

EDUCATION

Colorado School of Mines

Ph.D. in Mineral and Energy Economics

M.S. in Mineral and Energy Economics

B.S. in Petroleum Engineering

Minor: Economics and Business

Golden, CO

Expected December, 2022

May, 2020

May, 2015

COLORADO SCHOOL OF MINES

Research Assistant: USDA Grant

2020–Present

- Studied collective action of groundwater management in Colorado
- Collected and visualized dataset for quantitative analysis
- Interviewed local stakeholders

Teaching Assistant: Mathematical Economics

Fall 2020 & 2021

- Presented course material to students in office hours

Research Assistant: Critical Materials Institute

2019

- Developed model of the availability of critical materials from unconventional sources
- Authored rare earth element and lithium section of congressional report

Teaching Assistant: Principles of Economics

2018

- Taught 120 students in small groups after main lecture

INDUSTRY EXPERIENCE

EnergyIQ (Now Quorum Software)

Littleton, CO

Data Analyst

2016–2018

- Supported Devon Energy, Laredo Oil, Nexus, and British Petroleum in data needs
- Performed training seminars for client companies
- Facilitated BP data enhancement as head analyst for the project

Genscape (Now Wood Mackenzie)

Boulder, CO

Data Analyst Intern

Summer 2015

- Improved methods of forecasting international natural gas exports
- Analyzed EIA data set to identify errors. These were confirmed by EIA and corrected

Trimble Navigation Inc

Westminster, CO

Engineering Intern

Summer 2014

- Tested software for land surveying and design software
- Created usability reports for quality improvements

PUBLICATIONS

“Individual to collective adaptation through incremental institutional change in Colorado groundwater governance”
Jonathon Loos, **Alexander Gebben**, Krister Andersson, Shauna Bulger, Michael Cox and Steven M. Smith
Frontiers in Environmental Science (Revisions requested)

THESIS

Bitcoin Mining: The Next Shale Boom?

Abstract

Bitcoin miners have begun to purchase dissociated gas from oil producers. This demand driver has the potential to rework the oil and gas market, disproportionately increasing the NPV of wells with high gas oil ratios in remote locations. This research creates a regional equilibrium model allowing for the future adoption of bitcoin as a co-product to oil. The equilibrium model is calibrated using econometric estimates of responsiveness of well drilling to demand shocks. Future gas production of all US wells are forecasted which is combined with data on pipeline access, to predict the regional subsidy of new wells. The results will predict regional shifts in drilling rates, and consumer surplus changes under a range of price scenarios.

Hedonic Analysis of Self-Imposed Pumping Fees in San Luis Valley, CO:

Abstract

At the start of the millennia, farmers in the San Luis Valley, Colorado faced a drought brining with it reduced aquifer levels and legal threats to shut in groundwater wells near the Rio Grande River. In 2006 farmers in this area self-organized into water management subdistrict one to manage water use locally. This rare institutional change in water management is leveraged by applying a difference-in-difference hedonic model of farm sale prices. The hedonic model predicts, that the threat of shutting in subdistrict wells in 2002 led to a large reduction in the farm sale values. In contrast the formation of subdistrict one, mitigated much of the loss from the drought. Access to USDA farm level data provides additional evidenced of the drivers of this aggregate result. Subdistrict farmers facing new pumping fees decreased water use, but substituted with fertilizer, on net increasing both expenditures and revenue allowing some farms to adapt easier than others.

PRESENTATIONS

11 th Annual Front Range Energy and Economics Camp	Boulder, CO
Bitcoin Mining the Next Shale Boom?	May 13, 2022
23 rd Annual CU Environmental and Resource Economics Workshop	Vail, CO
Responding to a Groundwater Crisis: The Effects of Self-imposed Economic Incentives	October 1, 2021
Arkansas Basin Roundtable	Pueblo, CO
Water Management Case Study and Proposal	March 11, 2020

RELEVANT COURSEWORK

- **Computational Economics**

Advanced training in GAMS modeling for generalized equilibrium models. Included a long term project that added wind turbine sectors to a CGE model of the U.S electricity market

- **Microeconomics of Mineral and Energy Markets**

- **Metal Industries and Markets**

- **Regional Economics**

SKILLS

Economic Reports: Beamer, Data Visualization

Programming: R, GAMS, SQL, Bash, C/C++, VBA

Technical Tools: L^AT_EX, Git, Linux server, web hosting, cryptography, data security

Industry Knowledge: Water & Agriculture, Oil & Gas, Wind, Electricity Grid

Other Skills: Professional speaking, client communication, data management

Developing Skills: Python, Stata, Qualtrics