stations marketing gasohol has grown from a handful a year ago to more than 700. President Carter told Iowans he would support a permanent extension of the tax exemption.

Iowans themselves have gone one better. They have exempted gasohol from state taxes of 6.5 cents a gallon. As a result, gasohol sales in Iowa in March this year amounted to 2.5 percent of the state's gasoline sales.

The state's tax exemption, however, brings the total tax subsidy to $44 per barrel of alcohol. To some economists that seems a high price to pay to avoid buying a $16 barrel of Arab oil.

The gasohol market doubtless merits incentives to get started, particularly since gasoline benefits from the oil depletion allowance and other advantages. Even if converting corn to alcohol makes no sense outside Iowa, other kinds of source material may prove more practical in time as the price of oil increases. Grain-carbohydrate fermentation has been fairly well explored; better potential for breakthroughs in production economics may lie in cellulose, an avenue that would draw upon forestry by-products and municipal wastes as a vast source of feedstock. Columnist Jack Anderson is vexed that the Carter Administration "has largely ignored our appeals" for a crash gasohol program and that "the oil industry has opposed them." Gulf Oil, however, has been experimenting with a cellulose to ethyl alcohol program since 1971. "It was our decision to stay away from the food chain. Food is a basic human energy need that supersedes all other energy needs," Gulf official George F. Huff told the House Science and Technology committee on 4 May. Gulf's process depends on enzymes to break down the cellulose (acid breakdown, the alternative, causes environmental disposal problems). The raw material is municipal waste, supplemented with paper-mill waste, sugarcane bagasse, or cotton gin trash, depending on what is locally available. If the demonstration plant proves successful, Gulf plans to invest $112 million in a plant that would produce 50 million gallons of alcohol a year from a daily input of 2000 tons of cellulosic waste. The alcohol will sell at $1.45 a gallon in 1983 (today's prices range from $1.20 to $1.50), giving Gulf a commercially viable process that yields a 15 percent return on investment.

If the 4 percent federal tax exemption is made permanent, alcohol fuel production from all biological material (excluding food or feed grains) could reach 600 million gallons a year by 1985, the Department of Energy estimates. This is a drop in the bucket which the national appetite requires. The alcohol would substitute for 40,000 barrels of petroleum a day. Provided that minimal amounts of petroleum were used in its manufacture, the alcohol would reduce petroleum imports by up to 0.4 percent.

That is no big help. But from the grass roots sentiment in favor of alcohol fuel, perhaps some new development will emerge to brighten the Department of Energy's forecast. As proponents will tell you at the drop of a hat, Henry Ford built the Model T with an adjustable carburetor so that it could run on alcohol, gasoline, or any mixture of the two. The conversion of biomass to ethanol is a national folk art hallowed by tradition if not by law. New research, according to biofuel enthusiast Sklar, has made clear why federal agents could never trace the illegal grain shipments from which they supposed Al Capone distilled the liquor supply for his fellow Chicagoans: Capone's feedstock came from a source over which he had better control—the city's garbage. Carter doubtless had something else in mind when he went to Des Moines and praised the forgotten old time uses and production of alcohol as "a classic example of American ingenuity."—NICHOLAS WADE

Brown Down on Weapons Link

The issue of University of California management of the Livermore and Los Alamos nuclear weapons laboratories came to a boil at a UC regents meeting on 18 May when Governor Jerry Brown, a regent, introduced a motion that would end university involvement in weapons work.

Action on the proposal was put over until the regents July meeting, but Brown's initiative moved the regents to the center of the stage in a growing debate over UC management of the labs (*Science*, 18 May).

Brown's motion would direct UC president David S. Saxon to terminate the university's management of the weapons labs, but left the way open for UC's continuing in the contractor's role at Livermore if that laboratory were converted entirely to nonmilitary work.

At a meeting of the regents special research projects committee the day before, Brown said that he feels that weapons laboratories doing secret work have no place in the university. He also advanced the idea that all weapons work be conducted at Los Alamos under new management.

Brown made his motion to terminate the contract at a meeting of the full regents board the next day. Action was postponed after William K. Coblentz, a San Francisco attorney, argued that there had not been enough discussion of the matter and moved to defer the issue.

The lead has been taken in the regents' scrutiny of the laboratories link by Stanley K. Sheinbaum, a Los Angeles economist and businessman. A Brown appointee to the board in 1977, Sheinbaum is vice-chairman of the regents' special research projects committee. He has informed himself on the labs matter and at the last two regents meetings has questioned the adequacy of university oversight of the laboratories.

The debate within the regents comes at a time when a regents' search committee is looking for a new chief for Los Alamos to replace long-time director Harold Agnew, who recently stepped down.

One name being mentioned as successor to Agnew is Donald M. Kerr, now acting deputy director in the Office of Energy Technology in the Department of Energy (DOE). It is understood that Kerr is favored for the post by DOE and the Department of Defense. Kerr is a former Los Alamos staff member and was an official at DOE's nuclear test site in Nevada.

The White House is said to be less than enthusiastic about the appointment since Kerr last year made public comments on the matter of testing to insure nuclear stockpile reliability which were interpreted as running counter to Administration views and were not cleared by the Administration.

The Kerr appointment is viewed as "informed speculation" at this point, in part because of impending changes in the DOE hierarchy; Kerr could be promoted within headquaters. The UC regents have formal authority to appoint lab directors on the recommendation of the university president, but DOE, which owns the labs, is consulted throughout and, historically, federal officials have had a direct role in selection.—J.W.

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