



PROFILES

## WOMEN IN GEOTHERMAL

Promoting the education, professional development, and advancement of women in the geothermal community.



# Spotlight on Women in Geothermal – December 2025

María Cristina Higuera Cardozo, Geothermal Cluster of Colombia



**When María Cristina Higuera Cardozo first stepped into Colombia’s National Congress as a young legal advisor, she didn’t expect to fall in love with energy. Assigned to support a senator on the Fifth Commission, where environmental, mining, oil and gas, and power policy are debated, she found herself captivated by the invisible infrastructure that dignifies daily life. “Having electrical energy,” she says, “is something that dignifies the life of people.” That conviction has guided every step of her journey from regulatory law to the frontlines of Colombia’s geothermal movement.**

### The Lawyer Who Became a Regulator and a Builder

By 2014, Higuera had committed to pathbreaking specialization, earning a master’s degree in regulation of mining, oil and gas, and energy. “I am a regulatory lawyer now,” she notes simply. But “regulatory lawyer” hardly captures what happened next. In early 2021, she joined Colombia’s Ministry

of Mines and Energy and immediately joined a multidisciplinary team to craft the country’s first specific regulatory framework for geothermal power generation.

It was painstaking work: aligning laws and decrees, drafting technical resolutions, and stitching together a modern governance model for a resource long overlooked. “From the very first moment that I started to learn about geothermal, I fell in love,” she says. “There is no way to get out of that love.”

By mid-2022, thanks to that team, the Ministry of Mines and Energy delivered a legal backbone intended to provide clarity and investor certainty. “Legal certainty is something that investors need to decide if they want to invest or not,” Higuera explains. The framework set reasonable timelines (85 working days) for permit decisions and created pathways for exploration and eventual exploitation. In a sector where uncertainty can stall capital for years, the specific new regulatory framework was a milestone.

### Implementing the Rules and Meeting Reality

Drafting rules is one thing; making them real is another. Higuera stayed at the ministry through a change of government to lead what she calls the first phase of implementation. “It was very challenging because one thing is to write the norm, and then you have to apply what you built,” she says. During that time, Colombia issued several geothermal permits, some under a transition regime for projects with prior rights, and the national oil company Ecopetrol received an exploration permit this year. Yet many applications from private companies remained pending. Why? Higuera points to both administrative delays and shifting political philosophy. “It’s something very usual in national public entities,” she says candidly.

Even in that friction, Higuera didn’t retreat. She found microphones in webinars, panels, public events and she found communities.



## Walking Volcano Country, Listening First

One of Higuera's proudest moments is not a decree number but a dialogue. In Cauca, near the Puracé volcano, Indigenous communities requested a first-of-its-kind official conversation with the government about geothermal. Higuera participated in the group that traveled south. "We started to build a relation with the communities and geothermal," she recalls. It was listening before lecturing, an approach that recognizes the profound ties between land, culture, and energy.

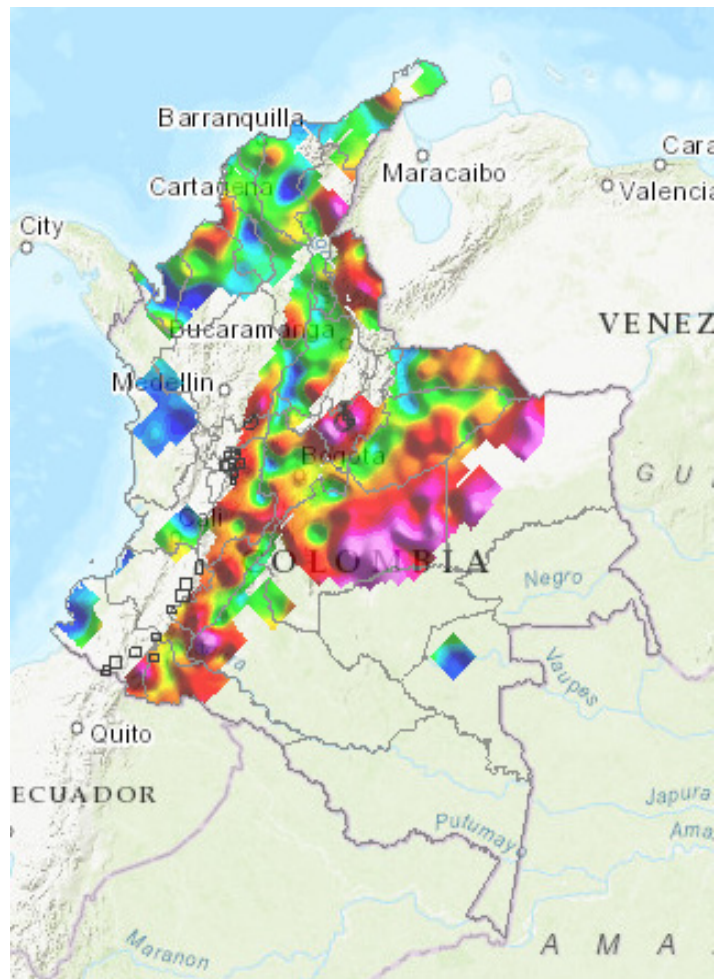


She remembers visiting a sulfur mine near Puracé, a scene she describes as otherworldly: crystal-clear rivers of thermal water coursing between rocks, the landscape steaming with subterranean force. "It was magical," she says. "Like another planet." For Higuera, those moments fuse science and society: the raw potential of the earth and the responsibility to develop it with consent, care, and shared benefit.

## Founding the Geothermal Cluster of Colombia

In January of 2025, Higuera took the next step and founded the Geothermal Cluster of Colombia, a private nonprofit organization with a mission to unlock barriers that keep projects from starting. The team is small, "five women and two men," she says with quiet pride, yet deeply capable: environmental law, geoscience, petroleum engineering, economics. Most are volunteers. "They really work for the cluster," Higuera emphasizes. "We do believe in this."

The cluster's agenda is practical and ambitious: push for timely permits, build capacity in regional environmental authorities (many know environmental law but not energy-market rules), and serve as a bridge to financiers. Higuera is in talks with national entities and multilateral institutions about risk-sharing mechanisms for exploration, where geothermal's upfront uncertainty is highest. "The kind of grants that for example the Inter American Development Bank has to offer helps to start," she says. If wells (exploration phase) succeed, companies pay back; if not, they don't, derisking the most fragile phase and bringing projects to the line where private capital can take over.



Heat Map of the Geothermal Potential in Colombia

## Legal Certainty, Gender Inclusion, and the Energy Transition



energy in her voice makes you believe it.

### The Road Ahead

Colombia's official geothermal potential is modest on paper, around 1.2 GW, because exploration has lagged and blind resources without surface manifestations are hard to quantify. Higuera believes the true potential is "way higher." The country sits on the Pacific Ring of Fire, ringed by volcanoes, and the technical experts suggests rich reservoirs are waiting beneath. For that promise to become power, permits must flow, environmental and energy authorities must align, and early-stage risk finance must reach credible projects.

"I feel like the small part trying to do everything possible to make geothermal power generation a reality," she says. She's the David to an energy-sector Goliath, but she's not alone, and she dreams with and work for building a coalition: companies, communities, public entities, banks, and a new cadre of women in geothermal.

If Colombia's next decade is defined by a just, reliable, and clean energy transition, it will be because people like Maria Cristina Higuera chose to stand at the fault line between policy and project, ideal and implementation, and push. She knows what's at stake: dignity, development, and the simple human miracle of switching on a light.

"From the first moment," she says, "I fell in love with geothermal. And there is no way to get out of that love."

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For Higuera, legal certainty isn't abstract. Without permits, projects cannot start. Without projects, there is no geothermal. She is relentless and public about this: "We need the ministry to deliver these permits," she says. "This has to happen now."

Her advocacy is also gendered in the best sense, expanding who gets to lead. She has designed building capacity programs like Women, Energy Transition and Geothermal to be developed in the Territory, aimed at increasing female representation at decision-making tables, in the field, and within data-driven roles. It's strategic and ethical: energy systems are better when they reflect the societies they serve.

### Data Centers, AI, and a New Demand Curve

Higuera is fascinated by the emerging AI geothermal nexus, the surge of data center demand and the need for 24/7 low-carbon power. Colombia doesn't yet host hyperscale campuses like the U.S., but there's intention to open the door. Geothermal's baseload profile could be a fit if regulatory clarity and project delivery catch up. "I've been reading a lot about the new relation between AI and geothermal," she says. "It's fascinating."

### Beyond the Work: A Human Rebuild

Regulatory battles and public hearings can exact a personal toll. Higuera is frank about the cost of her ministry years. "My life was not good at all, as a person," she says. "My health and my mental health weren't supervised." In 2024, she drew a line. "I decided to change," she says. "To recover my mental health, my body." She now treasures calm mornings, proper breakfasts, exercise, and a rule to close the office by late afternoon. She started running, loves hiking, reading on climate and renewables, cooking, and time with friends and family. "I'm a new person," she says, and the



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