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[00:00:00] **Nate Hagens:** If you're like me, you probably have a little bit of whipsaw, both in your head and your gut, following what's going on in the Strait of Hormuz. my organization plans to have. Real time, frankly, heartfelt analyses of the world that we produce very quickly. And also a wider eight to 10 hour, professionally choreographed video series.

[00:00:30] We're calling Reality 101. We're working on both of those things simultaneously, but given the urgency of world events. I forced my team to quickly compile a three part video series on oil, which we're gonna be releasing in the next three days. Here it is,

[00:01:01] greetings. As a result of the Strait of Hormuz closure, you have probably heard a lot about oil in the news lately. You might know that oil is important for filling up your car, but you're probably not quite sure what the big deal is beyond that, it turns out that our entire modern civilization is only possible primarily because of oil.

[00:01:28] And the resulting products from it. The following video series is a way of seeing oil from a systems perspective. My hope is that it might help contextualize the massive historical moment that we are witnessing unfold. This episode will be the first of three on the subject. In this one, we'll cover the basics of oil, what it is, and how it benefits society, things we should have been taught in school but weren't.

[00:01:58] The second video will expand to look at how our systems and institutions depend on oil, and how this knowledge can help us understand our present moment. The final video will take the lens of the first two and help us explore what all this means for the future of humanity and earth. So most people's

mental image of oil comes from a cartoon of dead dinosaurs turning into goo, which we put in our car.

[00:02:25] In reality, oil formed from dead marine phytoplankton, algae that captured solar energy tens of millions of years ago. That was then compressed by heat and pressure over geological time, creating a super energy dense liquid substance, which we refine. It was a solar battery that took millions of years to charge, and we are draining it in centuries.

[00:02:53] And coal and natural gas are a similar story. So how much work does this ancient sunlight actually do for us? A barrel of oil replaces five years of human labor for around a hundred dollars. It used to be $50. A single barrel of oil contains. 1700 kilowatt hours of work potential, a healthy human being doing physical work generates around 0.6 kilowatt hours per day, depending on how strong a person is or what the task is, or how many hours a day they work or how efficient they are.

[00:03:31] Anywhere from one to 20 years of human labor is replaced when a barrel of oil is combined with machines. So for an average human five years is a solid approximation. This incredibly powerful economic subsidy is indistinguishable from magic on human timescales. Here's a way to actually feel this. The next time you drive your car somewhere, imagine running out of gas and pushing it home.

[00:04:03] Even with three or four of your friends a single gallon of gasoline that cost you $4 would take you and your buddies weeks to replace with human muscle and would be hella unpleasant in the process. We never think about this. We just swipe the credit card and go places. And all we pay is the cost of pulling it out of the ground, not the millions of years it took to create it, not the environmental cost of burning it.

[00:04:34] This makes oil absurdly cheap relative to the work it performs. Economic textbooks and business school classes teach that energy's contribution is its dollar price tag in effect. The cost share of oil is equal to the value that it provides, but the cost we pay is orders of magnitude smaller than the value that oil provides for us.

[00:05:06] This is the deepest subsidy in the history of civilization, and it's mostly invisible except in energy crises like now. That is a single 42 gallon barrel of oil. Now multiply it by the total amount we burn every year, and we'll see what this looks like at scale. We use around 100 billion billion with a B barrel of oil equivalent of fossil hydrocarbons per year, globally at around five years of labor per barrel.

[00:05:40] That's 500 billion human labor equivalents. Running, working alongside around 5 billion actual human workers, 100 fossil powered ghost workers for every living one. This giant labor subsidy when combined with machines is primarily what explained. And underpinned the explosion of wealth globally. It boosted wages, it boosted corporate profits.

[00:06:09] It slashed the price of goods and transportation. So things show up at your door the next day in a brown truck. It's supercharged agriculture to increase our population from 1 billion to 8 billion, and it dramatically increased per capita consumption. On top of that. Every economic miracle of the last 150 years was underwritten by this invisible workforce.

[00:06:35] What does this actually look like at an individual level? oil alongside gas and coal has made the average person. Significantly richer than historical royalty. The average American uses roughly 40 barrels of oil equivalents of oil, gas, and coal combined to a global average today of around 10 barrels of oil per person.

[00:06:59] That level of energy service with the associated billions of helpers surpasses what kings and queens had access to a few centuries ago. Hot water on demand and refrigeration and personal travel by car and global travel by plane and year round, fresh food and climate controlled sleep conditions, all from ancient sunlight, powering the research, the innovation, the manufacturing, the infrastructure, the factories, the transport, the supply chains, and the commerce all around the world.

[00:07:35] And yet almost no one sees it. That's because we swim in energy the way a fish swims in water. Every product, every service, every bit of GDP first requires an energy conversion, no exceptions. The average American home has around 40 items constantly plugged in, draining power around the clock, even when they're turned off.

[00:08:04] But because energy has become abundant and growing our entire lives, we have become. Energy blind. I got my master's at the University of Chicago and my three Nobel Prize winning professors never once mentioned the word energy as a contributor to economic productivity because during their lifetimes, the supply just kept growing.

[00:08:30] So they treated this exceptional period of human history as if it were normal based on ingenuity and. Technology. Here's one way to feel how blind we are to this. Your body needs around 2000 kilo calories a day to stay alive. But the average American, when you count all the energy consumed on their behalf through heating and transport and manufacturing and lighting, and food systems and supply chains, uses roughly.

[00:09:02] 200,000 kilo calories a day, a hundred times more than our bodies require before 9:00 AM. Most of us wake up in a climate controlled room and we flick on a light switch and turn on hot water for a shower, and we make a coffee and put on synthetic clothes. All possible from oil and hydrocarbons. You are

living at a metabolic rate that no organism in the history of life on Earth has ever sustained, and almost none of it is visible to us in our cultural stories in the media.

[00:09:39] This all sounds like a miraculous gift, and in many ways it is. Here's the kicker. This ultra cheap energy in the form of coal, gas, and especially oil, will not be available to us forever at today's price and scale, and it may well be gone sooner than we expect. We'll explore this in the next video, part two of our intro trilogy on oil.