



# Deconstructing facts and frames in energy research: Maxims for evaluating contentious problems



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## HIGHLIGHTS

- Assumptions and values can play a combative, corrosive role in the generation of objective energy analysis.
- Decisions in energy are justified by, if not predicated on, beliefs.
- We propose six maxims for energy analysts and researcher.

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## ABSTRACT

In this article, we argue that assumptions and values can play a combative, corrosive role in the generation of objective energy analysis. We then propose six maxims for energy analysts and researchers. Our maxim of information asks readers to keep up to date on trends in energy resources and technology. Our maxim of inclusivity asks readers to involve citizens and other public actors more in energy decisions. Our maxim of symmetry asks readers to keep their analysis of energy technologies centered always on both technology and society. Our maxim of reflexivity asks readers to be self-aware of one's assumptions. Our maxim of prudence asks readers to make energy decisions that are ethical or at least informed. Our maxim of agnosticism asks readers to look beyond a given energy technology to the services it provides and recognize that many systems can provide a desired service. We conclude that decisions in energy are justified by, if not predicated on, beliefs—beliefs which may or may not be supported by objective data, constantly blurring the line between fact, fiction, and frames.

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## 1. Introduction

Conflicts in the domain of energy and climate are not primarily due to lack of scientific facts or objective truth. Instead, they are more due to a clash of priorities, interests, and normative assumptions which create a number of subjective truths. At times such contention can be the result of incomplete or confusing data. In other cases, they may arise from the vested interests a particular actor has in a given energy system. In still other cases, fundamentally divergent values may be the culprit.

Consider three examples. In 2009, at the Fifteenth Session of

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the Conference of Parties to the United Nations Framework Convention on Climate Change (COP15), where global lawmakers met to hammer out an international climate change treaty, they rented 1200 limousines, Copenhagen's Kastrup airport saw 140 extra private jets, and menus at the conference featured fish, scallops, caviar, and *foie gras*. By the end of the eleven day conference, more than 41,000 t of carbon dioxide equivalent had been emitted (Gilligan, 2009). A few years later in 2012, when the U.S. Environmental Protection Agency withheld permits for coal mines, tightened pollution controls for coal-fired power plants, and backed legislation that would place a price on greenhouse gas emissions, ten counties voiced their disapproval for President Obama, who they blamed for the decision, by voting for Keith Judd, a convict serving a 17 year sentence for extortion in the Correctional Institution in Texarkana. This, in essence, meant that to many West Virginians President Obama had become so unpopular due to his actions phasing out coal that a convicted felon seemed a better choice to them for president (The Economist,

**Table 1**  
Eight competing energy “Frames”.  
Source: Authors

Frame	Explanation	Key proponents	Mode of valuation for energy resources	Focus of concerns
Technological optimists	Energy is merely a property of heat, motion, and electrical potential. We can design various technologies to provide it and to repair whatever damage is done.	Physicists, scientists, engineers, some politicians	Efficiency	Inefficiency and entropy, environmental restrictions on expanded supply
Free market libertarians	Energy is a commodity, or collection of commodities such as electricity, coal, oil, and natural gas. It is best managed by the free market.	Economists, financiers, some politicians	Price	Cartels and inefficient economic behavior; energy problems arise not as the result of imminent depletion of domestic or foreign reserves, but from government policy errors exacerbated by the cartel-like actions of oil producing nations
Defenders of national security	Energy supply is a strategic resource that must be defended militarily.	Security experts, defense analysts, political scientists, some politicians	Energy access and geopolitical stability	Uneven geographical concentration of energy resources, political instability of producing and consuming countries, and declining availability of fuel substitutes
Energy philanthropists	Energy services are a fundamental human right.	Nongovernmental organizations, aid groups, economic development theorists	Equity, empowerment	Indoor air pollution, inequality, and poverty
Environmental preservationists	Energy production and distribution can be an environmental bane.	Environmentalists, consumer and public interest organizations, affluent households, some (green) politicians	Environmental footprint	Over-consumption of energy, rapid depletion of natural resources, global climate change, and other externalities
Justice advocates	Energy decisions must respect free, prior, informed consent, and be equitable in their distribution of costs and benefits	Lawyers, ethicists, philosophers, some politicians	Equity, transparency	Unfair or inequitable energy planning, forced relocation of communities living near energy infrastructure
Neo-Marxists	The global energy system exploits class inequality.	Activists, socialists, unions, labor economists and political ecologists	Access especially by class	Concentration of wealth, unfettered growth and expansion at the expense of communities and the environment, centralization and consolidation; labor relations
Conscientious consumers	We consume energy to affirm, or even realize, our social values and lifestyles.	Anthropologists, psychologists, sociologists, behavioral economists	Convenience, cleanliness, and price	Energy illiteracy, incompatible or unsustainable values

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