

Capitalizing on Renewable Energy in the Rockies: The NREL Perspective

Energy Forum with Metro Mayors Caucus

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Dan E. Arvizu

Director, National Renewable Energy Laboratory

National Renewable Energy Laboratory

What Makes Us Unique?

- Only national laboratory dedicated to renewable energy and energy efficiency R&D
- Research spans fundamental science to technology solutions
- Collaboration with industry and university partners is a hallmark
- Research is market relevant



Energy Efficiency and Renewable Energy Technology Development Programs



Efficient Energy Use

- Vehicle Technologies
- Building Technologies
- Industrial Technologies



Renewable Resources

- Wind
- Solar
- Biomass
- Geothermal

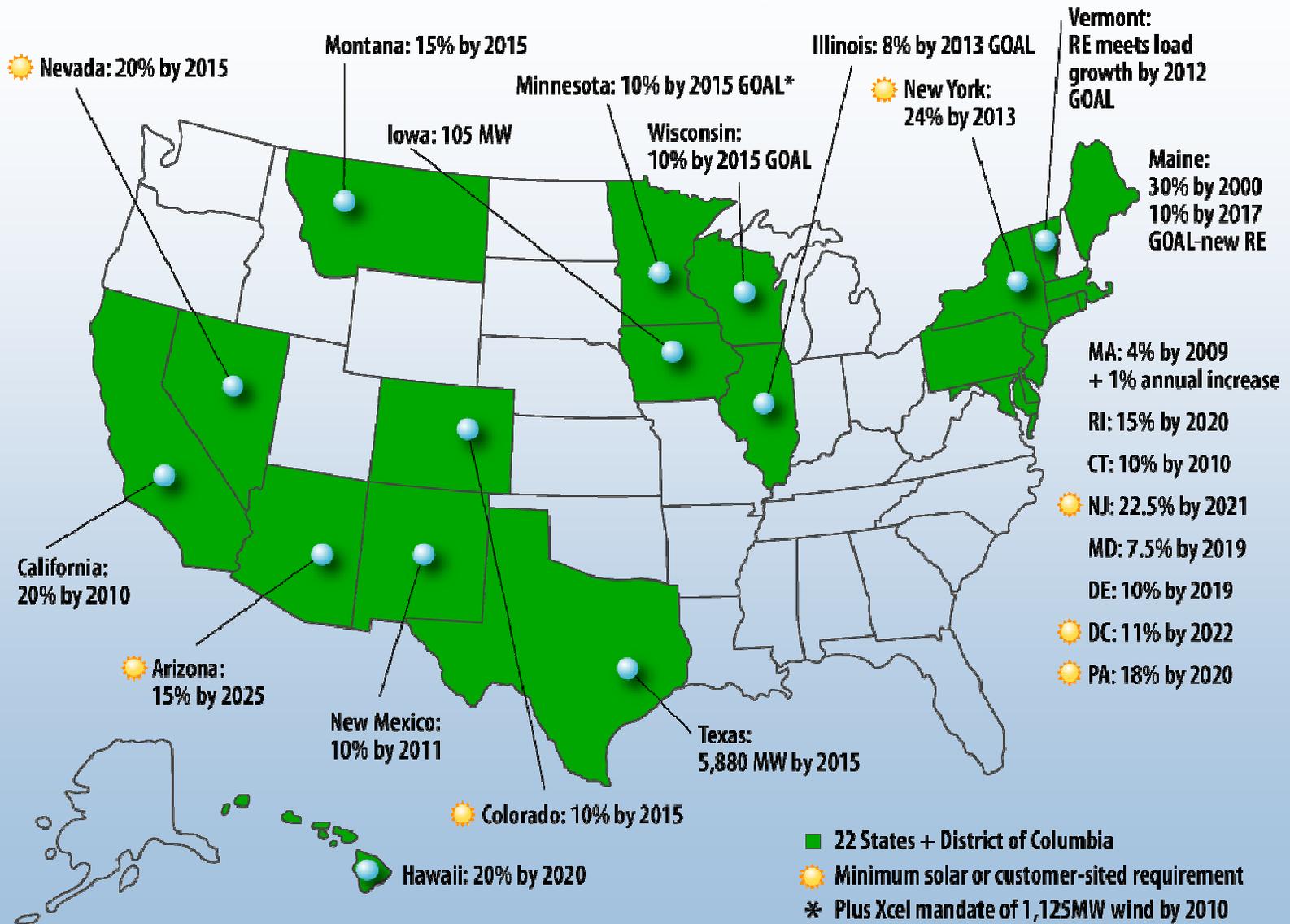


Energy Delivery and Storage

- Electricity Transmission and Distribution
- Alternative Fuels
- Hydrogen Delivery and Storage

State Policy Framework

Renewable Electricity Standards



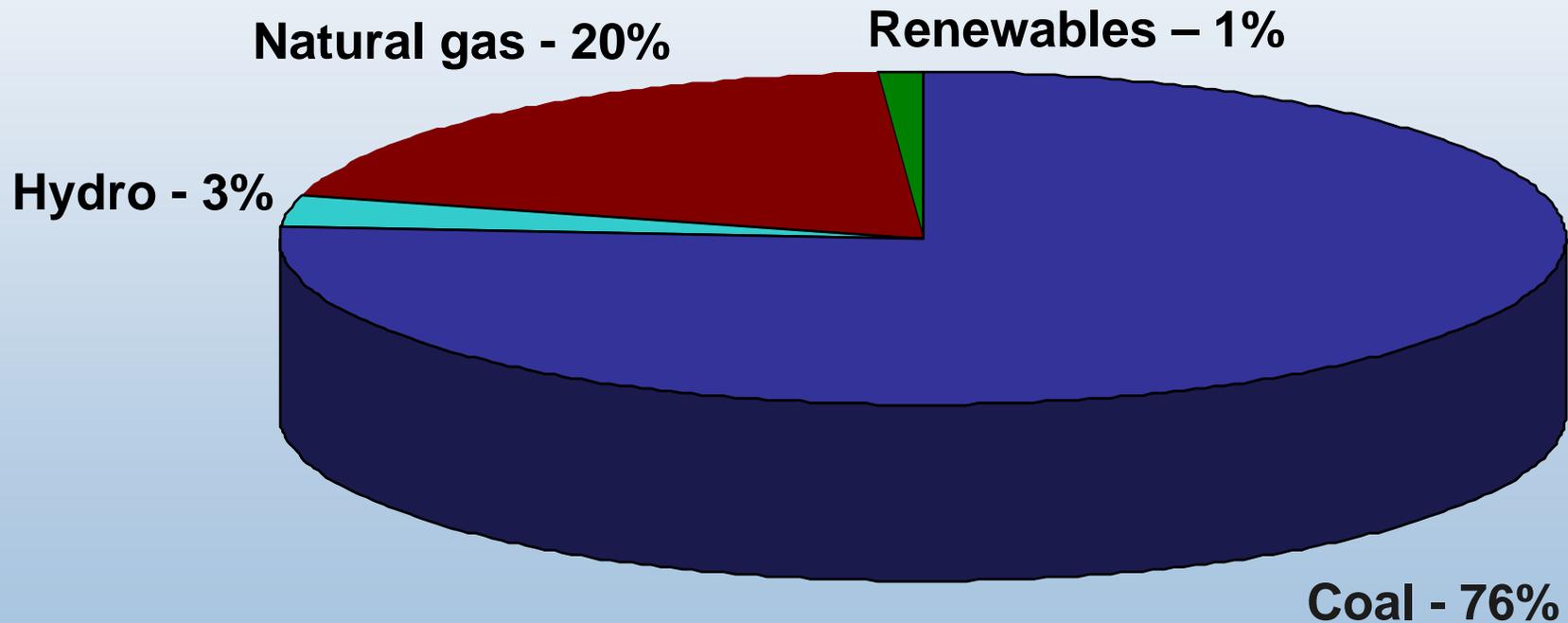
Renewable Energy: Enabling Economic Growth in Colorado

- Plentiful resources
- Centers of excellence
- Regulatory and business environment



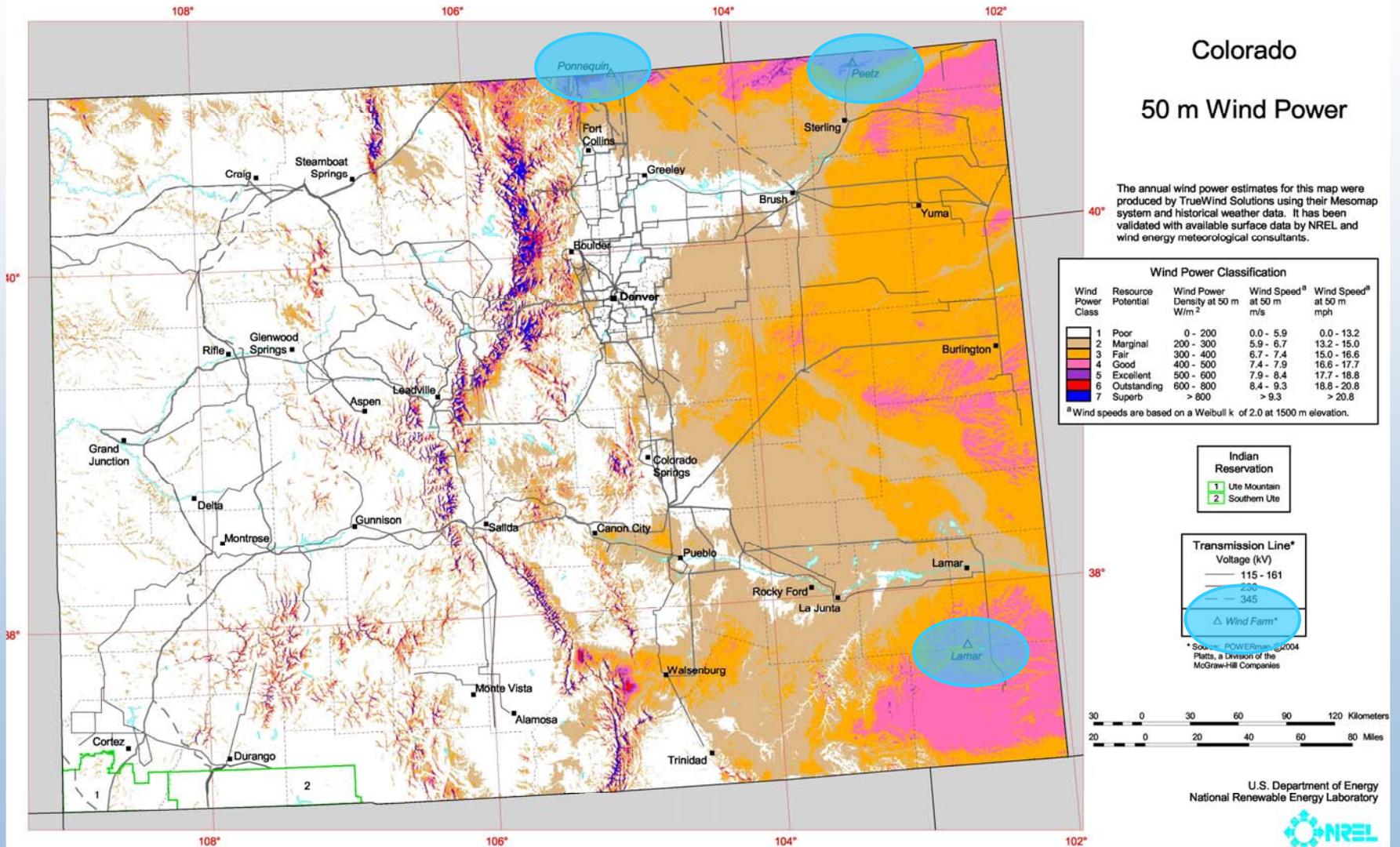
Colorado's Resource Mix

All Electric Utilities



Source: Energy Information Administration, Electric Power Annual, 2003 (published January 2005)

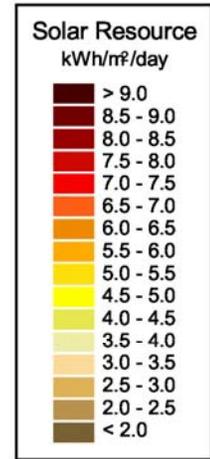
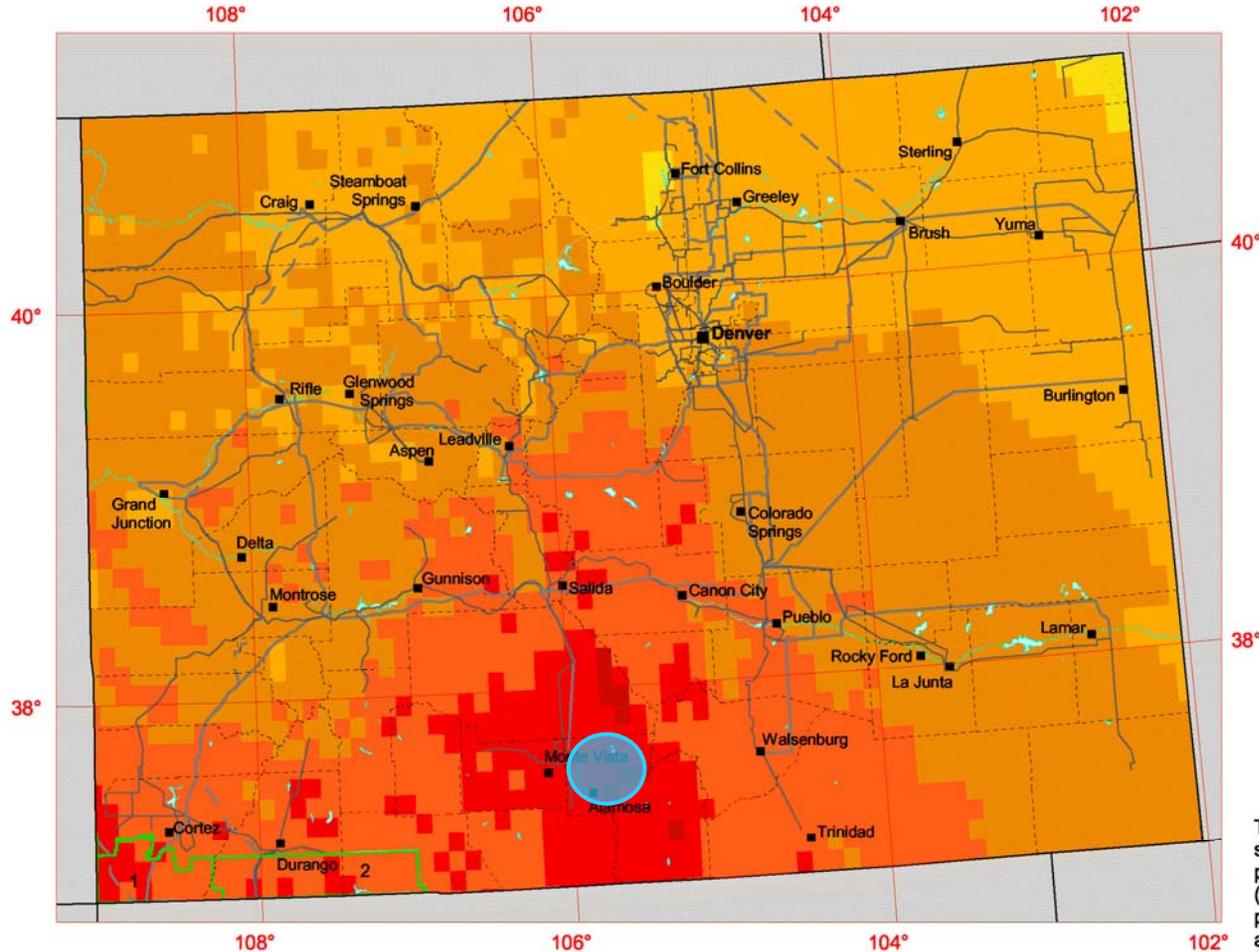
Colorado Wind Power



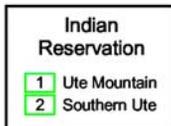
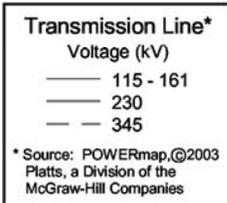
Colorado Solar Power

Colorado

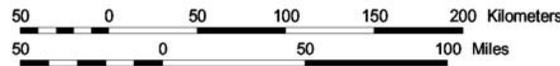
Direct Normal
Solar Resource



The annual solar resource estimates shown are for a 1-axis tracking flat plate collector. It is a 5-year average (1998-2002) with 10 km resolution, produced by Richard Perez (SUNY) and adjusted by NREL.



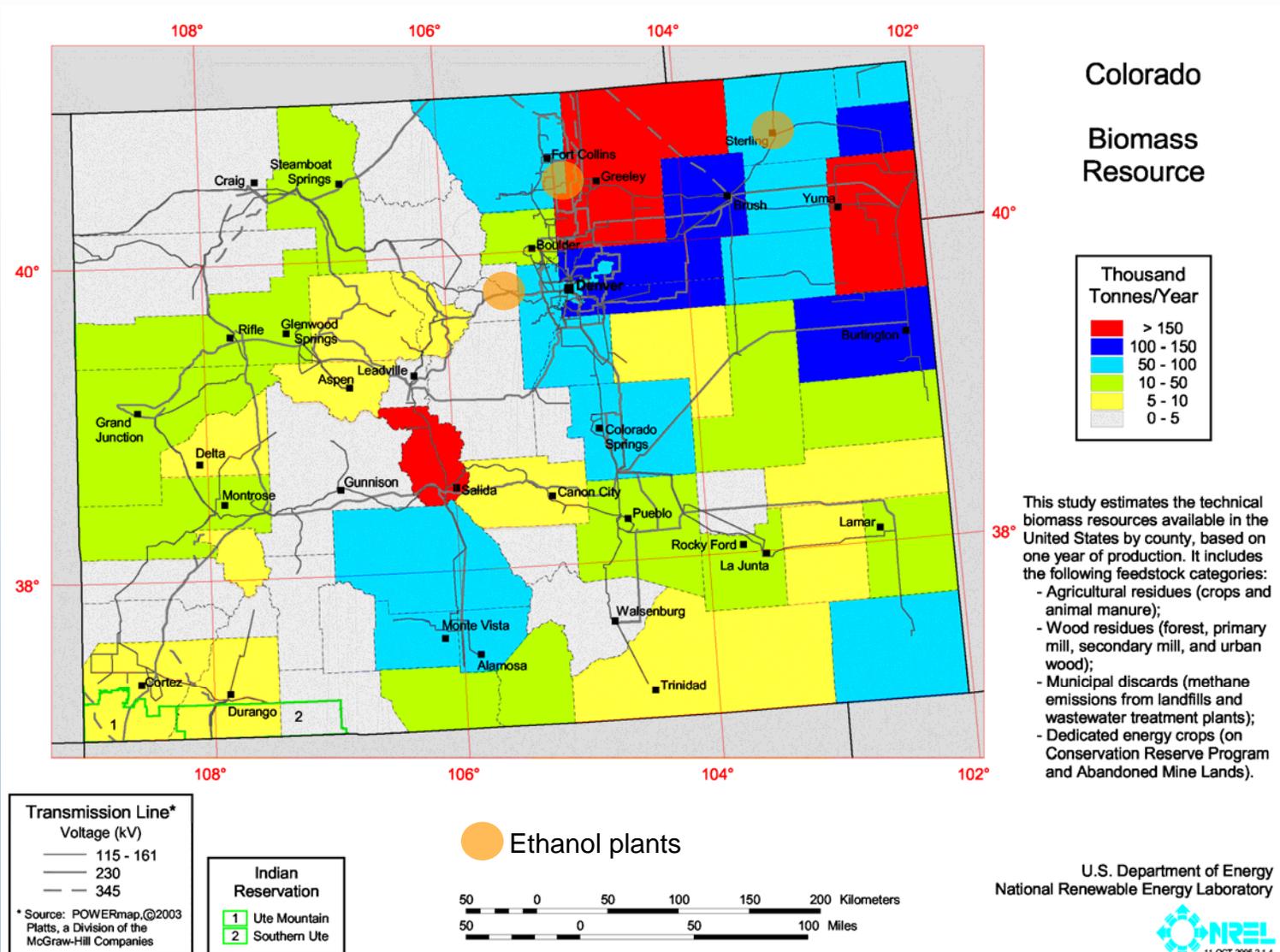
Xcel Energy 8.5 MW plant



U.S. Department of Energy
National Renewable Energy Laboratory



Colorado Biomass Resources



NREL Initiatives – Working with Municipal Governments

- Energy Forums
- Speakers Bureau
- Energy Execs
- Networking Assistance

Conclusion

- Unique opportunity – national sense of urgency about energy
- Integration of energy efficiency and renewable energy will largely be local, distributed
- Progressive states will capitalize on renewable energy's benefits earlier than others

The U.S. Department of Energy's National Renewable Energy Laboratory

www.nrel.gov



Golden, Colorado