

MAGHFIRA RAMADHANI (AFI)

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Education

Ph.D. Economics, Georgia Institute of Technology, expected May 2027.

Minor in Higher Education, Certificate in College Teaching

Committee: Dylan Brewer (co-chair), Bobby Harris (co-chair), Casey Wichman, Laura Taylor

M.S. Economics, Georgia Institute of Technology, 2025.

B.S. & M.S. Petroleum Engineering, Institut Teknologi Bandung, 2021.

Research Interests

Energy and Environmental Economics, Applied Microeconomics, Empirical Industrial Organization

Working Papers

1. "Battery Storage and Natural Gas Generator Market Power"

(Job Market Paper)

Received Fourth Year Paper Prize at Georgia Tech School of Economics

This paper estimates the impact of utility-scale battery storage on the market power of incumbent fossil fuel generators. Using unit-level data from the Texas electricity market, I find that local storage entry reduces natural gas peaker markups by 14 to 19 percent during evening ramp hours, operating through a flattening of residual demand rather than through changes in operating efficiency. This disciplining effect is concentrated among small-capacity generators, while large-capacity incumbents with dominant local market shares are unaffected and, in fact, see their inframarginal rents rise. As a result, storage entry increases aggregate producer rent by \$200 million annually rather than reducing it. The net social benefit of storage instead comes almost entirely from displaced emissions: I estimate a total annual benefit of \$2.2 billion, driven by \$2.4 billion in environmental benefit, against a \$9 billion investment cost.

2. "Digital Dispatch and Demand Response in Grid Emergencies: Evidence from Household Cooling in California's Flex Alerts"

(with Dylan Brewer and Soren Anderson)

Received Third Year Paper Prize at Georgia Tech School of Economics and Georgia Tech CRIDC Award

We study how moral suasion and automation interact to drive electricity conservation during an unprecedented western U.S. heatwave in 2022. We use smart-thermostat data from five western states and a natural experiment in California: a series of unevenly-broadcast conservation requests punctuated midway by a statewide emergency phone alert. We document three findings. First, unevenly-broadcast requests suffer from rapid habituation. Second, the highly salient phone alert reverses this habituation. Third, the phone alert dampens Californians' tendency to override centralized thermostat changes, tripling the efficacy of automation. These results imply strong complementarities between smart technology and salient moral suasion frictions.

3. "Pollution, Avoidance Behavior, and Health"

(with Bobby Harris)

We estimate the causal effect of air pollution on avoidance behavior and health using a novel high-frequency wearable device and electronic health record data from the NIH All of Us program. Analyzing 60 billion minute-level observations for nearly 60,000 individuals, we exploit daily wind direction instruments to identify the impact of PM_{2.5} on physical activity. We document substantial defensive behavior: a one standard deviation increase in PM_{2.5} reduces daily step counts by approximately 290. This response is non-linear and exhibits intraday intertemporal substitution. Our findings demonstrate that ignoring compensatory avoidance behavior yields downward-biased estimates of the biological damage function and the welfare costs of pollution.

Peer Reviewed Publications

4. Matthew E. Oliver, Oliver Chapman, Santiago Grijalva, Daniel C. Matisoff, Maghfira Ramadhani, and Amanda West. (2026). "[Managing zero-marginal-cost, intermittent renewable energy: A survey of the engineering, economic, and policy challenges](#)" *Renewable and Sustainable Energy Reviews*, 226, 116334.
5. Muhammad Ichsan, Matthew Lockwood, and Maghfira Ramadhani. (2022). "[National oil companies and fossil fuel subsidy regimes in transition: The case of Indonesia](#)". *The Extractive Industries and Society*, 11, 101104.

Honors, Fellowships, and Awards

- 2026 John Wylder Dissertation Fellowship (\$6,000); Tech to Teaching Certificate, Georgia Tech; Georgia Tech Economics Fourth Year Paper Prize; Google Cloud Research Credit (\$1,000)
- 2025 Herbert P. Haley Fellowship for the most highly qualified graduate students; Diversity Fellowship in Environmental and Energy Economics (Berkeley/Sloan); Google Cloud Research Credit (\$1,000); Georgia Tech EPICenter Summer Research Fellowship (\$7,500); Georgia Tech Economics Third Year Paper Prize; Georgia Tech CRIDC Award; Omicron Delta Epsilon Travel Award (×2)
- 2022 School of Economics Graduate Fellowship (2022-2027); Richard House Fellowship (2022-2024)
- 2021 Best Master Graduate, Institut Teknologi Bandung

Conference and Workshops

* indicates scheduled

- 2027 AEA/ASSA Annual Meeting*
- 2026 AEA/ASSA Annual Meeting, Georgia Tech Energy Day
- 2025 AERE at SEA Annual Meeting; Berkeley/Sloan Summer School in Energy and Environmental Economics; Atlanta Economics PhD Student Symposium; AERE Summer Conference; Georgia Tech CRIDC; Empirical Method in Energy Economics
- 2024 BREAD-IGC PhD course on Urban Economics; SWEEEP at Georgia Tech; Colorado University Environmental and Resource Economics Workshop; EPICenter at Georgia Tech

Professional Activities

- Association for Mentoring and Inclusion in Economics (AMIE) Program (2025-2026)
- Georgia Tech School of Economics Chair Search Committee (2025-2026)
- Founder and Organizer, Georgia Tech Economics PhD Workshop (2025)
- Georgia Tech Energy Policy and Innovation Center (EPICenter) Student Affiliate (2024-present)

Referee Services

- Journals:** Journal of Environmental Economics and Management
- Conferences:** AERE Summer Conference; AERE at SEA Annual Meeting

Teaching Experience

Georgia Institute of Technology

- Graduate Teaching Fellow at Center for Teaching and Learning (2026-2027)
- Instructor: ECON2250 Statistics for Economists (Fall 2025) [[Course Website](#)][[Teaching Evaluation](#)]
- Guest Lecturer: ECON7103 PhD Environmental Economics (Spring 2025)
- TA: ECON7023 PhD Econometrics II (Spring 2026), ECON7103 PhD Environmental Economics (Spring 2025), ECON4440 Environmental Economics (Spring 2025,2026, Summer 2023,2024), ECON4351 International Economics (Spring 2023), ECON4170 Math for Economists (Spring 2023,2024), ECON3300 Energy Economics (Fall 2023), ECON3110 Advanced Microeconomics (Fall 2023), ECON3161 Econometric Analysis (Fall 2022), ECON2250 Statistics for Economists (Fall 2024)

Institut Teknologi Bandung

- Instructor: TM6051 Energy Policy (2017-2022), TM4021 Energy Economics (2017-2022)
- Head TA: TM4025 Optimization & Operation Research (2017)

Previous Employment

Adjunct Faculty, Institut Teknologi Bandung 2017-2022.

Policy and Economic Advisory: Provided economic policy analysis and advisory to the governor's office, the national oil and gas regulator, several state-owned energy enterprises, and private companies through a series of consulting projects.

Affiliations: Center for Research on Energy Policy; Indonesia Center of Excellence on Carbon Capture and Storage; Carbon and Environmental Research Indonesia; Governor's Expert Staff in Energy

Related Publications (*indicates former undergraduate student advisee) :

1. Prasandi Abdul Aziz, Willy Dharmawan*, Wijoyo Daton, Maghfira Ramadhani, and Steven Chandra. (2023). "[Optimization of hydraulic fracturing and economic analysis using production sharing contract and gross split for well-X on a naturally fractured volcanic reservoir: A case study of geothermal well Y in Indonesia](#)" In *AIP Conference Proceedings*, 2598 (1), 030015.
2. Stephen Salomo*, Muhammad Rahmadhani*, Maghfira Ramadhani, Asep Permadi, and Ari Iskandar. (2022). "[Comparative Study on Fixed-Price Contract versus Incentive-Based Contract in Indonesia's Oil and Gas Industry](#)," In *46th Indonesian Petroleum Association Annual Conventions Proceedings*. [Preprint]
3. Muhammad Ichsan, Yusuf F. Martak, Maghfira Ramadhani, Chitra R. Septyandrica, and Purnomo Yudiantoro. (2021). "[Is cheap fuel policy a \(short-term\) remedy for costly transportation in rural Indonesia?](#)" In *IOP Conference Series: Earth and Environmental Science*, 753 (1), 012030.
4. Maghfira Ramadhani, Prasandi Abdul Aziz, Steven Chandra, and Wijoyo Daton. (2021). "[CO₂ sink and source matching for better CO₂ utilization in increasing oil production: Case study of field X and Y in Indonesia](#)," In *AIP Conference Proceedings*, 2363 (1), 020015

Additional Information

Software: Stata, R, Python, L^AT_EX, Julia (basic)

Language: English (fluent), Bahasa Indonesia (native)

Citizenship: Indonesian (F-1 Visa)

References

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