



Whale Tale

Transitions are Complex Affairs

BY ROGER WOODWORTH

People in some parts of the world still depend on sticks and cow pies to fuel everyday life. By some estimates, more than one billion people on the planet have yet to see a light switch. Of course, the rest of society has long since moved on, more than once. And each transition has followed a similar pattern.

Here's the basic plot: early champions develop a fuel source different from the preferred one. Market demand for the newbie is slow at first. Habits are, after all, hard to break.

Other factors influence the pace of change. Basic things matter, like access to resources, reliable technology, and channels for distribution and service.

Relative value among alternatives comes into play, as do reputations, competitive behaviors and even personalities. Then there's the persistent, sometimes pesky, influence of politics. The push and pull of incumbents versus newbies carry on, like a slow tug of war.

Roger Woodworth, principal consultant at Mindset Matters, helps others align strategies for greater impact. Previously he was vice president and chief strategy officer of Avista Corp. He's chaired Edison Electric Institute's customer service executive advisory committee and was board president of the National Hydropower Association and the Northwest Gas Association.

Eventually, a tipping point is reached and the new source joins the preferred mix of energy choices. The transition winds down and the market settles, until the next newbie emerges.

A Whale of a Tale

It's tempting to idealize how market forces shape the outcome of energy transitions. But as the pattern above suggests, Adam Smith's 'invisible hand' isn't alone at work in the market. The truth is that many factors affect what happens and how fast. Notably, government policies play a greater role in shaping energy than most care to admit.

A look back helps tell the tale. Somewhere in the back of your mind you'll recall the story. "Twas the oil companies that saved the whale!" or something to that effect. The popular

**Adam Smith's
'invisible hand'
isn't alone at work
in the market.**

notion is that petroleum fuels, specifically kerosene, came to the fore just in time. But it's a persistent myth.

Like most myths, this one relies on some facts. It's true that by the late 1800s, the whale harvest was in decline and the cost of rendered oil product was on the rise. But did you know that whale oil production peaked at about seventeen million gallons in 1845? That was nearly fifteen years before the first petroleum products came to market. Oil from whales was only a couple million gallons per year by the time petroleum fuels first crossed the ten thousand barrel-per-year mark.

Many Moving Parts

Early on, whale oil was used for lighting. But other fuels, notably camphene, were dominating that and other markets by the mid-1800s. Camphene, a blended fuel, cost fifty cents per gallon at the time, while whale oil commanded a premium price of a dollar thirty per gallon. Rendered whale product became valued most as a lubricant serving niche markets, more than as a fuel for residential heat or light.

To reinforce the point about market share, some readers will be keenly aware of coal gas manufacturing plants. This technology first came to market in the 1820s. By the 1860s, these plants seemed to be everywhere, and utilities today have the clean-up bills to prove it.

Rail also played a role in expanding the market for lower cost, readily-available fuels. The U.S. rail distribution network was thirty thousand miles of track and growing by the 1860s.

And then came petroleum.

Politics and Policies in Play

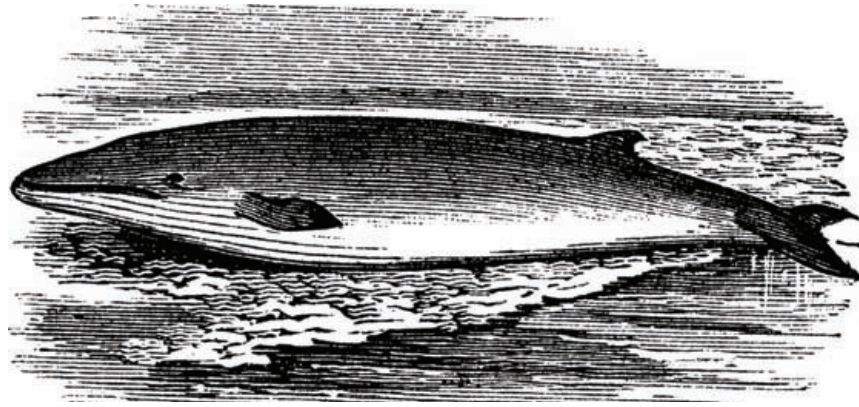
The first oil commercially pumped was from a well in Pennsylvania in 1859. The whaling industry, already in steep decline, was under duress due to limited specialty markets and lower cost alternatives for mass use.

Amory Lovins of the Rocky Mountain Institute summarized the situation well: “The whale oil industry ran out of customers before they ran out of whales.”

Pressures on the industry continued to mount. The U.S. had been home to more than eighty percent of the world’s whaling fleet. But during the Civil War (1861-65), large numbers of those ships were destroyed, further reducing the whale harvest and pressuring prices higher in a classic death spiral.

The politics of war and its consequences for energy availability and prices remain familiar to this day. So, too, is the influence of government over what’s right and just, or simply expedient.

So, now you know, petroleum didn’t save the whales. But the dynamics of the day did make for interesting



© Gai Stock Photo / Shutterstock

debate about public policies. In 1862, to help pay for the Civil War, Congress imposed a two dollar per gallon tax on alcohol. And turpentine, extracted from southern pine forests, became scarce and expensive during the war.

Remember camphene? It’s a blend of camphor, turpentine, and alcohol. War and taxation quickly knocked this fuel from the mix of preferred alternatives in that era.

At the same time, a tax was levied on a newbie fuel called kerosene, a derivative of that up and coming alternative, petroleum oil. The kerosene tax was just ten cents per gallon. With such a

favorable differential, kerosene soon took camphene’s place. Other petroleum derivatives followed. The market had hardly settled when the next newbie emerged. Thank you, Thomas Edison.

Closing Thoughts

This whale of a tale is, in varying degrees, the same for every energy technology that civil society has known. And it’s likely the same will be said of newbies yet to come. Just take note: energy transitions are complex affairs. Adam Smith didn’t go away. But the invisible hand he made famous never works alone. **PUF**

IN THE MARCH 23RD EDITION OF *TODAY FROM PUF*:

Consider the lowly garbage truck. When it trundles down the street, what’s your first reaction? That it’s an eye-sore and ear-sore? If you’re like me, your second reaction is, there’s our garbage truck! It’s keeping our neighborhood neat and tidy. I say, hug a garbage truck today.

Now consider the routine road repair. When that lane is closed, slowing the morning commute to a standstill, what’s your first reaction? That it’s a boondoggle? If you’re like me, your second reaction is, there’s our road repair! It’s keeping our area convenient and efficient. I say, hug a road repair too.

The National Environmental Policy Act is now nearly a half century old. It introduced the Environmental Impact Statement, now a staple of project permitting. And it introduced the deliberate EIS process. The goal was to balance out the tendency of government and companies to develop, maintain and operate infrastructure without much regard for negative side effects.

There were plenty of examples of imbalance during the fifties and sixties. New York’s Robert Moses, for example, was infamous for running roughshod over citizen objections as he drove construction of the city’s road network.

The Act clearly succeeded. Government and companies no longer develop, maintain and operate infrastructure unless and until citizen objections are quite thoroughly aired and considered. Indeed, there is an increasing sentiment that we overshot. That government and companies must jump through too many hoops before they can start shoveling.

The EIS process intentionally affords numerous opportunities to air and consider objections. And since it’s human nature to spurn the garbage truck, the road repair, etc., and to give less weight to the intangible indirect benefits of projects, the process can become aimless.

As for me, I’d hug that power line or pipeline installation if I could. The projects are major hassles for a time. But I know they’re making possible that new school building and that new senior center. And that new apartment and commercial complex with the acclaimed restaurant I’ve been waiting to come to town.

Image © Gai Stock Photo / Shutterstock