# Ammonia -- fuel of the future?

## North Bay man has ambitions to power our cars with ammonia. He has support but no funds

By Jack Miller Toronto Star

NORTH BAY — Gregory Vezina sits here with what some of the country's best experts believe is *the big answer* to everybody's energy problem.

He sits here, like his company, going broke.

The company is Canadian Alternative Energy Corp. and it's never taken in a cent of revenue. All the money that Vezina and his father-in-law and their friends have been able to raise for it has gone into research and development and now the bank account's about dry.

He looks around his cluttered office at the storm windows and left-over teddy bears he's been selling to keep his family in groceries lately, and wonders what it takes to make the right people listen.

He has his fans — all the way up to Governor-General Ed Schreyer. But none of them is in a position to *hand out grants.*

Ottawa rails about government millions going to ex-cabinet ministers to develop what could be poorer and dirtier replacements for gasoline. But after three years of work, after 16 months of demonstrations and studies and reports and blue-chip testimonials, the government still doesn't answer when Vezina calls.

He has a message. He wants to help Canada, and eventually the world, start a massive shift to ammonia as a fuel for cars and trucks. It can start small and slowly, he says. But it *should* start, because someday we'll *have* to do this and if we don't move now, we could have a panic when the next oil crisis hits.

### Today's cars

To most people, ammonia's almost unknown as a fuel, yet insiders recognize it as a terrific alternative to gasoline. And Vezina claims he has not only found a way to use it in today's cars, but to make it *cheaper,* too!

"In mass production," he figures, "it should cost about $1.80 for enough ammonia fuel to take a car as far as it would go on a gallon of gasoline.

"Ammonia's simply a compound of hydrogen and nitrogen," he says. It's made now mostly from natural gas. But it can be made in much bigger quantity directly from the elements.

"We can get all the nitrogen we need out of the air. And we can extract all the hydrogen we need from water, using an electrolysis process. That requires masses of electricity, but we have the capacity in this country to generate all the electricity we choose.

"Using ammonia, we'd never have to import a barrel of oil again. And there are other bonuses. We'd have a fuel with no carbon in it so it would burn virtualy pollution-free. And we'd be able to sell the technology to other countries that have been going broke importing oil."

Certainly some people have listened. Dr. Bryan Taylor of the National Research Council, one of Canada's most respected experts on energy sources, agrees Vezina's for real.

"Ammonia is a very good fuel," Taylor says. "It's produced in large quantity already for use as a fertilizer on farms, so we know how to make it and handle it. Greg Vezina's problem is bad timing, not bad technology.

Even Governor-General Ed Schreyer is a frustrated booster, trying to line Vezina up with industry people who might help get him rolling. "The lack of action distresses me," Schreyer says. "I like to think a tangible idea like this deserves at least a chance."

There's nothing new about the basic idea of ammonia as a motor fuel. The Belgians switched their entire national public transit system to run on it almost overnight in the Second World War because Germany seized all their diesel fuel. And a few years ago, the U.S. Army did a huge study that concluded ammonia was second only to gasoline as a fuel.

Vezina's a 26-year-old ex-radio-station publicity man who 16 months ago showed off a 1981 Chev V-8 that runs on ammonia instead of gasoline. He'd found a way to convert any car or truck in four hours, he said, at a cost of $1,200 per vehicle.

On Nov. 4, 1981, on Parliament Hill, with news cameras whirring, Marc Lalonde took the car for a spin and pronounced it "very interesting." This was "the type of thing we want to encourage and support."

Lalonde was federal energy minister at the time, agonizing in those days over how Canada could escape the tyranny of world oil prices.

Since then, nothing.

Peter Kleberg was trying a while ago for a Toronto cab license, to make ends meet. He finds these are scratch-for-a-living days. Kleberg's a young American chemistry whiz who helped Vezina prove today's cars can run smoothly and quietly on ammonia. Kleberg is president of Canadian Alternative Energy Corp. (Vezina's board chairman). But that doesn't pay his bills.

Out on his farm in Unity, Sask., Jack Kirkland's probably wondering if his friendly banker can stretch out any more financing for the company. Jack is Vezina's father-in-law. He raised the money to start this project and to bring Kleberg up from California in 1981, so the bunch of them could buy that bright new Chev Impala four-door V-8 and adapt it to run on their funny fuel.

It was sort of a Huck Finn job. They didn't have any fancy laboratory or industrial bankroll. They just got a kit designed to adapt a car engine to run on propane, and adapted it a bit more. It was not ideal, but it would do until they could afford a more scientific setup.

But ammonia works naturally in an engine with very high compression. It needs an additive for extra kick for a standard car motor. Vezina and his friends simply groped until they got the right additive formula. When they put a dab of this in pure ammonia, they call the mixture "HYDROFUEL". This month, they finally got approval of that name as a trademark, which is better than having no recognition at all.

Meanwhile, the giant Noranda Mines has put $6 million since 1976 into developing a prototype plant that would use massive amounts of electricity to extact hyroden from water. So making ammonia on Vezina's scale may not be impractical much longer.

"A 100-megawatt plant could produce 50 tons of hydrogen a day," says Noranda's Gerald Crawford.

But for all the talk by Vezina here and his friends elsewhere, the idea of ammonia in a car's gas tank still seemed somehow unreal. So he led the way downstairs from the office, to a big dingy garage that's used mostly by other companies. Sitting forlornly in a corner was the "HYDROFUEL" car that Marc Lalonde had driven in Ottawa.

It looked like any other 1981 Chev on the outside. Inside, too. The odometer showed 12,000 kilometres on it. It still carried its white and green Saskatchewan plates, number KJP-794. But under the hood and in the trunk, the differences showed. There was a new carburetor on the motor and two big hoses running into it, and a thing called a vaporizer on one side. And a new 22-gallon tank filled about a quarter of the trunk space.

I slipped behind the wheel. The motor started quickly when the key was turned. It ran unusually quietly. The car pulled away quickly, with about the pep I'd expect from a Chev running on gasoline.

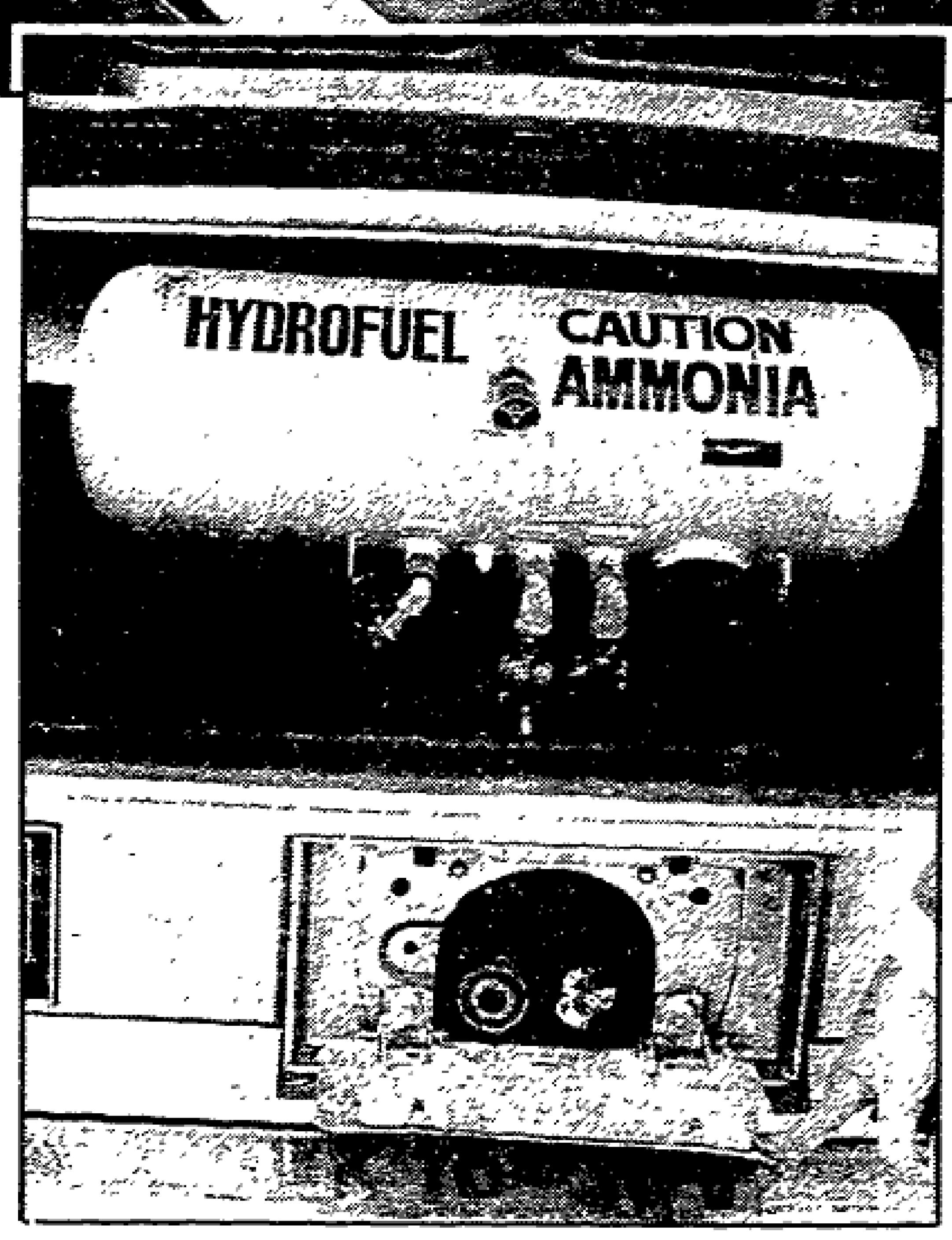
The drive took us to Vezina's home, a couple of miles along North Bay's frigid snow-covered roads.

### Office building

"I have to take the HYDROFUEL car back to the office building," he said. "It has to stay there because the big ammonia supply tank is there. There's nowhere else I could refuel, if I noticed suddenly that the tank was low." But he would need his regular car at the office, too, to get home in, later. Would I drive it there for him?

I agreed. His regular car was a Lincoln, one of Detroit's prizes. Vezina drove off in the ammonia car. I went to follow. The Lincoln stalled. It stalled three times. He wheeled back to see what was keeping me. I explained.

"It's cold," he shrugged. "And that one burns gasoline."




STAR PHOTO

**Few changes:** Greg Vezina shows the new carburator in his 1981 Chevy that enables the car to run on his ammonia mixture. At left is the big hydrofuel tank that he placed in the trunk.

# Grit denies connections aided sale of insurer

By James Daw Toronto Star

I.H. (Izzy) Asper, chairman of CanWest Capital Corp., has denied his Liberal Party connections had anything to do with a major life insurance company buying CanWest's life insurance subsidiary. Ottawa allowed the sale in what insurance industry sources say is a departure from past policy.

"We had no role in persuading the regulators," Asper, the former leader of the Manitobal Liberal Party, said in a telephone interview yesterday.

This was supported by Paul Cosgrove, secretary of state of finance, who said he has had no communications with officials of CanWest. "I have never met Izzy Asper," he said.

Cosgrove has granted North American Life Assurance Co. of Toronto permission to negotiate the purchase of shares of Monarch Life Assurance Co. of Winnipeg — the CanWest subsidiary — for $68 million.

Sources in the insurance industry have interpreted the move as a departure from past policies of the department of insurance, which falls under the department of finance.

### New rules

"I wouldn't say this decision is a new policy," Cosgrove replies. "I wouldn't generalize from this." Asked if his officials supported the decision, he said: "They presented me with a range of options."

"Historically, the superintendent (of insurance) has taken a position in opposition to mergers, unless one of the companies is in financal difficulties," said Alistair Rickard, editor of the Canadian Journal of Life Insurance.

"Monarch was not in financial difficulty," he added. "I wonder if other companies are happy the rules have apparently been changed without any consultation, as far as I know."

Rickard predicts a flood of applications for mergers, because the life insurance industry is already highly concentrated but has run out of permitted opportunities for expansion in Canada.

North American, with $2.1 billion in assets, ranks ninth among Canadian-based life-insurance companies. It still will if its policyholders approve of the purchase of Monarch, which has roughly $500 million in assets.

### Total business

While there are about 170 federally registered life insurers in Canada, North American and the other top 10 companies control about 60 per cent of the total business.

Asper, who owns about 20 per cent of CanWest, said North American's offer came as a surprise, as had the offer in October from Greymac Credit Corp. to buy CanWest's holding of Crown Trust Co. for $25 million.

But once rumors of the offer began circulating, other offers came in. He said the Monarch and Crown sales leave CanWest free of debt and ready to consider new investments.

Cosgrove said one reason he favored the merger of Monarch with a company such as North American was his concern for maintaining the trust of the public.

"I was mindful Crown Trust sent shockwaves through the financial system," he said.

Cosgrove noted that CanWest would not have needed regulatory approval for a sale of Monarch to a private investor. But the merger with North American gives regulators a chance to ensure that policyholders of both companies are treated equitably.

# Investors should be aware of changes in 1982 tax rules


Last in a series of eight articles

Anyone who has money earning more money is affected by an investment rulebook that has been rewritten since a year ago. It's not a brand-new ballgame, but it certainly is a new inning.

Providing the tax bill introduced Dec. 7 makes it into the lawbooks substantially intact, the changes will affect the 1982 tax return — the one you are working on now.

But, the major impact will be on investment decisions you make in the future. That's because minimizing tax is always a key investment aim, and the way the tax is applied is being changed in some cases.

If you have a Registered Retirement Savings Plan, own a cottage (or plan to buy one), or have invested in such securities as guaranteed investment certificates or Canada Savings Bonds, take a few minutes to consider what the changes mean to you.

The first thing investors should consider, however, is not a tax change but a new form from Revenue Canada called the T2219. As explained in item 28A in the income tax guide, you should complete a T2219 if you're claiming more than $400 in interest expense on money borrowed to invest.

Clyde King, who heads the public affairs department in Toronto's tax office, says the form asks you for details on investment loans which Revenue Canada already had the right to demand from you. But, for the first time, there's a form for the purpose.

More to the point, if you have more than $400 in interest-expense claims and don't file the new form, your tax rebate (if you have one coming) may be held up while Revenue Canada contacts you for the information.

The form is *not* included in your tax package. You must pick one up at your local tax office — in Toronto on the second floor at 36 Adelaide St. E.

As for the tax changes, chartered accountant Sydney Mamott of Laventhol & Horwath provided the following synopsis of the main changes affecting the average investor, along with suggestions for living with the new rules:

☐ You no longer are allowed to deduct the interest on money borrowed for contributions to Registered Retirement Savings Plans.

Mamott stresses that "RRSPs are still a terrific way to provide for your retirement." But try to borrow for deductible investments — that is, investments outside an RRSP — "and use cash for RRSPs."

### Financial institution

He adds there is a lesson in the trust-companies crisis: Be careful not to have more than $20,000 of deposit-type investments with any financial institution. Though Ottawa plans to increase deposit insurance limits to $60,000, the present ceiling is still $20,000.

☐ If you had a term deposit, Canada Savings Bond or other interest-earning investment of more than three years' maturity, you used to be able to put off paying tax on the interest income until the investment matured.

For interest earned after 1981, however, the maximum tax deferral is three years.

For someone who does not use all of the $1,000 investment income deduction each year, there's an easy way to avoid this tax blow every three years, Mamott suggests.

You can elect to pay tax on your investment income every year on what is called the accrual basis — meaning you accept the tax liability each year for investment income earned but not received.

However, you don't actually *pay* the tax if your investment income in a particular year remains within the tax-free $1,000 allowed.

This annual election can be applied individually to savings bonds, investment certificates and other investments, but it's up to you to keep track.

Comments Mamott: "Even a small investor has a problem in that his record-keeping has been trebled."

☐ Apart from the pleasures of owning a home and its advantages for bringing up a family, a properly chosen home is a sound investment because the gain in value of a "principal residence" over the years is not taxed when the property is sold.

This hasn't changed. What has changed is a liberal interpretation of the rules that allowed a second tax-free principal residence within a family. It has been common for one spouse to own the city home and the other to have title to the country cottage, with both avoiding capital gains tax if the properties were sold.

As of Jan. 1, 1982, only one principal residence is allowed per family. When one property is sold, you will have to decide which is to be the principal residence. The other will be subject to capital-gains tax as measured from the gain in value since the end of 1981 (one half is taxable).

Mamott notes that a second property sold now is unlikely to attract tax because of the slump in real estate prices in 1982. But now's the time to plan for a possible sale five or 10 years from now.

And here we come to yet another tax change in the Dec. 7 bill. From now on, capital gains tax must be paid within five years of the sale of a property. This means that, if you sell your cottage 10 years from now, when presumably it will have gained in value, you will be subject to capital gains tax that must be paid within five years.

But if you take back a 20-year mortgage on selling the cottage, you conceivably could end up borrowing to pay your tax because you have not received all the cash from the sale.

### Principal residence

This consideration need not dissuade you from buying or selling a cottage, but it's something to keep in mind.

Mamott points out that if two properties are owned jointly by both spouses, both will be subject to tax on sale of one of the properties, no matter whose principal residence it is.

So it's still better for the husband to own one property, the wife the other. And, where one spouse is in a higher tax bracket than the other, the more valuable property should ideally be owned by the lower-income spouse so that less tax will be owed if that property is sold.