

## The Decline of Science — and Our Society

President Obama rightfully stated that energy is one of the three top issues facing our country. I'm sure that I don't have to tell you that whatever national energy policy we adopt, that the ramifications will be **profound**. I'm encouraged that you are open to learning more about some **technical**, **economic**, and **environmental** aspects of this extremely important matter.

I've been working on energy and other environmental issues for 40± years now, and have dialogued with many **thousands** of people. In doing so I'm continually reminded about the often unpredictable nature of communication.

For example I typically get well over a hundred emails a day just on energy related matters — and I try to answer **every one**. But I do have a life otherwise, so the only way this is possible is to be brief and to the point. Out of necessity I've adopted numerous popular abbreviations, like IMO.

Recently I was sent some information by a friend — all right, an “acquaintance” — and I politely responded with a **TY** (for Thank You). Shortly thereafter I received an email back from this technically challenged **senior citizen** saying “Up yours too.”

So how did this communication snafu happen? Gram obviously didn't know what TY meant, and since she knew that I have a good sense of humor, she just **assumed** that I was tweaking her. Now she *could* have Googled the “TY” acronym and quickly found the answer — but **it was easier to just assume**.

Interestingly, when you do check it out, TY has other secondary meanings — one of which is **Teach Yourself**.

There is a major connection with energy and communication. We now hear and read about energy issues on a daily basis. Unfortunately, though, the overwhelming majority of citizens just **assume** that they have a reasonable understanding of energy, and don't bother to do any real **investigation**.

I'm going to begin with a Thomas Paine quote: “He who dares not offend, cannot be honest.”

After being heavily involved with environmental issues for such a long time, it is **very** clear to me that we have an epic struggle going on here: **scientists** *vs* **lobbyists**. *This is the fundamental conflict of our time, and it cuts across every technical matter we are facing.*

When one closely follows this issue, the conclusion is inescapable: **so far the scientists are losing — and it's close to a rout.**

**Real Science** is an exacting business.

*Politicians, on the other hand, want approximations.*

**Real Science** takes considerable time and effort.

*Politicians want to cut to the chase.*

**Real Science** requires a strong foundation to build on.

*Politicians just want the credit for getting something put up.*

**Real Science** is based on real-world empirical evidence.

*Politicians are enamored with computer models and consensus.*

**Real Science** is anathema to lobbyists.

*Politicians are closely aligned with lobbyists.*

To further confuse citizens, a misleading term was coined: *political science*. So the question is, which side do **we really** stand on here: science or politics?

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A few years ago *New York Times* journalist Andrew Revkin asked me and a few other scientists this question. "If you were at a White House luncheon and were given just a minute to express your views about the technical issues of the day, what would you say?"

I wrote him back that my statement to the White House would be this:

"We do have serious environmental and energy issues. We also have the technological and economic resources to solve these.

"Our greatest impediment is that we have been deluded by those promoting self-serving agendas into following the sirens' call. To get back on track we simply need to employ the **scientific method**.

"All ideas and potential solutions should be welcomed with open arms. However, it will be entirely the responsibility of the promoters **to prove** (with independent, comprehensive, transparent, empirical evidence) that their proposal makes **technical, economic** and **environmental** sense. This would be required before their solutions are mandated on the public."

That's it... Andrew's response was: "Well stated! Thanks."

My point to him is that this is **NOT** what is happening now, as science has been relegated to a back-of-the-bus status. Agenda promoters are aggressively working to supplant real science by such silly pseudo-science concepts like “Post Normal Science.”

In every direction we look, Science is under assault. The main reason for this conflict is that Science is the arch enemy of special-interest lobbyists. After all how can one successfully market a product or idea if they are constrained to adhere to the facts? *Imagine that!*

Lobbyists have been successful in undermining science *via* death by a thousand stings. For instance, individual scientist are being bought off. Universities are being bribed with grants to support these self-serving agendas. The public is confused about all this as they associate science with scientists and universities.

So here is a head’s up: there is a BIG difference between a *report by a scientist* and a *scientific report!*

OK, let me explain that. Science at its core is a PROCESS. The fundamental process in science is called the scientific method.

The way real science works is that when somebody has an idea for a solution to some problem (e.g. like wind energy, which was proposed as being a supposedly important part of stopping global warming), that those promoters are supposed to provide comprehensive, independent, transparent, empirical proof that their solution really works. **That’s the scientific method.**

Now that’s not John saying all this. This is what has happened through history, with people like Galileo, Isaac Newton, Thomas Edison, and Albert Einstein.

But no more!

Lobbyists have convinced most of our state and federal politicians that we don’t have the **time** to do a proper scientific assessment of things like wind energy. That is a travesty.

Once science is put out to pasture, these lobbyists have free reign to write our energy policies so that what these policies are really about is profiting multi-national corporations and promoting certain political agendas. Anything that is beneficial to taxpayers, ratepayers, or the environment is purely accidental.

That’s how such 15th century ideas like wind energy become mandated on the public. What citizens need to know is that there is **zero scientific evidence** that wind energy makes **technical, economic and environmental sense.**

Terminology dilution is another part of their effort at promoting pseudo-science (a.k.a. consensus science. *NB*: Science is **not** based on consensus.)

Terminology, in science, is exceptionally important. It's an integral part of this exacting business as it's a critical component for constructing a strong foundation — i.e. one that will withstand the test of time.

“Renewable” energy, for instance, is a term coined and promoted by lobbyists. **There is no true scientific definition of the phrase “renewable energy.”** Well aware of this, lobbyists have worked diligently to give the impression that “renewable energy” is a scientific concept. **It is not!**

Indeed, due to their incessant propaganda this term has become well known in the popular vernacular, and in political circles — however that does not qualify it as a *scientific* term.

The reality is that the understanding of “renewable energy” by the public is so broad and vague, that a statement like “I support renewable energy” is technically meaningless.

It's akin to saying “I like sports.” Does that mean then that I'll see you at a croquet match, or a rugby tournament, or a water polo event, etc.? No? Then why not? Oh, you really just like **SOME** sports — not **ALL** sports.

It's entirely acceptable to use such vagaries in general conversation — but energy and environmental issues are very technical matters that have a much different standard for accuracy, **particularly when such critical issues as national energy policies (or our survival as a species) are at stake.**

Of course the lobbyists don't want us to look at this business in more than a cursory manner. As far as they are concerned, *the more superficial the better.* Coincident with this they are hopeful that we are very casual in our phrasing.

The payoff for them is that when we use such general terminology, we don't segregate between good and bad. In other words, *the bad are lumped in with the good.* That is exactly their marketing strategy in getting us to buy a pig in a poke — like wind energy.

Consider what *Wikipedia* says: “Renewable **energy** is energy which comes from natural resources which are naturally replenished.” Well, fossil fuels (like gas, oil and coal) fit that definition too! Does that make coal a renewable? Your guess is as good as a mine, but it **would** fit that definition.

Consider that some 29 states have enacted a “Renewable Portfolio Standard.” Despite the fact that these were all initially heavily influenced by lobbyists, these 29 states do **NOT** define “renewable energy” the same way. Clearly this is further evidence of its political roots.

Using the popular conception of “renewable energy” covers an extremely diverse set of energy sources, ranging from nuclear power to biomass. Some of these are good, worthwhile sources of energy, while others are simply not. So, an assertion like “I support renewable energy” is pure political posturing, not a scientifically sound statement.

When you start with such vagaries what is the result? Put another way, do these Renewable Portfolio Standards do any good? (Hint: remember that they were written by lobbyists.) Despite Global Warming being the original primary driver for RPS’s, not a single state has any requirement that a qualifying “renewable” source **has to prove that it saves any CO2 whatsoever**. Hmm.

This is typical of what happens when we depart from scientific standards.

As a scientist I like to get to the core of the matter. In this case identifying the fundamental reasons for this erosion of science is of great interest to me.

After studying it for some time I believe that the three primary causes are: **our education system, computer models**, and the **Internet**. Let me just say a few words about each.

### **Erosion of Science Cause #1: Our Education System.**

Our academic institutions are failing us, big time. In my view the main objective of our education process should be very simple: **to produce adults who have mastered the ability to think critically**.

Unfortunately, the evidence indicates that exact opposite of this is actually happening, particularly in the US. We are producing lemmings who are programmed with certain approved agendas. It’s interesting that we can see that ideological slavery as a fault of the curriculum of some mideastern countries, but not in ourselves.

Today we have the diminution of the sciences as a core component of the curriculum, **plus** grade inflation. *What a one-two punch!* From what I have seen the later is mainly due to an emphasis on over-promoting “self esteem.” The consequences of this degradation are profound.

A leading educator recently [wrote](#): “Generally, I think people do not understand that science is **a way of approaching problems**, rather than **a body of knowledge**.” When their training in science is deficient, students “are often unable to assess claims and counter claims as they make choices on critical issues that face them as citizens.” I couldn’t agree more.

Compounding this problem, many of our higher levels of academic institutions have become addicted to grants. To get the maximum amount of money (which mostly comes from the government) they need to play political ball. This means that the “product” produced, a study, isn’t about **critical thinking** — but rather about supporting the spiel that the emperor’s clothes are just spiffy.

Lobbyists are desperate to get their pet projects any kind of a stamp of approval, and have focused heavily on securing academic endorsements. I’m sorry to say but, in my opinion, even the once esteemed *National Academy of Sciences* has become corrupted in the process. What once was a gold seal of approval is now little more than faded yellow cardboard.

### **Erosion of Science Cause #2: Computer Models.**

As a person who has hand-written some 100,000 lines of computer code, I know a bit about computer programming. As such I’m extremely concerned about our use of computer models. On the surface, a computer model holds three main enticements. The first is that it represents a shortcut.

Make no mistake about it: **we are addicted to the quick way**. For instance, we don’t like having to take the time and effort to do real world assessments — so, we *just model it*, and assume that it’s equivalent. It often is not.

The second big attraction is that computer models give us the **illusion** that **we are able to predict the future**. *Who wouldn’t like do that?* Unfortunately we are losing our ability to discern between reality and a mirage.

The third killer selling point is that marketers (lobbyists) can imbed **hidden sales messages** in what appears to be a science based package. Wow! Put another way, computer models are comprised of *unidentified* assumptions — many of them *unproven*. But we, the marks, know none of this.

This situation reminds me of someone being given a new workshop tool as a birthday gift. Something that they have been able to live without for 30 years all of a sudden becomes a key element in every project they have. That’s where we are now with computer models: *significant over use*.

### **Erosion of Science Cause #3: The Internet.**

A unique fact of our life today is that the internet has facilitated the rapid and continuous dissemination of misinformation and disinformation by those promoting nothing more than self-serving interests. Within a few minutes a message can be sent to a million people. For free.

Lobbyists are acutely aware of this awesome power and have launched an unprecedented “marketing” assault on citizens and politicians. Lobbyists are also aware of the lack of **critical thinking** skills of the average citizen — and fully exploit that deficiency. This is what totally bogus advertisements claiming wind energy to be “free, clean and green” are all about.

Their motivation is simple: **greed & power**. Yes that has always been around, but today we have the perfect storm.

We now toss around “Trillions of dollars” like these are some reasonable amounts! These staggering and unparalleled disbursements have (not surprisingly) spawned the most sophisticated and aggressive breed of profiteers that we have **ever** encountered in our history! Beware!

A related corollary to erosion of science cause number three is that there is no real penalty for lying. For example, what are the consequences when an official report is circulated that says such-and-such wind development powers 10,000 homes — which is a **totally dishonest** claim?

The answer is that there is zero penalty. That reality has emboldened these promoters to push the limits — each claim more brazen than the last. Most green jobs claims fall into this category: purposefully gross exaggerations. Our best recourse is Critical Thinking.

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**So let’s wrap up my long-winded commentary by asking: what to do?**

As a physicist and longtime environmental advocate, I know that it’s critically important that this onslaught on science be countered.

**This is actually a Public Relations war.** Unfortunately, scientists are not typically good at Public Relations — which is one reason scientists are losing.

I’m trying to do my little part by speaking out, as I believe that if enough citizens are educated, that they will speak up and **demand** that their representatives do the right thing.

As you know my website, **WiseEnergy.org** and my monthly *Newsletter* are about helping people get educated on Energy and Environmental matters.

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