

shown to be true of most turbines, even those spinning on large, utility-owned wind farms. In addition, it takes three to nine months of wading through bureaucracy to get the permits needed to install the units.

"I was a young man blinded by passion," McCain said.

In addition, he found himself in an industry where companies and installers would be here one day and gone the next.

One of those companies, Prevailing Power LLC in Shenandoah, has shuttered its facility after complaints from customers in Iowa drew the attention of the Iowa attorney general. In addition, the company was poised to win \$300,000 from Colorado Springs, Colo., to help it open a wind turbine manufacturing factory. That deal fell through after Colorado Springs officials learned about the company's problems in Iowa.

When Farm Boy Energy Inc. closed its doors in Des Moines last year, it left behind 49 customers in Iowa, California, Illinois, Minnesota, Oklahoma and Texas who might have had claims against the company related to installation or incomplete installation of wind turbines, according to the bankruptcy filing of its former president, Michael Pagano.

McCain said one of the problems with small wind has been that some companies have relied on turbines shipped from overseas, China in particular, that either have not arrived as promised or have not functioned properly when they have been installed.

"We've backloaded this market with stuff that wasn't tried and true," he said.

In addition, many homeowners do not want 100-foot towers looming over their homes, opting instead for shorter towers that do not capture enough wind to allow the turbines to operate at top ratings.

And there is the noise. On a recent day when McCain was demonstrating a silent plug-in charger for electric vehicles, he received a telephone call from a customer who wanted to know whether her turbine would always make "that much noise."

In theory, residential customers can sell excess electrical power generated by their wind turbines to utility companies. However, that arrangement typically is made as an adjustment to a utility bill and is calculated at the utilities' wholesale cost for wind, which is less than their retail charge to a customer.

It all adds up to a disappointment for McCain, who has testified before the Iowa General Assembly in support of proposed laws that would have been more favorable to residential consumers and has sought the adoption of standards for the manufacture and installation of small-scale turbines.

Those laws and standards have not been adopted.

All of those disappointments with wind have turned McCain's attention to electric vehicles and solar.

He is particularly keen on establishing an infrastructure that will allow electric cars and trucks to cruise the nation's highways free from the fear of