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FROM: <l.galvany@ampeer.info> Lou Galvany, Lead Hardware Engineer  
DATE: April 1, 2013  
SUBJECT: Power reporting infrastructure

Ed,

Just wanted to get back to you regarding the solutions we've figured out for getting devices to report their power use back to the base station.

Plenty of new devices (especially smart devices—all of that “Internet of Things” garbage, for instance) will be ZigBee-enabled. In case you're unaware, ZigBee is just IEEE 802.15.4, which has been gaining a lot of traction recently. So if we build in ZigBee to the Ampeer base station, it will be trivial for those devices to just self-report how much power they're using. It's a tiny amount of data so there won't be any bandwidth problems. We've been working with prototypes and haven't had any problems with a couple dozen ZigBee devices talking simultaneously to the base unit. So going forward, more and more devices will be able to just update the base unit with their current power consumption. We figure that more and more smart devices will want to advertise as being “Ampeer Ready” once we get these things out on the shelves.

The problem, of course, is with older devices that don't have ZigBee. Obviously, people have a lot of electrical devices and appliances, and they're not going to suddenly replace all of them with new ones. This is a real problem for big appliances like refrigerators and dishwashers because they're more expensive and people tend to keep them for a long time—Nancy and I have had the same refrigerator for ten or eleven years, for instance. But to make the Ampeer worthwhile it's going to need to get that data.

Luckily, we've got a pretty sweet solution. All we need to do is make some plug-in pass-through modules with ZigBee capabilities—a little box that plugs into a power outlet with a power outlet of its own for the device to plug in to. The box will meter the electricity use of whatever is plugged into it and send that back wirelessly to the Ampeer. A bunch of generic meters like this are already out there—they just read out the current usage on a little LCD on the box—so these will be no problem for us to design. I figure we can cover our costs and then some at about \$25 a pop. We could also sell replacement power outlets as a higher-end solution. It's a cleaner design since you don't end up with anything sticking out of the wall, but I figure most people aren't comfortable replacing their own outlets even though it's pretty easy to do. This might be something customers would want to roll out in new construction, though.

Let us know how this sounds, and how you want us to proceed regarding the pass-through plugs versus power outlets. We should be able to finish the design and send it off to one of the Chinese OEMs by the end of the month.

Lou