

Letter Writing As a Persuasive Tool

Noted geologist at his informative best

Walter Youngquist has been open and responsive to those who wish to know more about scarce mineral resources and the social consequences of their depletion, as well as offering comments to columnists and spokespersons. Here are a few examples.

To a group of middle school students in Corvallis, Oregon, Youngquist wrote:

This is in reply to your letter in regard to the question: "In what year will the earth's oil supply be completely gone?" You are asking the wrong question.

The earth will never run out of oil as there will always be some which cannot be recovered. On the average now probably no more than 50 percent of the oil in an oilfield is recovered.

For high value-end uses such as making medicines, oil will be produced for many, many years to come – perhaps as long as the human race survives.

The correct question is: When will the *peak* of world oil production occur? This is the basic problem. When will production turn down and not be able to meet the demand as we know and use oil today? At that point the price of oil will rise and continue to rise very sharply. Unless we are then prepared to pay very high prices for oil products or perhaps find substitutes for oil in such things as transportation (cars, trucks, airplanes), there will be some big problems. Trucks bring food supplies to

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grocery stores. Oil allows farmers with tractors to farm great areas so that one man can produce a lot of food.

And oil is used to make pesticides to save crops from bugs. Also, natural gas which is closely related to oil is the material from which ammonia fertilizer is made – the most important crop fertilizer.

So without oil and natural gas it is likely that the world food supply would drop markedly. With world population still going up, and oil and natural gas likely to peak out in production in the next few decades the world may have a problem of food supply.

Thank you for writing me of your interest in this very important matter. It cheers me to know that people of your age are concerned about this, as you will live to see the peak of both world oil and natural gas production.

Sincerely yours,
Walter Youngquist

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This letter was addressed to former California Governor Gray Davis in January 2001:

Relating to the California electricity supply problem, as a consultant to a public electric utility for 19 years on energy supplies, and as a petroleum geologist for some 40 years, I would like to offer some comments which I hope may give you some additional perspectives on the present situation in California – and what the future may hold regarding energy supplies.

Natural gas is the most critical in the sense that it cannot be imported in any quantity – it is a continent-by-continent situation. The USA does not have enough gas for its own needs. Our only other supplier is Canada. I addressed the Canadian Society of Petroleum Geologists in Calgary in June 2000, and we got into the natural gas matter. They now send us 60 percent of their production and are not sure they have much more to send. They are drilling more and finding less per foot drilled; this is the clear mark of a mature and declining petroleum province.

In our own Gulf of Mexico where the remaining big gas reserves lie, the annual depletion rate is running as much as 27 percent, and in a few cases as much as 50 percent!

California has electricity supply problems. Most of your power for electricity generation now comes from gas, and you are building more gas turbines. But where are you going to get the gas? We in the USA are not self-sufficient, and Canada's ability to supply increasing

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amounts of gas appears to be very limited.

Energy is the very lifeblood of our economy and natural gas and oil in total are our chief energy sources. The U.S. is not now self-sufficient in either, nor will it ever be again.

I would like to add one more very important fact. In the USA all we are now doing on energy is playing "catch-up." The problem is population growth! Here in the Northwest we have installed all the turbines for which there is water to turn them in the Columbia River system. We now have no surplus power, but the population keeps growing. Now what? There are two parts to this problem – supply and demand. Supply is finite. Demand curtailment is the only option. Demand equals population. Conservation is simply a band-aid; it is not a solution.

The U.S. census shows that in the past decade we have grown 13 percent to 281.4 million people, and we add 3 million a year. We are now the third most populous nation in the world right behind China and India. And we no longer have the resources to support our energy demands, much less take care of 3 million more each year.

California is expected to add 20 million more people by the year 2050. If this occurs there is no way you can adequately supply the energy needs of such a population. Alternative energy sources simply will not do it! I am familiar with your wind, solar, and geothermal projects. I have seen and studied them all, and I have studied and written extensively on the topic of alternative energy sources.

With diminishing fossil fuel resources (and no comprehensive substitute in sight), even with only the present California population, in year 2050 you will not be able to adequately provide energy. With a smaller stable population, alternative energy sources might provide a modest standard of living. With a growing population (in the past decade California added more people than did any other state – 4.1 million) you are now faced with a chronic energy supply situation that will only gradually get worse.

There is no possible way that we can ever solve the energy problem as long as we are shooting at a moving target – population growth. If this very basic matter is not addressed, all efforts to solve our energy problems are ultimately futile. I have addressed this problem to some degree in my paper, "The Post-Petroleum Paradigm – and Population." Over the years I have made more than 500 speeches, and written several books and articles on the matter of the relationship between resources and population, but there has been little heed to what I, and a few others, have said. Now this is becoming critical.

I sincerely hope as we begin to find our backs increasingly against the energy wall, that you and others in visible public positions will begin to address this matter in *all* its aspects, and the underlying problem to it all is population growth. That must be addressed; otherwise all other efforts are ultimately futile. I am greatly dismayed that with all the rhetoric and wringing of hands concerning this matter, no highly visible influential person in authority clearly cites this fundamental problem of population. People use energy; more people – more energy use. You will always be playing "catch-up" and will never catch up if you have to shoot at the continually moving target that is population growth. If this is ignored, then it becomes the fabled head-in-the-sand ostrich posture. So far, that seems to be the case, and is no solution. For this posture, I quote Aldous Huxley: "Facts do not cease to exist because they are ignored."

Sincerely yours,

Walter Youngquist

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In this letter to Mort Zuckerman as editor of U.S. News & World Report Dr. Youngquist tries to explain that there are no alternatives to oil.

There are many hand-wringing editorials concerning our lack of national energy policy and lamenting our increasing dependence on imported oil. Many of the “solutions” suggested include more efficient cars which really doesn’t solve the problem, or go to wind and solar, and the hydrogen economy (not noting where and how you get the hydrogen). The solar/hydrogen economy and fuel cells are all the rage at the moment, as you may have noticed. Hydrogen will solve all our energy problems and we will live happily ever after. As long as oil holds out we can hold that view, but when oil departs reality will set in – finally. But for the moment we can continue to avoid it, and we live on a variety of happy illusions. The hydrogen economy has huge problems.

There is *no comprehensive substitute for oil.*

No single or combination of alternative energy sources can comprehensively replace the qualities of ease of handling, high energy density and multiple end uses which oil offers.

Even if there might be alternatives to use of oil in motive power, there are millions of miles of road paved with billions of tons of asphalt – a petroleum-derived material. Try paving and maintaining our highways with solar energy or nuclear power! Oil is much more than energy; it is myriad petrochemical products. Modern agriculture is based on oil. Estimates are that if you took oil and natural gas out of agriculture you would cut production by 90 percent! Wind, solar, nuclear, or what have you, are not replacements.

Even our present fossil fuel supplies are not adequate to support the present world population in reasonable fashion. If China ALONE used oil on a per capita basis as we do, they would account for 10 million barrels of oil more than the entire world production today, and then there is India! And Europe needs a little oil also. Japan is almost totally dependent on oil. It has no significant indigenous energy supplies.

The transition to a renewable energy resource base is not simple, but a quantum leap. We have been living lavishly on a great fossil fuel inheritance. Eventually we will have to live on current renewable energy income,

and all calculations clearly indicate that in no way can over six billion people survive in a reasonable standard of living on such.

We are building more and more people out on a nonrenewable natural resource limb which is slowly being sawed off.

The energy problem can never be solved as long as we are shooting at a continually moving target – population growth.

The biggest and by far the most important problem for the world today and the future is population growth!

On a renewable natural resource base the world is already beyond a sustainable size, and all efforts other than controlling, and indeed reducing population numbers is simply putting a band-aid on a broken leg.

In the case of the United States, 70 percent of our growth is due to immigration, both legal and illegal. We do not now have sufficient energy resources to support our population, and increasingly we live on “imported affluence.” At some point it has to end, but without population control – at least a fixed size of population to address – no ultimate solution to our resource problems is ever possible. We will always be playing catch-up and gradually getting further and further behind.

Politicians and editorial writers are unwilling to state these basic unpleasant facts, and simply continue to propose “band-aid” non-solutions to our basic problem, that being population growth pressure on diminishing resources.

We have witnessed in the 20th century an exponential growth both in population and in resource use. We are trying now in the 21st century to put two exponential centuries back to back. There are not the resources to do this. We have seen great changes in the 20th century, and we will see great changes in the 21st century – *some of them in reverse.*

Sincerely yours,
Walter Youngquist

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John A. Charles, environmental policy director at the Cascades Policy Institute, a Portland (OR) think tank, wrote an op-ed to which Youngquist responded:

A friend recently sent me a copy of your article from the La Grande paper, the article entitled "Get Out of the Way, Allow World Markets to Work."

Therein you take the general approach that in spite of increased population resources will be adequate to take care of all needs. In particular, you cite oil stating that, "The primary reason we don't face imminent shortages of oil or any other resource is that increases in consumer demand are constantly being outpaced by technological advances that either allow for more efficient use of resources, or enable us to completely substitute an abundant product for a scarce product."

As it is unlikely that you have a petroleum geologist on your staff, let me give you a slightly different view, based on some 50 years of experience both here and abroad in the oil industry, and a study of energy sources in general. Most of my oil industry experience has been with what is now ExxonMobil Corporation, but also with BPAmoco and Shell.

First, in regard to a substitute for oil, there is no comprehensive substitute for petroleum. By invitation of the U.S. Department of Energy, the U.S. Geological Survey and others, I presented a pre-conference paper recently in Nebraska on the topic of Alternative Energy Sources, which contains the significant details.

Also, whereas oil reserves have been growing, they have of late years done this chiefly by field revisions rather than new discoveries. The peak of world oil discoveries was in 1965, as shown on various graphs along with a production line. The discovery record is already a fact and has peaked. The production line is still rising, but it must inevitably mirror the discovery curve, as you cannot produce more oil than has been discovered. The lag time between peak discovery and peak production is the time it takes to put discoveries into full production, but a production peak *must* follow a discovery peak.

Regarding the world oil production peak, Dr. Richard Duncan (Saudi Arabian experience) and I wrote a paper published in 1999 on the probable peak of world oil production. We arrived at the year 2007. We are just now revising the paper with later data, which changes the year to 2006.

I am one of three American geologists on the advisory board of the Oil Depletion Analysis Centre of London. In a preliminary study of 63 oil-producing countries representing 99 percent of world oil production, we find that 50 are already past their production peak. A related fact is that during the past decade we found on

the average less than 10 billion barrels a year worldwide, but the world is using 28 billion barrels a year!

Also, in our studies we found that technology may increase the rate of production in a given area, but does not significantly increase the amount of recoverable oil.

Going back again to the time of oil production peak, this will be known for certain only in retrospect, but the signs are clear that we are very close.

The view you voice is that of economists, such as the late Julian Simon. Dr. Albert Bartlett, Professor Emeritus of Physics at the University of Colorado, and a Harvard Ph.D. in nuclear physics, cites some of Simon's views and puts mathematics to them to show that Simon's statements are absurd in the extreme.

In the November 2000 *Fortune*, economist M. A. Adelman at MIT states that, "We will never run out of oil, not in 10,000 years." His cohort, Michael Lynch, has recently stated that by the year 2030 the world will be producing 150 million barrels a day. This contrasts with the 77 million barrels produced now, and requires a more than doubling of today's production. Citing again the figure that out of 63 oil-producing countries, 50 are already in decline, I find Lynch's and Adelman's statements highly implausible. I have written both Lynch and Adelman for details to support their views and have not had the courtesy of a reply from either of them.

I would suggest that both Lynch and Adelman could have a great future in the oil industry, but I can hardly wait to see them interpret their first Schlumberger electric log – as to what the resistivity and self-potential curves mean regarding the well just drilled. They do not, in my view, have any practical "feel" for the oil industry. One needs to be in it to know it.

This brings to mind the wry comment I heard one major oil company official make, "We should fire all our geologists and hire only economists because economists can find oil so much more easily than can geologists."

In regard to the future, my paper on the topic, along with that of Dr. Trainer's of Australia, concludes that we are building more and more people farther and farther out on a nonrenewable energy resource limb, which is slowly being sawed off, and there is no possible way the present population of six plus billion can be sustained in any reasonable lifestyle on renewables.

Also, other non-renewables such as shale oil and the oil sands of Canada and Venezuela are frequently cited as being significant resources. From my studies in the

field, oil shale is not a significant resource. Oil sands do not lend themselves to large volume production, relative to today's oil production. Also the net energy recovery is low, and this very important factor of net energy recovery is often overlooked in considering energy sources. I have never known an economist who considered it.

The current enthusiasm for the "coming solar/hydrogen economy" will be very much tempered when the concept of net energy recovery becomes reality.

To summarize, we are close to the peak of world oil production. There is no comprehensive substitute for oil, and alternative energy resources cannot sustain the size and quality of society as we know it today.

It is unfortunate that happy illusions sell and reality is unpopular, for we need to prepare for inevitable changes in our energy future, and the social and economic changes which will come – population size being the most critical.

Growth is dear to the hearts of all Chambers of Commerce and economists, but growth cannot be sustained indefinitely and limits are already beginning to appear. Oregon is a good example of the limits of growth, which are becoming increasingly obvious. We have put all the turbines in the Columbia River system where there is water to turn; however, population keeps growing and now we are installing combined cycle gas turbines and wind power to supply energy needs. But gas turbines are fired by fossil fuel (of which we have to import more and more from Canada), and wind is not unlimited, and also not a dependable base load. How long can we continue to grow? And in the meantime, we are paving over and converting to subdivisions the most fertile farmland in Oregon – the Willamette Valley.

There are natural limitations which the "free market," dear to the heart of economists, will not solve. More money will not cause more water to flow down the Columbia River, and when the energy cost of recovering oil is equal to that of energy in the oil obtained, the game is up. The cheap oil is going.

For a more comprehensive study of resource and population matters, you may find useful my book, *GeoDestinies: The Inevitable Control of Earth Resources over Nations and Individuals*. •

Bleak Outlook for Natural Gas Supplies

"The gas production decline in the U.S. is due to lack of good, large prospects," said Walter Youngquist, a Eugene, Oregon, consulting geologist. "We have drilled more than one million gas wells in the U.S., and we are running out of significant targets....Deep drilling will help, but I doubt we can turn the decline trend around. The high depletion rates put us on a treadmill that we are not able to stay with. Better resource access, along with infrastructure necessary to move the gas, would help a bit, but I do not think it will turn things around. At best we might keep even for a while."

Bob Ineson of Cambridge Energy Research Associates (CERA) notes that the U.S. has gone through a decade in which its productive capacity was essentially flat, despite burgeoning developments in the San Juan basin, the Rocky Mountains, and the deepwater Gulf of Mexico. "North American capacity grew because of the development of the Western Canadian Sedimentary Basin," he said. "We do not see any supply on the horizon of the same order of magnitude as any of these regions, let alone four such regions. Given the lead times associated with development of a large new producing province, if such a new region could materially affect the market balance in this decade, odds are we would know about it today."

CERA's Esser contends that it is unlikely that U.S. gas supply can bridge the gap between today's shortfall and the arctic gas and LNG import solutions. "'Demand destruction' is the only real short-term solution," he said.

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