

Submission to Select Committee on Information Integrity on Climate Change and Energy

Date: 12/09/2025

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INTRODUCTION

In September 2025, the Senate Select Committee on Information Integrity on Climate Change and Energy invited public submissions addressing the following themes for its upcoming report.

(a) the prevalence of, motivations behind and impacts of misinformation and disinformation related to climate change and energy; (b) how misinformation and disinformation related to climate change and energy is financed, produced and disseminated, including, but not limited to, understanding its impact on: (i) Australian politics, (ii) domestic and international media narratives, and (iii) Australian public policy debate and outcomes; (c) the origins, growth and prevalence of ‘astroturfing’ and its impact on public policy and debate; (d) connections between Australian organisations and international think tank and influence networks associated with the dissemination of misinformation and disinformation related to matters of public policy; (e) the role of social media, including the coordinated use of bots and trolls, messaging apps and generative artificial intelligence in facilitating the spread of misinformation and disinformation; (f) the efficacy of different parliamentary and regulatory approaches in combating misinformation and disinformation, what evidence exists and where further research is required, including through gathering global evidence; (g) the role that could be played by media literacy education, including in the school curriculum, in combating misinformation and disinformation; and (h) any other related matters.

This submission has prepared by an interdisciplinary group of academics across diverse Australian universities. We acknowledge the Aboriginal and Torres Strait Islander Traditional Custodians of the lands that we live and work on. We recognise that information integrity on climate change and energy must protect Aboriginal and Torres Strait Islander Peoples’ sovereignty, rights, self-determination and custodial responsibilities for Country.

The authors have compiled this submission together to contribute evidence, analysis, and recommendations to the Senate Select Committee on Information Integrity on Climate Change and Energy. This submission responds directly to the Committee’s outlined themes in their terms of reference. The submission is informed by a range of academic literature and reports summarising actors, strategies and recommendations that drive climate and energy information integrity.

The authors consider this inquiry to be of critical importance because misinformation and disinformation about climate change and energy undermine democratic debate, distort public and economic policy, and delay urgent action on climate change. Undermining information integrity practices also weakens trust in institutions, divides communities, and creates significant barriers to evidence-based decision-making. Addressing these challenges is essential to protecting information integrity, strengthening democracy, social cohesion and justice, and ensuring that Australia can respond fairly and effectively to the climate crisis leaving no one behind.

Submission structure

As the underlying issues of climate and energy disinformation are complex and diverse, we discuss specific elements of climate change and information integrity under the headings below:

- Mapping climate denial and climate and energy disinformation
- Case studies based on research in Australia and internationally
- Recommendations

We recognise that the diverse climate and energy disinformation examples and strategies are intersecting and reinforcing of each other. Each section draws on academic literature and/or

relevant reports, highlighting the complexity of the issue. We conclude by listing a set of recommendations that are based on the research, international case studies or community-proposed solutions.

The key recommendations outlined in each section are summarised in the conclusion of this paper.

A. THE CLIMATE CHANGE AND ENERGY INFORMATION INTEGRITY ECOSYSTEM

1. The social psychology of climate dis- and misinformation: How intergroup competition undermines information integrity

[Addresses Terms of Reference (a), (b), (e), (f)]

This section of the submission explores the systemic nature of climate misinformation, drawing primarily on Hornsey et al.'s (2024) publication "Intergroup conflict over climate change: Problems and solutions", published in *European Journal of Social Psychology*. Hornsey et al. explain that climate misinformation cannot be understood merely as individual cognitive failures or isolated instances of false information. Rather, it emerges from systematic intergroup competition where different social, economic, and political actors deploy information strategically to advance their interests and undermine their opponents.

Social identity theory reveals that when group memberships become salient in relation to climate issues, people "heuristically accept ingroup messages as valid, moral and trustworthy, whereas outgroup messages are heuristically received with scepticism" (Hornsey et al., 2024, p.243). Collective actors do not share neutral data, but create statistics and stories that are weapons in broader intergroup contests, where the credibility of information is perceived by sources less based on its empirical accuracy than on who is communicating it and why.

The strategic deployment of climate misinformation reflects deliberate campaigns by powerful actors seeking to protect their economic and political interests. Research documents extensive efforts by fossil fuel companies to fund disinformation campaigns through think tanks and academic institutes (Brulle, 2014; Franta, 2022; Hornsey et al., 2024; Plehwe, 2014; Supran & Oreskes, 2021). These campaigns represent sophisticated attempts to manufacture scientific controversy where none exists, exploiting the media's tendency to present balanced coverage of manufactured debates.

The effectiveness of these misinformation campaigns reflects deeper intergroup dynamics that extend beyond environmental issues. Political tribalism has turned climate science into a tool for partisan identity performance (Hornsey et al., 2024). Views on climate change act as markers of political or ideological affiliation rather than being shaped by reasoning or evidence.

Populist movements also have amplified these sociopolitical divisions by exploiting anti-establishment sentiment, framing climate policies as elite conspiracies against ordinary citizens (Hornsey et al., 2024). These movements frame issues in stark good-versus-evil terms, casting 'ordinary people' as pure and moral while depicting the 'establishment' as corrupt elites. In this narrative, environmental scientists and advocates are portrayed as orchestrating complex deceptions for personal gain. Such narratives resonate because they refer to legitimate

grievances about economic inequality and political representation, even while directing or displacing anger toward inappropriate targets.

Media organisations have amplified climate misinformation through several mechanisms that arguably reflect commercial and professional incentives rather than deliberate deception (Fielding, 2023). The desire to monetise controversy creates incentives to present false balance between scientific consensus and fringe positions, while journalistic norms about covering both sides can legitimise manufactured debates. Novel contrarian claims receive coverage because they appear newsworthy, regardless of their scientific merit. These dynamics demonstrate how intergroup competition extends beyond direct adversaries to include institutions whose structural incentives make them vulnerable to manipulation by bad-faith actors. Addressing climate misinformation requires recognition that information contests reflect deeper intergroup dynamics that cannot be resolved through fact-checking alone. Transparency measures represent crucial first steps in defusing disinformation campaigns by exposing their sources and funding. Regulations requiring clear disclosure of funding sources for climate-related communications would help audiences evaluate information quality based on messenger credibility and potential conflicts of interest. The establishment of an information commissioner with authority to investigate and publicise the origins and funding of disinformation campaigns could serve as an early warning system, alerting the public to coordinated manipulation attempts before they gain traction.

However, transparency alone is insufficient given the psychological processes that make people receptive to misinformation from trusted ingroup sources while rejecting accurate information from perceived outgroups (U. K. H. Ecker et al., 2022). Effective interventions must address the underlying intergroup tensions that create fertile ground for disinformation. This requires maintaining cohesion among progressive forces while building bridges across divides through trusted messengers who can communicate climate science without triggering intergroup defensiveness (Colvin et al., 2025; Gulliver et al., 2025). Research based on the US political landscape demonstrates that conservative-credentialed messengers can effectively increase Republican acceptance of climate science (Goldberg et al., 2021, as cited in Hornsey et al., 2024), suggesting that strategic messenger selection can overcome partisan resistance.

Anti-science agenda promoted by fossil fuel interests represents a particularly concerning development that extends far beyond climate policy (Lewandowsky et al., 2025). By systematically undermining trust in scientific expertise and empirical evidence, these campaigns threaten the epistemological foundations of democratic decision-making. The anti-science coalition attracts diverse allies united not by shared positive vision but by opposition to evidence-based policy that threatens their interests or worldviews. Religious fundamentalists, political extremists, and conspiracy theorists may have different motivations for rejecting climate science, but their combined opposition creates a powerful alliance against science, democracy, justice systems and climate action.

When scientific expertise becomes politically contested, it undermines the knowledge systems necessary for innovation, productivity, and effective governance. The consequences extend beyond environmental policy to encompass public health, technological development, and economic competitiveness. Countries that maintain strong scientific institutions and evidence-based policy frameworks will gain significant advantages over those where anti-science sentiment undermines rational decision-making.

Recommendations

- **Combat the anti-science agenda** through coordinating efforts across multiple institutional domains. Educational institutions must strengthen scientific literacy while explicitly addressing the tactics used by anti-science campaigns to manipulate public opinion. Media

organisations need professional standards that resist false balance and clearly identify sources of scientific information. Regulatory frameworks should require transparency about funding sources for organisations that comment on scientific issues, particularly when they have financial interests in policy outcomes.

- **Convey the urgency of change** in a polarised context. This requires preparing for and countering bad-faith actors who spread confusion and distrust. Media regulation offers one way to curb the reach and influence of disinformation, through measures such as editorial codes of conduct, misinformation labelling, accuracy prompts in online spaces and altering social media algorithms and requesting transparency, and incentives to limit the spread of harmful content (Hornsey et al., 2024). Evidence suggests these approaches can be effective and are generally acceptable to the public (Hornsey et al., 2024). Education campaigns also play a key role by equipping people to recognise and resist falsehoods. This ‘pre-bunking’ approach trains communities to understand the tactics and intentions of those producing disinformation (Hornsey et al., 2024).
- **Defend integrity** by understanding that climate misinformation reflects broader struggles over social identity, economic interests, and political power. Technical fixes alone cannot address problems rooted in intergroup competition and strategic deception. Effective responses must combine transparency requirements, trusted messenger programs, scientific literacy education, and institutional reforms that strengthen democratic discourse while exposing and countering coordinated manipulation campaigns. Australia's capacity to address climate change depends fundamentally on maintaining social cohesion and evidence-based decision-making in the face of systematic efforts to undermine both.

2. Mapping climate and energy discourse: Australian organisations and their international networks

[Addresses Terms of Reference (b), (d)]

This analysis examines the connections between Australian organisations and international think tank and influence networks associated with climate change misinformation and disinformation, drawing primarily from Walker's (2022) comprehensive study of fossil capital's influence on Australian neoliberalism.

Jeremy Walker's (2022) chapter “Freedom to burn: Mining propaganda, fossil capital, and the Australian neoliberals” in Slobodian & Plehwe's book *Market Civilizations: Neoliberals East and South* situates Australia as a central case study of how neoliberalism has been historically intertwined with fossil fuel industries. The paper traces the evolution of a fossil–neoliberal coalition, showing how extractive corporations, political think tanks, and media empires have collaborated to obstruct climate policy, privatise energy infrastructures, and shape public opinion through propaganda. Walker shows that Australia's political economy cannot be understood solely through economic rationalism or class struggle but must also be seen as a system structurally aligned with fossil capital interests and hostile to decarbonisation.

From the early 20th century links between Standard Oil and the Mont Pelerin Society, through Rupert Murdoch's press empire, to the rise of the Institute of Public Affairs and the Centre for Independent Studies, Walker demonstrates how fossil fuel corporations and neoliberal networks cultivated influence at both national and international levels. He highlights the role of transnational think tanks like the Atlas Network, and the emergence of the Greenhouse Mafia in blocking climate policy under successive governments.

The conclusion situates this history in the context of Australia's recent crises, catastrophic bushfires, COVID-19 responses, and continued promotion of a gas-led recovery. Walker warns that the fossil–neoliberal coalition has eroded democratic accountability, undermined environmental protections, and delayed urgent climate action, threatening both democratic integrity and planetary survival.

To access additional information, see:

- Walker, J. (2022). Freedom to Burn: Mining Propaganda, Fossil Capital, and the Australian Neoliberals. In Q. Slobodian & D. Plehwe (Eds.), *Market civilizations: Neoliberals east and south* (pp. 189-220). Zone Books.
<https://doi.org/10.2307/j.ctv1vbd2mv.10><https://doi.org/10.2307/j.ctv1vbd2mv.10>
- *Climate Disinformation Database—DeSmog*. Retrieved September 2, 2025, from <https://www.desmog.com/climate-disinformation-database/>

Recommendations

- **Protect information integrity** by making think tank and media funding transparent and countering fossil-funded misinformation.
- **Reform policy influence** through mandatory disclosure of lobbyists and donations and reinforcing independent public institutions.
- **Accelerate clean energy transition** with strong investment in renewables and equitable energy policies.
- **Safeguard democracy** by protecting civil society participation and aligning national policy with global climate commitments.

B. CASE STUDIES

1. Disinformation in the City

[Addresses Terms of Reference (a), (e), (h)]

This section leans on the [*Disinformation in the City Playbook*](#) (Trijsburg et al., 2024), published by the University of Melbourne.

In an era of unprecedented information proliferation and digital connectivity, cities have emerged as critical battlegrounds in the fight against misinformation and disinformation. Local governments, as the closest level of government to the people, find themselves uniquely positioned yet particularly vulnerable to the disruptive effects of deliberately fabricated and misleading information (Trijsburg et al., 2024). The urban context presents distinct challenges that differentiate local disinformation impacts from those experienced at state or national levels, requiring tailored responses that acknowledge the unique positionality of municipal institutions and their community-embedded partners.

The complexity of urban governance extends far beyond traditional conceptualisations of local government as merely responsible for roads, rates and rubbish (Trijsburg et al., 2024). Contemporary city administrations operate across diverse policy domains including climate

change mitigation, public health emergency response, and social cohesion initiatives, creating multiple vectors through which disinformation can penetrate and disrupt municipal functioning. This expanded scope of urban governance creates unprecedented opportunities for disinformation to disrupt local government functioning, with impacts that extend from digital spaces to physical manifestations on city streets through graffiti, protest, and, in extreme cases, in various forms of social discord, unrest and even violence (Trijsburg et al., 2024). The trust-building function of local government becomes critical in this context, as "trust is paramount in countering disinformation" and requires processes that are "transparent and inclusive" (Trijsburg et al., 2024). The challenge for local institutions lies in maintaining this trust while actively combating false information that may resonate with segments of their community.

The non-partisan imperative presents particular challenges for local institutions operating in increasingly polarised political environments. Effective disinformation response "must be non-partisan to be effective," yet local governments often find themselves implementing policies that become partisan flashpoints (Trijsburg et al., 2024). This tension requires sophisticated institutional approaches that can separate factual accuracy from political positioning while maintaining democratic legitimacy.

Climate disinformation in urban contexts

Climate policy as disinformation target

Climate action initiatives at the local level represent particularly vulnerable targets for disinformation campaigns due to their visibility, community impact, and connection to broader ideological debates. Documented cases of disinformation about proposed 15-Minute Cities and efforts to reduce emissions have sparked protests across multiple continents and even led to threats against council staff in the UK, illustrating both the global coordination and local impact of climate disinformation campaigns (Trijsburg et al., 2024). In Australia, the effects are particularly evident, with a climate emergency declaration in the City of Onkaparinga (South Australia) provoking protests in council chambers and requiring staff to be evacuated for their safety (Trijsburg et al., 2024). These incidents illustrate how climate disinformation can translate from online narratives to physical disruption of democratic processes and threats to public safety.

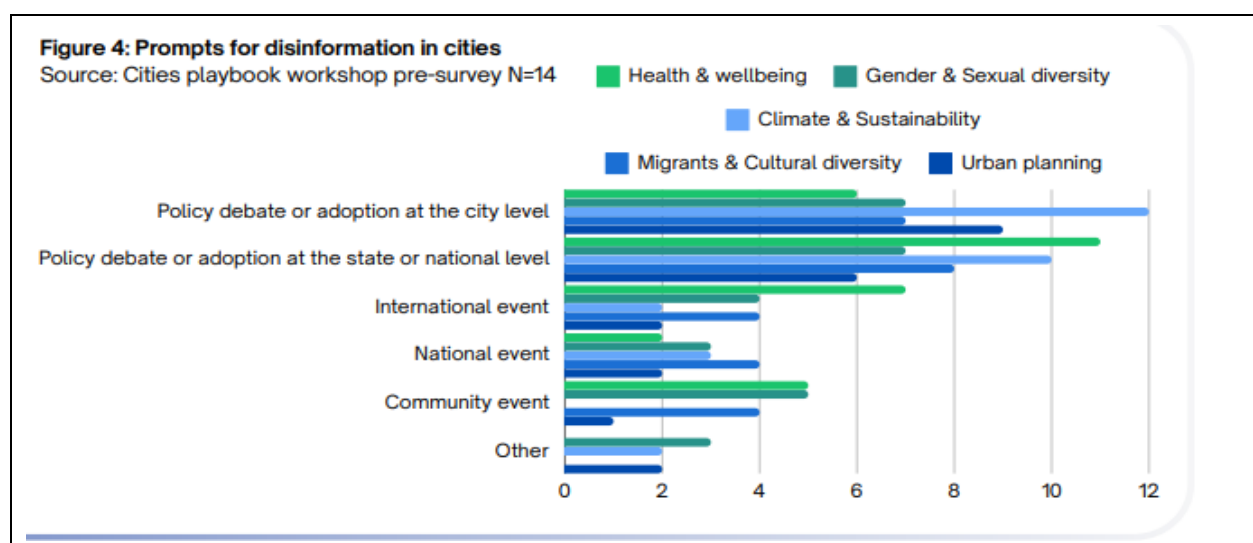


Figure 1. Prompts for disinformation in cities. Source: *Disinformation in the City Playbook* (Trijsburg et al., 2024)

Climate disinformation strategies identified by the EU DisinfoLab (as cited in Trijsburg et al., 2024) reveal the sophisticated nature of these campaigns, which employ three primary narratives: "Climate realism" positioning climate advocates as promoting "undue panic," "Climate delay" promoting "inaction through narratives of non-urgency," and "Conspiracy connections" linking "climate disinformation with broader conspiracy narratives of external technological control and the 'imposition of an apocalyptic new world.'" These narratives exploit existing community concerns about autonomy and change while undermining evidence-based policy development.

Urban vulnerability to climate disinformation

The urban context creates particular vulnerabilities to climate disinformation due to the visible and immediate nature of climate action policies. Unlike abstract national climate commitments, local climate initiatives often involve tangible changes to community infrastructure, transportation systems, and development patterns that directly affect residents' daily lives. This visibility creates multiple opportunities for disinformation campaigns to exploit community concerns about change and government overreach.

The demographic diversity of urban communities also creates multiple entry points for climate disinformation that can exploit existing community tensions. Different community groups may have varying levels of climate literacy, different cultural relationships with environmental issues, and distinct economic concerns about climate policies. Disinformation campaigns can exploit these differences to fragment community support for climate action and create opposition coalitions based on misleading information about policy impacts.

The technical complexity of many climate policies creates additional opportunities for disinformation that exploits public uncertainty about scientific and policy details. Local governments implementing climate policies may lack the communications infrastructure to effectively counter sophisticated disinformation campaigns that exploit technical complexity to create doubt and opposition.

Recommendations

The following recommendations emerge from *Disinformation in the City Playbook* (Trijsburg et al., 2024) documented evidence that climate and energy disinformation represents a fundamental challenge to democratic governance requiring coordinated institutional response. These recommendations address the urgent need to protect Australia's information integrity in climate and energy policy while enabling evidence-based decision-making processes.

- **Recognise disinformation response as a core governance function:** Governments should formally treat disinformation response as a key responsibility, acknowledging its local impacts on communities, governance structures, and city administrations.
- **Invest in disinformation response infrastructure:** Dedicated funding should support the development of specialised staff, monitoring technologies, and training programs to enable effective disinformation management.
- **Protect climate action from interference:** Evidence-based climate policies should be safeguarded through measures that prevent disinformation from undermining the implementation of climate initiatives and emerging technologies.
- **Support technology transition through information integrity:** Disinformation that blocks the adoption of sustainable technologies should be addressed through proactive education campaigns and transparent communication to promote local innovation.

- **Build community information literacy:** Investing in comprehensive information literacy initiatives enhances the community's capacity to critically evaluate information, improving overall health, wellbeing, and resilience.
- **Protect democratic leaders from targeting:** Comprehensive support systems should be provided to leaders, particularly women and underrepresented groups, who are vulnerable to the personal and psychological impacts of disinformation.
- **Strengthen social cohesion and community trust:** Community-building initiatives should be implemented to enhance social cohesion and solidarity, counteracting the divisive effects of disinformation.
- **Address economic impacts through resource allocation:** Systematic allocation of resources should account for the financial and operational costs of responding to disinformation, including security, staff time, and policy delays.
- **Protect electoral integrity:** Measures should be implemented to safeguard democratic processes and ensure robust political debate against disinformation threats.
- **Establish multi-level coordination mechanisms:** National, state, and local coordination frameworks, cross-sector partnerships, and international cooperation should be developed to address transnational disinformation and adapt to evolving tactics.

2. Petro-pedagogies

[Addresses Terms of Reference (a), (b), (g)]

Petro-pedagogies represent a sophisticated form of institutional dis- and misinformation that directly addresses Terms of Reference (a), (b), and (g) through its systematic infiltration of Australian educational systems.

Petro-pedagogy is a term coined by Canadian researchers (Eaton & Day, 2020) and is defined as:

Teaching practices and resources developed by fossil fuel companies (coal, oil and gas) for use in schools that work to centre, legitimise, and entrench a set of beliefs relating to climate change, energy, and environmentalism that align with the interests of fossil fuel companies. (p.1).

A petro-pedagogical analysis (Beardman et al., 2023) uncovers the ways that petro-pedagogies occur in schooling and other contexts by asking the following four questions of teaching practices and resources:

1. Are industry interests valorised?
2. Is life without fossil fuels framed negatively?
3. Are fossil fuels framed as compatible with environmental sustainability?
4. Are individuals positioned as the cause and/or solution?

A further question to consider is, how can school curriculum and processes be designed to enable critical thinking to enable climate and energy information integrity

This case study draws from research about fossil fuel 'philanthropy' and petro-pedagogies (Rowe & Mayes, under review; Mayes, Abhayawickrama & Rowe, in preparation) and petro-pedagogies in schools (Jones et al. 2021; Beardman et al., 2023) to demonstrate how fossil fuel corporations

systematically influence children and young peoples' conceptualisations of climate change in Australia.

Public petro-pedagogies

Research by Mayes, Abhayawickrama & Rowe (in preparation) has found that public petro-pedagogy contributes to a social licence that normalises fossil fuel overreach across entire communities. In Australia, everyday public petro-pedagogies are the mundane, sometimes seemingly banal, incursions of fossil fuel marketing and messaging into school life that can take multiple forms: socks, t-shirts, mentoring programs, cultural programs, trophies, camps, motivational speakers, and sponsoring sport teams. Fossil fuel companies are also actively involved in financing school infrastructure such as libraries, technologies, and sporting fields (Rowe & Mayes, under review).

Rowe & Mayes (under review) found that the fossil fuel industry's philanthropy was primarily targeted at schools in mining communities and mining towns: overwhelmingly public schools which have been disadvantaged because of government underfunding. The fossil fuel industry receives significant subsidies from the government; their funding has increased in the last few years, while funding of public schools has steadily declined.

When schools and community groups accept this funding, they take up the requirements of the giver, constraining the capacity of schools, communities and young people to critically examine or challenge the industry; the Climate Justice Union have reported how schools receiving mining gift-giving and sponsoring have blocked, threatened or discouraged students from protesting and striking against climate change (Climate Justice Union, 2024).

Such everyday experiences work as a form of pedagogical grooming of children and young people: it functions to socialise young people in these communities towards taking for granted the ongoing role of fossil fuels in their daily lives and futures; orients young people towards unproblematised mining careers, and constrains their vision away from critically imagining what alternative energy futures for their communities might look like and reproducing petronormativity.

Such imaginaries are counter to the notion of 'culturally nourishing pedagogies' (Lowe, Weuffen, Woods, Burgess, & Vass, 2024) and curricular justice in public schools (Mills et al., 2022). Steering young people towards fossil fuelled jobs does not serve them well, in the long term, since globally, these industries must be phased out for a liveable planet (IPCC, 2023). The ongoing influence of mining companies in these schools is out of step with what many young people are calling for across the world: quality climate change education (United Nations Education Scientific and Cultural Organization (UNESCO), 2022) and governmental action on climate (Hickman, Marks, & Pihkala, 2021).

What is needed, instead of fossil fuel philanthropic funding for schools in mining communities, is adequate governmental funding to public schools, and increased transparency and regulation of the philanthropic involvement of corporate entities in public schools, and curriculum and pedagogies that prepare young people to face 'the economic, social and environmental realities of the future they will face' (McKenzie, Eaton, & Hargis, 2024)

Petro-pedagogies in Western Australian schools

This case study draws from research at Edith Cowan University's Centre for People, Place and Planet regarding petro-pedagogy in Western Australian (WA) schools (Beardman et al., 2023; Jones et al., 2021). This research informed a submission (Jones et al., 2021) made to the WA State Government's *Inquiry into Climate Action in WA Schools*

This research (Jones et al. 2021; Beardman et al. 2023) found that many of the bigger mining companies in WA, including Woodside, Santos and Chevron, have dedicated areas of their businesses responsible for designing, developing and delivering learning materials, incursions and excursions to WA schools that align with the current curriculum. Focused largely on the area of science, technology, engineering and mathematics (STEM), schools in WA have the option to engage with fossil fuel companies, free of charge, for support in the design, development and delivery of lessons across a variety of subject areas and topics, including earth sciences, geology and robotics for years K-12. Included in these learning areas are lessons on climate change and sustainability.

Researchers analysed 15 different source materials, generated by three organisations: the Energy Club of Western Australia (formerly the Petroleum Club of Western Australia), the CoRE Foundation (Centre of Resource Excellence), and Australian Earth Sciences Education (AusEarthEd), formerly Earth Sciences Western Australia (ESWA). All three organisations were formed with the explicit purpose of creating a sustainable pipeline of future talent from WA schools into the mining, oil and gas sectors. All three state on their websites that they exist to attract the next generation of workers in those three sectors and each use a range of incursions, excursions, professional development, and classroom programs to achieve this. The three organisations are funded by global fossil fuel companies, and in the case of ESWA, have expanded to include dedicated business areas responsible for designing and developing classroom materials under three different names. They are WASP (Woodside Australian Science Project), STEM Outreach, and PALMS (Primary Australian Literacy, Maths and Science).

Table 1 shares details about each organisation's purpose, how they are funded, their target audience, their reach, and the key materials generated.




 Formerly Petroleum Club of WA	 Centre of Resource Excellence	 Formerly Earth Sciences WA
FUNDED BY: Australian Gas Industry Trust, INPEX, wood., Beach Energy, Jacobs, Mitsui, Worley, Santos PURPOSE: Inspire the next generation and to promote the oil and gas industry to their future workforce. TARGET: Students Y8-10 REACH IN 2024: >1600 students from 29 schools	FUNDED BY: BHP, Chevron, Minerals Council of Australia PURPOSE: Link education, industry, community, and government (State and Federal) to meet the needs of students and deliver future sustainable workforces for Australian industry. TARGET: Students Y6-12 REACH IN 2024: 21 Schools, 40 trained educators, 1086 students via the CoRE Schools program. 70 Schools and 3465 students reached through gamification program.	FUNDED BY: Chamber of Minerals & Energy of WA, Chevron Australia, CSIRO, Sandfire, Santos 2020 (ConocoPhillips since 2012), Woodside Energy Ltd. PURPOSE: Further the recognition of earth sciences as an integral part of STEM, increase awareness of the wide range of career opportunities earth sciences provide and emphasise the importance of earth sciences in understanding contemporary issues. TARGET: Students Y1-12 REACH IN 2021-22*: 16,964 students via incursions, 139 students via field trips, 2173 educators via PD
*2024 data not available		

Table 1: Three STEM educational organisations funded by the the resources sector

Analysis of learning materials from these organisations found that petro-pedagogical discourses are deeply embedded in the WA public education system via these materials. Centrally, what emerged from the data were three themes: the consistent neoliberal framing of individuals as the cause and solution to climate change; the obscuring of the relationship between climate change and the fossil fuel industry; and an overwhelming silence on anthropogenic and fossil fuel related causes of climate change.

The study found that the dominant discourses of climate change in these documents served industry interests by depicting climate change as a natural, slow and inevitable phenomenon. In learning materials, climate change is presented to students through a lens of long geological time, focusing on the climatic change rather than the current climate crisis. For example, WASP teaching notes on climate change state: “That global climate patterns change is a given. With the exception of rare, severe changes, which cause global extinctions, most organisms have time to respond...” Western Industrialised culture, economies and industries are not mentioned, crucially neither are mining expansion and land use. Such discourses are repeated throughout learning materials.

The analysis demonstrated that the documents are silent on many issues that are central to understandings of climate change. They omit contemporary science, as many of the recommended readings for teachers are out of date and largely irrelevant. They also omit engagement with First Nations climate change ontologies which consider the earth as a living entity and humans as interconnected with Country. Climate change is figured in the abstract, without acknowledging humans as inextricably implicated in and impacted by climate change. The documents are largely silent on fossil fuel contributions to climate crisis – indeed, any engagement with the systemic impact of late capitalist, colonial and industrial epistemologies is unseen. Finally, they are unilaterally silent on systemic actions to fight climate crisis.

It’s clear from the examples given here that both the positioning of climate change in the context of geological time - as changing climate, rather than climate change - and the abstraction of the responsibility for climate change work to depoliticise climate change; to remove the imperative for action, and to remove the issue from the current time and place. What is obscured in this data is the temporal and placed-based context of climate change: an understanding of how climate change impacts on ecosystems here and now, how Western civilisation, industries including the fossil fuel industry and economies are responsible for the climate crisis. Climate change is figured as “out there” – separate and distant in both place and time from the selves and systems who climate science tells us are responsible for it. Thus, while the located context of these resources – developed and distributed in fossil-fuel-soaked WA, in the context of neoliberal epistemologies in a late capitalist society – are foregrounded via our analysis, they are obscured and absented from the materials. This stands in stark opposition to the relational, placed-based, First Nations ontologies of climate change in which damage to climate is damage to Country and resides ‘in here’ rather than ‘out there’.

A petro-pedagogical analysis of these education materials calls on policy makers, teacher education programmes and teachers to critically analyse climate change pedagogies in operation in schools, and to insist upon climate change education that is located in time and place, attends to ecosocial justice, and to invite practices that take on anticolonial, feminist protocols to climate relations.

Furthermore, if we continue to allow petro-pedagogical discourses to drive climate change education, we are preventing students from becoming critically active citizens for climate justice. We also know from a recent study by Orygen that young people’s climate distress is fuelled by systemic denial and failure to act by governments (Fava et al. 2023). Therefore, if we continue to greenhouse gaslight students, we can expect to see their mental health deteriorate and rates of eco-anxiety increase.

Cripps (2025) argues the need for climate justice education and preparing students to become climate citizens, which includes providing learners with ‘action competence’ that includes “equipping them with insight and knowledge, commitment and motivation, vision (including the ability to think creatively), real-life experience, basic social skills and the capacity for critical thinking.” Cripps highlights that students need to understand the consensus of climate science as well as the power dynamics of climate denial. There is a further need to adopt a pedagogy that is grounded in hope and transformation rather than despair (Römhild & Weik von Mossner (2025).

One such approach is ecopedagogy, which understands that 1) humans are part of natural Earth systems; 2) human actions in the Anthropocene destabilise natural systems; and 3) human needs and wants should not be viewed in isolation from considerations about how meeting human needs and wants affects the stability of natural systems and other species (Misiaszek, 2023).

Ecopedagogies matter because State governments are emboldened to deliver climate action policies that entrench neoliberal approaches to environmentalism and fail to adequately address the seriousness of the climate crisis. This is evident in WA's climate action strategy which foregrounds individual responsibility and action and erases government or fossil fuel responsibility.

Strengthening schools', teachers' and student's critical climate knowledge and action competence plays a crucial part in supporting climate and energy information integrity.

Recommendations

- **End reliance on fossil fuel philanthropy in schools**
 - Public schools, especially in mining communities, should not depend on fossil fuel industry donations for infrastructure, programs, or educational materials.
 - Instead, schools must be adequately funded by government to avoid corporate influence over education.
- **Increase transparency and regulation of relationships between fossil fuel companies and schools**
 - The philanthropic involvement of fossil fuel corporations in schools should be subject to stronger oversight and disclosure requirements.
 - Clear policies should regulate how corporate entities can engage with school systems.
- **Reform climate and energy curricula to reflect up to date climate science**
 - Curriculum should be designed to encourage critical thinking about climate change, energy, and sustainability.
 - Teaching must avoid depoliticised framings of climate change as only a natural, geological process and instead connect learning to present social, economic, and industrial realities.
- **Centre justice-oriented pedagogies in climate education**
 - Climate education should be place-based, relational, and attentive to First Nations ontologies of climate and Country.
 - Approaches should draw on anticolonial, feminist, and ecosocial justice frameworks.
- **Prepare students as climate citizens**
 - Schools should equip learners with “action competence”: knowledge of climate science, understanding of power dynamics in climate denial, social skills, and the ability to critically assess systemic causes.
 - Education should promote hope, transformation, and resilience rather than despair or resignation.
- **Support student wellbeing in a changing climate**

- Recognise that systemic denial and fossil fuel greenwashing exacerbate climate anxiety in young people.
- Honest, empowering climate education is necessary to protect students' mental health and enable constructive engagement with action for climate justice.

3. Digital campaign strategies - digital technologies, social media and AI – Learnings from Tactical Tech's Influence Project

[Addresses Terms of Reference (e), (f)]

Digital platforms have become critical battlegrounds where political and climate influence campaigns reshape public discourse. Analysis of two Tactical Tech documents, political campaigning strategies from the Berlin Campaign Conference 2024 and digital influence in climate communication, reveals convergent patterns in how systematic influence operations manipulate democratic participation through technological innovation.

Political campaigning

The Digital Influence Trends election analysis identified three dominant trends (Macintyre, 2024). TikTok emerged as critical for youth engagement, with centre-right campaigns in New Zealand and the UK achieving unprecedented success among 18-24 year olds through platform-specific authentic communication strategies. Campaigns increasingly experimented with generative AI from chatbots to synthetic videos, with concerning approaches framing deepfake technologies as tools for candidate scaling and opposition disruption. Finally, campaigns emphasised "alternative" media channels, rejecting traditional journalism for direct contact through influencers, podcasts, and WhatsApp groups while positioning candidates as "alternatives" within their own parties.

Climate communication

Digital platforms serve as both democratising tools for climate action and vehicles for systematic disinformation campaigns maintaining fossil fuel dependencies (Salinas, 2024). Fossil fuel industries developed sophisticated partnerships with platforms, influencers, and advertising networks to delay climate solutions through algorithmic amplification. The majority of climate scientists experience online abuse impacting their public engagement capacity (Salinas, 2024; Global Witness, 2023). Manipulation strategies include fake news, bots, astroturfing, shadow banning, and account suspensions designed to suppress authoritative climate voices.

Converging themes

Both domains demonstrate five critical patterns. **Platform-specific adaptation** occurs as political campaigns employ streamlined TikTok strategies whilst climate communicators navigate similar algorithmic systems enabling both action and disinformation (Salinas, 2024; Macintyre, 2024). **Synthetic media deployment** creates parallel challenges as campaigns utilise AI blurring authenticity lines whilst climate disinformation employs sophisticated manipulation techniques. **Systematic voice suppression** targets both climate scientists and political actors through coordinated harassment campaigns. **Alternative media fragmentation**

enables circumvention of journalistic oversight as political campaigns bypass traditional media whilst fossil fuel industries develop platform partnerships. **Long-term demographic targeting** recognises that early digital engagement patterns establish future influence across both electoral and climate contexts.

Recommendations

- **Transparency frameworks** should require labelling of AI-generated content with standardised disclosure formats, while regulatory approaches must address both political and climate communication based on accountability and participation principles
- **Monitoring and standards** require independent tracking systems across platforms and ethical standards for practitioners, with consequences for harassment campaigns targeting authoritative voices.
- **Information investment** needs sustained support for reliable communicators including protection from harassment, alongside public digital literacy education focusing on synthetic media detection.
- **Counter-narratives and governance** demand proactive pre-bunking strategies and platform transparency measures extending beyond traditional advertising to include organic content, ensuring visibility of targeting strategies and algorithmic amplification patterns. Current dysfunction represents systemic features requiring comprehensive frameworks addressing structural conditions enabling manipulation rather than isolated fixes.

4. Information integrity literacy

[Addresses Terms of Reference (f), (g), (h)]

There are many recommendations about “Media Literacy,” “Dis- and Misinformation Literacy” or “Digital Literacy” to counter mis- and disinformation and support informed decisions and citizen agency that can foster climate action and a just energy transition. However, we argue that literacy needs to go beyond these education efforts and suggest to build and provide critical media and information literacy that also enables citizens and communities to understand the (distorted) information landscape, which includes not only dis- and misinformation strategies, misleading communication methods, and digital tools like shadow banning, algorithms and astroturfing, but which also includes the actors, groups and networks (as presented in section A) that are paying and benefitting from distorting narratives as well as the companies and programs that are paid to enact it (as presented in section B).

Critical media literacy forms a more sophisticated approach to foster community and citizen agency over the long term, as it provides pre-bunking through information landscape mapping and engages with the questions “why?”, “who?” and “so what?” Thus, enabling the understanding of the power dynamics of climate denial as well as the consensus of climate science that enables critical thinking and action competence (Cripps, 2025). Media and information literacy also includes the understanding of how disinformation distorts community connection, relationships and trust, as well as its impact on democracy, justice and climate action.

Building community literacy can not only rely on teaching current techniques and methods, but it also requires critical thinking and an understanding of history the underlying power asymmetries

(Cripps, 2025) that always have and will shape citizens' sensemaking of the world, especially as those citizens might be policy makers, industry leaders, teachers and politicians who take decisions and actions that impact the broader society and environment.

The below section is developed based on the mis- and disinformation presentation from Dr Ullrich Ecker (2025), as well as the [Climate Conscious Media](#) section of the Climate Justice and Resilience Toolkit (2025) aiming to include the above-mentioned needs to provide a broad set of background information and methodologies to foster climate and energy information integrity literacy.

Truth determination and sophisticated strategies

While determining truth versus falsehood can be challenging, established mechanisms exist for factual accuracy through science, journalism, and legal systems. Research shows that independent fact-checkers correlate strongly with each other and politically balanced lay crowds (Allen et al., 2021).

Modern disinformation campaigns employ sophisticated strategies that extend beyond simple false statements, utilising psychological manipulation, institutional power, and systematic narrative control (*Climate Justice and Resilience Toolkit*, 2025). Key tactics include:

- **Partial truth manipulation:** Presenting selected truths while omitting crucial context (Climate Conscious Media, 2025), which can impair memory and reasoning even in subtle forms like misleading headlines (Ecker et al., 2014).
- **Emotional manipulation:** Using scapegoating, false dichotomies, and emotional language to trigger reactions rather than rational analysis (*Climate Justice and Resilience Toolkit*, 2025)
- **Credibility attacks:** Undermining messengers rather than addressing evidence substance (*Climate Justice and Resilience Toolkit*, 2025)
- **Coordinated amplification:** Using interconnected networks to create illusions of grassroots support, aiming for polarisation and confusion rather than persuasion (*Climate Justice and Resilience Toolkit*, 2025; Lewandowsky et al., 2017)
- **Digital exploitation:** Leveraging AI, bots, and algorithms to spread content at scale while capturing institutional media structures (*Climate Justice and Resilience Toolkit*, 2025)

Impact and consequences

Misinformation directly influences beliefs and reasoning, often persisting after correction in a phenomenon termed the continued influence effect (Ecker et al., 2022). Misinformation can also impact behaviours such as public health adherence and the U.S. Capitol storming, and systemically undermine democratic institutions, affecting election perceptions, institutional trust, and civic participation (Ecker et al., 2024; Ecker et al., 2024). The World Economic Forum thus identifies misinformation as the most severe short-term global risk. These impacts particularly harm marginalised communities while protecting wealthy interests (*Climate Justice and Resilience Toolkit*, 2025).

Recommendations

These recommendations offer the federal government a blueprint for establishing national standards and coordinated responses to climate misinformation, with implementation guidance for government agencies, educational institutions, and community organisations.

- **Promote and enable comprehensive fact-checking and prebunking.** This includes:
 - **Reactive debunking** with evidence presentation, logical flaw identification, and clear fact statements (Lewandowsky et al., 2020)
 - **Proactive inoculation** teaching recognition of manipulation techniques before exposure (Cook et al., 2017)
 - **Systematic fact-checking** using reliable resources like Australian Associated Press and ABC Fact Checkers (*Climate Justice and Resilience Toolkit*, 2025)

(See also *Toolbox of individual-level interventions against online misinformation*, Kozyreva et al., 2024)

- **Enable critical media and information literacy** through building:
 - Long-term education in media and information literacy with lateral reading techniques
 - Sourcing analysis using tools like Media Bias/Fact Checker to investigate ownership and conflicts of interest
 - Critical questioning: Who's behind this? What evidence exists? What's missing? What interests are served?
 - Civic online reasoning to trace funding sources and identify coordinated campaigns
- **Require platform interventions and regulation** such as:
 - Accuracy prompts, social-norm cues, and friction elements to slow sharing
 - Algorithmic transparency requirements and platform accountability measures
 - Stronger regulation of AI systems in political communication with disclosure requirements
- **Build community and institutional resilience** through:
 - Building collective capacity to identify and counter disinformation campaigns
 - Supporting diverse independent media and strengthen institutional trust through transparency
 - Boosting truthful information through science communication and credible news sources
- **Promote context-specific approaches** by:
 - Adapting solutions to local media landscapes and political cultures
 - Prioritising justice-centred approaches that protect marginalised communities systematically targeted by disinformation
 - Focusing on political polarisation, media trust, and scientific institution confidence

C. KEY RECOMMENDATIONS

The analysis presented in this submission demonstrates that climate and energy misinformation represents a systemic threat to democratic governance, evidence-based policy-making, and effective climate action in Australia. The following recommendations emerge from the documented evidence of sophisticated disinformation campaigns, institutional vulnerabilities, and successful intervention strategies. These recommendations are organised into five interconnected domains that address both immediate protective measures and long-term systemic reforms.

1. Transparency and accountability frameworks

ToR (b), (d), (e), (f)

Funding disclosure requirements

Establish comprehensive transparency measures requiring clear disclosure of funding sources for all climate-related communications, particularly from organisations commenting on scientific issues with potential financial interests in policy outcomes (Hornsey et al., 2024). This includes mandatory labelling of AI-generated content with standardised disclosure formats and regulatory approaches addressing both political and climate communication based on accountability principles (Salinas, 2024, 2024; Macintyre, 2024).

Information commissioner establishment

Create an information commissioner with authority to investigate and publicise the origins and funding of disinformation campaigns, serving as an early warning system to alert the public to coordinated manipulation attempts before they gain traction (Hornsey et al., 2024). This institutional mechanism should include independent tracking systems across platforms and enforcement of ethical standards for practitioners, with consequences for harassment campaigns targeting authoritative voices.

Platform transparency measures

Implement platform transparency requirements extending beyond traditional advertising to include organic content, ensuring visibility of targeting strategies and algorithmic amplification patterns (Salinas, 2024). These measures should address the systematic dysfunction representing structural conditions enabling manipulation rather than isolated fixes.

2. Educational and literacy interventions

ToR (g), (h), also (a), (b)

Information integrity literacy programs

Develop comprehensive Information Integrity Literacy programs that go beyond traditional media literacy to include understanding of actors, groups, and networks paying for and benefiting from distorted narratives, as well as the companies and programs paid to enact disinformation campaigns. This sophisticated approach provides pre-bunking through

information landscape mapping and engages with critical questions of "why?", "who?" and "so what?" while addressing how disinformation distorts community connection, relationships, trust, democracy, justice, and climate action.

Community capacity building

Implement comprehensive fact-checking and prebunking strategies including reactive debunking with evidence presentation and proactive inoculation teaching recognition of manipulation techniques before exposure (Ecker, 2025). Support long-term education in media and information literacy with lateral reading techniques, source analysis using tools like Media Bias/Fact Checker, and critical questioning frameworks (*Climate Justice and Resilience Toolkit*, 2025).

Educational system reforms

- ***Ending fossil fuel influence in schools***

End reliance on fossil fuel philanthropy in schools by ensuring adequate government funding, particularly for mining communities, to eliminate corporate influence over educational content and infrastructure (Cripps, 2025). Establish stronger oversight and disclosure requirements for fossil fuel corporate engagement with school systems, with clear policies regulating philanthropic relationships that may compromise educational integrity.

- ***Curriculum reform for climate literacy***

Reform climate and energy curricula to reflect current climate science through critical thinking approaches that connect learning to present social, economic, and industrial realities rather than depoliticised framings of climate change as merely geological processes. Implement curriculum designed to encourage critical analysis of climate change, energy systems, and sustainability within contemporary contexts.

- ***Justice-oriented climate education***

Centre justice-oriented pedagogies in climate education that are place-based, relational, and attentive to First Nations ontologies of climate and Country, drawing on anticolonial, feminist, and ecosocial justice frameworks. Develop approaches that honour Indigenous knowledge systems whilst connecting global climate science to local environmental and social realities.

- ***Developing climate citizenship***

Prepare students as climate citizens by equipping learners with "action competence" including knowledge of climate science consensus, understanding of power dynamics in climate denial, social skills for engagement, and critical assessment capabilities for systemic causes. Foster educational approaches that promote civic engagement and empower students to participate meaningfully in climate action and democratic processes.

- ***Supporting student wellbeing***

Support student wellbeing in a changing climate by recognising that systemic denial and fossil fuel greenwashing exacerbate climate anxiety amongst young people. Provide honest and empowering climate education that promotes hope, transformation, and resilience rather than despair or resignation, ensuring mental health considerations are integrated into climate pedagogy.

3. Institutional protection and support

ToR (a), (e), (f), (h)

Democratic leader protection

Provide comprehensive support systems for leaders, particularly women and underrepresented groups, who are vulnerable to personal and psychological impacts of disinformation targeting (Trijsburg et al., 2024). This includes recognition that the majority of climate scientists experience online abuse impacting their public engagement capacity, requiring sustained support for reliable communicators including protection from harassment (Salinas, 2024; Global Witness, 2023).

Governance infrastructure investment

Formally recognise disinformation response as a core governance function, acknowledging its local impacts on communities, governance structures, and city administrations (Trijsburg et al., 2024). Invest in dedicated funding supporting development of specialised staff, monitoring technologies, and training programs to enable effective disinformation management while establishing multi-level coordination mechanisms including national, state, and local coordination frameworks.

Media standards and regulation

Develop professional standards for media organisations that resist false balance and clearly identify sources of scientific information (Hornsey et al., 2024). Implement editorial codes of conduct, misinformation labelling, accuracy prompts in online spaces, and modifications to social media algorithms and incentives to limit harmful content spread (Bak-Coleman et al., 2022; Globig, Holtz, & Sharot, 2023; Huszár et al., 2022; Lorenz-Spreen et al., 2020; Thomas & Wahedi, 2023, as cited in Hornsey et al., 2024).

4. Strategic communication and messenger programs

ToR (a), (b), (e)

Trusted messenger networks

Develop strategic messenger selection programs utilising conservative-credentialed messengers who can effectively increase Republican acceptance of climate science without triggering intergroup defensiveness (Goldberg et al., 2021, as cited in Hornsey et al., 2024). Maintain cohesion among progressive forces while building bridges across divides through messengers who can communicate climate science effectively across partisan divisions.

Counter-narrative development

Implement proactive counter-narrative strategies that address the sophisticated nature of climate disinformation campaigns employing climate realism, climate delay, and conspiracy connections narratives (Trijsburg et al., 2024). These approaches should exploit existing community concerns about autonomy and change while undermining evidence-based policy development through pre-bunking strategies rather than reactive debunking.

Community trust building

Implement community-building initiatives enhancing social cohesion and solidarity to counteract divisive effects of disinformation (Trijsburg et al., 2024). Recognise that trust is paramount in countering disinformation and requires processes that are transparent and

inclusive, while maintaining non-partisan approaches to be effective in increasingly polarised political environments.

5. Policy and regulatory reforms

ToR (b), (c), (d), (e), (f), (h)

Climate action protection

Safeguard evidence-based climate policies through measures preventing disinformation from undermining implementation of climate initiatives and emerging technologies (Trijsburg et al., 2024). Address disinformation that blocks adoption of sustainable technologies through proactive education campaigns and transparent communication promoting local innovation while protecting electoral integrity and ensuring robust political debate.

Corporate influence limitation

Reform policy influence mechanisms by limiting corporate lobbying power and reinforcing independent public institutions (Walker, 2022). Address the fossil-neoliberal coalition that has eroded democratic accountability, undermined environmental protections, and delayed urgent climate action through systematic allocation of resources accounting for financial and operational costs of responding to disinformation.

Research and innovation support

Protect Australia's research infrastructure, university funding, and public trust in educational institutions from systematic undermining by anti-science campaigns (Hornsey et al., 2024). Maintain strong scientific institutions and evidence-based policy frameworks recognising that countries preserving these systems will gain significant advantages over those where anti-science sentiment undermines rational decision-making.

Conclusion

The interconnected nature of these recommendations requires coordinated implementation across multiple institutional domains. Priority should be given to establishing transparency frameworks and information commissioners as immediate protective measures, while simultaneously investing in long-term Information Integrity Literacy programs and institutional capacity building. The urgency of climate action demands that these recommendations be implemented rapidly and comprehensively, recognising that Australia's capacity to address climate change depends fundamentally on maintaining social cohesion and evidence-based decision-making in the face of systematic efforts to undermine both (Hornsey et al., 2024).

Success requires understanding that climate misinformation reflects broader struggles over social identity, economic interests, and political power that cannot be addressed through technical fixes alone (Hornsey et al., 2024). Effective responses must combine transparency requirements, trusted messenger programs, scientific literacy education, and institutional reforms that strengthen democratic discourse while exposing and countering coordinated manipulation campaigns designed to delay climate action and protect fossil fuel interests.

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