

# Maghfira Ramadhani (Afi)

221 Bobby Dodd Way NW  
Atlanta, GA 30332

+1 (404) 610-6287  
[maghfira.ramadhani@gatech.edu](mailto:maghfira.ramadhani@gatech.edu)  
[maghfiraer.github.io](https://maghfiraer.github.io)  
Google Scholar



## 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, Public Economics, Industrial Organization

## Working Papers

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

(Job Market Paper)

Utility-scale batteries are often valued for their ability to integrate renewables. They also compete directly with the fossil generators that exercise market power when demand peaks, but the value of this competition has not been quantified. I study this competitive effect in Texas, where more than 7 GW of batteries entered after 2021. Using unit-level data on generator output, offers, costs, and local battery entry, I show that batteries make the residual demand of nearby gas generators more elastic, displace their evening output, and lower their evening markups. An additional 100 MWh of local storage reduces gas operating profits by 6 percent, and between 71 percent and all of this loss is market power rent. Gas generators keep setting prices, but at smaller margins. The resulting \$47 million annual transfer flows mainly to consumers, while shifting energy across hours creates little value at marginal cost. Batteries earn their arbitrage revenue from the markups they erode, so competition limits the private return to storage.

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

(with Dylan Brewer and Soren Anderson)

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. **"Air Pollution and Behavior: Evidence from Wearable Devices"**

(with Bobby Harris)

Avoiding air pollution may protect health while discouraging activities that improve health. We examine this tradeoff using millions of daily wearable observations linked to pollution data. Instrumenting pollution with wind direction, we find that pollution reduces physical activity, shortens sleep, and lowers running performance. Declines in activity are followed by next-day increases, suggesting that people partly adjust when they are active rather than simply forgoing activity. These findings reveal both the scope for adaptation through rescheduling and its limits: pollution affects participation in exercise, performance during exercise, and sleep, extending its economic consequences beyond conventional measures of illness and productivity.

## 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)                                         |
| 2026      | Georgia Tech Economics Fourth Year Paper Prize                                        |
| 2025      | Tech to Teaching Certificate, Georgia Tech                                            |
| 2025      | Herbert P. Haley Fellowship for the most highly qualified graduate students (\$4,000) |
| 2025      | Diversity Fellowship in Environmental and Energy Economics (Berkeley/Sloan) (\$1,000) |
| 2025–2026 | Google Cloud Research Credit (\$2,000)                                                |
| 2025      | Georgia Tech EPICenter Summer Research Fellowship (\$7,500)                           |
| 2025      | Georgia Tech Economics Third Year Paper Prize                                         |
| 2025      | Georgia Tech CRIDC Award (\$1,000)                                                    |
| 2025      | Omicron Delta Epsilon Travel Award (×2)                                               |
| 2022–2027 | School of Economics Graduate Fellowship                                               |
| 2022–2024 | Richard House Fellowship                                                              |
| 2021      | Best Master Graduate, Institut Teknologi Bandung                                      |

## Conference and Workshops

\* indicates scheduled

|      |                                                                                                                                                                                                                                            |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2027 | AEA Annual Meeting*                                                                                                                                                                                                                        |
| 2026 | AEA Annual Meeting, Georgia Tech Energy Day, SWEEEP at Georgia Tech*; APPAM Fall Research Conference*                                                                                                                                      |
| 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 (World Bank, DC) |
| 2024 | BREAD-IGC PhD course on Urban Economics; SWEEEP at Georgia Tech; Colorado University Environmental and Resource Economics Workshop; EPICenter at Georgia Tech                                                                              |

## Teaching Experience

Georgia Institute of Technology

**Graduate Teaching Fellow** at Center for Teaching and Learning (2026-2027)

**Instructor:** Statistics for Economists (Fall 2025 [[Course Website](#)][[Teaching Evaluation](#)], Spring 2027)

**Guest Lecturer:** PhD Environmental Economics (Spring 2025)

**Head TA:** PhD Econometrics II (Spring 2026), PhD Environmental Economics (Spring 2025), Environmental Economics (Spring 2025,2026, Summer 2023,2024), International Economics (Spring 2023), Math for Economists (Spring 2023,2024), Energy Economics (Fall 2023), Advanced Microeconomics (Fall 2023), Econometric Analysis (Fall 2022), Statistics for Economists (Fall 2024), Principle of Microeconomics (Fall 2026)

Institut Teknologi Bandung

**Instructor:** Energy Economics (2017-2022)

**Head TA:** Master-level Energy Policy (2017-2022), Optimization & Operation Research (2017)

## Professional Service

**Referee:** Journal of Environmental Economics and Management

**Reviewer:** AERE Summer Conference, AERE at SEA Annual Meeting

**Member:** American Economic Association (AEA), Association of Environmental and Resource Economists (AERE), Association for Public Policy Analysis and Management (APPAM)

**Other:** Mentee, Association for Mentoring and Inclusion in Economics (AMIE) Program (2025-2026)  
Member, Georgia Tech School of Economics Chair Search Committee (2025-2026)  
Founder and Organizer, Georgia Tech Economics PhD Workshop (2025)

## Research Experience

2024– Student Affiliate, Georgia Tech Energy Policy and Innovation Center (EPICenter)

2024– Student Affiliate, Georgia Tech Climate, Environmental, and Resource (CLEAR) Economics Lab

2023–2024 Graduate Research Assistant to Matthew E. Oliver

2017–2022 Adjunct Faculty, Institut Teknologi Bandung

*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.

*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 Yusgiantoro. (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: R, Stata, Python, L<sup>A</sup>T<sub>E</sub>X

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

Citizenship: Indonesian (F-1 Visa, STEM OPT Eligible)

## References

### Dylan Brewer

Associate Professor, School of Economics  
Georgia Institute of Technology  
[brewer@gatech.edu](mailto:brewer@gatech.edu) ✉

### Casey Wichman

Associate Professor, School of Economics  
Georgia Institute of Technology  
[wichman@gatech.edu](mailto:wichman@gatech.edu) ✉

### Bobby Harris

Assistant Professor, School of Economics  
Georgia Institute of Technology  
[bobby.harris@gatech.edu](mailto:bobby.harris@gatech.edu) ✉

### Laura Taylor

Professor, School of Economics  
Director, Energy Policy and Innovation Center  
Georgia Institute of Technology  
[ltaylor75@gatech.edu](mailto:ltaylor75@gatech.edu) ✉