

Renewable Energy Resources on Public Lands

Northwest Resource Advisory Council
Meeting

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Colorado State Office
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BLM Energy Program - Renewable Resources

- Wind
- Solar
- Geothermal
- Biomass

New Energy Frontier

- Create a balanced energy portfolio
- 20% of electricity generated by wind by 2030
- 2/3 of public lands with high solar energy potential
- 50% of geothermal energy capacity

Renewable Energy Development

Department of Interior

Secretarial Order 3285

- Signed on March 11, 2009
- Established the development of renewable energy as a priority
- Called for development of “renewable energy zones”
- Reiterated the development of Renewable Energy Coordination Offices

Fast Track Initiatives

- June 2009 – Solar Energy Study Areas
- December 2009 – Fast Track Projects



Fast Track Projects

	Solar	Wind	Geothermal	Trans- mission	Totals
Arizona	1	0	0	0	1
California	9	3	0	2	14
Idaho	0	0	0	3	3
Oregon	0	1	0	0	1
Nevada	4	2	6	2	14
Wyoming	0	1	0	0	1

Fast Track Initiatives in CO

- Renewable Energy Team (RET)
 - 5-person team in the San Luis Valley
 - 3 State Office positions (part-time)
- Solar Energy Zones
 - 4 zones located within the San Luis Valley
 - Tied to the Solar Programmatic EIS
 - Approximately 22,240 acres

Economic Stimulus Projects

Renewable Energy Authorizations



- Solar Energy PEIS contract work
- Cultural and T&E clearances
- VRM inventories
- Backlog of land records
- Land records to AutoCAD files
- Land status updates and case recordation verification

Energy Transmission



Energy Transmission

- West-Wide Energy Corridor
Programmatic EIS - January 2009
- MOU – Transmission Siting on Federal Lands
- Processing 30 applications, 7 are identified as fast track projects

Colorado Energy Transmission Projects

- Energy Gateway South
- TransWest Express
- Calumet-Comanche



Wind Energy



Wind Energy Development Program

- Programmatic EIS completed and Record of Decision issued December 2005
- Amended 52 land use plans, in 9 western states
- Identified more than 3200 MW of wind energy on BLM public lands

Wind Energy Policy

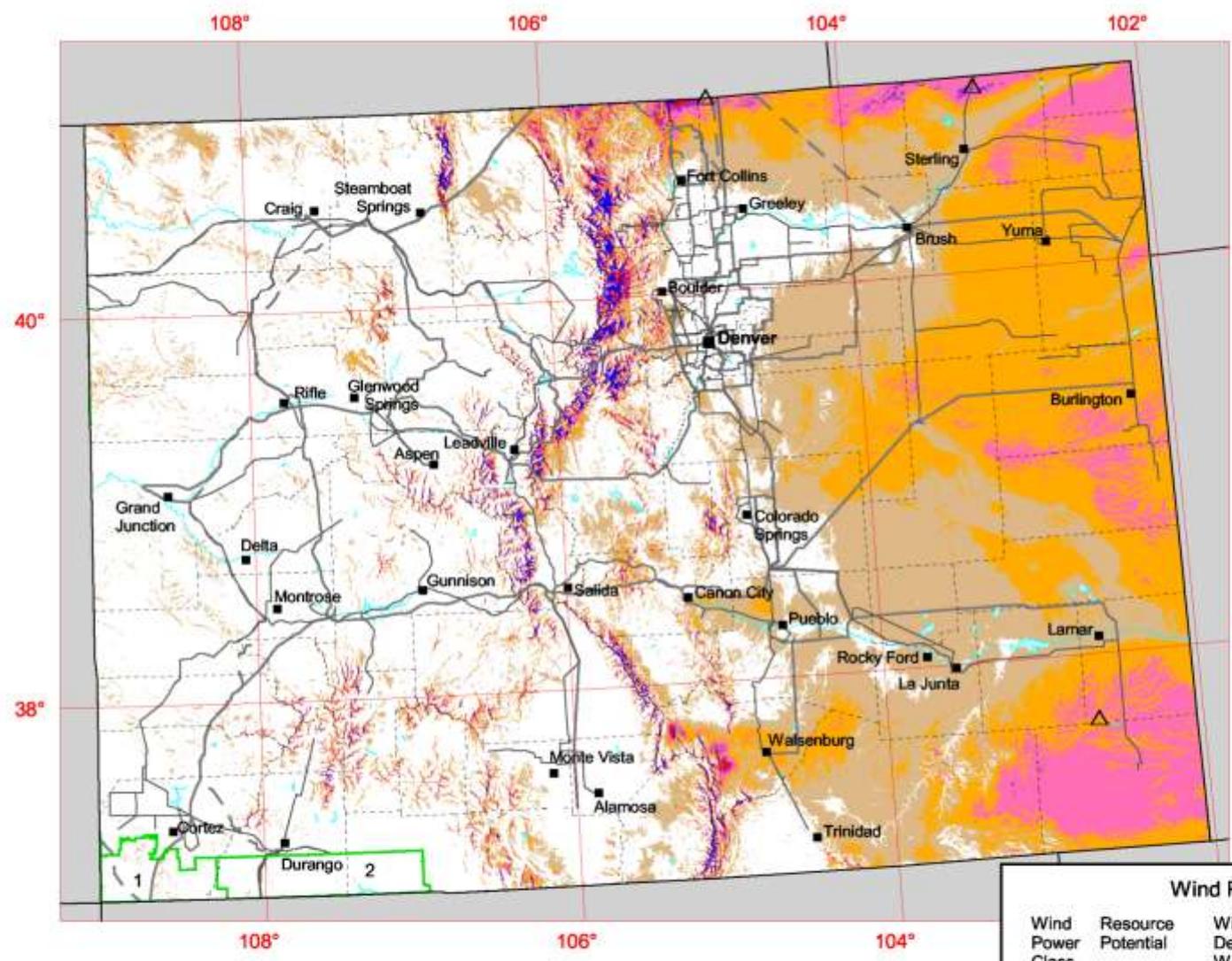
- Revised policy issued December 2008
- Ensure consistency in processing right-of-way applications & management of authorizations.
- Addresses the amendment of land use plans & potential to tier future site-specific projects.

BLM Wind Development Applications

State	Applications	Acres	Estimated MWs
AZ	2	44,860	500
CA	11	66,598	724
ID	3	15,300	446
NM	1	7,109	150
NV	7	112,261	430
OR	3	28,996	960
UT	2	8,900	80
WY	10	39,208	1,367
TOTALS	39	323,232	4,657

Colorado

50 m Wind Power



Transmission Line*
Voltage (kV)

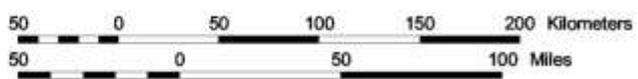
- 115 - 161
- 230
- - 345

* Source: POWERmap, ©2003 Platts, a Division of the McGraw-Hill Companies

The annual wind power estimates for this map were produced by TrueWind Solutions using their Mesomap system and historical weather data. It has been validated with available surface data by NREL and wind energy meteorological consultants.

Wind Power Classification				
Wind Power Class	Resource Potential	Wind Power Density at 50 m W/m ²	Wind Speed ^a at 50 m m/s	Wind Speed ^a at 50 m mph
1	Poor	0 - 200	0.0 - 5.9	0.0 - 13.2
2	Marginal	200 - 300	5.9 - 6.7	13.2 - 15.0
3	Fair	300 - 400	6.7 - 7.4	15.0 - 16.6
4	Good	400 - 500	7.4 - 7.9	16.6 - 17.7
5	Excellent	500 - 600	7.9 - 8.4	17.7 - 18.8
6	Outstanding	600 - 800	8.4 - 9.3	18.8 - 20.8
7	Superb	> 800	> 9.3	> 20.8

^a Wind speeds are based on a Weibull k of 2.0 at 1500 m elevation.



Indian Reservation

- 1 Ute Mountain
- 2 Southern Ute



U.S. Department of Energy
National Renewable Energy Laboratory

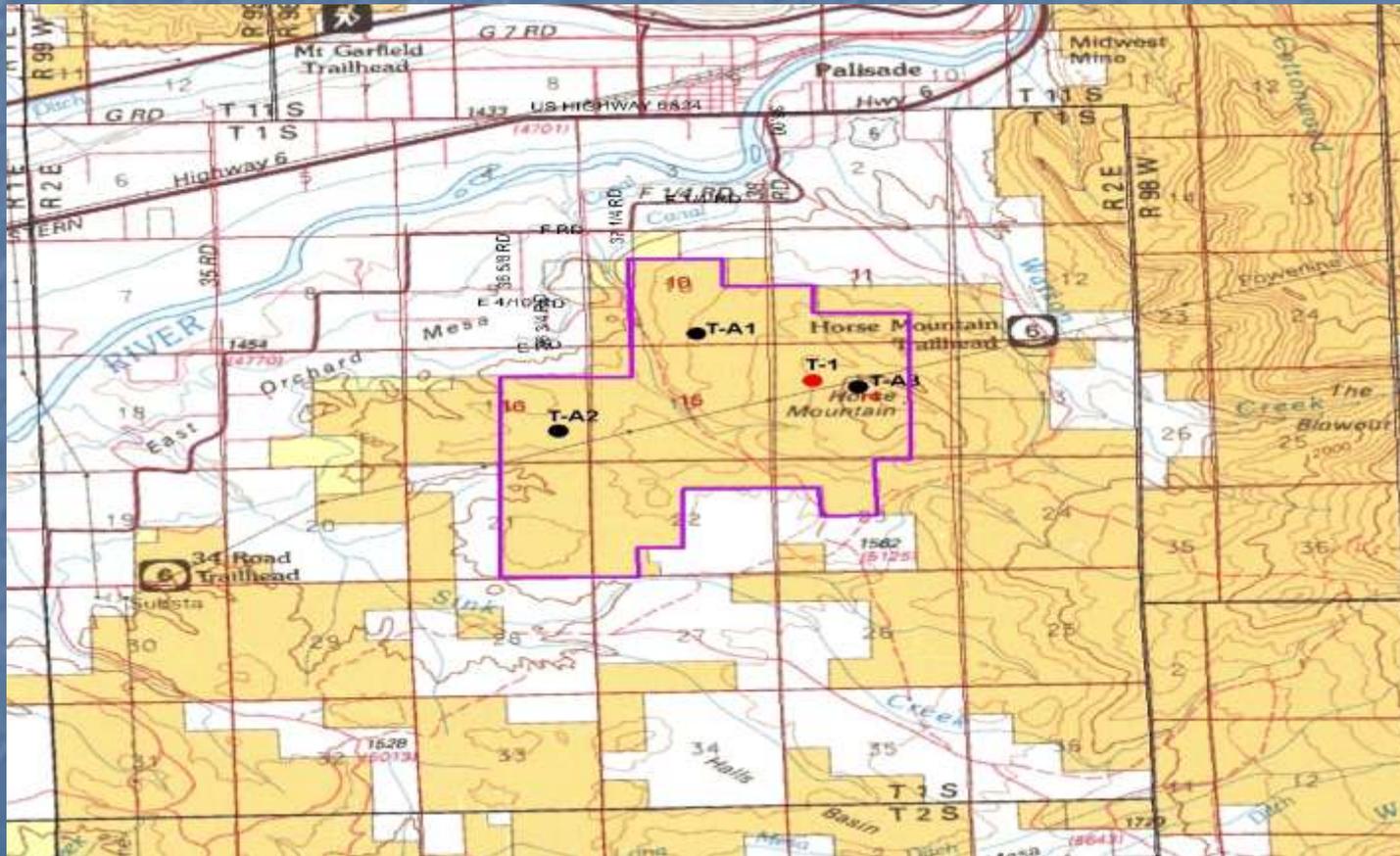


CO Wind Testing Sites

- 1 authorized site
- 3 pending applications
- 3 withdrawn applications
- 1 site removed testing facilities and awaiting results



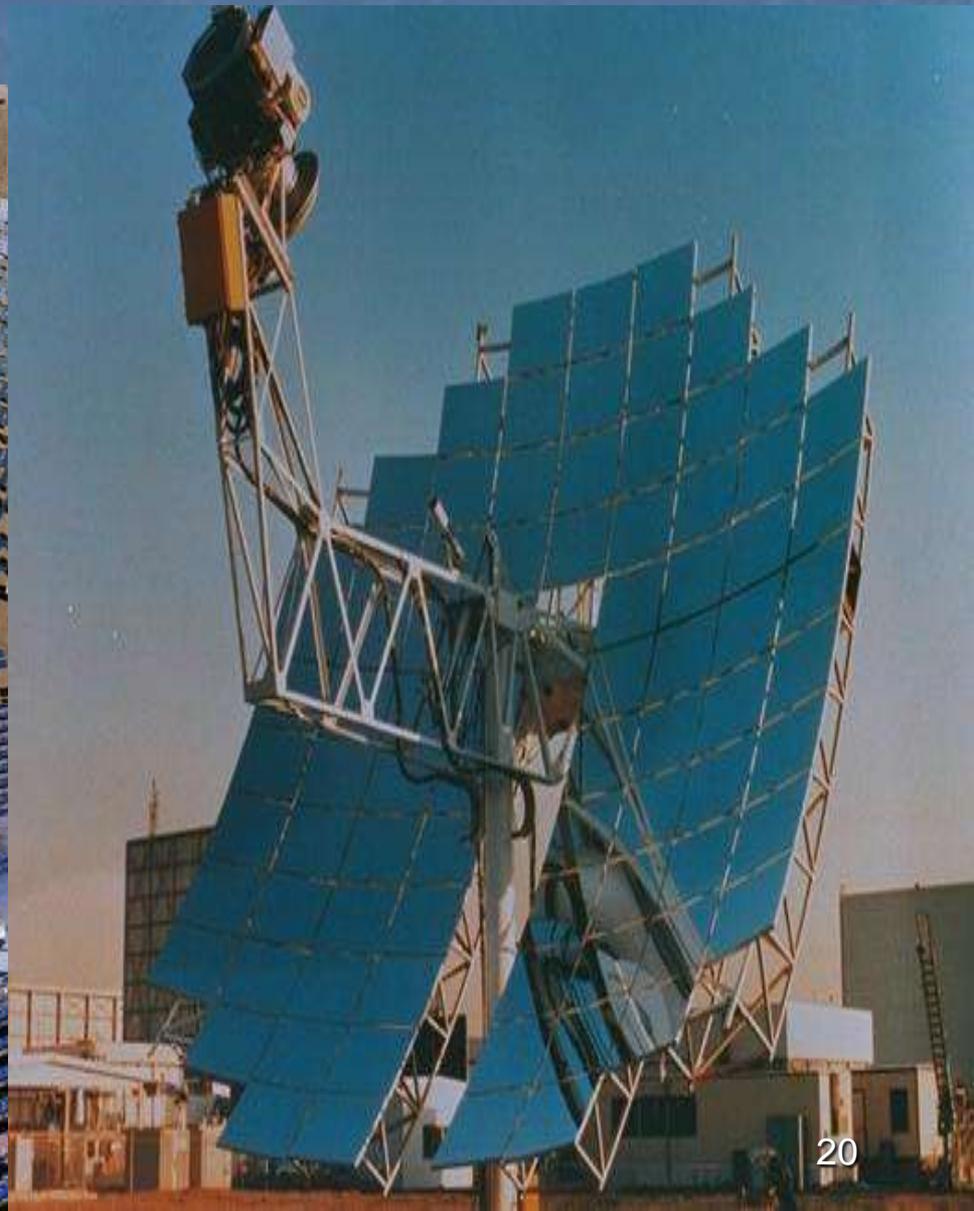
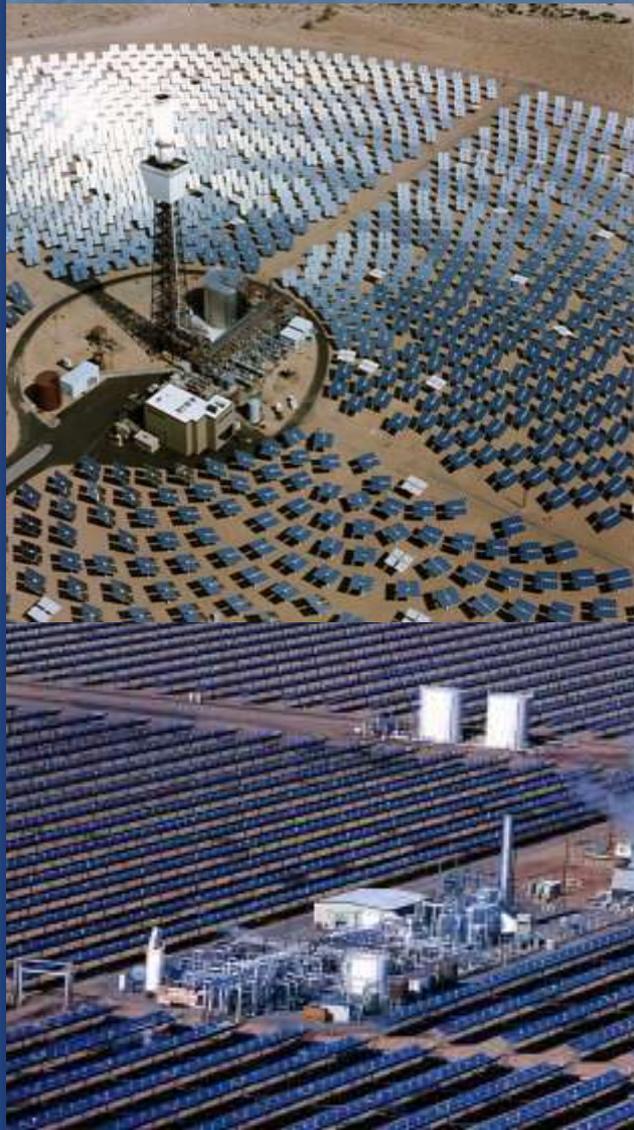
Wazee Energy, LLC Wind Testing Site



Wazee Energy, LLC Wind Testing Tower

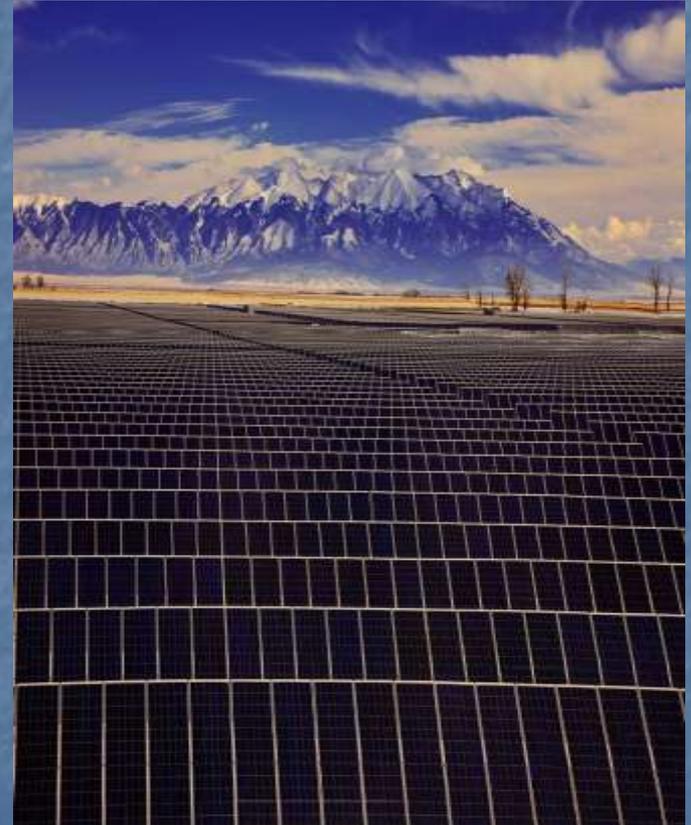


SOLAR

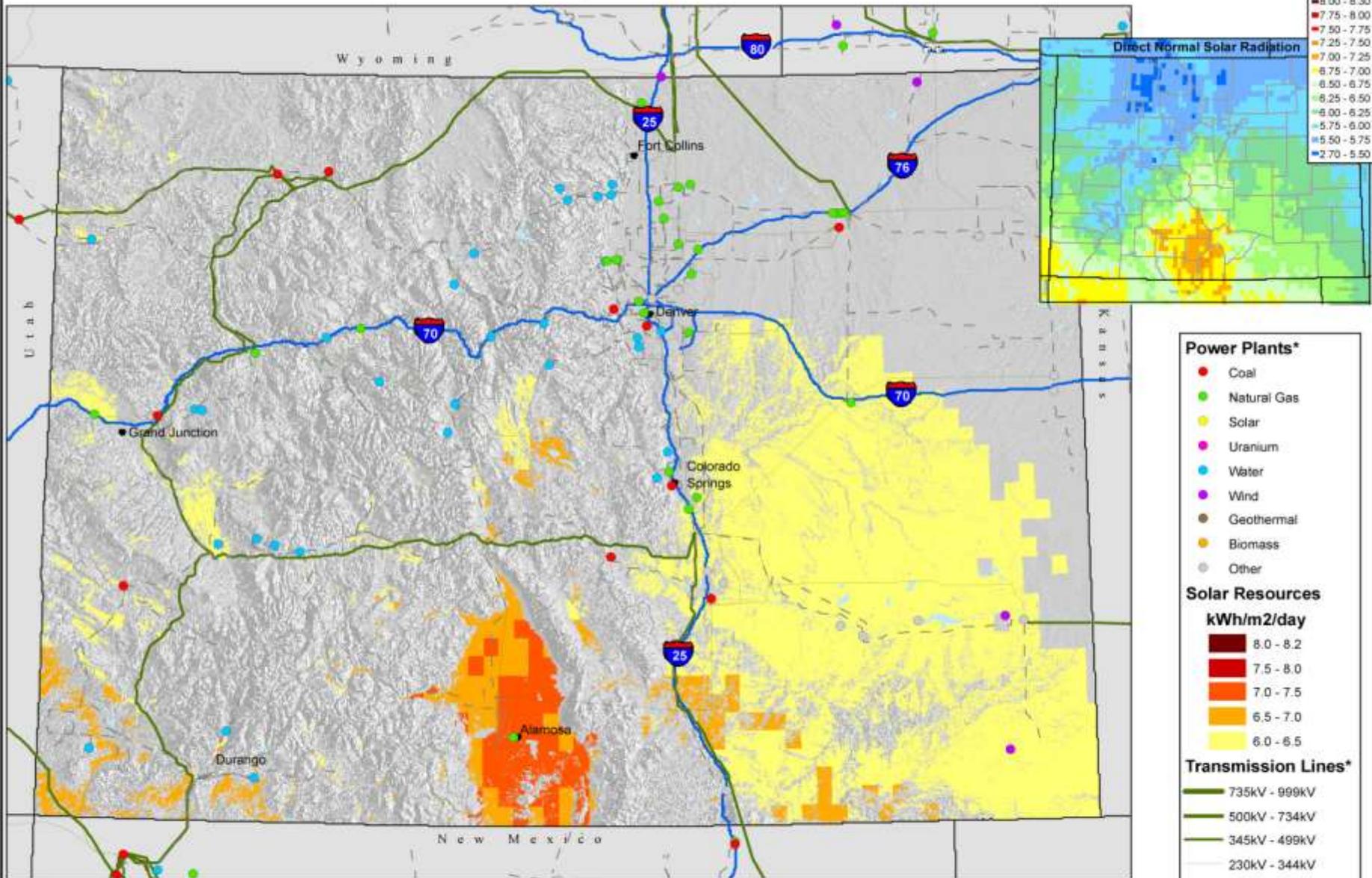


Solar Policy

- Policy updated April 2007
- Plan of Development outline with due diligence requirements
- Updated Solar Energy Development Policy:
 - Term of 20 years
 - Diligent Development
 - Bonding
 - BMPs
- Solar Rental Policy



Concentrating Solar Power Prospects of Colorado



Potentially sensitive environmental lands, major urban areas, water features, areas with slope > 3%, and remaining areas less than 1 sq. km were excluded to identify those areas with the greatest potential for development.

The direct normal solar resource estimates shown are derived from 10 km SUNY data, with modifications by NREL.

* Source: POWERmap, ©2007 Platt's, a Division of the McGraw-Hill Companies

Solar Energy Programmatic Environmental Impact Statement

- Joint PEIS with Department of Energy
- Identify public lands suitable for development, including Solar Energy Zones
- Establish BMPs and mitigation measures
- Amend land use plans to address solar development
- Draft PEIS – Fall 2010

BLM Solar Energy Applications

State	Applications	Acres	Estimated MWs
AZ	35	455,430	19,565
CA	55	499,419	34,372
CO	0	0	0
NM	4	42,216	2,200
NV	37	305,269	18,032
UT	0	0	0
TOTALS	131	1,302,334	74,169

Solar Energy in Colorado



- First Solar 's application withdrawn
- 4 Solar Energy Zones in the San Luis Valley
- Commercial scale facilities on private land

Geothermal

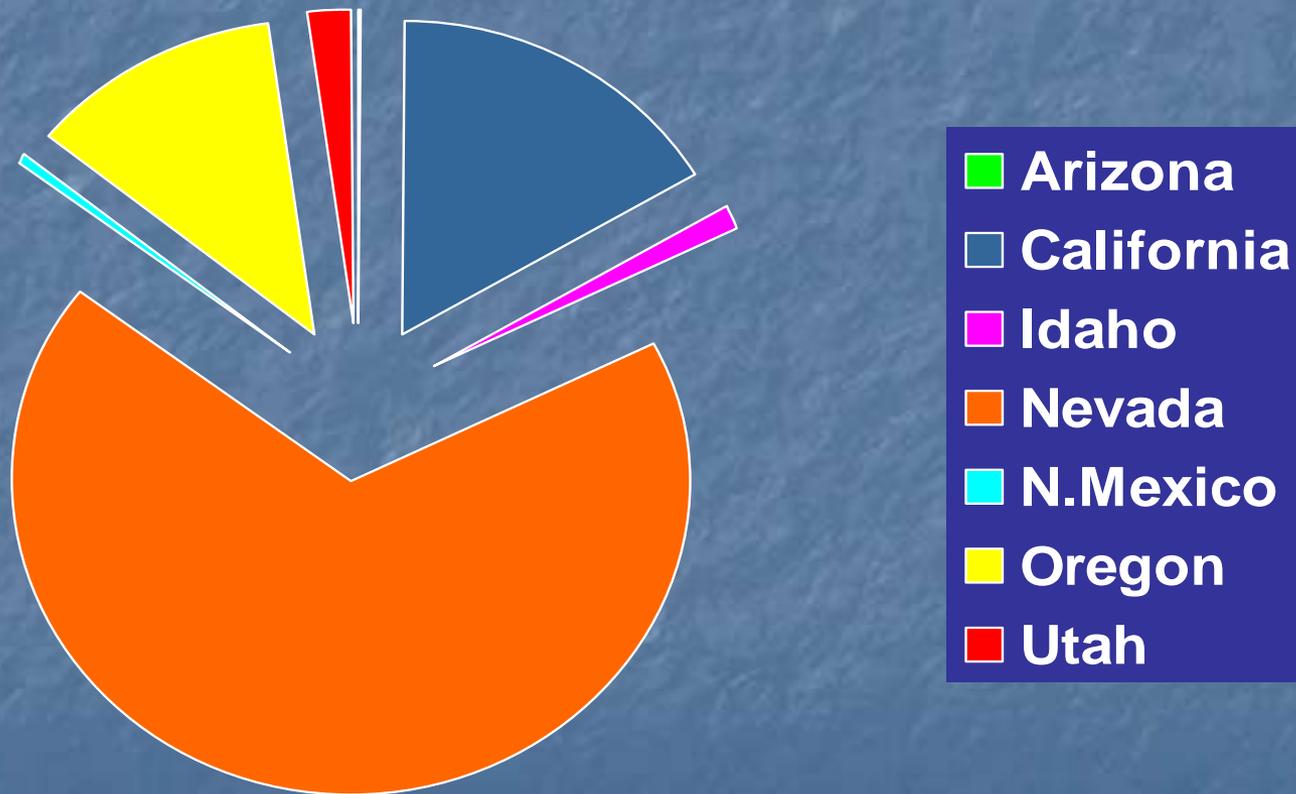
Power Plant, The Geysers, California



Geothermal Potential in the Western States



BLM Nationwide Geothermal Leases

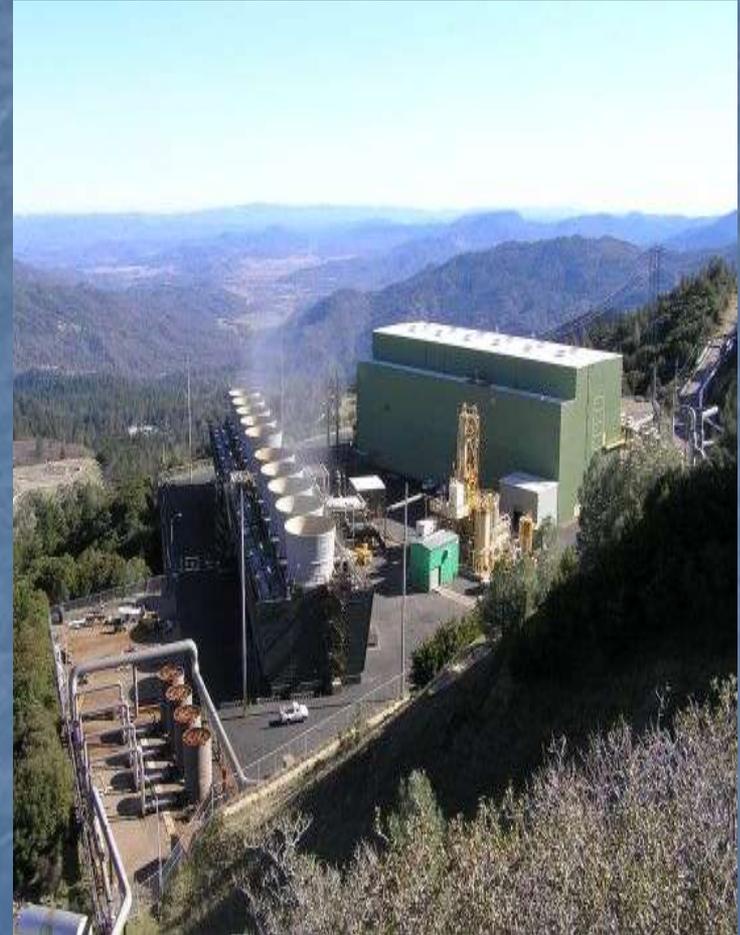


Programmatic Environmental Impact Statement

- Joint BLM/FS EIS on Geothermal Leasing in the Western U.S.
 - Record of Decision – December 2008
- Goal of Project:
 - Improve effectiveness of geothermal leasing on public and National Forest System lands
 - 11 western states and Alaska

Geothermal Policy

- Final geothermal regulations published in May 2007
- Draft MOU with the State of Colorado
- CO leases –
 - 1 nomination in Gunnison County
 - 1 lease deferred near Mt. Princeton



Biomass in Colorado

- BLM offered 22,000+ tons of biomass through forestry and fuels projects in 2009
 - 40% was utilized for energy
 - Greatest limitation – lack of markets
- 3,500 permits sold for personal fire wood annually
 - Equals 10,000-15,000 tons

Biomass in Colorado – Cont.

- Working with CSFS, USFS, and other partners to develop new biomass markets
- Black Hills Power Plant in Canon City
 - Stewardship projects supply wood chips
 - Company uses 1,000 tons/year

Summary

- Development of renewable energy is one of the national priorities for the BLM.
- Balance of environmental, social, and infrastructure challenges vs. development of the renewable resources.
- Programmatic Environmental Impact Statements assist in development of these renewable resources:
 - Wind Energy Record of Decision (ROD) - 2005
 - Geothermal ROD - December 2008
 - West-Wide Energy Corridor ROD – January 2009
 - Solar draft PEIS - Fall 2010