

ENERGY CULTURES IN TRANSITION

Guiding Concept for the Third Funding Phase 2027–2030

Schaufler Lab@TU Dresden

August 2026

INTRODUCTION

At the Schaufler Lab@TU Dresden, artists and scholars from the social sciences and humanities investigate the relations between technology, science, and society. The guiding theme for the third funding phase *Energy Cultures in Transition* responds to this nexus by focusing on the cultural dimension of energy transitions, examining their implication in aesthetic, political, ecological, economic, and socio-technological practices and systems. Situated within an engineering university, the Schaufler Lab@TU Dresden is positioned to do something rare with this theme: bring humanistic inquiry and artistic practice into direct conversation with technical and scientific disciplines on one of the most urgent questions of our time. Dresden is a particularly productive site for understanding energy as cultural, as this region is emblematic for the ways in which shifting and intersecting paradigms of energy production and consumption—from coal and uranium, to wind, solar, and the resource demands of a burgeoning digital economy—are inextricable from cultural, political, and transnational discourses around societal transformation, justice, and sustainability. Our goal in the third funding phase is to build research foundations for visions of technology, industry, and energy transition that treat environmental sustainability and democratic resilience as core values by mobilizing the critical apparatus of the humanities and social sciences for an analysis of the ways in which energy transitions are always also cultural transitions.

ENERGYCULTURES IN TRANSITION

Energy is culture. It is more than fuel in our cars or electricity in our homes; it fundamentally shapes how societies organize daily life, imagine progress, distribute power and resources, and relate to the natural world. The physical traces, infrastructures, and byproducts of modern energy regimes—from pipelines, parking lots, and mines to petrochemicals, radiation, and greenhouse gases—reshape landscapes, ecosystems, economies, and communities worldwide. Yet, they do so unevenly, with consequences that last generations and impact contemporary politics and imaginaries of energy futures. It is no coincidence that the anthropocene, perhaps the most influential interdisciplinary and socio-ecological paradigm of the 21st century, has been linked to both the rise of steam power in the 1800s and nuclear power in the 1950s. Energy makes worlds in ways that challenge traditional distinctions between nature and culture, science and the humanities. Energy transitions are therefore not merely technological problems—they are deeply cultural. Today's energy transition unfolds against a backdrop of ecological crisis, the growing power demands of digital technologies, geopolitical volatility, and persistent global inequalities. Understanding and addressing these histories and cultural interdependencies requires mapping pathways toward an energy transition attuned to the political and ecological imperatives of the present—a decidedly interdisciplinary task that calls for the full breadth of humanities and social science inquiry.

By investigating the histories, aesthetics, politics, and narratives of culturally embedded energy paradigms, we aim to connect with rapidly growing fields such as the Energy Humanities, Science and Technology Studies, and the Digital Humanities. In doing so, we seek to generate new ideas that can inform how we engineer, build, and organize contemporary life in more sustainable, democratic, and equitable ways within shifting global energy systems.

Energy Cultures in Transition positions humanities scholarship as a driver of innovation—not merely a complement to it, but a source. This may seem counterintuitive. We tend to think of technology as leading and culture as following. Yet historically, new technologies have always emerged in dialogue with—and often on the heels of—culturally produced ideas. Early concepts of electrical energy shaped how Sigmund Freud theorized the unconscious and how Santiago Ramón y Cajal envisioned neurons. Leo Szilard’s idea of nuclear chain reactions, which led to the Manhattan Project, was inspired by a science-fiction novel by H. G. Wells. The very definition of energy as the capacity to do work emerged from Victorian ideas about labor, and the rise of the steam engine was deeply entangled with the colonial slave trade. The humanities and social sciences are uniquely equipped to analyze the value systems, historical continuities, societal implications, and socio-political foundations that accompany and shape the meaning of technological change and innovation. At the same time, cultural production is always in the business of generating the ideas that make new technologies thinkable in the first place. The energy transition demands this kind of thinking now. The challenge is not only to optimize existing systems but to imagine genuinely new ones that take the full complexity of culturally and ecologically embedded energy paradigms into account. That shift is cultural work. What is needed is both a critical analysis of how we got here and new visions of where we want to go. It requires reflection on new narratives, new values, and new visions of the good life and a thriving economy that might guide contemporary societies beyond unsustainable energy paradigms of the past.

RESEARCH DIRECTIONS

The following interrelated themes serve as an orientation for possible research directions during the third phase of the Schaufler Lab. They are envisioned as interdisciplinary and dynamic to ensure the possible participation of a broad number of fields such as: political science, education, sociology, literary and cultural studies, art history, and communication studies.

Energy Cultures and Politics

Energy systems do not just power economies—both globally and locally they shape and are shaped by politics. Every major energy source carries a cultural history, bound up with power struggles, structural inequalities, and the formation of political identities. Oil and gas continue to fuel wars and imperial desires, while the global turn to so-called green energy has opened up new frontlines of resource extraction and pollution that recapitulates colonial histories. American access to Middle Eastern oil gave rise to an era of suburban expansion, big cars, and a consumer lifestyle equated with freedom and democracy that also shaped hegemonic gender roles. Europe’s Green parties emerged from a reckoning with nuclear disaster and the climate justice movements of the twenty-first century have rallied around a ban of fossil fuels.

Every energy transition tests democratic institutions and is shaped by struggles over meaning and power. Renewable energy has become a flashpoint for right-wing resistance, climate denial, and cultural backlash against perceived threats to established ways of life. Yet this same moment has

generated new forms of collective action, alternative visions of governance, and renewed imagination about what a just and sustainable future might look like. Understanding energy as culture means asking a fundamental question: which energy systems and economies strengthen democracy, and which erode it? How do struggles over energy shape what we can imagine—about justice, inclusion, and sustainability? The answers will determine not only our climate future but our political one.

Energy Cultures and Knowledge

Energy cultures are closely linked to how knowledge about the world is produced, communicated, and valued. For example, fossil fuel extraction is inextricable from the earth sciences that mapped geological strata for exploration. The same sciences, in turn, discovered climate change in the 20th century through new sensing technologies and modes of data visualization. In the age of AI, our ways of knowing are increasingly shaped by abstract models inside the technological blackbox whose inner workings remain obscure, raising fundamental questions about access and accountability. The way worlds are represented in energy systems and their corresponding models is never neutral, nor complete: the communication of data, graphs, scenarios, and projections is always shaped by narratives about what is possible, desirable, negligible, or inevitable. As such energy cultures come with specific media ecologies and communication practices that have historically privileged technical and economic expertise, often marginalizing local, experiential, cultural, Indigenous, or historically situated knowledge practices.

Moving beyond established energy regimes requires new forms of knowledge and communication that connect energy entanglements to everyday life, cultural meaning, and ecological limits, and that make complex energy relations understandable, tangible, and accessible. Negotiating energy cultures thus involves questions about whose knowledge counts, how uncertainties are represented, and how different forms of expertise, storytelling, and lived experience can be brought into dialogue. Attending to energy cultures and knowledge makes visible that energy transitions are not just technological challenges, but collective processes of learning, interpretation, and imagination.

Energy Cultures and Education

Education plays a central role in shaping energy cultures by fostering the affective and cognitive capacities, promoting diverse knowledge practices, and developing the critical competencies required to take agency in societal transformation processes, both institutionally and individually. As energy transitions challenge deeply embedded habits, values, and imaginaries, we need innovative educational formats that go beyond the transmission of technical knowledge. Holistic approaches to energy education such as transformative education, education for sustainable development, political education, and aesthetic education emphasize critical reflection, participation, epistemic flexibility, tolerance for complexity, and the capacity to imagine alternative futures. In this sense education about the history and present of energy transitions requires technical and scientific literacy, but also environmental, democratic, and future literacy to understand how energy systems shape not only societies at large, but also embodied socio-ecological relations, and site-specific inequalities. This might entail experimentation with new methodologies that draw on modes of speculative worldmaking to explore how different energy futures might be lived, felt, and organized.

Education is crucial because energy transitions are not only matters of infrastructure and policy, but of learning and empowerment: learning to recognize historical continuities and ruptures, to

interrogate dominant narratives of progress, and to develop shared orientations toward more just, democratic, and ecologically sustainable ways of living. A critical component therefore of the Kolleg is to experiment with, explore, and develop new pedagogies for energy transition based in humanities and social science research.

Energy Cultures and Aesthetics

Energy cultures shape not only infrastructure and the built environment but also the ways we perceive, sense, narrate, represent, and imagine our relations to the world. Engineers, designers, and artists all participate in the aesthetic production of particular energy regimes—from the sooty atmospheres of coal, to the hum and glare of electricity, the industrial architecture, urban designs, plastic comfort, and extractive wastelands of petromodernity, and the eco-technological utopias of the solar age. Aesthetic practice translates energy into cultural production, shaping not only what is considered beautiful or desirable at a given time but also how societies envision, accept, or resist shifts in collective relations to energy systems. As such, the aesthetics of energy are linked to specific forms of affect, perception, and emotional attachment—from fossil nostalgia to techno-utopianism and ecological grief. Whether through science fiction and poetry or photography, industrial design, painting, installation, performance, and film, cultural production reflects the energy relations of particular historical moments and provides a rich archive for examining the desires, fears, and values attached to specific energy paradigms over time. At the same time, literature and art can produce estrangement and perceptual shifts that draw attention to the fault lines, opacities, and social tensions of modern energy cultures. Creative and speculative practices—whether in the service of art, politics, or industry—invite us to sense the textures, atmospheres, and rhythms of energy histories and futures, prompting critical reflection on the cultural consequences and unconscious patterns of energy entanglements in the present.

SCHAUFLENER RESIDENCY@TU Dresden: Artistic Research on Energy Cultures in Transition

Artistic research and research-based artistic practice offer distinctive aesthetic and experimental approaches to the cultural, material, political, and social dimensions of energy transitions within the framework of the guiding theme Energy Cultures in Transition. The point of departure is the academic framework developed by the Schaufler Kolleg@TU Dresden.

Current debates at the intersection of art, environment, and ecology demonstrate that even seemingly immaterial cultural practices depend on material and energy-intensive conditions. Digital images, data flows, and media infrastructures generate considerable ecological impacts; their global use has long become a significant factor in energy consumption. Concepts such as the “ecology of images” (Bildökologie) formulated by Michael Klippahhn-Karge draw attention to the fact that visual culture is inseparably entangled with resource consumption, technological infrastructures, and global energy flows. Artworks must therefore also be understood as material actors within ecological and economic systems.

The Schaufler Residency@TU Dresden takes up this shift in perspective and understands artistic practice as a mode of inquiry capable of rendering the often invisible conditions of cultural production perceptible. Artistic research can make energy dependencies and infrastructural networks visible, translate abstract systems into sensory experience, and open up new ways of perceiving complex processes of transformation. Against the backdrop of current climate crises, geopolitical tensions, and growing resource scarcity, questions concerning the cultural meanings and political implications of

energy have acquired particular urgency. In this sense, the Residency engages with a growing international field of research that brings together art history, environmental research, and cultural studies, and understands ecological and energy-political questions as central challenges for contemporary art and theory.

University Teaching and Research Collections and the Material Cultures of Energy

A distinctive feature of the Artist-in-Residence programme is its engagement with the university's **teaching and research collections** managed by the Office for Academic Heritage (Kustodie). As material archives of knowledge, they enable forms of research and artistic engagement that interweave technological developments, scientific practices, and cultural meaning-making. The collections thus function as an interface between past and future—between the material history of industrial energy systems and the speculative imagination of possible future energy cultures or fictional models of society.

Energy Transition as a Space of Public Engagement

At the same time, the Residency is explicitly conceived as a space for public engagement. Exhibitions, workshops, teaching formats, and established collaborations with the academic community at TUD and within DRESDEN-concept e. V., the Dresden University of Fine Arts, Filmfest Dresden, as well as institutional and independent art spaces across the city enable artistic research to engage continuously with broader societal contexts.

The programme also seeks to involve regional sites of transformation, particularly Lusatia as a European region undergoing profound changes in energy policy and society. In this context, there are potential points of connection with current TUD research and infrastructure projects in the region. These include the Smart Mobility Lab near Hoyerswerda, where automated and connected mobility solutions are being investigated, as well as the aforementioned Research Center for Greenhouse Gas-Neutral Circular Economy (CircEcon), which develops new approaches to resource use and industrial transformation. The establishment of the German Center for Astrophysics (DZA) in Lusatia likewise opens up possibilities for interdisciplinary collaboration at the intersection of fundamental research, technological infrastructure, and regional transformation.

Depending on the thematic orientation of individual artistic projects, such initiatives may serve as potential partners for collaboration and exchange within the Residency. The Schaufler Residency@TU Dresden thus understands itself as a place where art, science, and society enter into productive exchange: as a laboratory for new ways of perceiving energy, a space for critically reflecting on existing infrastructures, and a platform for imagining future forms of life and knowledge in an age of ecological and political transformation.

POSSIBLE COOPERATION PARTNERS

In our workplans we hope to collaborate with other initiatives, internally, nationally, and globally to promote humanities and social science perspectives on energy transitions. Linking up with the preparation of the third funding phase, the current Schaufler Team is co-organizing *Petrocultures 2026: Situating Energy*, the biennial conference of the largest international research community on the Energy Humanities to be hosted at TUD in August 2026, which is designed to establish and develop our humanities research networks on energy transition. In addition to the STEM partners mentioned above, we are building on emerging and established initiatives and networks **within the School of**

Humanities and Social Sciences linked to the Profile Area “Disruption and Resilience of Democracies,” especially with a focus on societal transformation and energy transitions in the region, such as the network Transformation Ost, TUD Campus Lausitz, the BMBF Research Project REXKLIMA on right-wing extremism and climate denialism, and Dresden Concept (esp. DHMD, TSD, IöR).

As **non-academic partners** we also hope to involve the Stadtwerke Dresden, Sachsen Energie, the Energy Museum of Drewag (KraftWerk, reopening 2026), the post-industrial museum E-Werk Luckenwalde (exchange already initiated in second funding phase), Kraftwerk Schwarze Pumpe, and the Center of International Environmental Law Berlin (collaboration already initiated in the context of *Petrocultures 2026*).

Academic partnerships are planned with the European Just Transition Center at the University of Halle (cooperation already initiated in the context of *Petrocultures 2026*), the Max-Planck-Institute of Geoanthropology in Jena with a focus on the anthropocene and an ongoing public workshop series on post-mining (already in conversation), the RIFS Research Institute for Sustainability at the Helmholtz Center Potsdam, the Rachel Carson Center for Environmental Humanities at LMU Munich (already in conversation), the Climate, Environment, and Resources Center at the Karlsruhe Institute of Technology, and TU Munich’s Science and Technology Studies Program.

Strategic global partnerships could include Arizona State University’s Center for Energy and Society, Warwick University’s research focus on sustainability, energy transition, and environmental humanities, the University of Alberta’s Center on Energy Humanities, and the National University of Singapore’s Asia Research Institute on Future Urbanism and Sustainability.

These collaborations will also aid in placing students in research settings, and in ensuring that the lab has future impacts and informs institutional changes at the university level in terms of introducing important new fields and formats of interdisciplinary study and pioneering a path towards a future energy humanities (and humanity!).