

World Map of Developed and Potential Petroleum Reserves, 1919

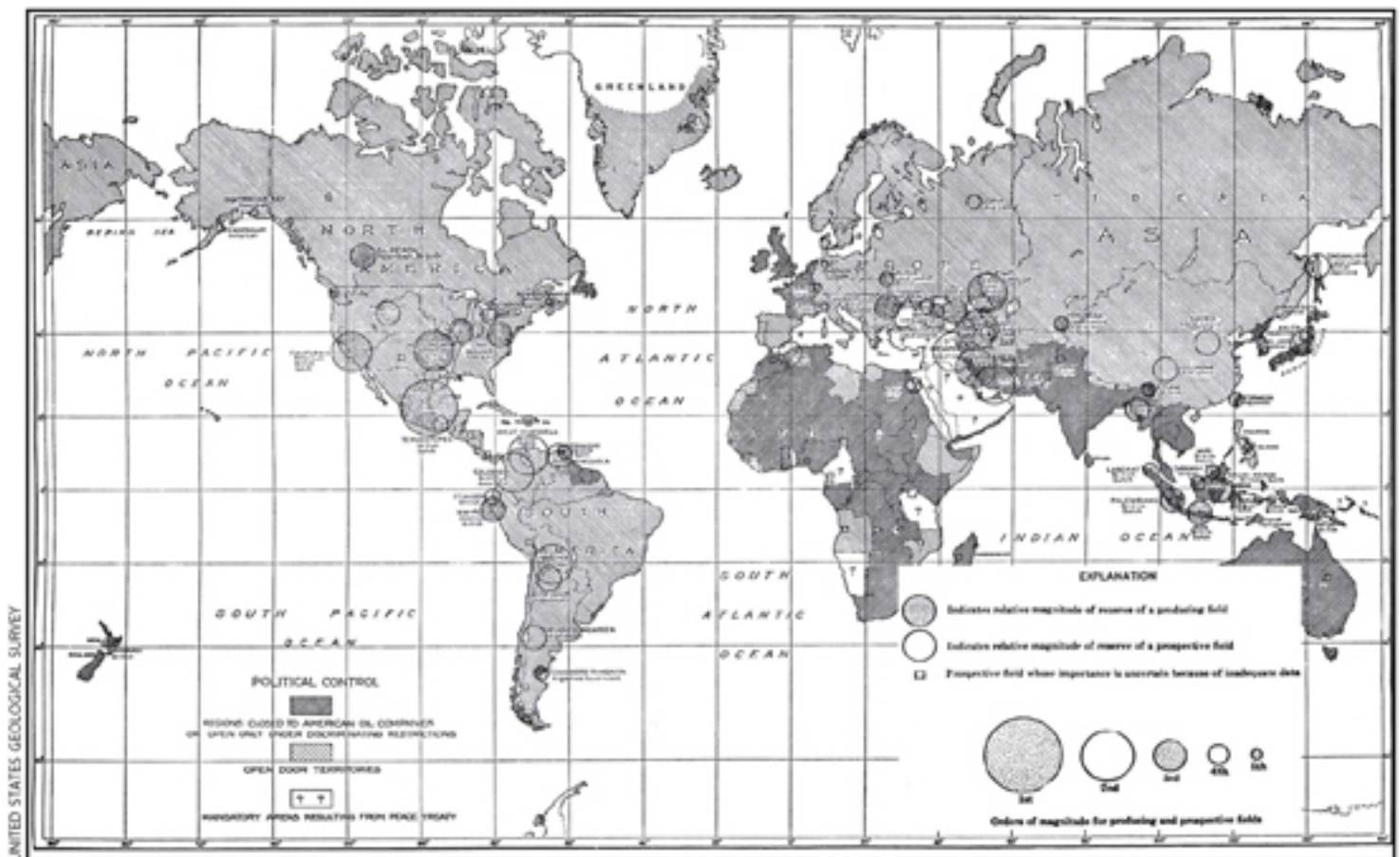


Fig. 1-5 World map of developed and potential petroleum reserves, 1919. What's striking about this very early map is how much of the world's large oil reserves were already discovered. A few deposits, such as in the North Sea, had not been located, but most of the Middle East had been well explored by this time. Note the super-giant field in Mexico. This reserve was reported newly "discovered" to the public during the 1980 fuel crisis.¹⁶ A similar field was "discovered" yet again in September 2006 amidst high gasoline prices and public demands for ending dependence on fossil fuels.

temperance organizations, including the Anti-Saloon League.

In 1919, Congress passed the 18th Amendment to the Constitution, known as the Volstead Act, or Prohibition, which made the production or transportation of alcohol illegal. Imagine, if you will, an all-male (probably hard-drinking) Congress drafting and voting for a constitutional amendment—not simply a piece of legislation—to ban the production of alcohol! It had little to do with demon rum and everything to do with the money, power, and connections the oil industry developed in supplying the U.S. military with the fuel it devoured in World War I.

It wasn't until 1933 that Congress finally passed the 21st Amendment to the Constitution, revoking Prohibition. The restriction had had almost no effect on drinking habits. But during the 14 years that alcohol was illegal, gasoline had become

entrenched as the national fuel, and alcohol was driven way underground. Even Henry Ford had given up making dual-fuel vehicles.

THE GREAT DEPRESSION TO WORLD WAR II

Even before the Great Depression, the 1920s were a dismal time for farmers. During World War I, the growth of agribusiness in America had been encouraged by war-torn Europe's need for food. Farmers in the U.S. had increased production by investing in machinery and some of the first chemical fertilizers, and the tractor had replaced the horse and mule for farm power. When the war was over, so was demand, but farmers couldn't afford to cut production—they had to pay for their expensive equipment. Something had to give, and it was price: Grains fell twelvefold to a low of 25 cents a bushel.

For the American farmer, Prohibition couldn't have been in effect at a worse time. Converting their grain into alcohol would have saved a huge number of farmers from ruin. Instead, Prohibition gave oil companies nearly 15 years of competition-free marketing of their product.

When Prohibition was finally repealed in 1933, oil companies weren't thrilled about sharing their market with a bunch of farmers. The age of mass communication had begun, and the **American Petroleum Institute (API)** coordinated a nationwide campaign to discredit alcohol as a fuel. Most

damaging were the published reports of a test conducted by the API and the American Automobile Association, which indicated that alcohol blends measured significantly less mileage and less drivability, and underwent **phase separation** in humid air. The rigged test was less a testament to the power of the written word (although the press had a field day with it) than to the power of the API, the public relations arm of U.S. oil companies.¹⁷ (Recently, in cahoots with the California Air Resources Board, the API tested **permeation emissions**. Strategically, this is a carbon copy of this amicable 1930s collaboration.)

The oil industry's campaign did not stop the farmers, **chemurgists**, scientists, or organizations dedicated to using crops and natural materials instead of oil to make industrial materials. In a 1936 fuel symposium hosted by Henry Ford, the opposition was silenced when Francis Garvan, a leader of the alcohol fuel movement in the '20s and '30s, rose and said, "We have been fed volumes [by the oil industry] to the effect that power alcohol is not a practical fuel. Were they quite sincere? I think you can judge."

Garvan then distributed copies of an English fuel advertisement published by Standard Oil of New Jersey's subsidiary Cleveland Discol, and read from it.¹⁸ "If you take your little pamphlet, you will find that all these worries have been settled for us. All this chemical research has been done for us, and all the testing. The Standard Oil Company of New Jersey has gone over to England, and in its delightful international aspect of life has joined hands with the English Distillers Company and they together have produced, in their own words, 'The most perfect motor fuel the world has ever known.'"

The product was Discol,¹⁹ an alcohol blend about which the pamphlet boasted, "It is possible to pour almost a pint of water into a car tank containing ten gallons of Discol without the slightest trouble—in fact in some circumstances with better running."

All along, oil companies (including Texaco, Esso, and Ethyl) were doing a lively alcohol blend business in Europe (Europeans could buy Koolmotor Alcohol Blend, comparable to the best racing fuels of the day)—at the same time that they were insisting in the U.S. that alcohol production was impractical and produced an inferior fuel that destroyed engines.

Fig. 1-6 1936 alcohol advertisement in England. While saying just the opposite to American motorists, oil companies were claiming alcohol was a superior fuel in horsepower, carbon deposits, and improved engine life. Recently, a replay of this embarrassing disconnect happened, with oil-company propaganda in Australia against alcohol as a fuel, while other Commonwealth countries such as Canada were praising its virtues.

AGROL

This letter was sent to me in 1981 by Jim Craig, a Kansas journalist:

Back in 1937, I lived in Atchison, Kansas. I was there when a plant was built to make alcohol that could be used in automobiles. They called it "Agrol" then. I'm not sure, but I think the Government loaned ... the money to build that plant.

That alcohol plant produced Agrol for three or four years, maybe a little longer. Two to three filling stations in Atchison handled the Agrol.

I used Agrol in my car. You could not make your car **knock** under any conditions. The car had more power and ran more smoothly. The price then was a little less than gasoline.

After a few years that plant quit making Agrol. I'll never know why. The plant is still there operating 24 hours a day, but the alcohol is used in making whiskey.

My interest in getting the alcohol plants into operation is to help the public get away from the high price of gasoline. I *know* you have a product that will sell. It will guarantee satisfaction. One tankful is positive proof.

Despite oil company efforts, many alcohol ventures grew and flourished in the Midwestern U.S. for several years. These included the Alcogas Company, the Vegehol Company, and, perhaps the largest, the Agrol Company, of Atchison, Kansas. At the height of the alcohol movement in the 1930s, several thousand stations carried alcohol blends in eight Midwestern and several Northwestern states. At its peak, Agrol sold its blend of alcohol and gasoline at over 2000 stations.

Oil companies wouldn't prevent their distributors from selling the alcohol blends, but they did demand removal of all signs and markings showing the oil company's affiliation with stations that chose to sell the blends. The federal government had to pass legislation prohibiting such activities.

What finally broke the Agrol Company, when propaganda and manipulation couldn't, and what broke the Midwest alcohol fuel movement as well, was a rumor spawned by the oil industry that Agrol's alcohol was being made from

imported molasses. Not willing to support foreign agriculture when agriculture at home was at its low point, American farmers, the backbone consumers of the fuel, abandoned it.²⁰ It was a PR coup that the sophisticated oil company spin doctors accomplished with their money and access to the media. Today, oil companies are agitating to import alcohol from abroad in a transparent attempt to duplicate their success in stifling alcohol in the 1930s.

Between 1933 and 1939, more than 40 countries legislated assistance for their alcohol fuel movements. But by 1940, U.S. alcohol fuel distilling was almost nonexistent. World War II was beginning; oil company executives held major offices during the war (under Democrat Franklin D. Roosevelt), dictating many of America's energy policies. Unbeknownst to the government, many so-called U.S. oil companies had already evolved to think of themselves as transnational corporations beholden to no country. They secretly had deals with the Nazis and even provided them with fuel at sea for their submarines.

The Japanese used alcohol in their aircraft, the Zero. The Germans used alcohol made from potatoes; since fuel production was decentralized in distilleries, it took the Allies several years to bomb enough distilleries to dry up Germany's fuel supply.

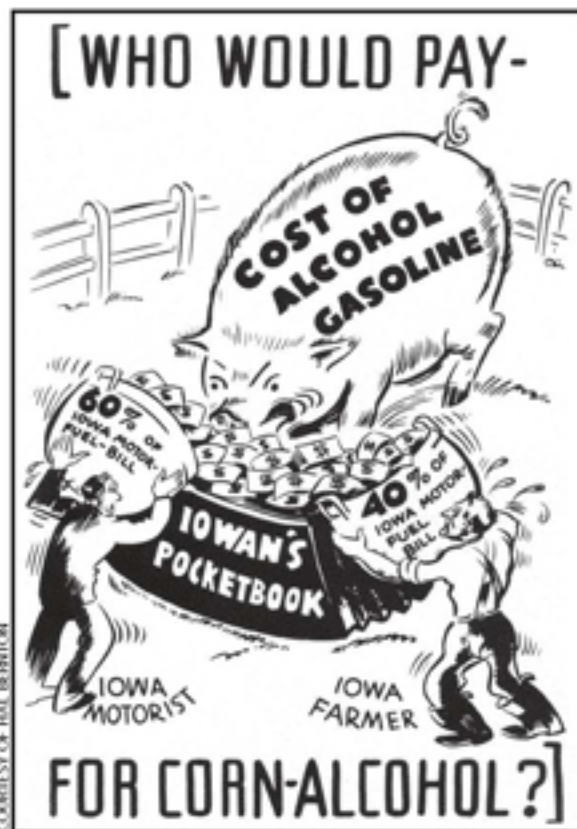


Fig. 1-7 Illustration in pamphlet circulated in 1933 by the Iowa Petroleum Council. The constant refrain that alcohol is a subsidized fuel, while supposedly gasoline is not, continues in American Petroleum Institute propaganda today. Oil companies attack any subsidy or tax benefit for alcohol fuel, while they reap billions in tax breaks.

The U.S. used alcohol fuel, too, made from wood (**cellulose!**) and other **biomass**.

Synthetic Rubber

One of the United States' problems in World War II was that the enemy had managed to cut off the country's supply of natural rubber by bombing Pearl Harbor. Six hundred million dollars were entrusted, mostly to Standard Oil and its subsidiaries, to develop synthetic rubber from oil, in order to provide the U.S. war effort the necessary feedstock for boots, tires, and other essential items.

At the same time, Standard Oil had an agreement with the largest chemical manufacturer in the world, Nazi-controlled I.G. Farben Company of Germany (supplier of chemicals to concentration camps), to restrain trade. As part of that agreement, Standard secretly dragged its feet and held up rubber production (and other forms of chemical production from oil); I.G. Farben meanwhile was to restrain its participation in the production of synthetic fuel from coal (which it had no intention of producing).

The oil-to-rubber process started losing credibility. It was obvious the oil companies couldn't (or wouldn't) have enough rubber available quickly enough to do any good. Around the middle of World War II, Senator Guy Gillette (D-Iowa) presented Congress with evidence that a synthetic rubber process using alcohol would cost one-tenth as much to set up as the oil process, would use one-fifth as much rationed steel, and could be operational within six to eight months, as compared to an oil-to-rubber plant requiring 18 months or more.

Two Polish scientists who testified at that congressional hearing had been smuggled into the U.S., protected by a British spy ring. The British Security Coordination had declared Standard Oil a "hostile and dangerous element of the enemy," and took these precautions to avoid a run-in with any corporation affiliated with the synthetic rubber program of the "enemy" before the hearing.

Oil-based-rubber production plants rose only toward war's end; they were still not operational as late as the Normandy invasion in 1944. Wartime alcohol plants were a smashing success, however,²¹ providing not only rubber, but explosives and fuel for aircraft—which provided reliable torpedo power, gave the U.S. a power edge, and made possible higher-elevation and extended operations using blends. (Many GIs remember "torpedo juice" hangovers.)

The nation's alcohol production capacity rebounded and grew fourfold between 1942 and 1944, to 600 million gallons. But at the end of the war, those late-starting petroleum-based synthetic rubber plants stood there, finally completed, built with our tax dollars, fueled by an expanded cheap petroleum supply from taxpayer-subsidized wells, delivered by taxpayer-subsidized pipelines and tankers—and supposedly able to produce synthetic rubber at 11 cents per pound compared to alcohol's 21 cents.²²

In 1942, Assistant U.S. Attorney General Thurman Arnold exposed Standard Oil in addressing Congress: "Not only was the production of synthetic rubber in this country absolutely stifled by Standard's adherence to the restrictions imposed on them by I.G. Farben—which they always loyally preserved—but after 1939, when Standard received permission from I.G. Farben to enter into negotiations with rubber companies, Standard proceeded to further retard the development of synthetic

Annual Value of Imported Oil from Selected Countries

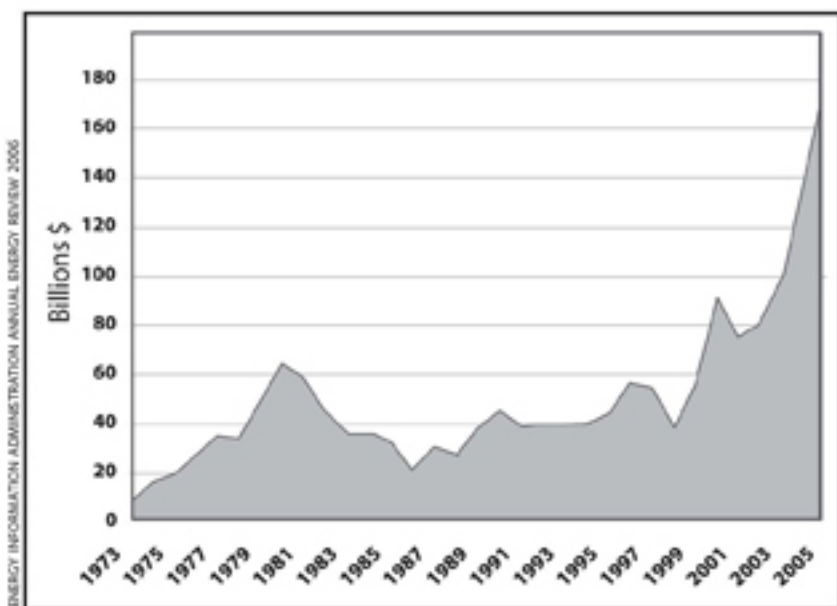


Fig. 1-8 Annual cost of petroleum imports. Once the U.S. peaked in oil production in 1970, it could no longer control world pricing of oil by increasing domestic production. The U.S. repeated its control strategy eventually by making Saudi Arabia an ally that could increase production to prevent price spikes through the 1990s. With Saudi production peaking and the worldwide functional peak of oil production, which started in late 2003, there is no longer any ability to manipulate the price of oil downward. Insufficient refining capacity worldwide inflames the issue. 2006 costs will take the graphed line far off the chart.

rubber because of its natural monopolistic desire to keep complete domination over this industry.²³

There it was, the bottom line, as various Defense and Energy Department boards (often composed of oil company executives) pointed out in their recommendations to the government: a “natural monopolistic desire” to dominate. They weren’t even subtle about it. Oil company lobbyists pushed legislators to abandon grain and cellulose alcohol plants. Contracts to dismantle the wartime alcohol plants were in many cases awarded to subsidiaries of oil corporations.

Immediately, oil-based synthetic rubber jumped in price—first to 15 cents per pound; then, with no alcohol-based competition to hold the price down, abruptly to 60 cents per pound.²⁴ Over the next few decades, the alcohol fuel movement went underground again, while the nation wallowed in surplus grain and commodities.

POST-WORLD WAR II TO NOW

In the 1950s through early ’70s, most Americans believed most everything Uncle Sam had to say. A country that could defeat Hitler, invent the atomic bomb, and provide a standard of living hitherto unknown in the history of the planet was a government to believe in. Things seemed pretty rosy.

But this period marked the peak and subsequent decline of American crude oil production, as had been foreseen years earlier. The decline in oil production at home didn’t make big news. The oil industry and the few government officials who were monitoring the situation didn’t see it as advantageous to advertise the fact. Besides, Vietnam was a lot more interesting than oil. In fact, it’s been suggested that a principal reason for U.S. involvement in Vietnam was to protect vital tungsten mines and rich offshore oil leases, which the United States felt would be lost if South Vietnam fell to the North.^{25,26,27}

In 1970, not long after oil production peaked in the U.S., a freak accident occurred in Libya: A bulldozer backed into a pipeline, causing it to be shut down for repairs. Suddenly there was a slight shortage of oil, and a bidding war erupted, causing a temporary spike in the price of oil worldwide. Up until that time, very few people realized how tight supply was with respect to demand.

But this incident sure woke up a sleeping giant. In October 1973, after the U.S. supported Israel in the Yom Kippur War (when Arab military forces



Fig. 1-9

invaded Israel), a group called the Organization of Petroleum Exporting Countries (OPEC)—certainly not a household word then—raised the price of oil \$3 a barrel, finally reaching \$11 over the next three months. It has been argued that the Saudis initiated this in order to scale back production so they could install water-injection equipment in their biggest oil field.²⁸

U.S. leaders appeared to be caught completely by surprise. There was nothing to do, said the oil companies; U.S. companies were all pumping at maximum capacity. The new high price of oil fanned inflation, closed factories, reduced employment, and gave Americans a hint of what was to come.

MegaOilron has always been deft in the exploitation of national crises such as war. The first oil crisis of 1973–74, in which this country’s imported Middle Eastern supplies were cut off, is a case in

The technologies for alcohol production are proven. Although additional production capacity is needed to make ethanol cost-competitive with petroleum-based gasoline, ethanol technology has advanced to a greater degree of commercialization than that for any other proposed synthetic fuel. Yet, we do not have the national commitment, we have not drafted the clear strategy, to let the private sector know that the developing alcohol fuels industry is a legitimate and important contributor to the Nation’s energy needs.

—FORMER INDIANA SENATOR BIRCH BAYH, MAY 1, 1980