

# The New Austerity and the EROI Squeeze

by Eric Zencey



The government of Minnesota has shut down thanks to a \$5 billion budget gap. Wisconsin public employees have been de-unionized so their salaries and benefits can be cut to close a budget gap. New Jersey just missed shutting down as a Democratic legislature and a Republican governor agreed that austerity cuts are needed (though there's still going to be some wrangling over how the pain will be distributed). Last week the Italian cabinet signed off on \$68 billion in austerity cuts. Demonstrations in Britain and riots in Athens, prompted by government cuts in pensions and social security, suggest what may lie in Italy's future. In the U.S., we've got gridlock-and-extortion in Congress over raising the federal debt limit, even as both sides are generally agreed that the era of ever-rising deficits is over.

Though not a single politician or mainstream economic analyst has ever made the connection, the new worldwide austerity in public spending traces to a physical cause, as measured by change in [EROI](#) — energy return on energy invested. This is the ratio between the energy that comes into the global economy and the energy it takes to produce that energy. Worldwide, the average EROI of oil is down to 20:1 from its original value of 100:1 eighty years ago. This means that our oil-fueled economy simply has less capacity to generate wealth than it did back then, because an increasing share of the energy that used to be dedicated to producing goods and services is being plowed back into securing energy.

Even more troubling than oil's 20:1 global average is the figure for new oil, just 5 to 1. It takes a lot of energy to drill five miles under the ocean and pump crude back to a refinery, or to cook tar sands to extract a usable fuel. The energy wellspring at the heart of our economy no longer gushes a torrent of wealth; it's a smaller, much-diminished stream.

Wind and other renewable energy sources offer returns in the seventeen-to-one range — still a nice income flow, but nothing like the flood we once got from oil. Everything our economy accomplishes, including health care, government, schools, roads, defense, repairing our aging infrastructure and re-engineering our built environment to handle the changed weather that oil use has given us, is going to have to be financed from a much-diminished EROI. And private largess, such as the oil-fueled philanthropy of Andrew Carnegie that built libraries and established foundations and grants for worthy public causes, will fare no better. (The conservative notion that private philanthropy will increase if government takes a smaller bite of the total economy is mostly wishful thinking; the rising overhead costs of energy — the increasing energy cost of energy — will shrink the economic pie as a whole, no matter where we make our slice between the public and private sectors).



Protestors of austerity measures in Athens

Conservatives in Washington and elsewhere insist that we can no longer afford the level of governmental services we've become accustomed to. Their call for austerity in public spending is partially right, but for reasons that are wholly wrong: they think that by busting public unions, by reneging on pension agreements for teachers and public employees, by privatizing the production of public goods (streets, schools, even national defense), by cutting regulations and in general shrinking the government, they'll release the pent-up entrepreneurial energies of business, which will put things back the way they were a few decades ago, when oil was returning a respectable 40:1. That's simply not going to happen.

Beyond the wrangling between the deficit reducers and the Keynesians, like Paul Krugman, who warn (correctly) that deficit reduction during a recession will only make the recession worse, there lies another deficit, one that no one is talking about: the deficit we're currently running in our country's environmental account. We're drawing down natural capital to cash it out as wealth, which means we're spending a capital stock — healthy ecosystems — as if it were income. Worse, we borrow money against the prospect of being able to do this forever. That, too, simply isn't going to happen.

We've begun to recognize that we can't borrow infinitely against our financial future. At some point we have to recognize that we can't borrow infinitely against our environmental future, either. We've got to learn to budget ourselves to the level of economic activity that can be supported and maintained by current solar income instead of running that account in the red. We've got to stop counting on continued drawdown of finite stocks of fossil fuel and stop counting on paying our current expenses by borrowing against the continual expansion of our economy's [ecological footprint](#).

The partisans of [Infinite Planet Theory](#) who are managing our (supposedly) infinite growth economy don't recognize this. They don't see the shape of the emergent reality: the energy overhead of our economy is increasing at precisely the moment we need even greater investment to build a sustainable, renewable energy society and re-engineer our civil infrastructures to handle the world as we have made it. It's a very difficult squeeze: needed expenses are rising as income flow declines.

There is some room for hope. It is possible to have a decent civilization founded on the rates of return that renewable energy offers — and unlike the EROI of oil, those rates can be expected to increase with time and technological development. Solving the EROI squeeze means committing ourselves to building the infrastructure we need to capture current solar income and run our economy on renewable, non-carbon-based energy. Every unit of fossil energy we use to do anything else commits the United States and the planet as a whole to a lower, more straitened standard of living in the future. If we want to see an America of crumbling concrete and weed-filled vacant lots, an America too poor to repair its buildings and bridges, too poor to educate its young to the highest standards, an America that has become a fallen, impoverished power, we need only continue as we are: burning fossil fuel, ignoring climate change, and refusing to invest in the renewable energy infrastructure we need for a sane, rational, [steady state economy](#).