The Truth’s Advocate:  
Deconstructing Environmental Policy Claims  
in a Post-Truth World

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**Devil's Advocate noun** [Latin *advocatus diaboli*] one who urges the devil's plea against the canonization of a saint, or in opposition to the honouring of any one; hence, one who advocates the contrary or wrong side, or injures a cause by his advocacy.

Oxford English Dictionary

**Truth’s Advocate noun** [Latin *advocatus veritas*] one who challenges a claim about a matter of public policy, not to advance a particular point of view, but to test the degree to which the claim provides a reliable and compelling basis for or against taking policy action.

As defined herein
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1 This document is a work in progress. Comments are welcome at linquit@gwu.edu. Thanks to Mark Hadley, Peter Fontaine, Theresa Gullo, and numerous GW students for comments on earlier drafts.
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It’s not hard to find a heated debate about how to manage some part of the world’s natural and environmental resources: climate change, oil pipelines, de-forestation, dying coral reefs, biodiversity, sea level rise, fracking, dead zones and oil spills in the Gulf of Mexico, and “green” everything – buildings, cars, products, infrastructure, governments, companies, and lifestyles.

The list is nearly endless and the stakes – the fate of our grandchildren and our duty as planetary stewards – seem sky high. On the other hand, depending on who you listen to, environmental regulations might be little more than economy-strangling job killers, and a move away from fossil fuels might do nothing but keep billions of people mired in poverty.

The Oxford Dictionaries named “post-truth” as their 2016 International Word of the Year. An adjective, post-truth is defined as “relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief.”b The Oxford editors cite the UK Brexit vote and the US Presidential election as cases in point. But we don’t have to look very far in the environmental arena to find similar examples.

➢ Are trains carrying coal to power plants really “death trains” as NASA scientist Jim Hansen called them?c Did he intentionally invoke imagery of the Holocaust?
➢ Is Senator Inhofe – who brought a snowball to the Senate floor to prove his point – correct that climate change is a “hoax”d or is this just his way of saying it’s too expensive to do something about it?
➢ How about the Dakota Access Pipeline? Congressman Cramer argued for its quick completion, attributing delays to an Obama “White House that does not see itself bound by the rule of law.”e
➢ On the other hand, Robert Kennedy, Jr. says that what the Pipeline builders have done “is illegal. [It’s] an environmental crime and there's [sic] real victims.”f

Who’s right? Hansen or Inhofe? Cramer or Kennedy? It’s hard to know. Untethered from sound evidence and rigorous logic, policy claims and counter-claims often become weapons where words do not mean what their plain language implies and where strong rhetoric is used to manipulate the emotions of all but the most hard-headed readers and listeners. At best, the path forward is obscured and at worst, we become too confused to do anything. As the Rand Corporation’s Michael Rich put it:
When everyone has their own facts, then nobody really has any facts at all. ... A policy debate featuring different interpretations of the same facts, that’s healthy. It promotes compromise and consensus. But a policy debate featuring opinions about opinions? Without an agreed-upon set of facts? That’s a recipe for gridlock.6

This paper is intended to help a policy analyst serve as the Truth’s Advocate, to test and evaluate environmental policy claims to understand which are worth taking seriously and which should be discarded as unhelpful. You may not always be able to discern a definitive truth, but you will get much better at spotting partial-truths and falsehoods.

By “environmental policy claim,” I simply mean a declaration about the extent of an environmental problem or the wisdom of a particular solution to it. These claims can be found just about anywhere: statements from environmental and industry groups, legislative proposals, editorials, think tank reports, the press, blog posts, politicians’ speeches, academic journals, or your Facebook and Twitter newsfeeds.

Claims can come from either side of an issue – a problem can be described as dire, in need of a strong response, or dismissed as unimportant, not a justification for action. So too with solutions. Some claims are strident calls for a specific policy; others paint a proposed solution as ill-advised or doomed to fail.

The idea here is to deconstruct the claim.2 If the word deconstruct seems too abstract, then think about critiquing, unpacking, breaking down, or simply evaluating the claim. If you’re into pop culture, think about “peeling the layers of an onion.” (Thanks Shrek.) The point is that you – as the Truth’s Advocate – need to critically examine all aspects of the policy claim so that you can understand what’s in it and what’s been left out, the extent to which it is supported by logic and evidence, and most importantly, the degree to which it provides a sound basis for or against taking policy action. To put it simply, you need to question everything about the claim.

By way of preview, I recommend you organize your deconstruction of an environmental policy claim around five key questions:

✔ Where should I begin?
✔ Who can I trust?
✔ Does the structure of the claim justify its conclusions?
✔ Does the evidence used in the claim support its conclusions?
✔ Does the claim demonstrate multidisciplinary systems thinking?

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2 I use “deconstruction” colloquially, to describe the process of critiquing a policy claim. I am not referring to deconstruction as developed by postmodern philosophers, like Derrida, who use it to examine philosophical and literary texts. Even a colloquial use of the term, however, invites the policy analyst to go beneath the surface of the claim to assess the strength of its analytical and evidentiary foundations.
For each of these key questions, I offer three to five specific suggestions about what to look for. I offer the rationale behind each suggestion and provide several related questions you might want to ask. Included in the conclusion is a “cheat sheet” that summarizes the entire deconstruction process on a single page.

Before diving in, I feel obligated to offer a warning. There is a lot here – literally dozens of questions, suggestions, and ideas for you to consider. Addressing them all can take substantial time and effort, even for a single policy claim. From where I sit, however, everything in this paper is important; otherwise, I wouldn’t have included it. And, unfortunately, I don’t see a way around the fact that to fully deconstruct a policy claim, you really do need to ask and answer all of the questions contained herein.

That said, my thirty-plus years of experience in environmental policy analysis also tell me that time and resource constraints will often prevent you from doing so. Such is the life of a working policy analyst. If you are time- or resource-constrained, I suggest you focus on those aspects of the claim that are most critical to the conclusions it reaches. What key assumptions, data sources, and methodological choices are driving the most important, policy-relevant, results? That’s where you want to focus your attention. Even if you can apply only some of the techniques suggested in this paper, I am confident that doing so will help you better understand the value and credibility of the policy claim you’re looking at.
Where Should You Begin?

Before you start dissecting the substance of the claim itself, it’s a good idea to set a broader context for your analysis.

*Take a Look in the Mirror*

The first place to look when you’re trying to deconstruct a policy claim is in the mirror. Ask yourself what you already believe about the topic at hand, what preconceived notions – or even outright biases – you might inadvertently bring to bear when you first look at the claim.

We are all susceptible to what experts call confirmation bias. If new information confirms something we already “know,” our analytic filters often weaken to the point where we uncritically accept the new information as valid. Or, conversely, we tend to prematurely dismiss claims that challenge our existing beliefs.

You’ll also want to watch out for mirror imaging, where we erroneously assume that the author is applying the same ways of thinking and personal experiences as our own, causing us to fundamentally misunderstand the claim. You might, for example, mistakenly, assume that the author shares your empathy for endangered species or, on the other hand, your fear of government intrusion in private land management decisions. Either way, if you’re wrong, you’re likely to seriously misunderstand the claim.

Finally, we need to separate our feelings about the author of the claim from the validity of the claim itself. Most of us can’t help ourselves: if we respect and admire someone, we take their statements more seriously. On the other hand, if we dislike someone or disapprove of their worldview, we tend to discount just about everything they say. But we need to remember that people whose values we share can say foolish things and that folks with whom we disagree may have good insights.

While we’re on the subject of self-examination, I suggest you get ready for and learn to live with cognitive dissonance – a psychologist’s term for the emotional discomfort we often experience when confronted with contradictory evidence about a particular topic or person. When it comes to proposed public policies, such contradictions abound. Why? Because virtually all proposed policies entail at least some tradeoffs; after all, if a recommended policy offers nothing but upsides, it begs the question of why it hasn’t already been implemented. In short, tradeoff-free policy proposals (all pros and no cons) are about as common as unicorns, pigs with wings, and verified Bigfoot sightings. Accordingly, the Truth’s Advocate is well advised to embrace F. Scott Fitzgerald’s observation that “the test of a first-rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function.”
Doing so may make you very uncomfortable, but reconciling two contradictory aspects of the same issue by simply dismissing one to make yourself feel better is a mistake. While it’s true, for example, that a move away from fossil fuels will mitigate climate change and create jobs in renewable energy, it is also true that global decarbonization will eliminate millions of jobs in the oil, natural gas, and coal sectors. Although many such workers may find employment in new industries, to pretend they won’t be severely affected is simply incorrect.

Along these lines, here are several questions you can ask before diving into the work of deconstructing an environmental policy claim.

- Are you reading the piece with an open mind? What if you gave the author the benefit of the doubt, and assumed they were competent, truthful, and well-intentioned? Would you view the claim differently?
- How does the piece make you feel? If you find yourself thinking, “This is exactly right – I just know it,” then you need to be on guard for confirmation bias. Make sure your reaction to the claim is based on what’s in it, not a foregone conclusion on your part.
- Can you separate your feelings about the author from your beliefs about the claim itself? Are you ready to believe that an author you trust and respect could be wrong? Or that someone you intensely dislike might be right?
- Can you accept the possibility that even though one part of the claim is sound, another part might be so weak that it is invalid?
- Are you ready to acknowledge that a policy you personally support almost certainly has at least some downsides, disadvantages, or costs?
- If you come across a compelling policy claim, only to realize that accepting its conclusions would put you at odds with friends, family, or close colleagues, would you still be willing to advocate in support of its recommendations?

If you can’t say that your reaction to the policy claim will be dictated only by the quality of the evidence and the power of the reasoning, then you will be unable to fully deconstruct it. Similarly, if you can’t psychologically accommodate potentially dissonant emotions evoked by the claim, then you won’t be able to subject it to a comprehensive critique. That’s why you should start your deconstruction of a policy claim by looking in the mirror.

Figure Out – If You Can – Exactly What the Key Words & Phrases in the Claim Mean

If you don’t speak French, it’s impossible to have an intelligent conversation with someone who speaks only French. The two of you wouldn’t use the same words to describe the same thing. A similar language barrier can lead to confusion about the meaning of a policy claim. To understand the claim, you need to think carefully about the definition of the words and phrases in it. Are they unambiguous, or subject to multiple, perhaps competing, interpretations? Sometimes by design, sometimes unintentionally, the author of a claim will use ambiguous
language that prevents you from developing a clear understanding of what they’re saying. In turn, a debate about the validity of the claim is likely to be fruitless as participants in the debate talk past one another, using the same words but meaning different things.

Consider the words of Environment America – an environmental advocacy group – about pending legislation that would “allow EPA Administrator Scott Pruitt to brazenly ignore requirements” related to the Federal rulemaking process as he revises a Clean Water Act regulation. On its face, this sentence leads to the curious conclusion that the Administrator would somehow be able to break the rules without getting into trouble. In fact, the legislation would waive the rules themselves, meaning that there would be no requirements for the Administrator to ignore. In short, the phrase “ignore requirements” is sufficiently confusing that – at least for me – it makes it hard to understand the substance of the claim itself.

On the other hand, we might look at the American Petroleum Institute’s (API) claim that “hydraulic fracturing and horizontal drilling are safely unlocking vast U.S. reserves of oil and natural gas.” In this context, what does the word “safely” actually mean? It could mean that there are never any accidents, spills, or air emissions at fracking sites, or it could mean that API has decided such events are so infrequent that they don’t render fracking “unsafe.” Though it may seem obvious, without a shared understanding of what the word “safe” means, we cannot have a debate about whether fracking is safe.

To decide if the vocabulary in the claim is clear enough to permit a meaningful analysis of its content, think about the following sorts of questions:

- Which terms and phrases in the claim drive its most important conclusions?
- Has the claim’s author made the meaning of such words and phrases clear and unambiguous, or left them vague?
- Are these terms and phrases subject to alternative interpretations that would change the fundamental conclusions of the claim?
- In the face of ambiguous language, can you at least infer a tentative definition of the key language that will let you proceed with further analysis of the claim? Or is the vocabulary so hopelessly vague that it’s not worth your time to try to go further?

Deconstructing an environmental policy claim requires that you speak the same language as the claim’s author. You don’t have to agree with how terms, words, and phrases are defined, but if you don’t clearly understand what the author means by each, then your task is akin to reading a text in a language you don’t know. (The maxim that “it’s Greek to me” comes to mind.) What’s more, identifying vague and ambiguous language in a claim and, in turn, characterizing the implications of such ambiguity for the veracity of the claim’s conclusions, can be one of the most valuable results of your efforts to deconstruct the claim.
Ask Whether You’ve Been Primed

Once you’ve decided whether the terminology in the claim is clear enough to provide an unambiguous interpretation, you’ll also want to be alert to the possibility that the claim itself is priming you to view it in a particular light. Priming refers to the process by which the early parts of a claim can – often quite subtly – affect your mood or emotions so that you interpret the claim differently than you otherwise would have.

Contrast two possible openings for a claim about climate change. In the first, the author describes an emaciated polar bear precariously perched atop a shrinking Arctic ice floe, and then goes on to argue for prompt action on climate change. In the second, the author opens with a blighted Appalachian town where hopeless, long-term unemployed coal miners have succumbed to opioid addiction; the author then argues that policies to limit coal use are ill-adviced. In both cases, you’ve been primed.

There’s nothing wrong per se with appealing to your sense of environmental stewardship nor to your sense of obligation to your fellow citizens. The trick is to recognize that such vivid appeals to emotion may color your reaction to the policy claim itself and, moreover, that the author has focused your emotions in a certain direction rather than allowing you to decide for yourself which aspects of the problem are most salient.

To understand the impact of priming on a policy claim, try asking questions like:

✓ Has the author – intentionally or not – primed the reader to view the claim in a particular way? Would a different introductory portrayal of facts and circumstances lead you to evaluate the claim differently (even though the claim itself is identical)?

✓ If so, can you step back from the priming and assess the claim in a more neutral way?

✓ Does the claim suggest actionable policy? Some analyses prime you with a compelling problem diagnosis only to offer ill-conceived solutions. Don’t let a convincing demonstration of a problem lull you into accepting a weak policy proposal.

✓ Have you been primed by something other than the claim itself? Perhaps your personal experience or beliefs, or your exposure to other policy claims, have left you predisposed to view the claim in front of you in a particular way.

Priming is a persistent threat to clear-headed policy analysis. Answering questions like those posed above will help you to identify and address the potential impact of priming on your interpretation of the policy claim you’re deconstructing.

While it’s always wise to watch out for priming by others, I do recommend a particular form of self-priming. My experience is that it pays to bring a healthy dose of skepticism to every
policy claim you encounter. Indeed, such skepticism is a defining characteristic of the Truth’s Advocate.

Your opening position should be that the claim is flawed, and that it’s up to the author to convince you otherwise. The suspicion that the author has overlooked something, has made a mistake, is biased, or is manipulating your emotions can protect you not only from being primed, but also from uncritically accepting weak evidence or unsound reasoning. A former director of the Congressional Budget Office – an organization with a well-deserved reputation for analytic integrity and top-quality policy analysis – explained that when confronted with policy claims from outside stakeholders, CBO’s default assumption is not that CBO’s position is right, but rather that the stakeholder’s position must – at least initially – be treated with skepticism.¹

Along the same lines, I once heard the director of the policy office at a big Federal agency joke that you can’t do a high-quality policy analysis unless you truly don’t care what answer you come up with. He was exaggerating only slightly. His point was that – for the Truth’s Advocate – analytic results should be driven only by reliable evidence, a sound methodology, and when necessary, reasonable assumptions, not by the preconceived notions of the analyst, by pressure from stakeholders, or because of an inability to tolerate cognitive dissonance.

Identify the Frame & Consider Alternative Frames

The systems – economic, political, cultural, scientific, and technical – in which environmental policy issues arise are complex, fluid, and difficult to pin down with certainty. And, faced by an overwhelming array of potentially relevant considerations, the author of an environmental policy claim has little choice but to develop a conceptual framework within which to present the claim. The alternative – an uncensored flow of all potentially relevant information – would result in an incoherent mess that leaves the claim’s reader completely confused.

You can think of a frame as a way for the author to decide what belongs in an analysis: which goals and objectives merit consideration, which types of evidence are acceptable, which analytic methodologies are appropriate, which forms of reasoning are persuasive, and so on.

There is nothing wrong with framing; you can’t present a policy claim without having framed it. Consider two analyses of global warming that reach similar conclusions about the need for action: the 2006 Stern Review of climate change by the UK government and Pope Francis’s 2015 Papal Encyclical. The Stern Review is framed as a cost-benefit analysis that monetizes both the impacts of climate change and of actions to mitigate it over time. The Papal Encyclical, on the other hand, frames the issue in religious and moral terms, with an emphasis on the damage to an earth system to which humanity owes an ethical duty of stewardship, and on the impacts unjustly suffered by the poor and vulnerable. When it comes to deconstructing
these two claims, it isn’t especially helpful (and perhaps not even possible) to decide which frame – cost-benefit analysis or religious-ethical argument – is the “right” frame to use.

But as the Truth’s Advocate, you should recognize that if you accept a single framing for an environmental issue, then you have limited the discussion substantially. If, for example, you come at the issue of climate change only from the perspective of the Papal Encyclical, then arguments about the correct tally of costs and benefits won’t carry much weight in the face of religious and ethical claims. Conversely, if you treat climate change as an issue to be understood only through the lens of economics, with net benefits to be maximized, then religious and ethical arguments won’t fit into the debate and are easily dismissed.

And beyond the practical matter of what’s in-bounds and out-of-bounds in the debate itself, you need to recognize the potential power of a frame to determine the audience’s reaction to the claim. Scholars have found that reframing a policy claim to reflect the moral values of its audience renders it more persuasive, irrespective of whether the audience holds liberal or conservative values. Conservatives, for example, are more apt to embrace strong environmental policies when the policy is framed as a means of restoring purity and order in the natural world while liberals seem more willing to tolerate higher levels of pollution if the polluting factory is characterized as the source of jobs that protect the economic well-being of workers. Framing built on moral claims can be especially powerful and deserves special scrutiny. To understand the impact of framing on a policy claim, try asking questions like:

- How has this claim been framed? What implicit assumptions have found their way into the analysis as a result of the framing?
- What aspects of the issue have been made irrelevant by the framing? Given the framing, what types of evidence and reasoning are rendered invalid?
- What alternative frames could have been applied? How would the use of different frames affect the conclusion of the claim?
- Are appeals to moral values included – perhaps only implicitly – in the framing? How would the claim change if it were built on an alternative set of moral values?

Framing is an inescapable part of making a policy claim. But given how important framing is, the Truth’s Advocate should never uncritically accept an author’s framing of an environmental policy claim. Answering questions like those posed above will help identify the impact of framing on the policy claim you’re deconstructing.

**Distinguish Inquiry from Advocacy**

A final, broad contextual question to ask about an environmental policy claim is whether its core purpose is a neutral exploration of all aspects of an issue or if its purpose is to persuade its audience to undertake a particular course of action. In the first case, inquiry is the goal. With an open mind, the author considers multiple points of view and all sources of evidence before
drawing conclusions. In the second case, advocacy is the purpose. Here, the author tends to emphasize only the evidence and arguments that best support their conclusion. Table 1 summarizes some of the most important differences between inquiry and advocacy.

Why do you need to determine whether you’re looking at an analysis based on inquiry or one based on advocacy? Because a well-executed analysis driven by the goal of inquiry can, standing alone, offer a sound basis for policy action. On the other hand, because the advocate wants to win the argument for a particular policy, their decisions about what to include in and what to omit from the analysis will likely reflect strategic calculations about how to raise the odds of a win. In turn, analysis motivated by advocacy always provides an incomplete basis for policy action. You will need to fill in the blanks, either with your own analysis or by using the work of other advocates with alternative points of view.3

After looking at Table 1, you may think I am being unfair to advocates, perhaps dismissing them as narrow-minded or even as analytically incompetent. Not so. Democracies are built to accommodate debate across competing points of view and the policy choices that emerge from such debates are usually seen as having been legitimated by the process. Similarly, imagine a Supreme Court case where both parties are represented by skilled counsel. We don’t expect the plaintiff’s attorney to make arguments on behalf of the defendant, or vice versa. Instead, we expect to hear the best argument from each side and count on the Justices to determine the appropriate resolution of the case.

What’s more, private inquiry – among the analyst and their colleagues and clients – is a prerequisite to strong public advocacy. The most effective advocates understand where their case is weak and where concessions can be made without fatally undermining their argument. And an open-minded policymaker, uncertain about which position to advocate, will doubtless find it valuable to privately engage in analysis-as-inquiry to better understand the full complexity of the issue and perhaps decide on a policy position to take in public.

In short, because each type of policy analysis – inquiry and advocacy – brings with it a different set of analytic issues, a failure to understand which is driving a particular claim will make it impossible for you to serve effectively as the Truth’s Advocate.

3 And, of course, even though motivated by a spirit of inquiry, a neutral analysis may also not provide a sound basis for policy action owing to data gaps, unsound reasoning, a weak methodology, or other analytic flaws.
<table>
<thead>
<tr>
<th>Table 1</th>
<th>Alternative Approaches to Policy Analysis</th>
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<td></td>
<td><strong>Advocacy</strong></td>
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<tr>
<td>Typical Starting Point</td>
<td>Preferred solution</td>
</tr>
<tr>
<td>Primary Purpose</td>
<td>Win the argument for a specific policy action; attract readers or viewers; go viral</td>
</tr>
<tr>
<td>Consideration of Options</td>
<td>Focus on a single preferred option and offer only unrealistic alternative options</td>
</tr>
<tr>
<td>Approach to Tradeoffs Across Options</td>
<td>Highlight strengths, hide weaknesses of preferred option; treat other alternatives as analytic foils to bolster case for preferred option</td>
</tr>
<tr>
<td>Use of Evidence</td>
<td>Selective: Use only evidence that best supports the argument being made</td>
</tr>
<tr>
<td>Extent of Analysis</td>
<td>Motivated by desire to win, analyst focuses only best evidence &amp; strongest logic to support the preferred option, attack other options</td>
</tr>
<tr>
<td>Approach to Uncertainty</td>
<td>Don’t admit analytic uncertainty because doing so may undermine argument</td>
</tr>
<tr>
<td>Nature of Conflict</td>
<td>Affective: Rely on intuition, emotion, ideology, symbolism; debates tend toward destructive confrontation; analyst changes view only if politically expedient</td>
</tr>
<tr>
<td>Normative Rationale</td>
<td>All stakeholders have effective advocates; all points of view have voice; clash of advocates in the marketplace of ideas uncovers all factors relevant to policy choice</td>
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Who Can you Trust?

Having understood the context for deconstructing an environmental policy claim – what perceptions you bring to the analysis, whether you’ve been primed, how the claim is framed, and whether the claim represents inquiry or advocacy, where do you turn next?

Sophisticated policy analysis can get pretty complicated. What are the risks of fracking? How do they compare to its benefits? If we reduce greenhouse gas emissions by 50% by 2050, how much will it cost and what will happen to global temperatures? Answering tough questions like these is an essential part of doing good policy analysis.

Unfortunately, few of us have the right experience and training to critically evaluate all aspects of such issues. Just like we consult a physician when dealing with a health issue, we are forced to rely on the expertise of others when we evaluate a policy claim. How can the Truth’s Advocate decide who and what to believe when they can’t be an expert in everything?

Detailed below are three suggestions for figuring out which claims to trust. In brief, you first need to assess the credibility of the author as an individual. Then, you need to evaluate the reasoning in the claim and validate the logic that drives its conclusions. Finally, you should decide whether the provided evidence provides a sufficient basis for the conclusions that are offered. The remainder of this section speaks to the credibility of the author while the next two sections address, respectively, the reasoning and the evidence in the claim.

Investigate the Author

As management guru Stephen M.R. Covey is fond of saying, trustworthiness depends on both competence and character. When it comes to competence, an author with the relevant skills and knowledge, and a deserved reputation for successfully applying their talents to difficult problems, deserves more deference than an author who does not. It is harder to get a handle on character but if you can satisfy yourself that the author consistently tends toward open-mindedness, integrity, and transparency, then they deserve a higher level of your trust.

Assessing competence and character from a distance – without personally knowing the author – can be difficult, but it’s worth a try. Start by Googling the author to figure out what academic credentials and work experience they have. Try to get a handle on their reputation – good, bad, or indifferent. Look for reviews of their earlier work and its strengths and weaknesses. Folks may find it difficult to repudiate earlier work even if new evidence suggests doing so would be wise. Similarly, if the author was part of a prior government, they may find it difficult to criticize policies they had a hand in developing. None of this information will provide definitive evidence about whether to trust an author, but it may provide needed context.
Finally, even if you decide the author is an expert in one area, be sure to confirm that the expertise matches the subject at hand. You might, for example, cast a skeptical eye on claims about the planetary dynamics of climate change made by an environmental historian or on claims about the optimal carbon tax made by a scientist trained in atmospheric chemistry.

**Check for Bias**

You can also get insight into an author’s trustworthiness by looking at the claim itself. You’re looking for indications that the expert is indeed an expert, offering advice untainted by close-mindedness, conflict of interest, or an intent to mislead. These forms of bias, if undetected, can lead you to uncritically accept a policy claim that is in fact flawed.

So, how do you detect bias? It’s not easy, since you’re not an expert in all aspects of the claim that you’re looking at. There are, however, several questions you can ask about a particular piece of analysis that may tip you off to the presence of bias.

- How does the author earn their livelihood? If their job depends on supporting the interests of their employer, it may be difficult to stake out positions contradictory to those of their employer, even if doing so is suggested by their analysis.

- Is the sponsor of the work an active participant in the policymaking process? Some think tanks, for example, work assiduously to avoid becoming involved in partisan politics while others enthusiastically engage the process. Analyses done by the latter group may be subject to political influences that don’t affect the first group.

- Does the author work in an institutional environment marked by subconscious bias of which the author may not even be aware? If the author’s colleagues represent only one academic discipline or one ideological perspective, then their work may not benefit from a robust critical review that would, in turn, improve its credibility.

- Does the author or the sponsor of the work have a personal interest in the outcome of the policy debate? If the author or their research funder is potentially a winner or loser under one of the policies being considered, it may be hard for them to set aside their economic interest and deliver an unbiased analysis.

- Does the author have a motive to be overly dramatic in their presentation? Driven by a desire for viewers, readers, ratings, or voters – and the hope of going viral – some authors may focus on telling an exciting and sensational story rather than on conveying all of the subtleties and nuances of a complex policy issue.

So, if you detect bias in an environmental policy claim, does that mean you need to disregard it entirely? No. Despite the bias, the claim may contain useful information that you are able to independently validate. The key idea here is that the Truth’s Advocate is a critical consumer of policy analysis, rather than one who accepts all arguments at face value.
Watch Out for Rhetorical Tricks

Even if you can’t identify specific biases in the policy claim, be aware that there are several ways in which an author can hide a biased perspective or some other form of weak analysis. The Truth’s Advocate is always on the lookout for tricks like these:

- Using ambiguous terminology to impede a coherent critique,
- Asserting that evidence proves a point when it does not,
- Attacking individuals rather than their ideas,
- Repeating an assertion several times and then treating it as evidence,
- Using bombast or hyperbole to silence competing points of view,
- Conflating the popularity of an idea with its validity, and
- Raising immaterial objections to others’ work to distract attention from the weakness of one’s own argument.

One other rhetorical trick deserves special mention. It’s easy to get tripped up by a claim that carelessly mixes descriptive statements about how the world actually works with normative statements about how the world ought to work. The point may seem obvious, but the policy world is filled with claims that – intentionally or otherwise – fall into this trap. Consider the following policy claim: “There is a high likelihood that global warming will melt Arctic ice to the point where polar bears are threatened with extinction, therefore, the world needs to dramatically reduce its use of fossil fuels.”

The first clause in the sentence is descriptive; we can examine the evidence and reasoning about whether and how warming may lead to the demise of the polar bear. But the second clause is a normative claim about what ought to be done; despite appearances, it does not follow directly from the descriptive claim. Deciding what to do about warming depends both on a thorough analysis of the pros and cons of alternative ways to respond to the descriptive claim and on the normative values we bring to the discussion.

In short, even if there are no signs of overt bias in the claim, the presence of any of the rhetorical tricks noted above should raise a red flag. Remember, when deciding who to trust, you are looking for a combination of competence and character. Use of these tricks suggests that the author comes up short by either (or both) standards.

Look for Humility about Uncertainty

If you listen to current policy debates, you might think that some pundits have a crystal ball with 20/20 vision. Many opinions about what will happen if a particular policy is, or is not, adopted are expressed with such force and confidence that you could be forgiven for thinking that there is no uncertainty about the future. Of course, this is not the case. If it were, all the pundits would be in Las Vegas turning their forecasting skills into gambling winnings.
Even our understanding of past events and current conditions can be subject to significant uncertainty. Data can be incomplete and key phenomena may be subject to debate, especially when it comes to the complex mix of human and natural systems in which environmental policy is implemented. Consider the evolution of mainstream climate science from early tentative work in the 1980s to today’s far more robust understanding of the mechanisms of climate change. Even now, it would be a mistake to claim that all aspects of climate change, and its effects on human and natural systems, have been fully characterized as settled science.

Even if you decide a claim accurately describes past conditions, you need to hold it to a different standard as it pivots to the future. For example, one should think differently about how to validate a claim that the atmospheric concentration of carbon dioxide last year was 400 parts per million (ppm) versus a claim that the concentration will be 500 ppm in 2100.

Be cautious when you come across an author who fails to acknowledge uncertainty or to explain the limitations of their findings. Ironically, rather than increasing your confidence in an author’s conclusions, bold statements that admit no uncertainty about current or future conditions, should immediately cause you to question the credibility of the author.

Appropriate humility about the tentative nature of most research findings is, in fact, a defining characteristic of a trustworthy analyst. Research shows that analysts who are willing to accept credible data from any source, who are ready to learn from their own mistakes, who adjust their thinking to fit new facts rather than the other way around, and who acknowledge substantial uncertainty about the future, are better able to predict future outcomes than their more closed-minded counterparts. The following questions may help you figure out whether the author of the claim you are deconstructing meets this test.

- Given the complexity of human and environmental systems, and of the causal connections among them, does the claim display appropriate humility when characterizing the uncertainties associated with current conditions?
- Does the claim recognize uncertainty about the future? Are projected outcomes qualified with explanations about how and why events might turn out differently?
- Does the author mistakenly extrapolate from a single example to argue that inherently uncertain events are in fact certain? The fact that an oil pipeline has not yet experienced a leak doesn’t mean that oil pipelines never leak nor does a leak from one pipeline mean that all other pipelines will frequently leak.
- Does the claim naively forecast future outcomes by simplistically characterizing, or even ignoring, the multiple causal factors that are likely to influence events?
- Instead of providing quantitative forecasts only as point estimates, does the claim also offer a range of potential outcomes (e.g., a best case and a worst case) to capture the uncertainty of the future? Does the claim offer what-if scenarios to help its audience understand the causal factors that may drive different outcomes?
When describing uncertainty, is the claim clear about the meaning of the vocabulary it uses? For example, is the probability of a “likely” outcome 51% or 90%? Phrases like probably will, might not, extremely unlikely, and almost certain, mean different things to different people.

In light of the inescapable uncertainty of the future, and of many current phenomena, the author of a policy claim that displays absolute, unchecked confidence in their own conclusions does not deserve the full trust of the Truth’s Advocate.
Does the Structure of the Claim Justify its Conclusions?

Having assessed the general trustworthiness of the claim’s author – by investigating their background, checking for bias, watching out for rhetorical tricks, and looking for appropriate humility about uncertainty – you are now ready to pivot to structure of the claim itself. You may not be an expert in all aspects of the claim, but if the structure of the claim is fundamentally unsound, you shouldn’t trust its conclusions.

Before getting into the details, I want to be upfront about one thing. Ideology, morality, and one’s identity and lived experience all clearly have a role to play in the policy positions that we, as citizens in a democracy, take on the issues of the day. Nonetheless, I am confident that the scientific method offers us the best way to at least provisionally assess the value of any particular policy claim, hypothesis, or finding. Accordingly, below I offer a few suggestions – grounded in the principles of inferential logic – about the characteristics of a strong policy claim. The inclusion of these characteristics doesn’t guarantee that the claim is valid, but if any are missing, the Truth’s Advocate would be wise to seriously doubt its conclusions.

Decide if the Claim is Complete

When you turn your attention to the substance of the claim itself, a good place to start is to ask whether the claim is complete. There are only two cases where you don’t have to worry about whether the claim is complete. First, if an author maintains that there is no problem in the first place (rather than arguing for or against a particular policy option), then you only need to assess the strength of the evidence and logic being offered to demonstrate the absence of a policy problem. Second, and conversely, if an author claims that a particular environmental problem demands action but doesn’t provide a policy solution, then you can limit your inquiry the nature of the problem and of its causes and consequences. But if the author is trying to make a convincing case for or against policy action, then they need to do five things.

First, the author needs to define the core problem(s) that the policy aims to address. Ideally, they will provide a sense of the magnitude of the problem and tell us whether it is getting better or worse over time. The claim should clearly explain the consequences of the problem, so that we have a good reason to care about it and can also calibrate its significance relative to all the other problems that we might want to address. The author should display a deep understanding of the problem, explaining what factors have caused it, how those factors interact to create the problem, and how they have changed over time. If the author can’t convincingly explain the causal drivers of the problem, then you should be skeptical of claims that a particular policy intervention will solve the problem.
Second, the claim should generally review a diverse set of options for addressing the problem, including making no change to current policies. If you want to mitigate a problem and minimize adverse side effects, then you should be interested in finding the best option regardless of who supports it, where it’s been tried before, or what ideology it represents. If there is a reasonable option out there, and the author fails to consider it, then you probably should not accept the recommended solution. You should also check whether each option is the strongest version of itself. You don’t want to see a promising option get discarded only because of a flaw that could easily have been addressed with a change to its proposed design.

Third, a complete analysis will apply a broad set of criteria for assessing the pros and cons of the options. A set of “off-the-shelf” criteria belong in virtually every policy analysis: efficacy (the degree to which each option addresses the core problem); cost (how much money will be spent or opportunity costs incurred, by whom, in implementing each option); administrability (how likely it is that government can successfully implement each option); and equity (the degree to which each option fosters or undermines equality, justice, and liberty across socioeconomic lines). In addition to off-the-shelf criteria, the analyst should systematically identify the potential for unintended consequences. Without a broad set of criteria, the analyst risks recommending an option which, when implemented, fails to deliver promised results.

Fourth, the author should systematically project the outcomes of each policy option and how it would fare with respect to each evaluation criterion. In reviewing the author’s analysis, we can’t forget that policy analysis is always about the future; we take a policy action today in the hope of reducing the impact of the policy problem in the future. In turn, we are forced to rely on the projected results of each policy option when trying to identify the best choice. Accordingly, the author must make a compelling case based on evidence and/or logic that their projections of the future performance of all policy options are credible. Unsubstantiated assertions about projected results should always be treated with suspicion.

Finally, a complete analysis will carefully assess the tradeoffs across the policy options. After all, if one option is so clearly superior to the rest, it begs the question of why it hasn’t been implemented already. It’s far more likely that every policy option

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A policy claim is complete if it contains...

1. a compelling problem definition,
2. a diverse set of viable policy options,
3. a broad set of criteria to surface all the pros and cons of the options,
4. a sound approach to projecting the likely outcomes of each option with respect to each criterion, and
5. a clear articulation of the tradeoffs.

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4 Even though the status quo may be less than ideal, it’s always possible that there is no public policy that can improve the situation, or at least no policy that can improve the situation without also causing other significant adverse effects.
5 For example, an air pollution policy might reduce emissions of airborne toxics by requiring that they be captured in the smokestack, in turn creating a hazardous waste with the potential to threaten land or water quality.
has both pros and cons, or more colloquially, offers both a “get” and a “give.” Often, for example, a very effective option will also come with a big price tag. In that case, the get is high efficacy while the give is the high cost. You should be skeptical of policy claims that omit a systematic tradeoff analysis across all policy options and evaluation criteria.

Of course, the simple fact that all five of these elements are present doesn’t mean the Truth’s Advocate should accept the claim as valid since it can suffer a number of other weaknesses. But if any of these elements is missing, then the policy claim does not – standing by itself – provide a sound basis for policy action.

**Look for an Appropriate Baseline**

Something that often gets lost in policy debates is the need for a consistent analytic baseline. When someone tells you that their policy proposal is the best way to tackle a problem, the first question from the Truth’s Advocate should be: Compared to what? The pros and cons – or benefits and costs – of a policy action cannot be conceptualized in the abstract, but must be compared to a suitable benchmark, or counterfactual. If you’ve ever taken a microeconomics class, you may remember the admonition to consider only marginal, and not total, cost, revenue, and utility when analyzing production and consumption decisions. The same principle is at work here. What we care about is the incremental, or marginal, difference between two states of the world: one with the new policy and one without it.

Consider the estimated impact on the coal industry of a new climate regulation. It might a reasonable forecast that, under such a regulation, there will be tens of thousands fewer jobs in coal country by, say 2025, than there are today. But without additional information, it would be a mistake to attribute the decline in coal jobs to the climate regulation. What’s missing is a baseline. We need to know what the employment situation without the regulation will likely be – not today – but in 2025. Perhaps coal jobs will decline because of automation that allows coal to be mined with fewer workers or because many power plants will switch from coal to natural gas, thanks to a steep decline in gas prices brought about by fracking technologies. If the decrease in employment is likely to occur even if the regulation is not implemented, then it doesn’t make sense to argue that the regulation is the cause of the job loss. On the other hand, of course, if a careful comparison between the likely state of the world in 2025 without the regulation and the state of the world without it (i.e., the counterfactual) indicates that employment will drop precipitously in the first case but not the second, then it would reasonable to attribute the impact to the regulation.
Baselines are not only important for thinking about the future impacts of potential policy changes, they are also indispensable when thinking about the current impacts of existing policies. Because the impact of a policy is always the difference between two states of the world, the relevant counterfactual for a current policy is what the world would have looked like in the absence of the policy. Perhaps current conditions are lousy, but without the policy, they would be horrendous. If so, the policy can be credited with at least partial effectiveness. Questions like those below can help you figure out whether the policy claim has specified an appropriate baseline.

☑ Does the claim attribute future impacts – positive or negative – to a policy change? If so, is there a credible baseline against which such impacts are measured?

☑ Does the claim make the mistake of comparing the future with the policy to the present without the policy? Remember that the appropriate comparison is between the future with the policy and the future without the policy, holding all other factors constant.

☑ Is the claim focused on the effectiveness of an existing policy? If so, does it develop a counterfactual to describe what current conditions would look like without the policy? Is this counterfactual identical to the status quo, save for the absence of the policy?

A consistent and analytically defensible baseline is a prerequisite to the careful analysis of the impacts – pro and con – of both existing and proposed policies. Without one, the claim is fundamentally flawed.

**Validate the Reasoning Used in the Claim**

Policy claims are rife with statements about causes and effects. For example, current conditions are usually first characterized as problematic and then attributed to one or more driving forces. Assertions of causality range from broad (excessive materialism among consumers leads to environmental degradation) to specific (the National Ambient Air Quality Standards caused a decline in the number of Appalachian coal jobs). They may apply to the natural world (if dissolved oxygen in water drops below 2 parts per million, all aquatic life perishes) or the economic world (widespread fracking has led to lower natural gas prices and the displacement of coal by gas in the generation of electricity).

What’s more, at the heart of every policy claim – if it is complete – are causal assertions about the future. For example, an author might claim that a carbon tax of $35 per ton of carbon dioxide will hold global warming by the end of the century to under two degrees. In such cases, the proposed policy is the cause and the claimed benefits are the effects. And, apropos of the previous discussion of the need for humility about uncertainty, claims about the future – in this case, a causal connection between a policy action today and a predicted outcome tomorrow – deserve extra scrutiny.
In short, causal reasoning is an essential part of all sound policy claims. If you want to deconstruct a claim, you need to critically examine and validate its causal reasoning.

A complete review of inferential logic is beyond the scope of this paper, but philosophers of science have pretty much agreed that for us to believe that A causes B, four conditions have to hold. First, A has to occur prior to B. Second, changes in A and B have to be correlated. Third, even if changes in A and B are correlated, we need to rule out all competing explanations of the correlation. Perhaps A and B are not connected at all, but instead are both effects of a third factor C which, when it fluctuates, creates the illusion of a relationship between A and B. Fourth, we need to have a theory about how A and B are causally related. If we can’t explain why the relationship exists, we need to be cautious about a claim built on that relationship.

What does all this have to do with good policy analysis? It’s pretty straightforward. If a claim incorrectly asserts that Problem B is the consequence of Cause A and then argues for a policy to address Cause A, we shouldn’t be surprised when the policy doesn’t solve Problem B.

Beyond flawed claims of causality, we also need to watch out for unjustified generalizations from one case to another. A common tactic to bolster a claim for a new policy is to cite examples from other situations where a similar policy has been tried and proven successful. Embedded in this generalization is a causal inference: because the policy worked in the first situation, it will work for use here in the second situation. Such an inference might be sound, but often it is not. There might have been drivers of success in the other location that are not present here, or impediments to success here, but not in the other location.

Consider a successful program in another part of the country that cleans up former industrial sites (often called brownfields) to allow redevelopment for new economic activity. We might be tempted to believe that all we need to do is replicate the program in our jurisdiction and we will then see similar success. But it could be that the program we admire is in a region with a growing economy where there are plenty of businesses looking to set up shop or expand their operations. But if our local economy is depressed, with little growth, we could clean up dozens of brownfields sites but not stimulate any additional redevelopment. In other words, reasoning by analogy only works when both situations are truly analogous.

Deciding whether an environmental policy claim is built on sound causal reasoning entails answering several questions.

- Do assertions about the causes and effects of current problems pass the tests of sound causal reasoning? If not, the recommended policy is probably aimed at the wrong target.
- Do claims about the future consequences of potential policy interventions reflect careful thinking about cause and effect relationships? If not, any improvement in the problematic condition after policy enactment will be little more than dumb luck.
✓ Has the author generalized from a successful policy in one situation to claim that the same policy will succeed in another? If so, have the contexts of the two cases been carefully characterized and found to be comparable? How might real-world differences between the two undermine success in the second case?

✓ Does the claim contain obvious errors? Internal contradictions, data tables that don’t add up, missing citations, grammar errors, and typos may indicate flawed thinking. You may think I’m being a pain in the neck, but if you can’t trust the author to proofread their work and sweat the details, why would you trust them to competently execute the analysis itself?

If key elements in a policy claim reflect flawed reasoning, then you don’t need to be an expert to know that you should discount – perhaps significantly – the conclusions of the claim.

**Watch Out for Heroic Assumptions about Implementation**

Most claims advocate a particular solution to a specific problem. The proposed solution may be a new requirement (e.g., the Clean Power Plan) or the elimination of an existing one (e.g., opening additional offshore areas to oil and gas production). The typical claim then touts the benefits that will accrue from implementation of the proposed policy change.

The Truth’s Advocate understands that reality is a bit more complicated. Even if enacted into law, words on a piece of paper – the new policy – have no effect at all on the real world; it’s only the implementation of the policy that generates tangible changes in real-world conditions. But that doesn’t stop many advocates from making the often unrealistic assumption that implementation will be smooth, fully effective, and immediate. To discern whether this is the case with the claim you are deconstructing, consider several questions.

✓ How many actors (individual agencies, levels of governments, private entities) must come into alignment to ensure effective implementation? To what degree do these actors share common interests? How likely are they to work at cross-purposes?

✓ How complex is the proposed policy? Is it similar to, and only a modest change from, the status quo? Or is it a radically new and different initiative? Policies in the latter category will face more daunting challenges during implementation.

✓ Will the new policy have sufficient human, financial, legal, and technological resources to permit its implementation as anticipated by the advocate? Might its political opponents starve it of resources to undermine its implementation?

✓ In what ways might the policy incentivize unexpected behavior by firms, individuals, and institutions? Might, for example, a prohibition on the building of an oil pipeline in one location simply lead to the construction of a pipeline in another location? Might an increase in fuel economy simply entice folks to drive longer distances?

✓ Who wins and who loses under the policy? How powerful are winners and losers? How might winners facilitate implementation? How might losers impede implementation?
✓ How realistic are assumptions about the timing of implementation? It may be easy to implement modest changes quickly. Large, complicated, or radically new approaches may take considerably longer to implement.

✓ How easy will it be to adjust the policy after gaining some implementation experience? If political, budgetary, or legal constraints mean that we’ll be stuck with whatever policy is initially enacted, implementation is likely to be less successful and we may not see all benefits claimed by the policy’s advocates.

In short, because we get only the costs and benefits – not of the words on paper – but of the policy as actually implemented, you always need to think critically about implementation when you’re deconstructing an environmental policy claim. If the claim ignores implementation, or makes heroic assumptions about the timing or likelihood of successful implementation, then its conclusions should be suspect.
Does the Evidence Used in the Claim Support its Conclusions?

So, you’ve looked for structural flaws in the policy claim that would lead you to suspect its conclusions. In particular, you’ve figured out whether the claim is complete, applies an appropriate baseline, follows sound practices for causal reasoning, and makes credible assumptions about implementation. As the Truth’s Advocate, what should you do next?

Policy analysis is not just a theoretical exercise, but an empirical one as well. The specific facts and circumstances that drive the definition of an environmental problem, and the pros and cons of potential solutions, originate in real-world conditions. Policy claims routinely offer evidence about those conditions in order to justify the conclusions that are drawn. Like a juror in a courtroom, you need to assess the credibility and reliability of the evidence presented by the policy claim. Below are suggestions for evaluating assertions about empirical realities.

Assess the Quality of the Evidence

In broad terms, you should look for reliable evidence to support all aspects of the claim. While you may not have the ability or time to completely “fact-check” all the data provided, several questions can help you get at the quality of the evidence upon which the claim relies.

✓ Does it appear that there a rigorous search for evidence? Given time and resource constraints, it’s not uncommon for policy analysts to overlook existing data, subject-matter experts, and prior analyses that could inform the claim being made. A strong analysis will always describe its methodology and data sources so that you can assess just how extensive the search for evidence has been.

✓ Does the claim make appropriate use of the evidence that is included? The misrepresentation of available evidence is a sign of a weak analysis. It’s also important that an analyst not cherry-pick the best evidence to support their position. Contradictory evidence may be annoyingly inconvenient, but it merits careful evaluation and an explanation of its implications for the analysis.

✓ Does the claim reflect historical evidence about prior efforts to address the problem? Few policy problems are truly novel. Policymakers in other jurisdictions or at other points in time may have grappled with analogous issues; their experience and the results of such efforts can yield valuable insights into the problem at hand. Look for a careful, and up-to-date, review of the historical record.

✓ If the policy claim relates to an existing program, have evaluations of that program been analyzed and reflected in the conclusions reached by the author? Program evaluation, as a discipline with its own practices and body of knowledge, is more and more frequently being applied to government programs. Such evaluations can be a rich source of evidence for policy analysts.

✓ Does the author cite credible sources for their evidence? If sources are biased, have a vested interest in the outcome of the debate, or lack appropriate expertise,
then it’s unwise to put much too stock in the claim’s conclusions. Moreover, high-
quality analysis always includes citations so that you locate the original source 
material and evaluate its reliability.

In short, unpacking the evidence offered in support of an environmental policy claim can help you decide if it rests on a sound foundation that can inform policymaking or if its conclusions should be discounted (or discarded) to account for its shortcomings.

**Pay Extra Attention to Use of Gray Literature**

The “academic literature” typically refers to work that has been reviewed, and often revised, under the direction of a journal editor – prior to publication – in a double-blind process where neither the author nor the reviewer know the other’s identity. While imperfect, the peer review process often ferrets out unfounded assumptions, incomplete data, and weak methodologies and, as a consequence, makes it much harder for bias to go undetected. Accordingly, the strongest policy claims rely on peer-reviewed literature.

Unfortunately, academic scholars tend to work slowly and methodically, focus on narrow topics of their own choosing, and often don’t tease out the practical implications of their work. Thus, the scarcity of academic literature in policy debates is an inescapable fact of life. In its place, you will often see references to the gray literature. Gray literature tends to be policy-specific and more up-to-date than the academic literature. According to the University of Vermont Libraries:

[It] refers to a wide variety of unpublished or informally published information from different groups such as professional associations, research institutes, government agencies, and non-profit organizations. It is usually difficult to track down this type of information because it is not published commercially (e.g. in a research journal), nor is it widely accessible. Gray literature comes in many different forms. Some examples include abstracts, reports, newsletters, preprints, journal supplements, working documents, theses & dissertations, clinical trials, bibliographies, book chapters, statistical documents, white papers, conference proceedings, and information communication (e.g. blogs, email, etc.).

There are two types of gray literature that you may run across when looking at environmental policy claims. The first comes from government agencies and the second comes from nongovernmental organizations (NGOs). When it comes to government agencies in the United States, gray literature is produced by:

- Executive Branch agencies (like the Agency for Healthcare Research and Quality, Bureau of Labor Statistics, Census Bureau, Energy Information Administration, National Aeronautics and Space Administration, and U.S. Geological Survey);

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6 In the spirit of full disclosure, you should know that this document has itself not been peer-reviewed. I’ve discussed it with colleagues and incorporated some suggestions, but it has not been through a formal review process.
Congressional Agencies (like the Congressional Budget Office, Congressional Research Service, and Government Accountability Office); and

State Agencies (like the California Legislative Analyst’s Office and the New York City Office of Management & Budget).

In addition, the Federal Reserve Board – not formally part of either the Executive or Legislative Branches – compiles statistics and does analyses of a wide range of topics related to the nation’s economy.

Much of the gray literature produced by government agencies is of very high quality. These agencies are often subject to statutory and other mandates that set standards for how data are to be collected and analyzed. The Executive Branch programs in the Federal Statistical System, for example, operate under Statistical Policy Directives issued by the Office of Management and Budget that dictate best practices and additional quality control measures.

In other cases, agencies are not subject to specific mandates and have more latitude to design and execute analyses that result in publication of gray literature. These analyses may originate in a legislative request from Congress, or may be initiated at the behest of political appointees in the Executive Branch. Data and methodologies are usually then developed on a case-by-case basis. In turn, a case-by-case evaluation is needed to assess the quality of the work, and the validity of the conclusions, in this type of gray literature.

When it comes to nongovernmental organizations, gray literature is produced by organizations such as:

- Think Tanks (like the Brookings Institution, the American Enterprise Institute, and Resources for the Future),
- Foundations (like the Pew Charitable Trusts and the Rockefeller Foundation),
- the National Academies of Science (including the National Research Council),
- International Institutions (like the World Bank and the United Nations Environment Program), and
- Advocacy groups from across the ideological and economic spectrum.

Deciding whether to trust findings presented by NGOs in the gray literature requires due diligence on your part. Many think tanks, foundations, and other NGOs subject their analytic work to a pre-publication peer review. Even if there is not an external peer review process, many such organizations have established transparent procedures for data collection and analysis that enhance the credibility of their findings.

A quick note on think tanks: you will find that many of them characterize their orientation toward public policy with words like conservative, progressive, libertarian, or pragmatic. Such characterizations may have little bearing on the quality of the analytic work, but they are a tip-off about how issues will be framed and the set of policy solutions that will be considered.
Deconstructing a policy claim requires that you look at it from multiple perspectives and question its framing. Relying on the work of only one think tank with a particular worldview is thus ill-advised. Seek out work done by other institutions that see the world through different lenses. Even if you end up deciding that one think tank has it “right,” the simple process of comparing them will give you a deeper understanding of the issue.

On the other hand, gray literature is sometimes so flawed that it offers a weak foundation for a policy claim. Shoddy work by an inept analyst can be relatively easy to detect, but given the frequent weaponization of policy analysis, you – as the Truth’s Advocate – should be very cautious when looking at work published by advocacy groups. These groups intentionally abandon the goal of neutrality, often without acknowledging that they have done so. Strong writing, an abundance of facts and figures, a polished presentation, and perhaps an impressive website may camouflage a one-sided analysis intended only to achieve a political win. And don’t rely on the name alone to decide whether to trust a particular source. Advocacy groups often give themselves innocuous names to convey an aura of public service, even though they may represent a very narrow vested interest.

**Don’t Trust Your Newsfeed**

In general, it is also a bad idea to rely on social media when trying to deconstruct an environmental policy claim. During the 2016 U.S. election cycle, there were dozens of blatant falsehoods that circulated widely on social media. But given its ubiquity and the fact that academic researchers, think tanks, advocacy groups, and government agencies all take to social media to tout their latest findings, it can be impossible to escape. So, how should you think about policy claims found on social media, or more broadly, on the internet?

- There is no harm in using a tweet or a Facebook post to broaden your thinking about an issue; after all, you should always keep an open mind about new ideas regardless of where they originate.
- But you should never form a definitive opinion about anything based solely on social media. Drill down to the original source and subject that source – not the tweets about it nor the comments when it is shared – to critical review.
- When you find seemingly useful information on a website you’re unfamiliar with, check it out carefully. Click on the “About” link. Try to figure out who funds the site. Take a look at its mission; many advocacy groups are clear about who they represent. Look also for specific, named individuals who are responsible for the site. Google them to get a sense of who they are.
- While many organizations that publish solely online do good work, it’s also reassuring to see a reference to an actual physical location. And don’t be fooled by a great-looking website. There was a time when only large, established groups could put up a well-designed site; now, automated tools allow just about anyone to create an aura of professionalism and respectability, even if it is not deserved.
☑ Be skeptical when a website piece doesn’t name its author. An organization might reasonably want to present analytic work as a product of the institution itself, but good work usually identifies the people who contributed to the work. Anonymous sources are fine for spies, not for credible policy analysts. Be suspicious of undated material. You don’t want to unwittingly rely on years-old information.

☑ Blog posts can be timely and insightful; several brilliant analysts maintain blogs. But blogs are easy to churn out, as well as idiosyncratic and dependent on the attitudes, research skills, and whims of their authors. If no editor reviews and fact-checks the blog, there is ample room for error and bias. While a blog post can inform your thinking, it is generally not a definitive source of information.

☑ Determine what types of editorial processes – if any – are used before things are posted. While mistakes do happen, professional news outlets follow editorial processes where facts are checked and sources are confirmed prior to publication.

☑ Many media outlets provide three kinds of journalism: reporting, analysis, and editorial opinion. The New York Times and the Wall Street Journal, for example, take a similar approach to news reporting, but have a variety of columnists and bloggers with different points of view. The two papers also offer radically different editorial opinions. Make sure you know what kind of journalism you’re looking at.

☑ If you find a relevant claim, evidence, or news item, Google around to see if anyone else is saying the same thing. If they’re not, it may be a sign that the source you’ve found isn’t especially reliable or credible, or at least that you should apply a healthy dose of skepticism to it.

☑ If you’re suspicious about a claim, visit websites like factcheck.org, snopes.com, politifact.com, or the Washington Post fact checker to see if you can learn more.

☑ Finally, remember that all information on Wikipedia is crowd-sourced, meaning that almost anyone can change the content of the site at virtually any time. As a result, the information you find there is always vulnerable to intentional manipulation or to incompetent editing by users. It’s fine to use Wikipedia to get a quick overview of a topic that is new to you, and to locate original source material, but you should never rely on it for definitive information.

In sum, even though you are not an expert, there are plenty of tough questions the Truth’s Advocate can ask about the quality of the evidence that is included in an environmental policy claim. The guidelines offered above will help you decide which evidence to trust and which evidence to doubt.
Does the Claim Demonstrate Multidisciplinary Systems Thinking?

Even though you may not be an expert in every subject mentioned in the claim, because you’ve assessed the quality of the evidence, paid special to the use of gray literature, and rejected all “evidence” originating in social media, you now have a much better sense of whether you can trust the evidence upon which the policy claim rests. But you’re not quite done with the deconstruction exercise. Especially when it comes to a policy claim about some aspect of environmental management, there are two final tests to which the Truth’s Advocate should subject the claim. The first relates to the use of systems thinking and the second focuses on the need for a multidisciplinary, or panoptic, understanding of the issue.

Check for Systems Thinking

Many environmental problems are complex, multi-faceted, and dynamic over time, with potential policy solutions that create winners and losers. What’s more, policymaking typically entails debate among citizens, interest groups, experts, and politicians. Accordingly, to get a handle on such problems, there is a powerful temptation to simplify, to reduce the problem to more manageable dimensions. But as Einstein is often claimed to have said: “Everything should be made as simple as possible, but not simpler.” When you’re deconstructing a policy claim, then, your task is to decide whether the author has oversimplified matters to the point of compromising the validity of the analysis.

It’s important to remember that policy interventions are often made in complex and dynamic systems. As a 2012 National Research Council Study put it:

Perhaps the most important location where systems thinking is called for is in making decisions and crafting policies that help navigate the complex structures that populate the world in which we live. Moreover, because there is a lack of a meaningful systems thinking capability, policies often fail or worsen the problem they are intended to solve. In a world that is interconnected, systems thinking is an iterative learning process in which we replace a reductionist, narrow, short-run, static view of the world with a holistic, broad, long-term dynamic view, reinventing our policies and institutions accordingly.5

When it comes to analyzing environmental policies, our task becomes even more difficult once we realize that our policy interventions take place not in a single system, but in two systems – one in the human world and the other in the natural world. If that weren’t confusing enough, we also have to cope with a variety of linkages between the two systems.

Take a look at the graphic below. When we implement an environmental policy, we are intervening in one or more human systems in order to effect a change in some part(s) of natural world. The drivers of the initial problem and the likely results of our intervention all depend on how these two systems – and the connections between them – operate.
So what does this have to do with deconstructing environmental policy claims? While a full exploration of linked human-environmental systems is beyond the scope of this paper, we can still use the framework to stimulate a series of basic questions about the environmental policy claim we are trying to deconstruct.

☑ Has the author simultaneously characterized both the human world and the natural world as dynamic, linked systems when thinking about environmental policy?

☑ Has the author conceived of both the problem and potential solutions in a holistic fashion, or have they narrowed the analysis to the point of excluding key factors?

☑ Does the author acknowledge the multiple causal interdependencies among the various actors within these systems? Are such interdependencies reflected in the projected outcomes of the policy interventions under consideration by the author?

☑ Does the author display a deep understanding of the types of human actors in the relevant systems, the drivers of their behaviors, and the nature of the relationships among them?

☑ Does the author display a sound scientific understanding of all the changes – direct and indirect – in the natural environment that may be initiated by the policy?

Unless you can answer yes to most of these and similar questions, then the analysis you are looking at is probably in violation of Einstein’s advice to simplify, but not over-simplify. In turn, it may provide an insufficient basis for taking policy action.

**Look for a Panoptic Perspective**

Given the complexity of linked social-environmental systems, successfully addressing an environmental challenge requires what I call “whole sight,” or a panoptic perspective, that can be achieved only by simultaneously looking at the problem from multiple vantage points. Why a panoptic view? Because taken together, observations made through different lenses can
yield deeper insight into the essential causes and effects of an environmental problem than can be obtained from any single perspective.

Let’s consider an example. Every year, the Chesapeake Bay suffers severe hypoxia, or a dead zone of oxygen-depleted water, as the result of nutrient-rich runoff from farms and cities. Virtually no aquatic life cannot live in the dead zone. Organisms that can swim away, do; those that can’t, die. In 2014, the dead zone reached a cubic mile in volume by early August. Assuming that we want to do something about it, how should we look at the situation?

For starters, the Chesapeake Bay is huge – over 4,500 square miles. But Bay water quality is more than just the science of nutrient loadings, dissolved oxygen, and the effect of toxins on aquatic life. It’s also about what happens in the Bay’s 64,000 square mile watershed – where people build homes, how farmers manage their lands and livestock, and what industry and municipalities do with the wastes they generate. It’s about how these choices are affected by the policies of six states, the District of Columbia, and the Federal government, and by regional, national, and global economic forces. It’s about money and politics, the power of interest groups, and the behavior of politicians and government administrators, as well as how we value birds and fish, and waterfront homes and jet skis. It’s also about how decisions made decades ago regarding urban infrastructure and industrial development constrain today’s choices.

Given the complexity of issues like poor water quality in the Bay, it is easy to miss something that could be important when we’re trying to come up with effective policies. To get a sense of what I am talking about, take a look at this graphic. It offers eight perspectives to consider when you’re doing an environmental policy analysis. A meaningful understanding of an environmental challenge can be gained only by looking at it from the eight different perspectives in this graphic. While one perspective can yield important insights, it is only the combination of all eight – a panoptic view – that yields whole sight.

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7 The genesis of this approach lies in a 2006 book written by Steven Cohen entitled “Understanding Environmental Policy.” In his book, Dr. Cohen proposes a similar, multi-perspective, framework.
In turn, if you want to deconstruct an environmental policy claim, you need to view it through each of the eight lenses. Doing so will not only deepen your understanding of the issue, but more importantly, help you identify gaps in the analysis you are deconstructing.

For the sake of simplicity in the first graphic, I defined each lens with a one-word title. Unfortunately, such brevity does not facilitate analysis. To get a better sense of what I am talking about, take a look at the graphic on the next page. There, each lens is divided into sub-topics to show how it can be used to analyze environmental issues.

There is a lot here: a total of 36 sub-topics. Developing whole sight into important environmental challenges is hard work, but if you want to be the Truth’s Advocate, it’s worth it. You can keep your bearings by using the framework as a checklist of things to investigate as you deconstruct the policy claim. You might not have the time or resources to do a deep dive on each item, but you want to at least scan the entire list, and ask if and how the author has addressed each item. Not all items will apply to every case, but you need to make sure that if something is missing, it is for a good reason, not because the author simply forgot about it.
**Final Thoughts**

I know that I’ve offered you dozens of suggestions, questions, and ideas to consider for every policy claim you look at. It might seem a bit overwhelming. In my defense, I will first say that I warned you at the outset about the potential enormity of your task. To make the job easier, you will find a “cheat sheet” on the following page that summarizes all of the main points made in this paper.

And, as I mentioned before, if you are schedule- or resource-constrained, you should focus on those aspects of the claim – evidence, methodology, or reasoning – that are the key drivers of its most important, policy-relevant, conclusions. And, if it’s any consolation, even if you have time to tackle only a few of the issues I’ve raised, I am certain that you will still get additional insight into the claim that helps you decide whether to trust its conclusions.

Decisions about how to manage the world’s environmental resources comprise an almost endless stream of controversy and debate, with claims and counter-claims flying back and forth on dozens of issues. In this context, there is a vital role to be played by the Truth’s Advocate, one who is capable of deconstructing an environmental policy.

I hope I’ve convinced you that, while you may not be an expert in all aspects of an environmental policy claim, learning how to deconstruct an environmental policy claim can yield a big payoff. It will help you become a sophisticated and discerning consumer of policy analysis done by others. It will let you see an analysis for what it is and what it isn’t, help you to extract the valuable content and ignore the rest, point you toward what’s missing, and alert you to the need to look elsewhere to fill in the gaps. At the end of the day, your goal as the Truth’s Advocate should be to ascertain whether the claim is a credible one that offers a sound basis for policy action (or inaction). Only after carefully deconstructing the claim – rather than taking it at face value – can you make that determination with confidence.
## The Truth’s Advocate:
**Deconstructing Environmental Policy Claims in a Post-Truth World**

### Summary of Key Concepts

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<tbody>
<tr>
<td>✓ Look in the Mirror</td>
<td>✓ Decide if the Claim is Complete</td>
<td>✓ Assess the Quality of the Evidence</td>
<td>✓ Check for Systems Thinking</td>
</tr>
<tr>
<td>· Confirmation bias &amp; mirror imaging impede understanding</td>
<td>· Many ways to “know” world but scientific method very powerful</td>
<td>· Completeness, currency, credibility</td>
<td>· Environmental policies operate in complex, dynamic, linked human &amp; natural systems</td>
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<td>· Cognitive dissonance inevitable, must be tolerated</td>
<td>· Problem, options, criteria, outcomes, tradeoffs comprise complete claim</td>
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<td>· Failure to understand system portends policy failure</td>
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<tr>
<td>✓ Figure Out What the Words in the Claim Mean</td>
<td>✓ Look for an Appropriate Baseline</td>
<td>✓ Pay Extra Attention to Use of Gray Literature</td>
<td>✓ Look for a Panoptic Perspective</td>
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<tr>
<td>· Without shared meaning for key terms &amp; phrases, debate participants talk past one another</td>
<td>· Counterfactual needed for prospective &amp; retrospective analysis</td>
<td>· Good information, subject to quality control &amp; peer review, abounds</td>
<td>· Whole sight</td>
</tr>
<tr>
<td>· Intentional or not, ambiguous language undermines understanding</td>
<td>· Measure marginal costs &amp; benefits of policy changes against consistent baseline</td>
<td>· So too shoddy work, not to be trusted</td>
<td>· Interdisciplinary thinking</td>
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<td>· Identifying ambiguity in key terms, and consequent effect on claim’s validity, yields valuable insight</td>
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<td>· Advocacy groups try to appear neutral, often aren’t</td>
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<tr>
<td>✓ Ask Whether You’ve Been Primed</td>
<td>✓ Watch for Heroic Implementation Assumptions</td>
<td>✓ Don’t Trust Your Newsfeed</td>
<td>✓</td>
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Sources

f [https://www.youtube.com/watch?v=bdvSQaWYk8M](https://www.youtube.com/watch?v=bdvSQaWYk8M), November 15, 2016, retrieved January 11, 2017.
n Many of these examples are drawn from Freeley & Steinberg, Argumentation and Debate, 2009.
r New York Times, January 8, 1950, p 89.