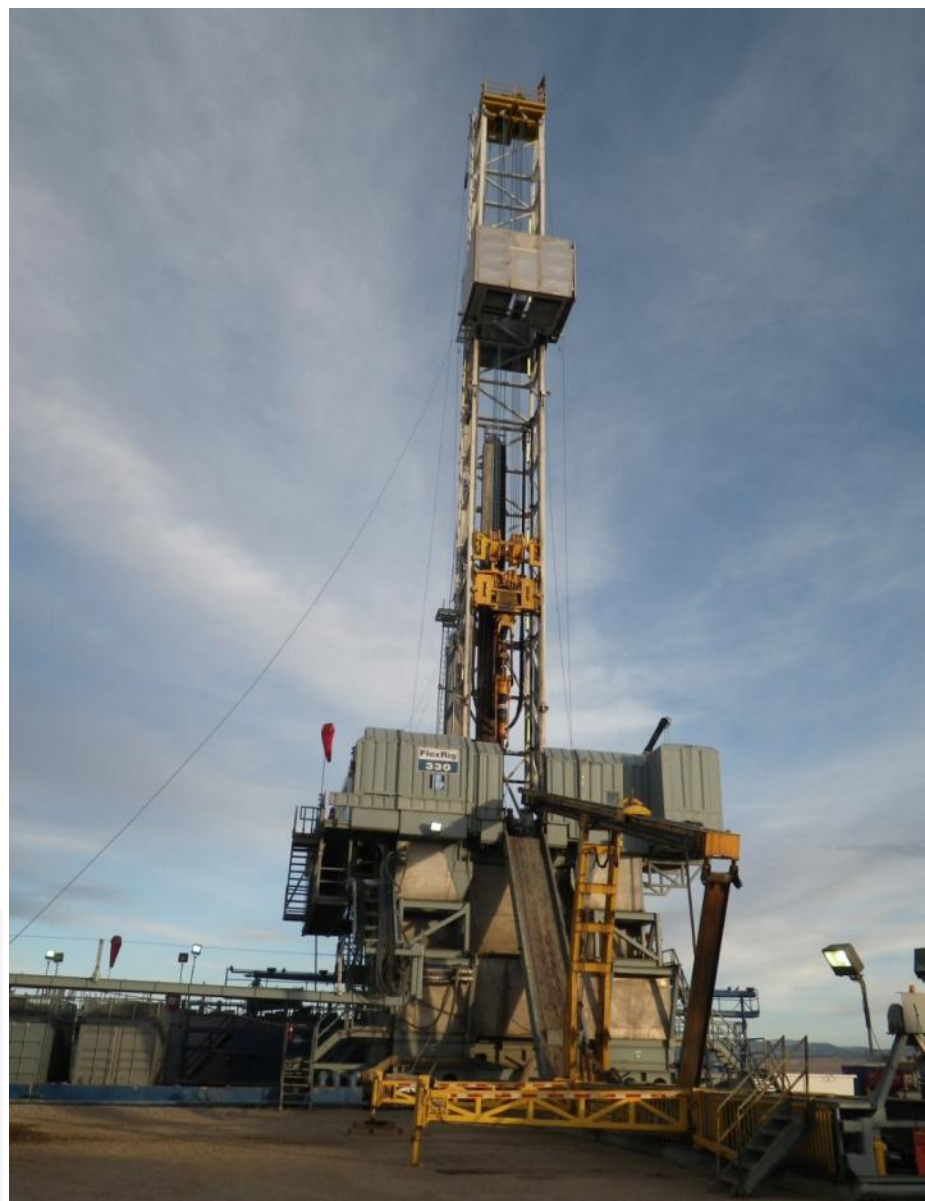
- Targeting Tertiary age lacustrine shale (Elko Formation) with play at depths between 6,000 – 12,000 ft
- Unconventional tight oil prospect
- 4 Wells drilled to date, 3 hydraulically fractured

## Results:

- Hydrocarbon saturation up to 70%
- Thermal maturity in peak oil generation window
- Total organic content 1-24%
- 2 wells recorded oil production

## Looking Forward:

- Complete Analysis of data from wells
- Design Completion and conduct production tests
- Evaluate horizontal vs. vertical approach





# U.S. Onshore – NE Nevada

## *Large-scale organic exploration opportunity*

### ► NBL Operated

- ⌘ 372,000 gross acres, 66% fee

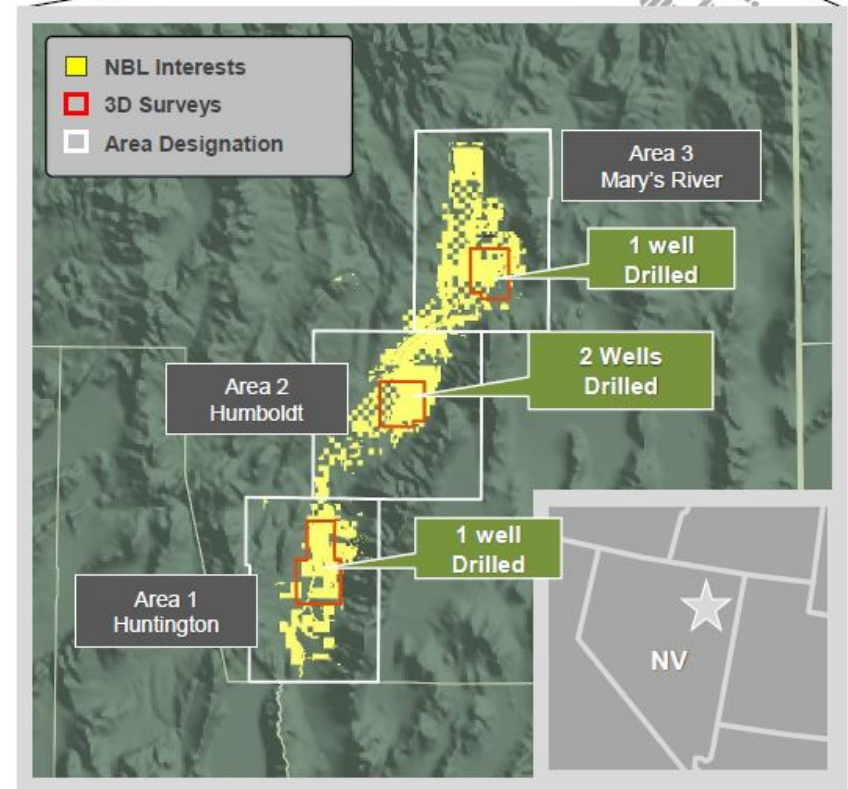
### ► Play Characteristics

- ⌘ Depth range 6,000 - 12,000 ft.
- ⌘ Unconventional tight oil prospect, similar deposition to Uinta Basin

### ► Initial Wells Proved Productive Nature of the Targeted Reservoir

- ⌘ Four wells drilled across acreage position
- ⌘ Initial vertical completion in Humboldt area currently producing
- ⌘ Initial completion in Mary's River awaiting long-term production facilities

### ► Assessing Next Steps for Appraisal



# NOBLE ENERGY HUNTINGTON K1L-1V PRODUCTION WELL NEAR JIGGS, NV. T.D. = 9,692'





# PRODUCTION SUMMARY 2014

- Gold and Silver were ~ 85 % of gross minerals revenue of \$7.578B USD in 2014
- Base metal (Cu, Mo) production growth has huge potential, financing and smelting capacity present challenges and opportunities.
- Industrial minerals and materials production up w/rebound of construction, O&G drilling, manufacturing – gypsum, barite, lithium, lime, aggregates
- Geothermal production on a steady increase, consolidation in market occurring
- Oil production declined again in 2014, tight shale target in Elko County saw first hydraulic fracturing technology used in State; first unconventional oil production in Nevada.

# DIVISION INITIATIVES

- Develop Nevada Regulations for Hydraulic Fracturing and update the Oil & Gas code, NAC 522 - *approved by CMR and Legislative Commission 10/14*
- Inspect and document all oil and geothermal wells - *completed 12/14*
- Develop a compliance database of all oil and geothermal wells – *geothermal 6/15, oil in progress*
- Field Accessible SQL database for all Nevada AML data – *live, funded 100% by USACE*
- Update education materials, increase number of classroom and civic group presentations
- Review and Update of Mining Claim forms – *legal and county recorder reviews completed, to CMR 8/2015*



# COMMISSION INITIATIVES

- Legislation to allow CMR to set reasonable fees for oil and gas drilling and production (SB 44) - *passed 2015 session, signed by Governor*
- Updating of Geothermal regulations and fees – *in progress 12/15*
- Updating of Oil and Gas regulations and fees – *in progress 12/15*
- CMR recommendations to Governor on BLM Sage Grouse LUPA/FEIS
- Support to MSM-NBMG declining with 20% reduction in claim fees
- Next CMR meeting August 27<sup>th</sup> in Elko.



State of Nevada  
Commission on Mineral Resources  
**Division of Minerals**



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29th Annual Southern Nevada Earth Science Education Workshop, April 1, 2015, Tour of Open Pit at Molybdenum Rare Earth Facility, Mountain Pass, CA.



#### Important Links

- [Mineral, Geothermal and Oil & Gas Potential Maps of Sagebrush Focal Areas](#)
- [Hydraulic Fracturing in Nevada Update and Water Use - April 7, 2015](#)
- [Nevada Achieves "No Reported Injury" Year in AML Program - January 8, 2015](#)
- [Final Approved Regulations for Hydraulic Fracturing - October 24, 2014](#)
- [NDOM YouTube Channel](#)
- [Nevada Bureau of Mines and Geology](#)

#### Nevada Excellence in Mine Reclamation Awards for 2015

- [Invitation for Nominations](#)

#### Employment Announcement(s)

Commission on Mineral Resources, Division of Minerals, Field Specialist, Las Vegas

- [Field Specialist, Las Vegas Position Description](#)
- [NVAPPS Application Instructions](#)

#### Programs

