

Nevada Division of Minerals

*30 Years of Geothermal Power Production
1985-2015*

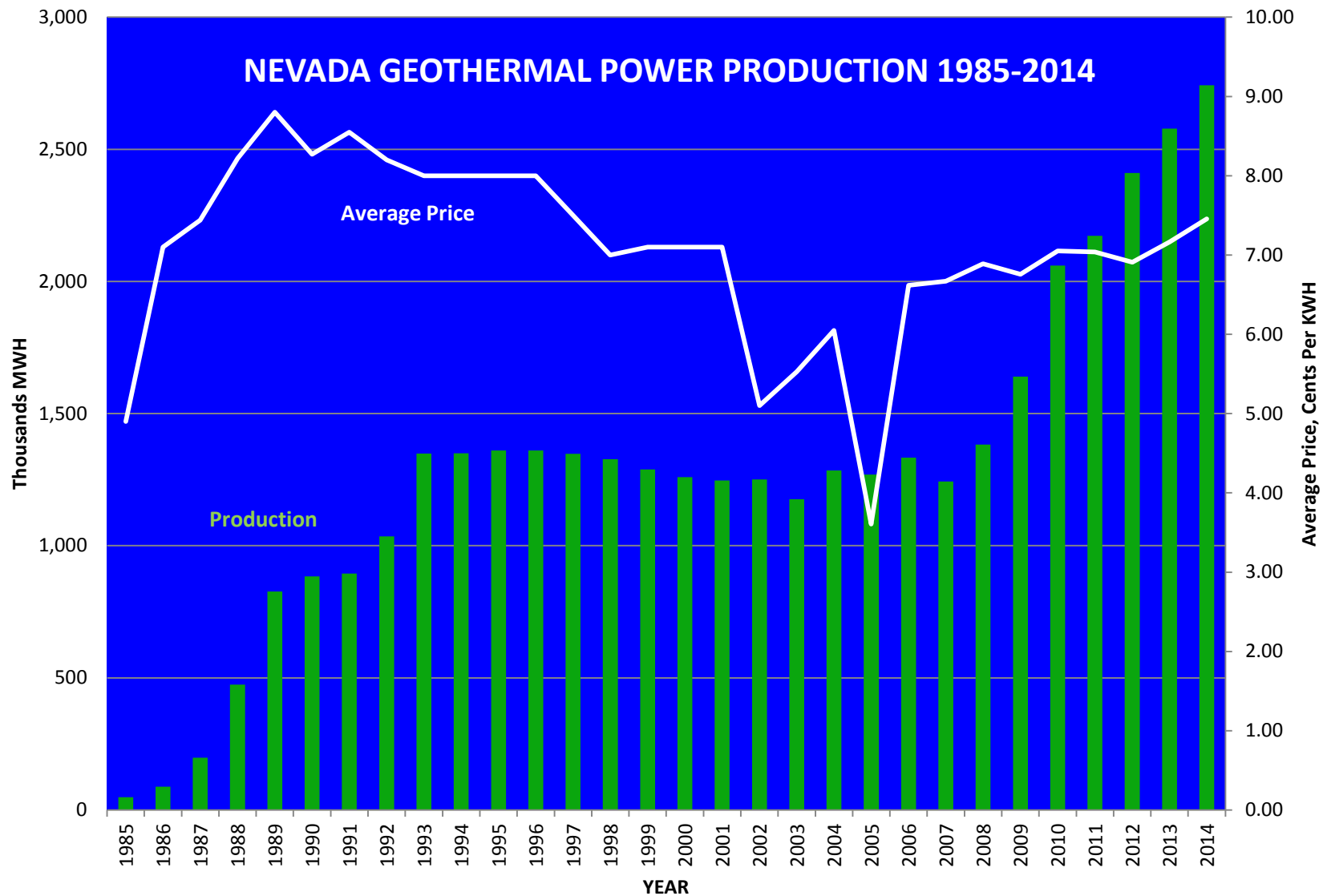
**Geothermal Resources
Council**

2015 Convention

September 21, 2015

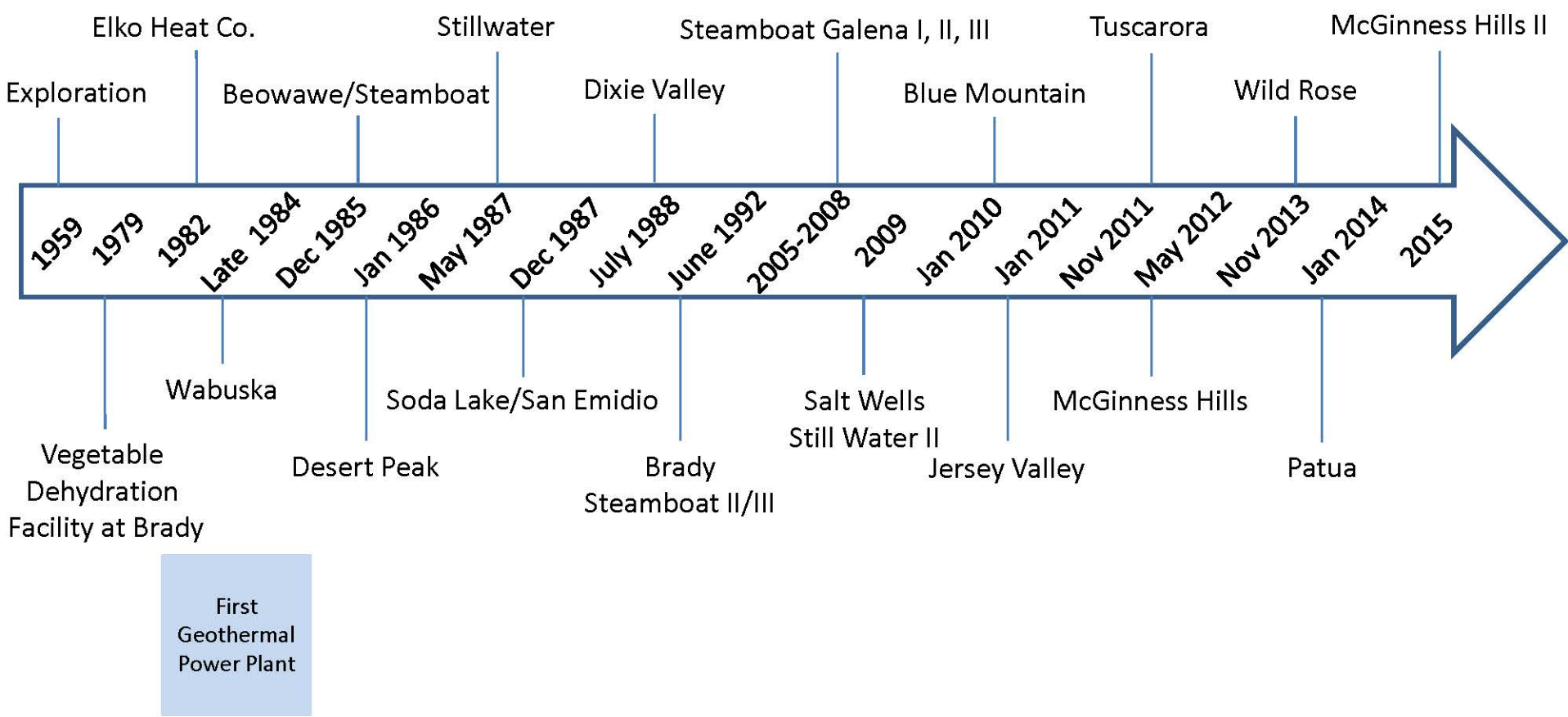
Rich Perry, Administrator



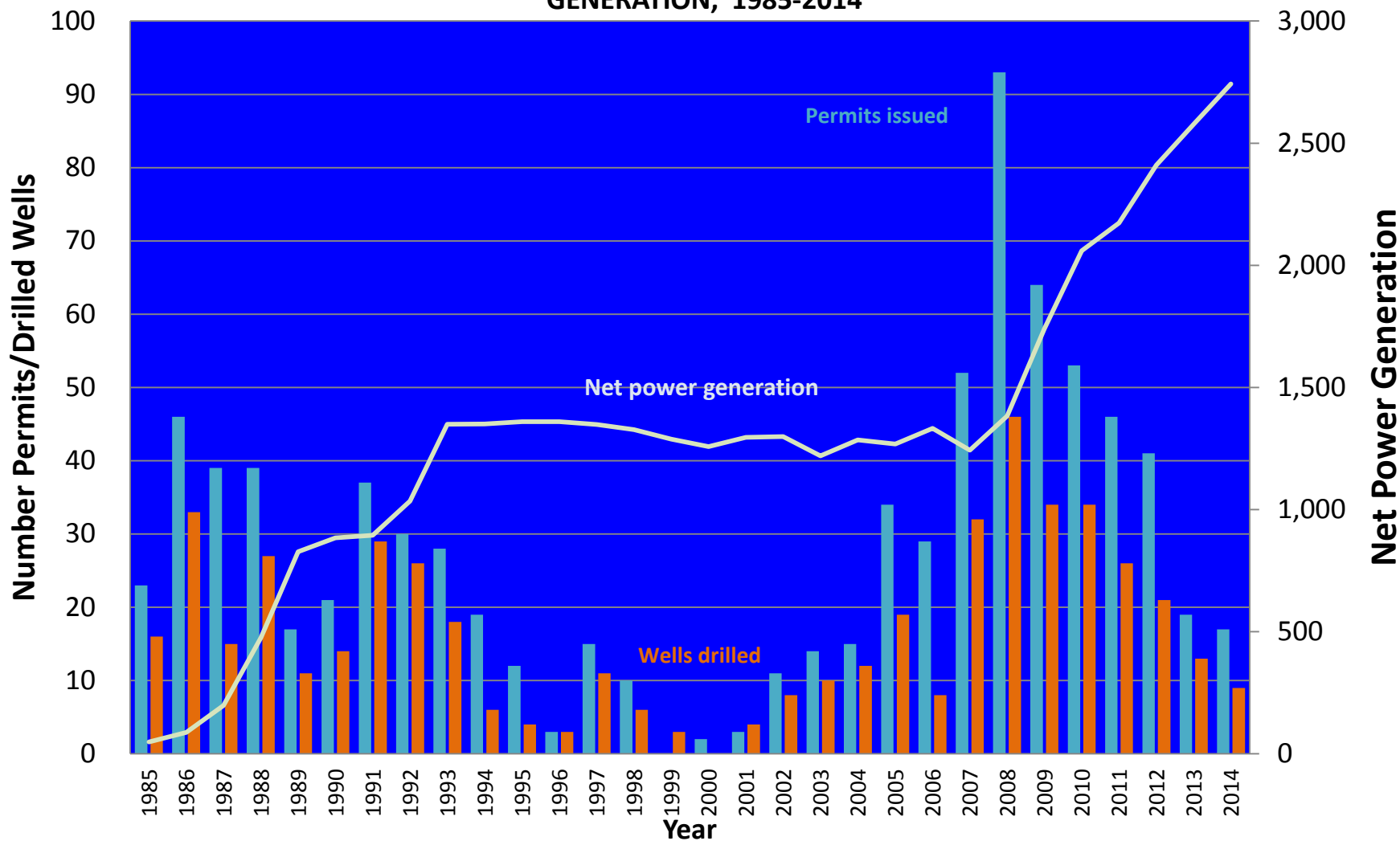


HISTORY OF GEOTHERMAL ACTIVITIES IN NEVADA

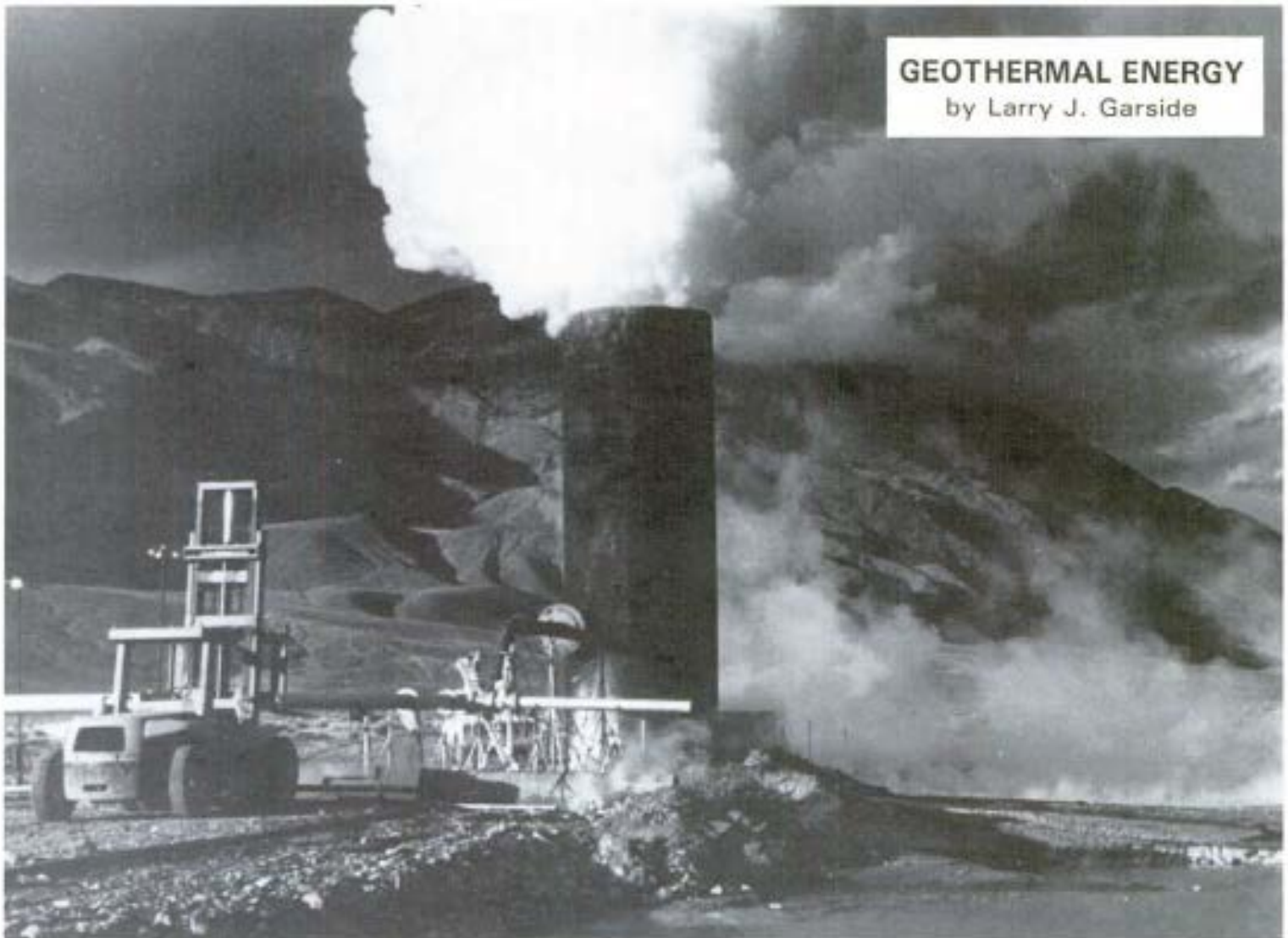
First large
diameter
exploration
holes for
geothermal



NEVADA GEOTHERMAL WELL PERMITS ISSUED, ACTUAL WELLS DRILLED AND NET POWER GENERATION, 1985-2014



Nevada's First Geothermal Plant: Wabuska



GEOHERMAL ENERGY

by Larry J. Garside

From NBMG Special Publication MI-1984



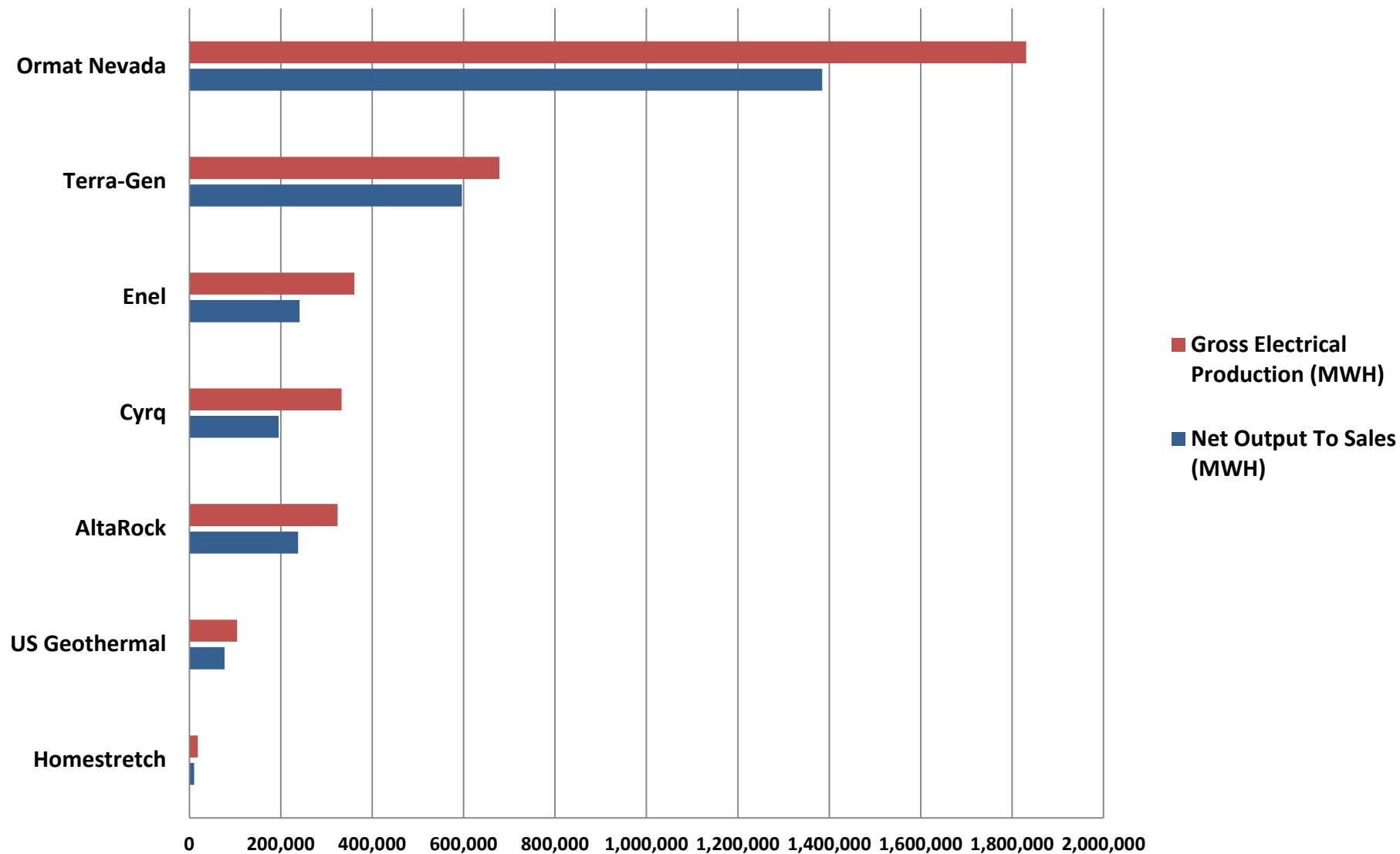
ORMAT geothermal generating unit at Wabuska, Lyon County. *Larry Garside photo.*

750 kW Ormat binary cycle generator installed at Wabuska in 1984. Power was sold to Sierra Pacific Power Company. *From NBMG Special Publication MI-1984.*

Beowawe Geothermal Plant – First Production in 1985



2014 Geothermal Power Production, MWH





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

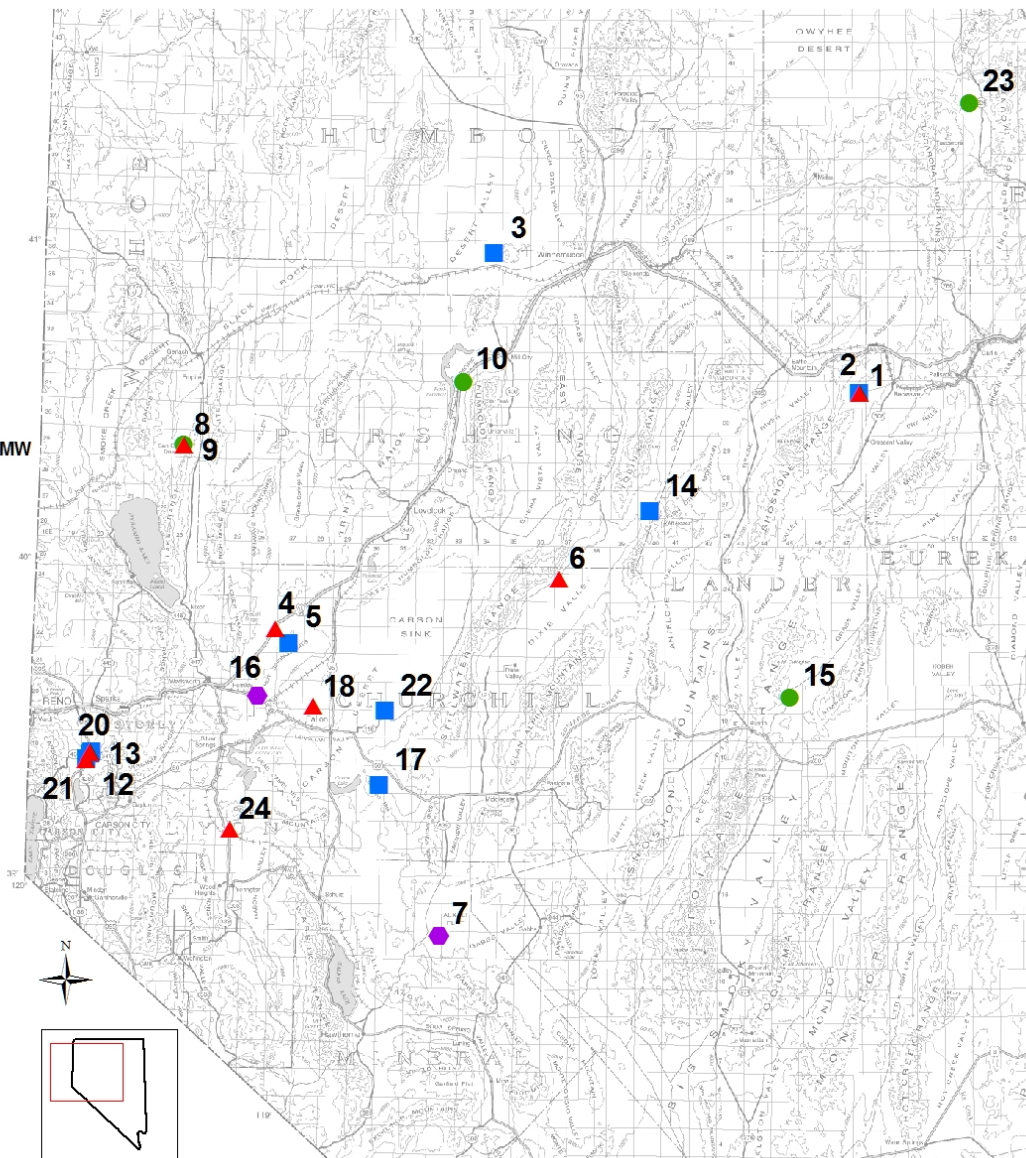
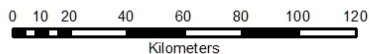
▲ 20. Steamboat 2, 3 - 47.8 MW

▲ 21. Steamboat Hills - 13.2 MW

■ 22. Stillwater 2 - 47.2 MW

● 23. Tuscarora - 32 MW

▲ 24. Wabuska - 5.6 MW



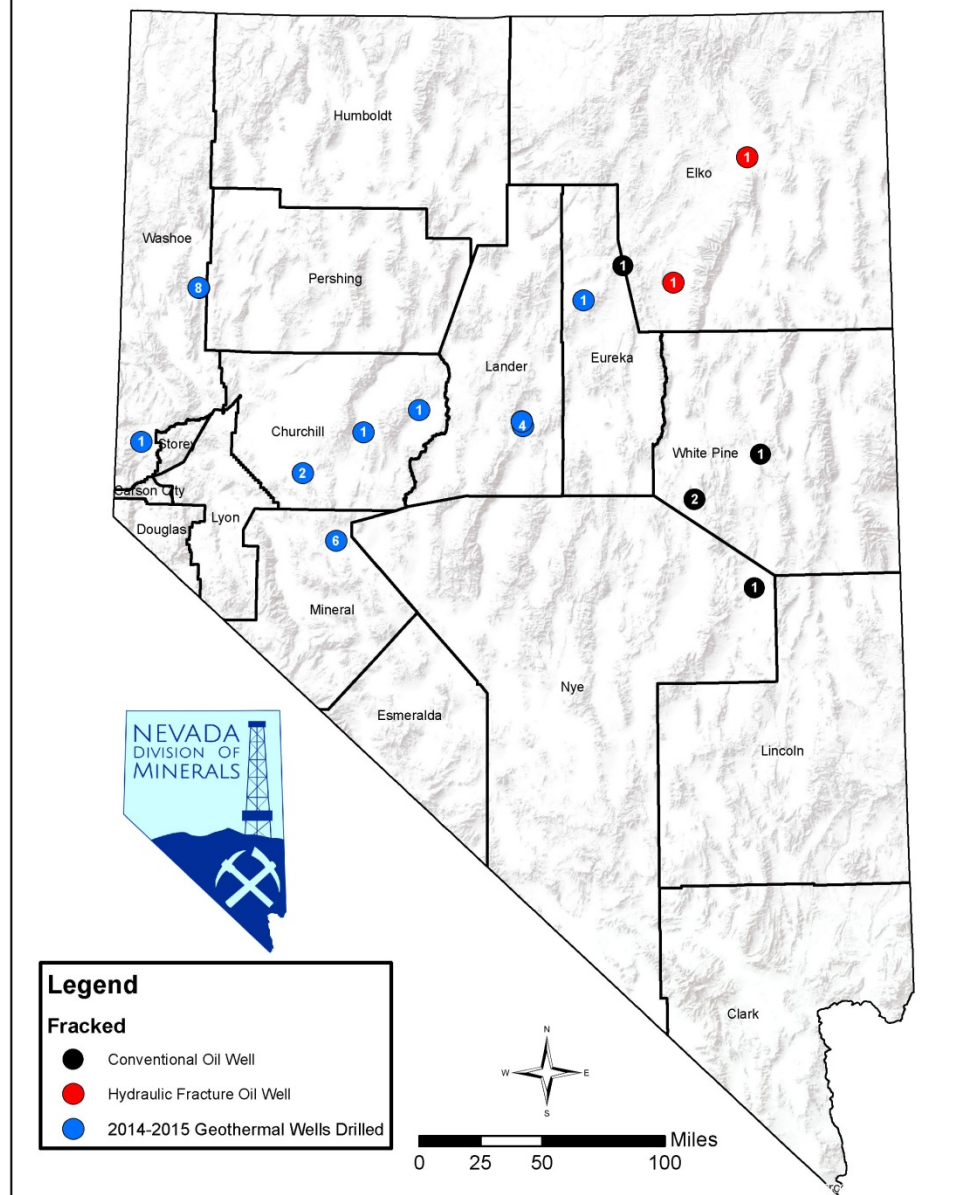
From: Lisa Shevenell, Atlas Geosciences, Inc.



FLUID MINERALS DRILLING ACTIVITY

- 7 OIL EXPLORATION WELLS DRILLED
 - 2 unconventional
 - 5 conventional
- 23 GEOTHERMAL WELLS DRILLED
 - Production
 - Injection
 - Observation

Oil and Geothermal Wells Drilled 2014-Present



FUTURE TRENDS AND CHALLENGES

- Co-Located renewable technologies
 - Solar located at geothermal facilities
- Transmission expansions
- Optimizing reservoirs (phased development)
- R&D: FORGE, EGS
- Public lands availability
 - Sage Grouse impacts
 - ~60% of NV geothermal wells on private, ~40% on public