Drive Oregon

Innovation in Electric Mobility

Member of the Month November 2014

Hans van der Meer of EV4 Oregon took time out of his busy schedule to chat with us about his company. As President and CEO, Hans is the driving force behind this Portland-based company that offers innovative quick-charge electric vehicle stations.

1. Tell us more about EV4 Oregon - why did you start the company and what is your main product?

A former employee pitched the idea of starting a new business together, pointing out the emerging electric vehicle market offered exciting new business opportunities. With my background in civil engineering and experience running engineering firms, I felt ready to take on the challenge. We established the company in early 2010 and completed our first project - a solar powered ETM™ (Energy Transfer Station, a play on ATM) charging station with Level 2 chargers – in late 2010. The colleague has moved onto other endeavors in 2012, so I have been the sole owner since then and am enjoying all the puzzle solving I do every day.

EV4 Oregon designs, builds, and installs electric vehicle charging stations that are powered, in part, by renewable solar energy. We also offer a quick-charge station with a battery back-up system, which is the first of its kind on the market. A subsidiary, EV2Charge LLC, manages the installed charging stations, ensuring they are operational and overseeing the billing and payments system.

To fund our projects, we rely on investors. Presently the investor-owner of the station is using state and federal tax credits to lower his "out-of-pocket" expense to build the station. This, in addition to revenue generated from charging drivers to use the stations, makes it an attractive investment to investors.

EV4 Oregon's first installation is located in Tualatin, at Powin Energy's main offices, and is a great demonstration of the technology's benefits.

2. What makes your quick-charge station unique compared to other fast charge stations? Can you share where some of your stations are?

Our quick-charge stations have a battery storage system and, as a result, do not need a 3-phase, 480V-AC connection to the grid. In a nutshell, this is how it works: we connect the battery to the grid and "trickle-charge" the battery over hours, using a standard single-phase, 120/240V-AC grid connection. When a car pulls up to quick-charge, the power is pulled from the battery.

The benefits to this kind of system are numerous. For one, many ideal locations for chargers do not have 3-phase connections to the grid and it is extremely expensive to install the needed conduit and equipment needed - costs can range between $15,000 to $60,000 or more! Our quick-charger does not require that kind of hook-up and so we avoid those extra installation costs. Another way our battery based quick-charger system saves money is by avoiding demand charges. These are extra charges tacked on by utilities to electricity users whose power demand occasionally spikes 50kW. Some utilities, like PGE, have a special rate for quick-charger station operators, but some do not and so traditional quick-charge station operators are often hit with these extra chargers that can amount to thousands of dollars per month. Because our battery storage system "trickle charges" off a standard grid connection, we don't have to worry about these costs. Taken together, these benefits mean our station is a big winner in the cost-savings, in spite of the added battery and management system expenses.

We see a huge market for our battery based quick-charge system in non-metropolitan areas, where there is going to be a growing demand for electric vehicle fast-charging, but where the current grid infrastructure is not able to support traditional 3-phase quick-chargers. We currently have stations in Tualatin, Tillamook, and Portland, and are seeking to land more investment to install an additional 35 stations across Oregon.

3. What companies do you work with to make your stations and installations a reality?

EV4 Oregon relies on a network of businesses in Oregon, including some other Drive Oregon member companies. We work closely with Powin Energy to design and produce the battery and battery management system in our quick-charger. We also contract with a subsidiary of Powin, QBF Inc., to manufacture the steel frame that holds up the solar panels. Both of these firms are out in Tualatin, Oregon. For our projects that use level 2 stations and for all our payment processing solutions, we look to OpConnect - this firm is located in SW Portland and has been a great partner. When we begin planning the installations, I turn to a variety of local electrical contractors including Christenson Electric (Portland-based), Cherry City Electric (Salem- and Vancouver-based), and McKinstry.

EV4 Oregon also works with ABB, a global leader in power and automation systems based in Zurich, Switzerland. In partnership with their development office in the Netherlands, we've designed a modified DC quick-charger that takes DC input instead of the traditional 3-phase AC. This DC2DC™ system (patent-pending) is magnitudes more efficient than conventional stations, and we're excited to be bringing this improved charging station to market.

It's been wonderful to work with local and global companies that are as enthusiastic about electric vehicle technology as we are, and open to exploring new solutions to market challenges.

4. What is your firm looking for, in terms of partnerships or resources, to continue its growth?

We are actively looking for additional investors to support our projects, in particular the project that would enable us to install 35 battery based DC fast charging stations across Oregon. We're about 1/3 of the way toward our $6 million goal and working with ODOT (the Oregon Department

Hans van der Meer of EV 4 Oregon with a colleague, at the installation of one of his charging stations developed in partnership with ABB.

of Transportation) to ensure we're putting stations in the best locations. We want to play a role in strengthening the impressive network of charging options the state already has.

5. As a Drive Oregon member, what has been the greatest benefit for your firm?

Without a doubt, the greatest benefit was the grant funding you provided us in the fall of 2012. The $42,000 grant, along with other incoming funding, enabled EV4 Oregon to invest in developing the battery based technology with Powin Energy and ABB that has such a large market potential. If we had not gotten that additional support, we would certainly not be where we are today - putting stations in the ground and looking for how to further improve our technology.

6. Finally, what do you see ahead in the future for your firm?

More projects! As I've mentioned, EV4 Oregon is seeking funding for a project that would install 35 battery back-up quick-charge stations across Oregon's non-urban areas. We're also speaking with the City of Portland, the Portland Development Commission, and Drive Oregon to see if an EV4 Oregon quick-charger with a solar canopy can be installed in the soon-to-be relocated Electric Avenue.

Other than new projects, we're exploring other ways to generate revenue. The installs we do now pencil out because of the tax credits our investors can earn, but in the future we will need to find other value streams. Advertising on the stations or offering other value-generating services at the stations are routes we're looking at right now.

We're confident the need for charging stations will grow as more consumers switch from gas to electric - and we're proud to be a local Oregon company offering an innovative, cost-effective charging solution!

EV4 Oregon's first installed ETM™ station with a solar canopy, located in NE Portland.

http://driveoregon.org/innovate/member-month/november-2014