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EDITED BY

Laura Horn,
Roskilde University, Denmark

REVIEWED BY

Aaron Thierry,
Cardiff University, United Kingdom
Benjamin Damoah,
University of Fort Hare, South Africa

*CORRESPONDENCE

Adam R. Aron
✉ adamaron@ucsd.edu

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The wins of the grassroots climate movement in the University of California

Monica Nelson¹, Cathy Gere², Adam Cooper³,
Varykina G. Thackray⁴ and Adam R. Aron^{5*}

¹Scripps Institution of Oceanography, University of California, San Diego, La Jolla, CA, United States, ²Department of History, University of California, San Diego, La Jolla, CA, United States, ³Department of Chemistry and Biochemistry, University of California, San Diego, La Jolla, CA, United States, ⁴Department of Obstetrics, Gynecology, and Reproductive Sciences, University of California, San Diego, La Jolla, CA, United States, ⁵Department of Psychology, University of California, San Diego, La Jolla, CA, United States

As the climate and ecological predicament worsens, too many people seem to be waiting for policy to be implemented from “on high.” Yet the history of many social struggles shows us that achieving policy wins requires a strong push from below. Here we recount how members of the climate justice organization The UC San Diego Green New Deal were critical to reorienting the climate policy of a very large institution, the 10 campus University of California, as well as winning important climate actions at UC San Diego itself. We discuss three campaigns: Decarbonization and Electrification, Cutting Ties with Fossil Finance, and Climate Education for All. From shifting the focus to emission reductions rather than carbon offsets, to pushing Chase Bank out of the campus student center, to providing new undergraduate curricula, these wins are now reverberating throughout higher education in the United States and beyond. This movement has also provided an important pedagogical role by teaching organizing and activist skills to undergraduates so they can go forth and fight for their futures.

KEYWORDS

decarbonization, social movement, activism, fossil fuel, divestment, climate justice

Introduction

Global heating is accelerating (Cheng et al., 2024; Minière et al., 2023). If substantial cuts in emissions are not made soon, many indications are that by 2050 we will breach 2°C above pre-industrial levels (Hansen et al., 2023), experience tens of trillions of dollars of economic damages (Kotz et al., 2024), and, by some projections, see the migration of hundreds of millions of people (Xu et al., 2020), although there is disagreement on the numbers (Daoust and Selby, 2024). The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report spelled out in detail how to cut greenhouse gas emissions by leaving fossil fuels in the ground, sourcing electricity from renewable energy, electrifying buildings and transportation, reducing the carbon intensity of agriculture, and cutting consumption (Shukla et al., 2022). The technology is mostly there; what is lacking is the political will to effect the transition away from fossil fuels at the speed and scale that is needed (Stoddard et al., 2021).

In that same IPCC report, there is a detailed section on the kinds of social and political changes that would constitute an adequate response to the climate crisis (Creutzig et al., 2022). After acknowledging the importance of social movements and collective action such as the youth-led climate strikes that were so successful in drawing attention to the issue, the authors observe that “changes in social norms often start with pilot experiments led by dedicated individuals and niche groups.” These insights speak to the importance of local

action which not only produces results but can also reduce some of the psychological barriers to constructive work on climate change. This is important because the huge scale of the problem and the diffuse effects of greenhouse gases can engender feelings of helplessness. In general, too few people appear to believe the transition is possible, or, more importantly, that they have a role to play in pushing for it to happen (Funk, 2021; Latkin et al., 2023). They do not, to borrow a term from psychologists, feel personal or collective *efficacy* (Bandura, 2000; Van Zomeren et al., 2008). In other words, they do not believe that they can deploy their skills and abilities to make change where they are.

Yet if we look at many other historical struggles, we see that national level change often started with and was driven by local struggles. To focus on the United States, as we do for the remainder of this paper—the struggles for the 8 h work day, the 5 day work week, women's rights, civil rights, and same-sex marriage were initiated locally and spilled over in wider circles until they affected national policy (Sovacool, 2022; Young and Thomas-Walters, 2024). The canonical example for environmental policy is the far-reaching Nixon-era environmental legislation in the 1970s that was enacted at the national (federal) level after a concerted struggle at the local level in towns and cities across the country (Tokar, 1997). And even on the climate front, it seems likely that local struggles such as the Standing Rock protests, which led to the birth of youth climate movements such as the Sunrise Movement, helped create national-level policy (Lawrence, 2022). These climate movements, and the elected officials they supported, such as Alexandria Ocasio-Cortez, popularized the Green New Deal concept within Congress, which ultimately paved the way for the Inflation Reduction Act—a deeply compromised act, shorn of social provisions, but still the largest investment in climate action in US history (Sunrise Movement, 2022).

Accordingly, as students, staff and faculty, we focused our efforts specifically on our own institution—the 60,000 strong University of California, San Diego (UC San Diego). And UC San Diego is situated within the 10 campus University of California (UC), which has around 500,000 people all told, and is the third largest employer in California, the fifth largest economy in the world. In this article, we describe our social movement struggle—one that has had many successes even though the movement was powered by no more than a few dozen individuals at a time, fewer than 0.1% of our campus population. Our aims in this exposition are several: first, to suggest a template for activists in other academic institutions; second, to claim the specific wins for our movement since they are being appropriated by institutional actors (often the very people who opposed change); third, to demonstrate the spill-over effects of our wins and actions into the wider California and higher education communities; and fourth, to increase confidence that there is efficacy in grassroots climate action, especially in a university setting. We situate our case study within a growing literature that recognizes the essential role that institutions of higher education can and should play in supporting climate action across society (Dyke and Monbiot, 2024; Kinol et al., 2023; Lachapelle et al., 2024; Nussey et al., 2023; Stewart et al., 2022; Urai and Kelly, 2023).

To begin, we describe the formation and structure of our social movement—the UC San Diego Green New Deal (UCSD GND). We discuss how the grassroots-based UCSD GND worked in concert with faculty within the academic senate and with some administrators, using an Inside-Outside strategy. We illustrate the

effectiveness of our approach with three different campaigns: Decarbonization and Electrification, Cutting Ties with Fossil Finance, and Climate Education for All. We also provide some data in the form of anecdotal survey responses from several universities on the impact our efforts had on theirs. Finally, we draw several lessons from our efforts and make some suggestions for campus-based social movements.

The UCSD GND

In the summer of 2019, a small group of faculty and students got together to plan and stage a large rally, preparatory to forming an organization. The rally that September, which overlapped with many other climate events around the world that were partly inspired by Greta Thunberg, was at least 500 strong and was covered by local news (Fox 5 Digital Team, 2019). The messaging for the rally was oriented around three demands of our institution: Teach your students about climate change and climate justice; Meet your Carbon Neutral goal by 2025; and Build a UC-wide Green New Deal. The first and third goals were chosen to grow the climate movement through increased education and awareness, while the second goal called on the university to take action to reduce its own very substantial climate pollution. At the time we did not yet understand that “carbon neutrality” was not an emissions-reduction strategy (as explained below). Also, our third demand, to build a UC-wide 10-campus movement was not so much a demand to our institution as an aspiration for ourselves.

The September rally was successful at motivating dozens of faculty, students and staff, union members, environmentalists, already-experienced organizers, and others to join our first general meeting and, from that, we formed our organization, the UCSD GND. Within about a year, as we learned more, our platform of demands evolved to the four that can be seen in Figure 1, top; these will be expanded on in the sections below.

While the group is registered each year as a student organization, a key feature that sets the UCSD GND apart from most student organizations is that it includes faculty, staff, alumni, and retiree members in key roles. It is their involvement plus Ph.D. students (who are around for longer than undergraduates) that helped provide the critical continuity for multi-year campaigns, overcoming the problem that student-only organizations have with cohort turnover (for an Italian example of the strength of such alliances see Cini, 2017; and for a more general discussion see Hensby, 2017).

The group was organized with a Steering Committee and several teams, Figure 1, bottom. Additional members would join for specific events such as the once-per-month General Meeting, rallies, and protests. Funds were raised from supportive faculty and allies in the wider city and donated through the university foundation to the student organization. Funds were used for training events, food, art supplies, banners, and printing costs. Communication was done through in-person and Zoom team meetings, and co-ordinated through a Slack workspace. Outward-facing communication was done via physical fliers, X/Twitter, Instagram, a website, and a general mailing list of supporters. Everyone was on a first name basis and attempts were made to flatten hierarchy so that all members felt welcome to get involved and participate in decision-making, planning and execution. Teams and responsibilities were established to allow

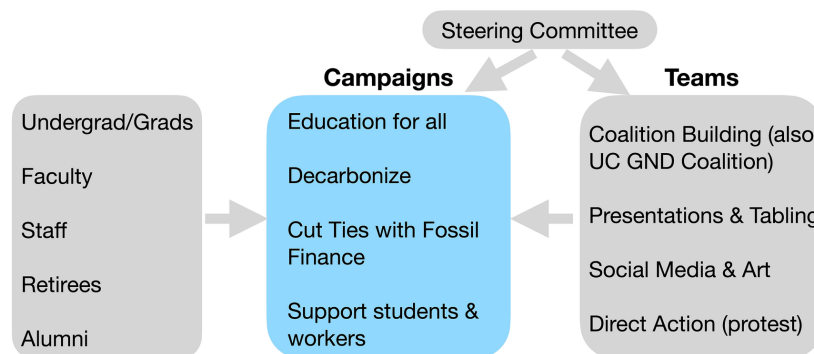


FIGURE 1
 Depiction of the UCSD GND climate action and justice movement. (Top) Photo from a rally in September 2021, 2 years after we formed, showing a banner with our four campaigns/demands at the time (note that while the main text mostly discusses the first three, we also undertook many actions to support student well-being and workers' rights). (Bottom) Diagram of the structure of the organization showing how members participate in different teams to contribute to the key campaigns.

some agility in decision-making and initiative and to avoid the “tyranny of structurelessness” (Freeman, 1970). Committed members were welcome to join the Steering committee, with most members serving for at least one academic year. Some students brought with them activist and organizing experiences from other groups, such as the Sunrise Movement and 350.org, sharing practices such as the Act, Recruit, Train Cycle, as well as strategies of campaign-planning and tactics of escalation (Ganz, 2024).

Part of our original motivation when forming the organization, as mentioned above, was to build a 10 campus UC climate movement. From early 2020 we began this process through outreach to individuals and groups throughout the system, leading to the formation of the UC Green New Deal Coalition, which is detailed in Box 1. From then until now, we have continued to organize primarily within the UCSD GND, with some of us also organizing with the UC GND Coalition. The 10 campus organizing basis would prove critical in bringing pressure to bear on the UC-wide President, Regents, and other decision-makers for policy decisions, especially on Decarbonization.

The Inside-Outside strategy—our allies in the faculty senate and administrations

Like many universities in the US, UC San Diego has a faculty senate, which aims to share governance with the Chancellor and the administration. The chairs of the main senate committees meet together with the Chancellor and the administration on a semi-regular

basis. These committees have their counterparts on each of the other 9 UC campuses; and the UC-wide senate is represented in meetings with the Regents and the UC President.

From its inception, the UCSD GND worked closely with allies in the faculty senate at UC San Diego, and throughout the 10 campus system, and also with some administrators. As we detail below, this Inside-Outside strategy was key to several of our wins. Here “Inside” refers to “within institutional structures,” while “Outside” refers to the agitprop, rabble-rousing and protest tactics of the UCSD GND, elevating a voice for students.

In late 2019, as the UCSD GND was getting started, faculty allies drafted a Task Force on the Climate Crisis Report (Aron et al., 2020). Two key statements in the report were:

The Academic Senate should form a new standing committee to advise the Academic Senate and administration on matters pertaining to climate change impacts and mitigation, and to study and make recommendations regarding campus actions. The Academic Senate should ensure that teaching related to the climate crisis is well-supported on campus.

The report came up with 34 concrete recommendations, some of which are shown in Table 1. Under the Decarbonization category, the biggest item by far was the campus power plant, known as a “cogeneration plant” because it co-generates both electricity and heat from burning fossil gas. It soon became clear to those writing the report that the glossy graphs in the campus sustainability materials

were concealing a completely inadequate climate action strategy, and that the campus should be aiming to retire that plant as soon as possible.

The Task Force Report was submitted in July 2020 and was voted on and accepted by the Faculty Senate. By early 2021, the Academic Senate honored one of the key statements in the report—creating a standing Committee on Campus Climate Change (hereafter, UCSD Academic Senate CCCC)—still the only one of its kind in the 10 campus system. As we explain below, the UCSD Academic Senate CCCC was critical to the Inside-Outside strategy that advanced and won some of the UCSD GND's campaigns.

Campaign #1: decarbonization and electrification

The energy systems campaign is at the heart of the organization's work. The UCSD GND and the UC GND Coalition have relentlessly exposed the inadequacy of the UC's climate policy and forced the system to adopt new goals. The first phase was information-gathering and analysis. When we understood UC's "carbon neutral" policy to be an obfuscation, we worked to bring the truth to light and to push for the university to make a plan for true decarbonization. It took five solid years of organizing, but in the end we steered a very large institution to take the first steps towards fossil-free operations.

Background

We begin with the institution's fossil fuel use. Academic science, with its need for ultra-controlled environments and huge data-crunching power, is an energy-intensive pursuit; likewise, offices and student housing require air-conditioning, lights, heating, and elevators. The 10 campuses that comprise the UC currently emit around 1.3 million tons of CO₂e every year—more than the emissions of 40 of each of the world's smaller countries (CO₂ Emissions by Country, 2024). Two thirds of the total—nearly 900,000 tons—is produced by co-generation plants on seven of the campuses (Supplementary 1). These onsite facilities burn fossil gas to make electricity and to provide heating and cooling. Fossil gas, which is usually called "natural gas", is primarily extracted in the US via fracking and is ~90% methane, a greenhouse gas which absorbs 80 times as much heat as CO₂ over a 20-year period. Further, fossil gas leaks during extraction and transportation, making it as bad for the climate as coal (Gordon et al., 2023).

UC's first policy for climate action was developed back in 2013, when UC President Janet Napolitano needed to respond to California's targeting of emissions. She therefore established the Carbon Neutrality Initiative (UC Office President, 2014), pledging that the entire university system would be 'carbon neutral' with regard to its direct emissions by 2025. At the time, the carbon neutrality target looked commensurate with the university's standing as a climate leader. Over the years, however, problems began to surface with both the conception and the execution of this plan, even as the university doubled down on it.

It took us many months, some detective work, and a lot of self-education to get to grips with the limitations of this Carbon Neutrality Initiative. Faced with bureaucratic defensiveness and obfuscation, we had to resort to Public Records Act requests. Over time, however,

BOX 1 The UC Green New Deal Coalition

We spearheaded the formation of the UC GND Coalition (Coalition from here on) in March 2020 to advance our decarbonization and other campaigns by targeting UC-wide decision-makers and to build capacity on different campuses. Forming the Coalition was a natural follow-on from a campaign led by UCSD GND calling for the search for the new UC President to include a climate crisis focus (UCSD GND, 2020a). Connections made during the petition drive with organizers at other campuses including UC Berkeley, UC Davis, UCLA, and UC Santa Cruz formed the basis of the Coalition. From there, we worked throughout 2020 to grow participation across all 10 UC campuses. The timing of COVID pandemic restrictions was opportune for this kind of remote organizing as people were at home and everything was happening online.

Once formed, the Coalition became a volunteer-run, democratically organized, grassroots grouping of UC organizations and individuals with established Working Groups. A key initial campaign and organizing tool was the drafting of a UC Green New Deal policy platform—a comprehensive list of actions the UC should take to decarbonize and support environmental justice (UC Green New Deal Coalition, 2021). The policy covers 11 sections (Energy, Transportation, Housing, Construction, Land Use, Food and Waste, Labor, Divestment, Accountability & Governance, Education, and Funding Possibilities) and was drafted and revised through community solicitation, and delivered to the UC Office of the President.

The Coalition's main campaign to date has focused on the Energy section of the policy platform, primarily calling for the UC to shift its focus from "carbon neutrality" to "emission reductions" (this issue is expanded on in the main text of the article below). The Coalition played many roles in this critical campaign. First, in 2020, the Coalition pushed a petition started by the UCSD GND to all 10 campuses. Second, in 2022, the Coalition worked to turn out a faculty vote on a Senate resolution calling for investments to reduce on-campus fossil fuel combustion 60% by 2030 and 95% by 2035. Third, the Coalition coordinated a steady stream of individuals giving public comment at bi-monthly Regents Meetings (meetings of the UC Board of Directors), asking for accelerated and ambitious emission reduction goals. For example, 2023, when the UC was revising its Climate Protection Policy (McMillan, 2023), the Coalition encouraged members to submit feedback calling for accelerated and more ambitious goals. Finally, in 2024, a Coalition representative was invited to give a presentation to the UC Regents calling for rapid implementation of decarbonization plans.

In addition to the specific energy decarbonization campaign, the Coalition worked to raise awareness of the shortcomings in the UC's climate policy more generally. After finalizing the above-mentioned policy platform, a petition was launched to gather support for the UC to enact a Green New Deal. Coordinated rallies for a UC Green New Deal were held at all 10 UC campuses on Earth Day in 2022, and Coalition members were invited to speak at a meeting of the Global Climate Leadership Council about the urgency of the moment and the need for a UC Green New Deal.

This coordinated cross-campus effort amplified and legitimized the voices of the grassroots movement. As a result, the UC has begun to make concrete changes to its climate policy that are focused on emissions reduction. Throughout its existence, the Coalition has acted as a forum to share skills, knowledge, and lessons learned between organizers on different campuses—improving the efficacy of our work.

with input and advice from activists and energy experts in our networks, we were able to piece together an analysis of UC greenwashing that was comprehensive, quantitative, and historically informed. As we lay out below, we did not, of course, convince the university administration to change its ways immediately—it took about 3 years—but it was crucial that we had the facts and figures at our disposal. By always showing up well-briefed, we chipped away at institutional resistance. Eventually we broke through completely, to the extent that our erstwhile opponents are now taking credit for the transformations we urged upon them (Temple, 2023).

In our investigations, we learned that after Napolitano set the carbon neutrality target, a task force was convened to plan how to get

TABLE 1 A subset of the 34 recommendations in the UC San Diego Academic Senate Task Force on the Climate Crisis report (July 2020).

Decarbonization	Transparency	Teaching and research	Health and preparedness
Cogeneration plant <ul style="list-style-type: none"> • Replace campus fossil-gas burning plant with a mostly-electric system 	Corporate influence <ul style="list-style-type: none"> • Create transparency rules for corporate influence over energy and climate scholarship 	New courses**: <ul style="list-style-type: none"> • Add Interdisciplinary courses • Add climate content • Infuse climate content into existing courses 	Measure <ul style="list-style-type: none"> • Measure emissions in healthcare facilities
Transportation <ul style="list-style-type: none"> • Create scope 3* goals for now, not 2050 • Replace campus fleet by electric vehicles by 2025 • Measure campus-related aviation and make a plan • Make public transport free for campus 	Banking <ul style="list-style-type: none"> • Shift campus banking away from large fossil fuel financing banks 	Research Funds <ul style="list-style-type: none"> • Steer research funds to encouraging new investigators 	Medical Education <ul style="list-style-type: none"> • Prioritize climate crisis
Waste <ul style="list-style-type: none"> • Build on-campus composting system to reduce 16,000 CO₂e /yr 		New Teaching Lines <ul style="list-style-type: none"> • Direct new faculty teaching lines to a climate focus within social science and humanities 	Recognition <ul style="list-style-type: none"> • Recognize climate crisis work in career advancement of clinical faculty
Other <ul style="list-style-type: none"> • Measure emissions of campus procurement • Make vegetarian meals default • Replace campus landscaping equipment with electric 		Counseling <ul style="list-style-type: none"> • Increase mental health counsellors who can help with climate anxiety 	

The text shown in bold corresponds to the key campaigns taken-on by the UCSD GND climate movement under its three campaigns of Climate Education for All, Decarbonization and Cutting Ties with Fossil Finance. Some of the other recommendations have been worked on by the UCSD Academic Senate Committee on Campus Climate Change that arose from this Task Force report, and yet others have been taken up by Dean’s, Provosts and Administrators, such as creating new faculty lines focuses on the climate crisis.

*Scope 3 refers to greenhouse gas emissions from “non direct” forms of campus operations such as aviation and ground transportation for students, faculty and staff.

**Eventually we won something much more ambitious than new courses, we got a General Education requirement for all undergraduates on climate.

there. Titled *UC Strategies for Decarbonization: Replacing Natural Gas*, this 2018 report rested on four pillars: energy efficiency, new-building electrification, wholesale purchasing of renewable electricity, and biogas (Meier et al., 2018). At this point, greenwashing tactics swung into action. The UC began to claim that the first three of these pillars allowed the university to grow without increasing its greenhouse gas emissions—a notable achievement as long as you ignore the massive ‘embodied emissions’ in the construction of many new buildings (about 1 ton of CO₂e for every ton of concrete poured), and the flaws inherent in the “clean-electricity” purchasing scheme (Supplementary 2).

Yet these efforts left untouched the approximately 900,000 tons of CO₂ emitted by the gas-fueled campus co-generation plants, which still provide the bulk of the UC’s electricity. Instead of phasing out campus fossil fuel combustion—on the grounds that it would be too expensive—the taskforce report recommended that the university ‘replace’ the fossil gas with biogas. ‘Replacing’ was a euphemism. The biogas program was a carbon credit scheme, in which the university would pay landfills elsewhere to capture their biogas and turn it into energy, while the UC would continue to burn fossil gas on site. Unfortunately for the carbon neutrality concept, biogas turned out to be scarce and costly. So, after investing in a biogas plant in Louisiana and another in Wisconsin, the sustainability officers turned to a cheaper carbon-trading option—carbon offsets (also see Dyke et al., 2024).

Bringing to light the truth about UC carbon offsets

Offsets are certification schemes by which polluters pay other people to sequester carbon on their behalf. A familiar example might be the addition of a few dollars on an airplane ticket to pay for a tree

to be planted. As the biogas program ran into problems of cost and supply, these kinds of certificates began to play a larger and larger role in the university’s plans for carbon neutrality. The 2019 UC San Diego Climate Action Plan, for example, projected that ‘unspecified offsets’ would do the work of neutralizing nearly half of campus emissions (UC San Diego Climate Action Plan, 2019). It was challenging to get any concrete information about these ‘unspecified offsets.’ In October 2020, after we had begun to ask questions, sustainability officers at every campus engaged in a formal consultation process with the 10 campus communities. Every campus was sent materials about the program’s aims and plans, yet these contained not a single word about the actual offset schemes that were being considered (Perez, 2021). Our further enquiries went unanswered.

The UCSD GND got to work. Buried in the Carbon Neutrality Initiative website, we unearthed a spreadsheet listing offset schemes that had received seed money (Supplementary 4). On the assumption that these were likely to be the ones rolled out in 2025, we contacted the lead scientists, and asked for further information. We spoke to three investigators; two for reforestation projects and one for cookstoves. The first investigator frankly admitted that the project was unlikely to come to completion for political reasons. The second asked us not to share the information as it was all too provisional. The third offset scheme involved subsidizing efficient cookstoves in Rwanda. Impressively, that lead scientist had analyzed a mass of technical details to come up with a system taking into account every phase of production and use. Wood pellet cookstoves, he informed us, constitute some of the highest quality offsets on the market. The thinking was that providing people with more efficient cookstoves leads them to burn less wood, and less wood burned means less CO₂

released to the atmosphere, and that reduction in emitted carbon compensates for, or “offsets,” an equivalent amount of carbon emitted by the UC. Although this project was more thoughtful and detailed than the others we investigated, there are still many serious problems with the assumptions.

First, these (and most) offsets are *impossibly cheap*—averaging about \$8 per ton (Supplementary 4). This meant the UC would theoretically be able to “offset” the nearly 1 million tons of CO₂ it emits per year from burning fossil gas on-campus with only \$8 million.

Second, offsets involving trees are *highly uncertain*. This is because trees represent a temporary movement of carbon within the ocean-atmosphere-biosphere system while when the UC burns fossil gas, it injects new carbon into that system, keeping CO₂ elevated in our atmosphere for thousands of years. The problems of relying on trees as offsets are legion. Trees are now burning at increasing rates, including those that were planted or preserved as offsets (Badgley, 2024), and, overall, the number of trees that burned worldwide between 2000 and 2021 was 11 times the number planted, releasing about 2 billion tons of CO₂ per year (You, 2023).

Third, there is the problem of *additionality*. For an action to count as a carbon offset—for it to function as a license to pollute elsewhere—it has to be something that would not have happened in the absence of the offset scheme. Because the few carbon offset projects the UC was planning to use were already underway before offsetting was included as part of their funding, these projects uniformly failed the additionality criterion.

These offset proposals were boutique schemes within the UC. Beyond the walls of the institution flourishes the established carbon offsetting market, which is increasingly being exposed for its even greater flimsiness (CarbonBrief, 2023; Romm, 2023). While the Office of the President was considering cookstove schemes, the sustainability officers on the individual campuses were scouring that market for the cheapest options. In 2020, UC Merced proudly announced it had achieved “carbon neutrality.” Our UCSD GND team wrote to ask how, but they would not tell us, so we did a public records request. It turned out that for a paltry \$1.35 a ton they had bought carbon offsets from landfills that were simply flaring their biomethane into the sky (UCSD GND, 2021). Because methane is a *really* potent greenhouse gas, burning it and turning it into CO₂ counts as a mitigation measure. While in California, capturing landfill methane is required by law, in low-regulation states landfill operators can claim that flaring methane is ‘additional,’ and can therefore sell carbon credits.

With no incentive on the part of consumers to demand quality, the carbon offset market is a race to the bottom. Ultimately, carbon neutrality and the related concept of net zero are more of a framework for slippery accounting than for real emissions reductions (Dyke et al., 2021). The complacency fostered by these schemes is one of the reasons it is so hard to tackle climate change. Much like scientists at the University of Exeter (Dyke et al., 2024) the UCSD GND therefore concluded that the only substantive way to address the UC’s greenhouse gas emissions was to do the very thing that the 2018 report rejected, which was to actually retire the fossil-fuel infrastructure, eliminating emissions at the source.

The campaign for a fossil-free UC

Accordingly, and as laid out in Box 1, the UCSD GND and the 10 campus UC GND Coalition circulated a petition in 2020 demanding

that the “UC develop a detailed plan for true decarbonization of its energy regime for all 10 campuses.” The demand was deliberately modest. All we were asking for were ‘shovel-ready’ plans. As we wrote in this energy-systems petition text: “Even if the funds are not currently available, they can be requested from a future Federal green infrastructure initiative, for which the University must lay the groundwork now” (UCSD GND, 2020b). By October of 2020, the petition had garnered over 3,500 signatures, plus endorsements from unions representing tens of thousands of UC workers. This got us into meetings with the Executive Vice Chancellor of the UC system, as well as with the Chancellors of some of the individual campuses. Their response was polite but dismissive. In April 2021, we received the message that UC President Michael Drake was not ready to abandon carbon neutrality as the 2025 goal.

The campaign that followed the denial of our petition is a good example of the Inside-Outside strategy in action. As recounted below, the UCSD GND produced hard-hitting agitprop and mounted demonstrations, while the UCSD Academic Senate CCCC pulled the levers of faculty governance. The two tracks were united in an initiative called Electrify UC, whose website collated public records request data, published analyses, and documented the progress of our campaign (UCSD GND, 2021).

Most notable on the agitprop front was a student-directed documentary, ‘Coming Clean: A Demand for a Fossil Free UC’ (Montejo et al., 2022). One of the film’s highlights is a scathing parody of carbon trading by UC Berkeley climate scientist David Romps: “I could buy a gigantic tank and fill it with oil. Then I could sit next to the tank with a match, and I could, every day, write on a piece of paper, that if no-one buys this piece of paper, I’ll light the tank of oil on fire, releasing carbon dioxide to the atmosphere. And I call those pieces of paper carbon offsets.” UCSD GND members also published an op-ed in the *Sacramento Bee* about the specifics of the UC’s offsets, describing the secrecy surrounding UC Merced’s claim to be carbon neutral in these terms: “The UC claims to “neutralize” the atmospheric damage it causes when it burns fracked methane and emits carbon dioxide by paying landfills in low-regulation states to burn biomethane and emit carbon dioxide. No wonder UC Merced and UCLA want to keep the details hidden” (Gere and Aron, 2021).

The UCSD GND applied social pressure using tried and true campus protest tactics. We followed the “Act, Recruit, Train” model by kicking off each academic year with a large rally which led to an influx in new member interest. In monthly all-hands meetings and weekly campaign-specific meetings, we trained new members to participate in and lead smaller actions throughout the year. Our tactics included conducting attention-seeking skits and impromptu speeches in campus common spaces, dropping a banner saying “UCSD Burns Fracked Methane” (see Figure 2) and drawing similar large messages in the sand on our campus beach—filmed by drone (La Jolla Light, 2022). Our academic years often culminated in an Earth Day rally, first only in San Diego and later expanding through the UC GND Coalition to cover all 10 campuses. We would then repeat the training and planning cycle for the remainder of the year with a hiatus in the summer.

At the same time, the UCSD Academic Senate CCCC developed a Senate resolution about decarbonization, carefully worded to address direct smokestack emissions. It took many months to pass the resolution through all relevant committees and councils—time we used to rally support on all 10 campuses—but finally every eligible



FIGURE 2

Fossil gas in the University of California. Upper left, all 10 campuses burn fossil gas (fracked methane), with 7 of them doing so to generate both electricity and heating in co-generation plants. Upper right, the co-generation plant at UCLA, which emits over 200,000 tons of CO₂ per year. Bottom, a major rally outside the UC San Diego library, as part of our Khosla Must Commit campaign, which exhorted the Chancellor to commit to retiring the co-generation plant by 2030. In mid 2023 he did verbally commit in a public setting, but ongoing pressure is required for implementation.

faculty member across the whole 10-campus system received a link to vote on the following demand:

“The University of California Academic Senate petitions the Regents for investments in UC’s infrastructure that will reduce on-campus fossil fuel combustion by at least 60% of current levels by 2030 and by 95% of current levels by 2035.”

The resolution passed with a resounding 85% majority (Horwitz, 2022). Such resolutions are not in themselves binding, but they serve as consciousness-raising instruments, expressions of faculty will, and benchmarks for further advocacy. Picking up the struggle, allies at the systemwide level with direct access to the Office of the President urged the administration to respond, and in September 2022, President Michael Drake convened a new task force called ‘Pathways to a Fossil Free UC,’ marking the first decisive shift in UC policy from carbon neutrality to real decarbonization. Responding to the change in mandate, the sustainability office earmarked \$13 million of UC state funds for decarbonization planning on all 10 campuses, associated health systems and Lawrence Berkeley National Lab. It was about 2 years since we had first made that exact demand through the energy-systems petition.

Reframing UC climate policy

In March 2023, a new UC ‘climate protection policy’ was circulated for comment. By this time, the UCSD GND and UC GND

Coalition were acknowledged voices in the discussion about the university’s climate goals, and we produced a redlined version of the policy, furthering almost every provision (Supplementary 5). Some of our suggestions were adopted; others were not. The greatest victory concerned the offsets program. In the first draft, one and a half of the five pages were devoted to outlining the rules for UC biogas and offsets. The UCSD GND’s redline version struck out much of that language, pointing out that biogas is a carbon offset scheme, and stipulating that only “emissions from hard-to-decarbonize operations such as air travel and back-up energy generation” could be neutralized in this fashion. Just 3 months later, the offset program was canceled. On a dedicated website, the same administrators who had aggressively defended the program against our critiques portrayed the shift as emerging from their own process of reasoned deliberation: “It proved too difficult to identify quality projects on the market, and the process of developing our own offset projects also was more difficult and risky than we anticipated” (University of California, 2024). The website succinctly described the new official climate protection policy for the UC: “As of July 2023, the University system replaced its 2025 carbon neutrality goal with goals for direct decarbonization of campus greenhouse gas emissions.” Importantly, the story was also covered in the *MIT Technology Review* with the title “The UC has all but dropped Carbon Offsets—and Thinks You Should Too” (Temple, 2023), a major win for us.

Where the UCSD GND failed to have an impact (so far) was on the all-important question of the timeline for decarbonization. The

Academic Senate resolution set a deadline of 2035 for 95% reduction of direct emissions. The new official policy punted that date to 2045. We strenuously objected to the delay, to no avail. This is where the individual campus plans come in. Every campus has completed its own decarbonization study, with three of them referenced here (UC Berkeley, 2024; UC Davis, 2024; UC Santa Cruz, 2024). Each study is unique in responding to different physical conditions on each campus as well as to the presence and input of different personnel, from campus operations staff to student activists to administration. Where the top leadership is supportive, most notably at Berkeley, implementation could conform to the Senate resolution timeline; elsewhere, it is wholly uncertain.

At UC San Diego, the struggle continues. After the new Climate Protection Policy was made official, the UCSD GND mounted a campaign to get Chancellor Pradeep Khosla to commit to a 2030 decarbonization deadline. The Inside-Outside strategy swung into action, with noisy demonstrations demanding ‘Khosla Must Commit’ culminating in a high-profile event featuring UC San Diego alumnus Kim Stanley Robinson, author of the 2020 cli-fi novel *Ministry for the Future*. At that event, UCSD GND student-activists and other climate science students played the roles of Ministers for the Future of the University, arguing for decarbonization of campus operations on environmental justice grounds. In his speech that evening, Chancellor Khosla claimed that it was his “hope, dream and desire to electrify the campus by 2030” (UCSD GND, 2023). It is always helpful to have such a statement on hand, and we repeated it loudly and often, but implementation of UC San Diego decarbonization on the timeline demanded by science—i.e., a 45% reduction by 2030 from 2010 levels (IPCC, 2018)—will certainly require continued activist pressure.

The story of the UCSD GND energy systems campaign is a microcosm of the challenges of the energy transition as a whole. The scale of UC emissions is large enough to be consequential, yet its energy system is small enough to be understood in some detail. The energy demand of scientific research is commensurate with other industrial sectors. Public universities are uniquely well-positioned to spearhead the societal shift to cleaner energy: they have to adhere to transparency standards more stringent than those of private industry; they claim to respect traditions of student protest; they are answerable to ideals of the public good, and the employment protections afforded by academic tenure provide cover for fierce internal critique. Our efforts to steer the enormous ship of the UC towards true decarbonization can be understood as an exercise in prefigurative politics, a proof-of-concept process to try out different strategies, learn from successes and failures, and show the way forward for others (Yates, 2015).

Campaign #2: cutting ties with fossil finance

The UCSD GND’s finance campaign was preceded by an international student-led movement for Fossil Fuel Divestment which began in the early 2010s, calling on universities to sell their endowment and pension investments in oil and gas companies. These campaigns helped shape the sustainability discourse within higher education institutions and more broadly shifted social norms (Bergman, 2018; Grady-Benson and Sarathy, 2016; Green, 2018; Healy

and Debski, 2017). Student and staff collaborations were shown to drive success in this work (Stephens et al., 2018), which has in turn created collective efficacy among student organizers (Grady-Benson and Sarathy, 2016).

Within the UC, the push for fossil fuel divestment started in 2012 and was later followed by a systemwide faculty vote in favor of divestment. This campaign was partly won when, bowing to the sustained pressure, the Chief Investment Officer in the UC declared in 2020 before the UC Regents that he was “derisking” by selling most investments in fossil extraction companies (Supplementary 6). For the UCSD GND, the demand to Cut Ties with Fossil Finance now meant ridding the campus of banks with fossil fuel connections, dissociating the ties between the fossil fuel industry and academia, and implementing transparency policies about those relationships. We now discuss these in turn.

Retail and commercial banking

Following the divestment campaigns focused on university endowments and pensions, activists nationwide turned their attention to the financial ties that institutions have to the fossil fuel industry through the banks they use (Stop The Money Pipeline, 2024). The rationale is that banks enable the climate crisis by provide enormous financing to corporations to expand their coal, oil, and gas operations, which is incompatible with the curtailing of greenhouse gas emissions. Institutions could respond by cutting their ties with the worst-offending banks.

Inspired by this, the UCSD GND investigated which banks have a presence on its local campus and who the wider 10 campus UC banks with. We found that, in most instances, the UC has ties to banks that are heavily implicated in financing fossil fuel extraction, as documented in the yearly report *Banking on Climate Chaos* (Rainforest Action Network, 2023). These banking relationships can be divided into two categories: retail and commercial banking. Retail banking refers to the on-campus branches and local ATMs of specific banks, while commercial banking refers to the large banks used by institutions such as the UC. These two categories will be discussed separately below.

In late 2020, the UCSD GND developed a “Chase It Out” campaign that focused on the retail presence of Chase Bank in the student center on campus. Specifically, JP Morgan Chase has financed fossil fuel extraction—including tar sands oil, off-shore drilling, and fossil gas shipping terminals—by \$430 billion from 2016 to 2023 (Rainforest Action Network, 2023). By allowing Chase Bank to rent space on campus, UC San Diego was indirectly approving of the bank and its business practices and supplying a customer base. With between 10 and 20 people, we held small weekly protests for 7 weeks straight, in front of the branch to educate the campus community through flyers, speeches and chants, and to encourage passersby to shift their banking from Chase to a credit union (which typically has much less exposure to the fossil fuel industry). The recurring nature of these events enabled interested passersby to join the protests in subsequent weeks. As with the energy systems campaign, these protests (the Outside strategy) were coupled with an Inside strategy. In this case, we raised our concerns with a member of the administration, who, it turned out, was already interested in local credit unions, on the grounds that they invest more in local institutions than Chase does. That existing motivation, combined with our disruptive pressure (which was covered by the Washington Post,

Mufson and Grandoni, 2020), led to the termination of the Chase lease. In August 2022, a campus-wide email announced the new partnership with the University Credit Union, and the branch opened in September (UC San Diego, 2023).

The commercial banking issue, by contrast, must be directed at the 10 campus system where the banking relationships are set. In 2020 our faculty allies in the 10 campus academic senate—with a push from activists—succeeded in encouraging the head of the faculty senate to pass the following memo to the Chief Financial Officer of the UC system, who oversees a vast approximately \$50 billion yearly budget:

“The three major commercial banks that UC uses are Bank of America, Wells Fargo and Union ... These three banks have in the three years since the Paris accords, lent about half a trillion dollars to fossil fuel companies, enabling them to keep us on a path that is destroying the biosphere ... They have also failed to adopt responsible criteria for financing (or not) the extraction of coal, tar sands, arctic oil, and other carbon deposits which must remain in the ground if the goals of the Paris accords are to be met ... We respectfully request that UC’s Chief Financial Officer issues a Request for Proposals for commercial banking services that includes a meaningful criterion of adherence to ESG.” (Bhavnani, 2020)

The CFO and his key staff in the Finance Department at the UC Office of the President eventually responded to the memo and were willing to meet with activists. However, changing UC’s banks is difficult when the institution’s banking interests are so vast. For example, some hospital acquisitions and construction projects require financing in excess of a billion dollars; which few banking entities other than the big banks (with their fossil fuel entanglements) have the capacity to do. We responded by pointing out the strategy of advisors within the Finance group at the University of Cambridge who are finding ways to split off some financial relationships (cash and money market funds), something that has been endorsed by dozens of other UK universities and colleges (Banking Engagement Forum, 2024). With this information, we are now facilitating meetings between the CFO’s of the UC and Cambridge.

Fossil fuel industry (and investor-owned utility) funded research

There is growing concern in the climate movement about how fossil fuel companies build relationships with universities through donations and research partnerships. This allows the industry to use campus resources to conduct research and development (with engineers, scientists and economists), recruit a talented workforce from alumni, influence policymakers and the public, and greenwash their reputation through association with prestigious universities (Franta, 2021; Hiltner et al., 2024; Sneath, 2024; Westervelt, 2023). A recent high profile publication clearly showed how the research produced by such academic/fossil-fuel partnerships serves the interests of the funder: it distorts what questions are asked, what answers are found, and which policies are adopted (Almond et al., 2022).

One of the most telling examples of industry-sponsored research is MIT’s 2011 “The Future of Natural Gas” report (MIT Energy Initiative, 2011) developed by MIT’s Energy Initiative which has received \$450 million in funding from fossil fuel companies. The report’s favorable portrayal of natural gas (methane), with no conflict of interest disclaimer, led the Obama Administration to adopt a

pro-fracking energy policy (Obama Whitehouse, 2012) and to appoint the Chair of the research study, Ernest Moniz, as US Secretary of Energy in 2013. This surely contributed, along with other factors, to the subsequent boom in fracking which made the US the world’s leading producer and near-leading exporter of fossil gas by 2024 (US Energy Information Administration, 2024).

In response to these profound concerns about the academic/fossil-fuel partnership, an international movement has emerged—which the UCSD GND joined in 2023—calling on universities to dissociate. In our organization, we tackled this issue through research, op-ed writing, protest, and social media campaigns. We submitted public records requests, produced a database of grant funding, and built a network-map of fossil fuel influence on campus. Over about 10 years, UC San Diego has received \$103 million from the fossil fuel industry for research, of which \$95 million funded environmental research (Figure 3). The two largest contributors were for-profit, investor-owned utility companies: Southern California Edison and Pacific Gas and Electric.

The UCSD GND also went further by investigating two specific research relationships that seemed to be a conflict of interest: one at the Scripps Institution of Oceanography (UC San Diego’s marine, earth, and climate sciences department) and another at the Global Policy and Strategy School. Our work resulted in an op-ed that was published by local press (Cooper et al., 2021), and inspired environmental justice advocates in the city of San Diego to file a lawsuit alleging that investigators at UC San Diego’s Global Policy and Strategy School were engaged in a conflict of interest (McDonald, 2023). Our scope has since expanded to reveal fossil fuel industry influences on the wider 10 campus UC system (Cooper, 2023; UCSD GND, 2024).

We also built awareness through tried and true methods of direct action using the strategy of narrative intervention, i.e., to disrupt the status quo narrative that is at odds with our vision of ethical research. This included handing out fliers at a career fair (where fossil fuel industry recruiters were present) about only taking internships at ethical companies. We also passed out “Climate Bingo” sheets which featured real vs. fake climate solutions at a talk featuring a fossil-fuel-funded climate policy professor. And we engaged in traditional street protest, for example holding a rally during the “Triton Leadership Conference” hosted at Birch Aquarium on the Scripps Institution of Oceanography campus—calling out their hypocrisy for presenting an environmentally friendly image while taking money from the fossil fuel industry. We also responded to an appearance of an ExxonMobil recruiter on campus with a protest rally co-hosted with other student groups focused on broader corporate ties and militarism.

To date, a handful of universities such as VU Amsterdam and University of Toronto’s Environment School have committed, to varying degrees, to dissociating (i.e., ending financial and research relationships) with fossil fuel companies (Bonette, 2022; HOP, 2023) but UC San Diego and the wider UC are still resistant to the idea. Our campaign continues through an intersectional coalition pushing for ethical research of all kinds—calling into question the role of fossil fuels, weapons manufacturers, military and surveillance companies on campus.

The Inside Strategy establishes a transparency policy

A different aspect of cutting ties between fossil fuel interests and the university is to focus on making the industry-academic

partnerships institutionally transparent. Using the Inside strategy, we took this up in 2021 via the UCSD Academic Senate CCCC.

Given the similarities between the tobacco industry’s misinformation campaigns and the strategy of fossil fuel companies, the committee members initially thought to propose a fossil-fuel version of UC Regents Policy 2,309, which demands *special review* of tobacco funding proposals (Board of Regents, 2007). Yet as this idea was socialized with various UCSD academic senate committees, a less stringent policy was suggested—one that requires publicly disclosing fossil-fuel funding in all climate-related research products. But even this weaker disclosure policy ran into fierce opposition from industry-funded climate researchers. Then, in the hope of garnering more widespread support, the UCSD Academic Senate CCCC rewrote it to include all funding sources, rather than restricting it to fossil fuel industry money. Some thought that this weakened the proposal, but others judged it to be a strength, allowing the fossil fuel funding issue to find common cause with other conflict-of-interest concerns, such as the role of big-tech companies in funding academic research (Jamali and Hughes, 2024).

After 3 years of work with all the relevant committees, the final version was put to a vote of the Academic Senate in April 2024, where it passed by a large majority (UCSD Academic Senate, 2024):

All externally-sponsored research projects shall be disclosed yearly in a publicly accessible database. The project sponsor, project title, amount of funding, and the name of the principal investigators will all be disclosed and the registry maintained by the campus.

All academic units of the university (e.g., schools, departments, centers, institutes) shall publicly disclose all gifts of \$10,000 or more and restrictions on those gifts. These donations should be listed at least yearly.

And we exhort university researchers to adopt the norm of explicitly disclosing the financial and non-financial relationships that obtain between the funder and researcher in all public communications regarding their research (e.g., articles, websites,

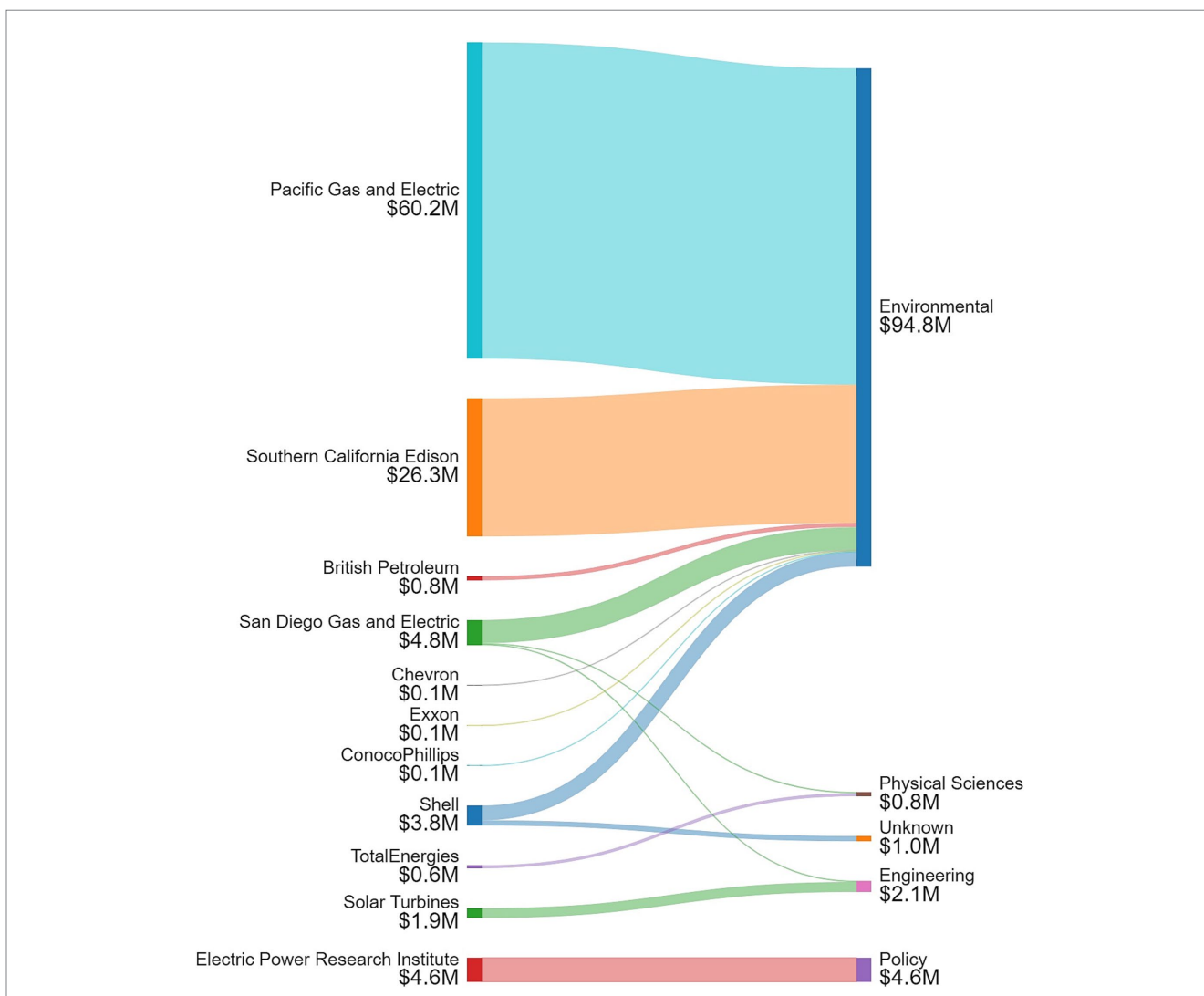


FIGURE 3 Sankey flow diagram of research grant funding at UC San Diego from 2013 to 2023. The fossil fuel-linked company sponsor is on the left, and the discipline of funded research is on the right. The data are drawn from the UC (UC sponsors of contracts and grants database).

presentations) in contexts where they reasonably can be taken to be speaking as a university expert.

As this was focused on simple transparency, this version of the policy was intuitive to biomedical researchers, who already have to disclose funding sources because of the obvious potential for conflict of interest issues with the pharmaceutical industry (Schwartz et al., 2008). While this effort is an important win for transparency, which could spread to other schools, it does not, in itself, obligate the university administration to implement a disclosure policy for fossil-fuel funding. Getting it implemented will require further pushing by the UCSD Academic Senate CCCC and activists. Moreover, our greater ambition is not merely disclosure but instead dissociation between research and fossil fuel interests, which will require further action.

Campaign #3: education for all

One of the original demands of the UCSD GND from September 2019 was “Teach the climate crisis and climate justice.” We saw that current offerings in the curriculum were inadequate and that a dramatic up-scaling of climate-related education was needed to reach around 35,000 undergraduates (for similar campaigns at other schools see Huq et al., 2023; Kinol et al., 2023; Stephens, 2024). The Task Force On Climate Crisis Report argued that climate crisis teaching must go beyond simply teaching about the physical science basis of global heating by also covering both “... psycho-socio-political topics, for example the more than 40 year history of how the fossil fuel industry has systematically distorted the science, misled the public and influenced the political system; and ... the topic of climate justice” (Aron et al., 2020).

For us, climate justice has several different meanings, referring for example to the fact that those who have done the least to generate emissions (the poor, the vulnerable, many of those in the global south) will suffer the greatest impacts and have the least means to adapt. It also refers to the ability to identify problematic technical and market fixes, such as carbon offsets, carbon capture, and hydrogen blending. Above all it stands for the recognition, as one prominent climate justice advocate put it: “[that] the continuing disruption of the earth’s climate system is not a technical problem to be ‘solved’, but rather a systemic problem, rooted deeply in social and economic structures” (Tokar, 2010).

The Task Force on Climate Crisis Report envisioned three ways that climate education could be broadened, in decreasing order of commitment/difficulty. First, a *multidisciplinary approach* in which new courses were developed to cover the climate crisis (from physical science to renewable energy, from ethics to society). Second, a *within-discipline approach*, for example, where a biology professor creates a new course in biology to cover several or many aspects of the topic. Third, a *teaching-through-the-curriculum approach* where climate topics are sprinkled through an existing class (Aron, 2023).

As was explained above in the Inside-Outside Strategy section, the UCSD GND were able to have these concerns addressed in the Task Force Report which was approved by the Academic Senate. In early 2021, the UCSD Academic Senate CCCC took up the education requirement issue by convening a brainstorming session with major stakeholders including UC San Diego Provosts, Deans and activists

(Committee on Campus Climate Change, 2021). With buy-in from all, the Academic Senate then formed a workgroup to figure out how to implement a General Education requirement. The workgroup completed its report in 2023 (Teranes et al., 2023), and the General Education requirement was announced by the administration, to begin Fall 2024 (Campus Notice, 2023). As established in Senate Regulation 600.H:

“A knowledge of climate change is required of all candidates for a Bachelor’s degree who begin their studies at UC San Diego in lower-division standing in Fall 2024 or thereafter.”

This regulation makes UC San Diego one of the first major universities in the world to ensure that every student will take at least one class on climate. In selecting criteria for the classes, the workgroup identified four features: Scientific Underpinnings, Humanistic and Social Dimensions, Climate Solutions, and Project-Based Learning. Each class has to devote at least 30% of its syllabus to climate change, and to substantively cover at least two of the four areas, allowing for a range of approaches. There is now a standing committee of the Academic Senate whose task it is to review syllabi, which are required to be annotated by the instructor to explain how the criteria are met. Some of the submitted syllabi were developed explicitly in response to the new requirement; in other cases, the effect is to drive enrollment in classes already being taught. The first round of applications attracted 40 submissions, fairly evenly distributed among social and natural sciences and arts and humanities. A handful of the applications were sent back for further refinement and clarification.

The Academic Senate committee engaged in debate as to whether the requirement should insist on climate justice as the focus, in order that students did not come away with the impression that climate change can be solved by purely technical or scientific means. In the end, the taskforce decided to cast a wide net to encourage pedagogical autonomy since there are many kinds of climate expertise at UCSD and no strong justification for narrowing the focus. It remains to be seen if the political dimensions are adequately addressed through the requirement. If not, its terms can be revisited after the first five-year trial period.

Our hope, in our capacity as the activists who originated the requirement, is that a community of practice grows around the requirement, with faculty learning from one another, leading to integration of the social aspects in even the most STEM-focused courses. This community could address the need to provide emotional support and collective-action -opportunities for students to cope with their distress about climate breakdown (Schwartz et al., 2022; Stein et al., 2023). We also would like the requirement to engage students in a critical assessment of the relationship between economic growth and ecological destruction. Under current growth forecasts, renewable power will be an addition to the fossil fuel economy instead of a replacement for it (Hickel, 2020). Overall, our goal is to make sure that students grasp the scientific underpinnings as well as the big economic, social, and political picture, and our hope is that they leave UCSD feeling empowered to take action.

Of all the campaigns, this one was a relatively straightforward undertaking. Unlike infrastructure, financial and transparency matters, teaching at the UC is largely under faculty control, and so the Academic Senate was able to get this implemented at our campus without too much difficulty (and also because it was able to follow the

model of an existing General Education requirement for Diversity, Equity and Inclusion on our campus). Our allies at other campuses are now hoping to make it a requirement of the whole UC system.

Discussion

Over a 5 year period, the work of the UCSD GND resulted in many changes to university policy and practices. At the 10-campus level, it ended the reliance on carbon offsets and created the pressure for \$13 million to be spent on electrification planning. At UC San Diego, it helped to rid the campus of Chase retail banking, secure a Climate Change General Education requirement for all undergraduates, elevate concern about fossil fuel industry-academic partnerships, and secure a funding-disclosure resolution. In doing these things, this social movement also built the 10-campus UC GND Coalition. We now discuss several implications, including how this work might alter people's efficacy beliefs, the pedagogical value of training students in organizing tactics, and the impact of our efforts on activists at other universities. We conclude with a discussion of which aspects of our strategy were effective, and also some shortcomings and corrections, before looking briefly to the future.

Our impact on people's efficacy beliefs, other campuses, and wider student organizing

As we noted in the Introduction, there are many reasons why the energy and societal transition is mostly occurring at too small a scale and at too slow a pace. One of these reasons is that too few people join social mobilizations of activism/advocacy, even as those mobilizations remain absolutely critical with the inadequacies of international negotiations and the frequent stalling at national, regional and institutional levels (Stechemesser et al., 2024; Stoddard et al., 2021). In a recent survey of over 9,000 academics, a commonly reported intellectual barrier to considering whether to engage in activism/advocacy was "lack of efficacy beliefs" while two common practical barriers to actually getting engaged were "Lack of skills" and "No advocate in inner circle" (Dablander et al., 2024). The UCSD GND is a highly relevant example of how to overcome these barriers to collective action by starting an on-campus movement. Our wins show how a small group can change the trajectory of a very large institution to act on the climate crisis.

While starting a local campus group can help boost people's efficacy beliefs and also their practical skills, there is another important barrier to acting on the climate crisis, which is that it represents a *global* heating problem. Unlike many struggles for rights and against repression, which are often waged locally for local changes, those who enter this struggle need to believe it is worth their time and effort to engage in something which requires a global response (McAdam, 2017). While some may engage out of a profound commitment to climate justice, or to be on the right side of history regardless of success, or will act out of intergenerational self-preservation, others need evidence that local change is *worth* doing for bigger reasons. One such bigger reason is that struggling and winning locally helps create a *dynamic social norm*, i.e., it normalizes the struggle that needs to happen in many institutions and places and makes it grow (Constantino et al., 2022). Indeed, higher education in the US is a great target for local efforts to cascade much

more broadly since most of the large campuses still burn fossil gas, such as Harvard, Yale and Princeton (Huising and Aron, 2023; Lewis, 2021; Sustainability at Princeton, 2024) and some, like UNC Chapel Hill, still burn coal (No Coal UNC, 2020).

In order to assess the wider impact of our struggle, we sent out a short survey to a dozen or more schools in the US and abroad at which we'd had prior contact. For each of (a) carbon offsets, (b) campus decarbonization, (c) cutting ties with fossil finance, and (d) climate education for all, we asked how much impact our struggle in the UC had on their university. The results are shown in Table 2. Several universities such as Cornell and Northwestern credited us substantially in their struggle for campus decarbonization, while others such as Trinity College Dublin and Leiden University in the Netherlands credited us in their Climate Education for All Campaigns. Of particular note was a comment attesting to the importance of peer pressure: "Several ... deans have told us that the best evidence we can give them to persuade them to take climate action is peer pressure. They want to know if other universities are doing it. Your successes at UC have considerable impact by setting a public example of a much higher bar for university climate action, and ramping up the peer pressure."

In addition, our campus decarbonization campaign was used as a model campaign for the Sunrise Project's Climate Finance Fellowship's training retreat, and our messaging of "Decarbonize, Divest, Dissociate" was adopted by "Reclaim Earth Day" in 2024, in which 100 schools participated.

One of our potentially largest influences was to defeat the use of carbon offsets in the UC climate action policy—as exemplified by the above-mentioned article in the *MIT Technology Review* entitled "The University of California dropped carbon offsets—and thinks you should too" (Temple, 2023). While it is difficult for activists to measure the wider impact of something like this, it's possible, given the UC's role as a climate leader, that this news spread through wider academia and helped shift several large schools to drop their reliance on offsets. Every institution that abandons offsets hastens their inevitable and necessary delegitimization (Dyke et al., 2024).

Another important outcome of the UCSD GND's on-campus organizing was the training of dozens of students (and, in lesser numbers, staff and faculty) in activism, organizing and leadership. This included providing many opportunities for skills development in policy, writing, presenting, speaking, social-media, graphics, coalition-building, and with developing tactics, strategy and direct action such as protests. Those experiences have seen our students enter spaces where they represented the entire student body of the UC system, and also appeared in front of the Board of Regents, local legislators, and the U.S. Congress. Several have moved into careers within environmental policy, community organizing and journalism. As the climate crisis accelerates, as economic inequality and political polarization grow, our towns and cities will become increasingly brittle with impacts on housing (Trapasso, 2024), insurance (Aronoff, 2023), and migration (Lustgarten, 2024). Experienced activists will be critical for defending and transitioning our societies with responses that center local community empowerment.

Effective strategy, shortcomings, and corrections

One of the most effective features of our approach was a two-track Inside-Outside strategy. Other social movements have found this

TABLE 2 The wider impact of our struggle in higher education.

University	How much impact did our wins in the UC have on your struggle for:			
	Ending Carbon Offsets	Winning Decarbonization Plans	Cutting Ties With Fossil Finance	Climate Education for All
Trinity College, Dublin	<p>None.</p> <p>We were not aware of the GND at UC's efforts on this—there is a growing general awareness that offsets are [woeful] and thankfully our Sustainability Strategy only mentions these as a “last resort” so we will refer to your actions in future discussions.</p>	<p>A little.</p> <p>Irish universities do not have their own power plants—but we have referred to the decarbonization actions of GND at UC as exemplary in the kinds of successful actions happening at a grassroots level. A promising development is that new and recently renovated buildings in Trinity have been fitted with a geothermal energy source.</p>	<p>A little.</p> <p>Trinity committed to divesting from fossil finance some years ago. It is unclear if this has been fully achieved. Trinity banks with Barclay's (among others), one of the largest financiers of the Fossil Fuels industry. Will pick this back up this year and will draw inspiration from GND at UC.</p>	<p>Substantial.</p> <p>Our biggest advocacy focus has been on introducing mandatory education on the climate and biodiversity crisis across all undergraduate programs. A course was established covering planetary boundaries, a sustainable existence, climate justice, systems thinking, and transformative action for change has been developed. It will be mandatory for all students taking degrees in the Business School in 24/25. We hope such requirements will expand to more programs in 25/26.</p>
Stanford	<p>None.</p> <p>Stanford claims to run its campus mainly on renewable electricity. Our struggle is primarily focused on dissociating from fossil fuel companies.</p>	<p>None.</p>	<p>A little.</p> <p>Wins at Princeton and several Dutch universities have been most useful, because they relate directly to our struggle</p>	<p>None.</p>
Cornell	<p>Substantial.</p> <p>Your success in exposing carbon offsets as an unacceptable false solution came just as Cornell on Fire's work was getting launched. Your talk was heard by multiple Cornell engineers and Sustainability staff involved in the energy transition. It was also an important source cited in our movement demands and investigative research, lending credibility and peer pressure to our calls on Cornell to reject carbon offsets and the broader notion of “carbon neutrality.”</p>	<p>Substantial.</p> <p>Your success in this campaign has national-headline-level impact, and puts a stake in the ground for other universities to follow suit. We would like to cite your work more directly in our ongoing campaign related to Cornell's power plant,</p>	<p>A little.</p> <p>Your success on this campaign has not influenced our work as directly as the first two campaigns as Cornell on Fire has so far devoted more time to campaigns and research focused on decarbonization and climate action plans. But fossil free research and dissociation are integral to our Demands platform and we need to educate ourselves on what you accomplished.</p>	<p>Substantial.</p> <p>We were inspired your communication announcing this win and the steps you took to get there. We are working on mobilizing Cornell's climate curriculum and hope to continue drawing on your success and insights. We note that several Cornell deans have told us that the best evidence we can give them to persuade them to take climate action is peer pressure. They want to know if other universities are doing it. Your successes at UC have considerable impact by setting a public example of a much higher bar for university climate action, and ramping up the peer pressure.</p>
Leiden University	<p>Substantial.</p> <p>We were inspired to launch a university-wide petition, with >1,200 signatures, calling for more ambitious climate action. Reduction rather than offsets was a key part of our demand.</p>	<p>None.</p> <p>Dutch universities are mostly already working on buildings and energy, so we felt our focus should lie in areas with greater room for improvement (flying, fossil ties, education). We also mostly do not generate our own energy, except with solar panels.</p>	<p>A little.</p> <p>With Scientists4Future NL, we sent a letter to all Dutch universities to start banking sustainably. Currently, we are discussing with the two green banks in NL and several university managements whether the financial products needed can be offered by green banks.</p>	<p>A little.</p> <p>This has been taken up by Scientist Rebellion, under the campaign name ‘Elephant in the Lecture Hall’.</p>

(Continued)

TABLE 2 (Continued)

University	How much impact did our wins in the UC have on your struggle for:			
	Ending Carbon Offsets	Winning Decarbonization Plans	Cutting Ties With Fossil Finance	Climate Education for All
Northwestern	Substantial. Inspired by your example we organized to gain knowledge of fossil-fuel use on campus and future planning to decrease it. A subcommittee prepared formal requests for transparency on these and related sustainability issues from the university, and that request was then taken up and passed by the faculty senate.	Substantial. We also held group meetings to develop an understanding of what changes are possible, learning from faculty who already had expertise in these areas. We explored parking-lot solar, green roofs, deep lake water cooling, district energy, compressed air energy storage, and other electrification steps. We have been gathering information about decisions related to our co-gen utility plant and university plans. We also realize that electrification will also require cleaner energy from Illinois energy companies in tandem with a greener plan at Northwestern.	A little.	A little.
University of Witwatersrand	Substantial. It inspired us to galvanise a group of concerned academics to put more pressure on our institution. We have seen some significant movement from management in response.	A little. Haven't yet looked at details of UCSD wins.	None. We have been more concerned with campus energy and water use than with divestment.	None. While we now have climate education for all at Wits, this was developed independently.

In August 2024 we sent out a survey to about a dozen universities where we had made presentations or with whom we'd been in contact. We asked respondents to indicate the level of impact our four campaigns had on a three-point scale (None, A little, Substantial), and also to write out any comments. We received responses from six universities. We intend these data as an anecdotal rather than scientific/generalizable picture of our influence and the wider issues encountered by other schools. All participants gave assent under a UCSD IRB Exempt Protocol to the senior author, #809500.

two-prong approach to be a source of tension; for us, it was a strength. For example, in the mid-1990s, ACT UP, the AIDS Coalition To Unleash Power, split bitterly into two (Specter, 2021). On the one side were the vanguardists who wanted to push for systemic change to the American medical system; on the other side were the reformists who preferred to discuss virology with public health officials. The two sides could not agree on goals or tactics, and eventually the more reformist faction left ACT UP to form the Treatment Action Group. The UCSD GND was founded with two corresponding sides in place from the start: on the one hand, an activist organization made up of students, faculty and staff and on the other, senate faculty members who subsequently ushered in an Academic Senate committee. Whenever the administration felt the moral pressure of student demonstrations, the UCSD Academic Senate CCCC was ready to propose an institutional reform, and the combination proved to be a powerful force. The activists also worked effectively with other inside-players including within the local and systemwide administration (including some sustainability officers), faculty senates and other bodies throughout the 10 campuses. At times, we engaged in effective coalition-building, as when we got UC unions representing over 50,000 workers to support our 2020 Energy System Petition that kicked off the decarbonization campaign.

Looking back, if we could do anything differently, we would have centered training programs for activism, organizing and leadership in the core of our mission. We instead took the approach of creating opportunities by *doing*. While this worked very well for some people, many others left us after one or two meetings, because they could not

see what to do, how to do it, or perhaps why it mattered. In brief, it was difficult for us to develop the internal capacity to draw new people into a team and equip them with the relevant skills on the front-end. The 10 campus organizing effort was even more challenging in terms of recruiting and retaining student activists, partly because of the lack of the hyper-local context and the accompanying opportunities for social interaction. Going forward, we intend to center the “Act-Recruit-Train” cycle in the trajectory of every campaign in order to help build capacity.

Beyond this, we suggest these practical recommendations for a university grassroots climate movement:

- Find experienced organizers on your campus and then build a group of committed individuals inclusive of undergraduate students, graduate students, staff, faculty, and possibly alumni and retirees
- Undertake research about (a) the state of climate action at your university (maintaining a skeptical eye about institutional “sustainability” and other claims until you have the full picture), (b) the key allies and holders of power so you know who to focus your campaigns on, and (c) your spectrum of possible allies so you can focus on broadening your base of support.
- Learn to play the Inside-Outside game, by identifying, meeting with and nurturing your institutional allies (especially faculty and students on key committees, and sometimes administration insiders), and, at the same time, launch highly visible and even

disruptive rallies, protests, and other public-facing campaigns that draw attention to the injustice, grow your movement and embarrass the administration with its inaction.

Conclusion

Our small group was able to fundamentally reorient the climate policy of a very large institution, train or involve dozens of students in activism, and increase belief in the efficacy of local action. Our efforts were also an inspiration to the struggles to decarbonize, divest, dissociate, and teach at other universities in the US and worldwide, and, more generally, showed how the university can be a site for new thinking and action in the climate emergency (Gardner et al., 2021; Humphreys, 2019). But for all we achieved in the way of policy changes, the UC still powers its campuses with fracked methane, takes industry money, and uses banks that support the fossil-fuel industry. Without continued pressure, it will certainly delay enacting many of the commitments that we pushed it to make. In order that our work does not end up buried in the UC's vast graveyard of unmet sustainability targets, short-lived environmental initiatives, and unenacted climate policies, we will have to keep focusing on implementation and accountability. The struggle continues!

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Written informed consent was obtained from the individual(s) for the publication of any identifiable images or data included in this article.

Author contributions

MN: Writing – original draft, Writing – review & editing. CG: Writing – original draft, Writing – review & editing. AC:

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/feduc.2025.1491439/full#supplementary-material>

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