

Oil and Gas Economic Issues: A Brief Look at Supply and Jobs

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Pete Morton, Ph.D.

peteinboulder@gmail.com

Natural Oil and Gas Supply Questions

What probability was used to estimate the amount of recoverable oil-gas? 5%, 10%, 90% 95% or 50% probability?

When estimating the supply of recoverable oil-gas resources, were the extraction and transportation costs along with market prices included in the calculus? Why not?

If oil prices fall below \$50 or \$75 per barrel, how much of our domestic oil can be extracted profitably?

How much of our 100-year domestic supply of natural gas can be extracted profitably at current prices?

How high do natural gas prices have to go to extract 100 percent of the 100-year domestic supply?

When estimating the supply of recoverable oil-gas resources were the negative externalities (hidden costs) from extracting and burning fossil fuels included in the calculus? Why not?

The Hidden Costs from Oil and Natural Gas Drilling Spillover into our Communities and Environment

Direct use costs – displacement or loss of land for habitat, recreation opportunities, hunting, farmland, grazing, reclamation costs, water quantity and drought

Community concerns – NO_x, VOCs, ozone and kids health, truck traffic and infrastructure costs, property values, loss of local control, displaced jobs and revenues due to “crowding out”, natural amenities and quality of life issues, loss of retirement income, displaced farming due to competition for water, boom-bust cycles, revenue lag and fiscal risks, water treatment plants and recycled fracking water, draining of reservoirs for fracking water and the loss of fishing and recreation revenue

Science benefits foregone -- loss of natural areas for scientific study

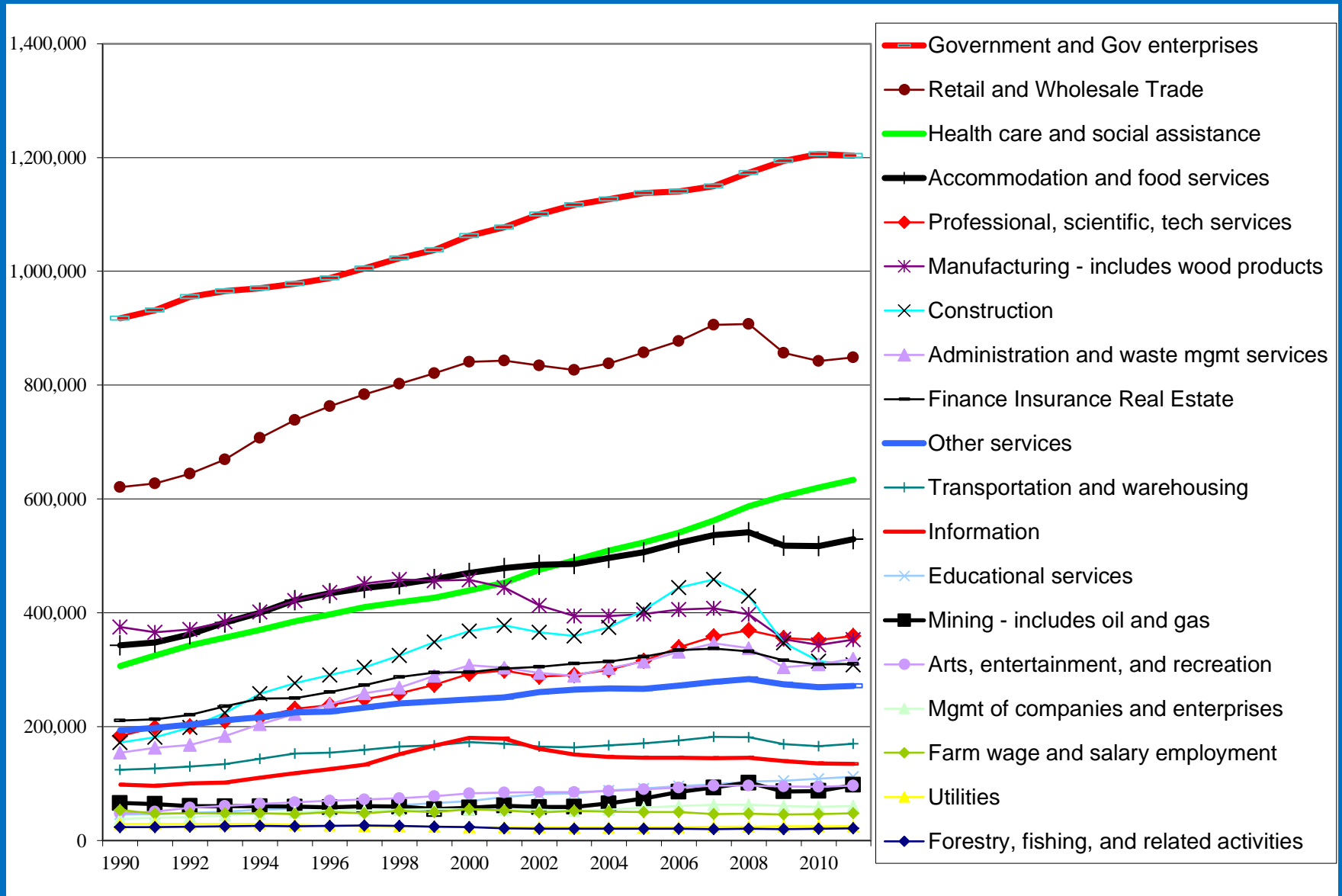
Off-site damages – fugitive methane emissions, water pollution from spills, noise pollution from compressor stations, visual impacts, erosion from well pads and roads, pipeline explosion risks, road dust on petroglyphs and snowpack, seismic activity from injection wells

Biodiversity impacts – loss and fragmentation of wildlife habitat by roads and well pads, pipelines are conduits for invasive weeds, endocrine disrupters impact to amphibians and fish, produced water holding ponds and bird deaths

Ecosystem service costs – water lost to fracking, impacts to aquifer re-charge and wetland function, carbon lost via land use change, fossil fuels and climate change

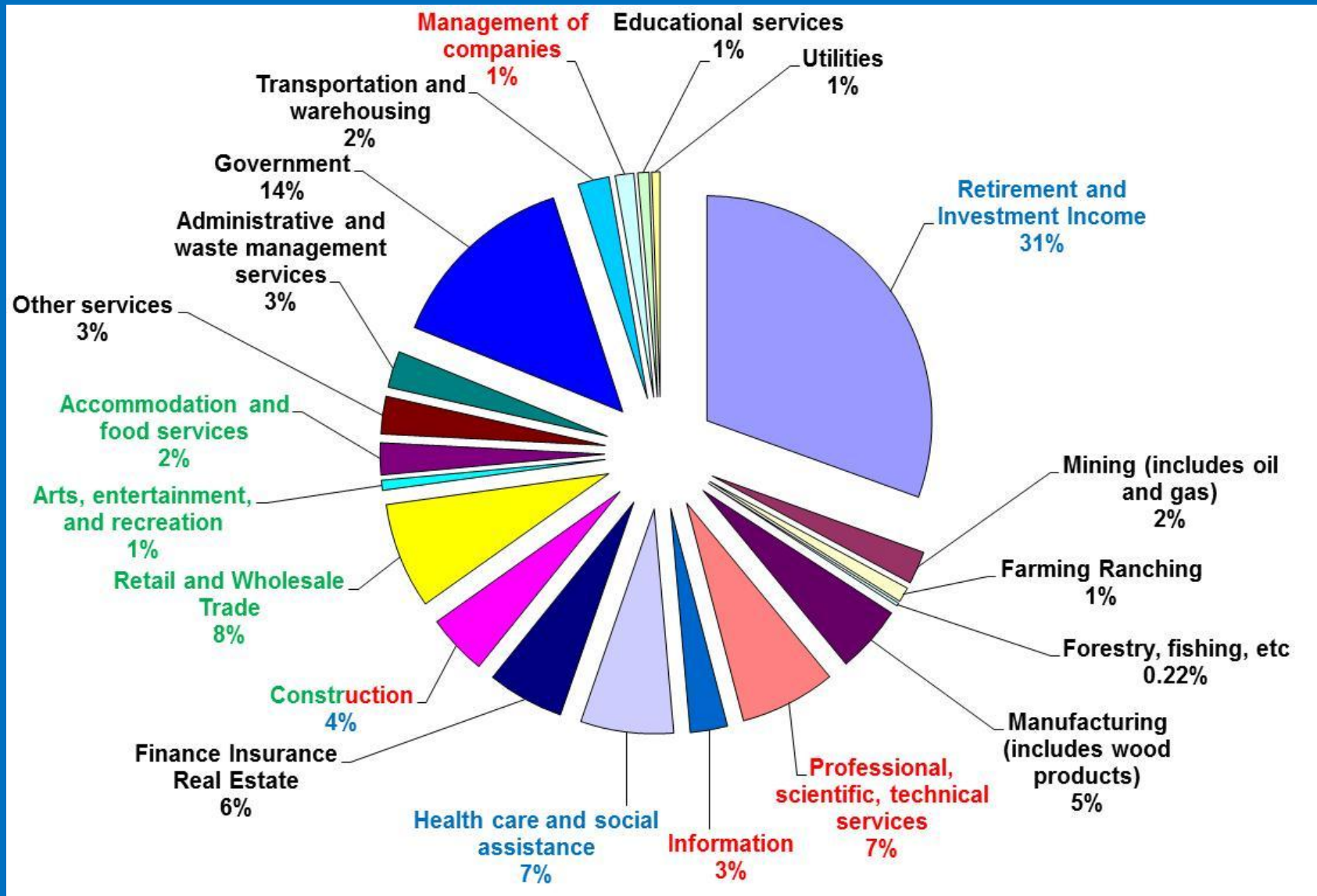
Passive use benefits foregone -- loss of option, bequest and existence benefits generated by open space, parks and wildlands.

Job Trends in the Rockies (CO, ID, MT, NM, UT, WY) 1990 - 2011




Data Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce, 2012

Total Personal Income in Rockies (CO, ID, MT, NM, UT, WY), 2011



Data Source: Regional Economic Information System, (2012). Bureau of Economic Analysis, U.S. Department of Commerce

Increasing Levels of Natural Amenity-based Economic Development



Percent of Total Jobs

	2011 6-STATE ROCKIES (CO, ID, MT, NM, UT, WY)		2011 COLORADO		2010 BOULDER COUNTY	
	Percent Jobs	Rank	Percent Jobs	Rank	Percent Jobs	Rank
Government and Gov enterprises	20.4	1	19.0	1	13.7	2
Retail and Wholesale Trade	14.4	2	14.1	2	11.1	3
Health care and social assistance	10.7	3	10.2	3	9.7	5
Accommodation and food services	9.0	4	9.5	4	6.6	7
Professional, scientific, tech services	6.1	5	7.3	5	15.3	1
Manufacturing	6.0	6	5.4	8	7.3	6
Administration and waste mgmt serv	5.4	7	5.8	7	4.2	10
Finance Insurance Real Estate	5.3	8	6.1	6	11.0	4
Construction	5.2	9	4.9	9	3.6	11
Other services	4.6	10	4.9	10	5.0	8
Transportation and warehousing	2.9	11	2.6	12	0.8	14
Information	2.3	12	3.0	11	4.4	9
Educational services	1.9	13	1.8	14	2.1	13
Mining - includes oil and gas	1.7	14	1.2	16	0.7	15
Arts, entertainment, and recreation	1.6	15	2.0	13	3.3	12
Mgmt of companies and enterprises	1.0	16	1.3	15	0.5	16
Farm wage and salary employment	0.8	17	0.5	17	0.4	17
Utilities	0.4	18	0.3	18	0.1	19
Forestry, fishing, and related activities	0.4	19	0.2	19	0.2	18

Colorado has the most mature natural amenity-based state economy in the Rockies. Colorado's Boulder County provides an example of a mature natural amenity-based local economy

Data: Regional Economic Information System, (2012) Bureau of Economic Analysis, U.S. Department of Commerce

Source: Morton (forthcoming)

Natural Oil and Gas Job Questions

Did the estimated direct oil-gas jobs include jobs outside the oil and gas sector (e.g. 7-11 clerks and gas station attendants)?

Who will get the jobs created? Are they local jobs?

Was the proportion of goods and services purchased locally estimated with primary data collected through surveys of companies and landowners?

Were built-in model parameters used to estimate indirect and induced jobs?

Were landowners and mineral holders assumed to be local residents?

Were lease payments treated as revenue rather than an increase in wealth?

Were the benefits of environmental regulations analyzed? How were the cost of regulations estimated?

Was any sensitivity analysis completed on key assumptions and data inputs?

How fast does drilling occur and what happens when it ends?

How will other regional industries, such as recreation and tourism, be impacted?

For more information:

Morton et al. (2004). Drilling in the Rockies: How Much and at What Cost.

<http://wilderness.org/sites/default/files/Drilling-in-the-Rocky-Mountains.pdf>

Haefele, M. and P. Morton. (2009). The Influence of the Pace and Scale of Energy Development on Communities: Lessons from the Natural Gas Drilling Boom in the Rocky Mountains. Western Economic Forum, Winter 2009.

<http://ageconsearch.umn.edu/bitstream/92810/2/0802001.pdf>

Morton, P. (2011). True Grit: Technically Uneconomic: Natural Gas Edition

<http://wilderness.org/resource/true-grit-technically-uneconomic-natural-gas-edition-pdf-file>

Morton, P. (2011). True Grit: Oil and Gas Industry Job Numbers Don't Add Up

<http://wilderness.org/resource/true-grit-oil-and-gas-industry-job-numbers-don%E2%80%99t-add>

Morton, P (2012). Phased Energy Development and the Precautionary Principle” Good for Critters and Communities. 2012. Presentation at Restore the West Conference, Utah State University, October 2012.

<http://www.youtube.com/watch?v=VjZH2p5Rajo>