

PHOTO CAPTION: 2005 model Toyota Corolla Verso -- sold only in Europe -- is potential candidate for conversion to all-electric drive by Finnish group. The first conversion is slated to be completed by the end of 2008.

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## Finland's 'Open Source' Electric Car Plan

By Bill Moore

### Electric car enthusiasts plan to create 'open source' electric cars for their nation

When I think of faraway Finland, I think of long, dark winters, saunas, reindeer and Nokia cellular telephones. I don't think of electric cars... until now.

Inspired by the 'Open Source' movement, a small group of Finns have embarked on a venture to convert hundreds of formerly internal combustion engine cars to all electric... and do it for about the price of new car in Finland.

Here's how they plan to it, according to Jiri Räsänen, a young Finnish social worker and member of the Finnish electric vehicle association.

Last summer, a group of like-minded electric car enthusiasts got together to brainstorm how they might bring EVs to Finland. While Norway has been the Scandinavian hotbed for battery car development with [Th!nk Global](#) and [ElbilNorge](#) producing small numbers of cars, the Finns have been proverbially left out in the cold except for the efforts of a few folks in the Finnish electric vehicle association.

Since Finland doesn't produce its own automobiles, it has to import cars, the two top sellers being the Volkswagen Golf and Toyota Corolla. Whether the group was inspired by the efforts to [Electro Autos Eficaces de Mexico](#) or not, isn't clear, but the Finnish group settled on a similar solution to the paucity of available and *affordable* electric cars: they would convert Corollas to all-electric drive. The Mexican group chose Nissan Sentras, known as Tsurus in their country.

To access the level of interest in the idea, the group -- now made up of about 20 people, Räsänen estimates -- began conducting market research three months ago. Using the Internet, they got some 700

individuals to answer their questionnaire and a total of 1000 who expressed interest as "subscribers" to the program.

It turns out that because of Finnish tax laws, it is cheaper to buy a 3 year-old car imported from Germany than the same car in Finland, and in that price difference, the group sees their opportunity. Rather than create a formal business to import, convert and sell cars, the group plans to retain its free-wheeling 'Open Source' approach where decisions are made by consensus.

According to Räsänen, the group initially will engineer the conversion, that will come in two options: a 150 km (93 mi) range model with the lithium ion battery pack mounted in the front; and a 300 km (180 mi) range model in which a second pack is installed in the trunk. At the present time, no decisions have been made with respect to the motor and controller they will use, or whose battery they will install. The group will also develop the battery management system. The target top speed of the vehicle is 130-140 km/hr (80-85 mph) with accelerating faster than the stock Corolla.

Once the first vehicle has been engineered, the job of producing them in numbers again follows a model pioneered in Mexico City where selected auto maintenance shops will be responsible to completing the conversion. The Open Source group sees its job then as a logistics manager, making sure the conversion shops have the parts they need for the conversions they are slated to do. The group will not be involved in the movement of money, Räsänen stressed.

It will be up to the car owner to acquire the donor vehicle, which doesn't necessarily have to be limited to European Corollas. As Räsänen explained, EV conversions in Finland "may take many roads." Presumably, the Open Source team would continue its efforts by engineering conversions of other vehicles like the VW Golf. The removed internal combustion engines and related accessories will have a ready market in Finland where the average age of personal automobiles is 12 years.

The target price for the complete conversion, including the vehicle, is € 25,000 (US\$39,500), which is just a bit more than the price of a new Corolla in Finland. Räsänen estimates that the first vehicle will be ready by the end of 2008.

Besides Finnish interest in the program, the group has been approached by a Norwegian firm that wants 300 of the converted Corollas as soon as they are available. They are also in negotiations with one of Finland's largest retailers, which operates some 73 gasoline refueling stations around the country, to provide electric charging.

More information is available -- if you can read Finnish -- at [www.sahkoautot.fi](http://www.sahkoautot.fi).

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