



Transcript of

Update interview with Mr. Eric Apfelbach,



President and CEO of ZBB Energy Corporation



NYSE Amex: ZBB

**Smallcaps.us:** Hello to all our listeners and thanks for tuning in for what we're sure is another exciting Smallcaps.us interview. Today we're joined by Mr. Eric Apfelbach, President and CEO of ZBB Energy Corporation, which develops smart electrical power management systems.

**ZBB is listed on the New York Stock Exchange Amex market under ticker symbol ZBB. Eric, it's been just over a year since we last spoke, so we're delighted to have you back for an update. Welcome!**

**Eric Apfelbach:** Thank you.

**Smallcaps.us:** To help refresh the memories of our long-time listeners and to give newer listeners a proper introduction, can you give us a brief recap of ZBB and its activities?

**Eric Apfelbach:** Sure, ZBB has two major product lines that we've connected together to form an integrated system. So we make Zinc Bromide flow batteries is one of our product line; and we have an intelligent power electronics platform that we call the Power & Energy Control Center or the PECC.

And that system, I like to use the analogy that it's like the CISCO router on the internet only we route power. We've made that system so that it is modular, plug and play, and scalable for any power situation. And we use any type of battery on the market, we prefer for many applications our zinc bromide battery.

So our major market segments are that we go into buildings and put in an intelligent storage system that can interact with the grid, on or off, and we can integrate any renewable or distributed generation devices right into our PECC and it basically manages grid interaction and the storage.

Our core of where the product is exciting is – we form this intelligent storage system that can basically, in a building, capture many value streams. So we do peak shaving, we do time shifting of renewables, we do back-ups, so people can get rid of diesel gen sets, and then our “virtual powerplant” as we call it, can also be

used off grid, and there we're really focusing on small village power and off-grid telecom powers.

**Smallcaps.us:** Thank you. And would you give us an overview of ZBB's current products and also give us a peek into the future? What items does ZBB have under development?

**Eric Apfelbach:** Yes, there's two main thrust we have on product development right now. We're on to our V3, our version 3 battery and for the flow battery world that's going to be the most advanced battery out there. The V3 design target and why it's so industry changing is because these installations require deep cycling, wide temperature range, and low cost of ownership as measured over a renewable energy project life.

So, people get a 20-year power purchase agreement and they have 20-year guarantees on their solar cells, so your storage system has to be able to have the lowest cost of ownership over that 20-year span. Right now we're modeling that our V3 battery has about a third the cost of ownership, total cost of ownership, versus lead acid batteries, which historically people think of as being the cheapest. Well, in reality for these real world applications, flow batteries are going to be the cheapest way to maximize the use of your renewables.

The other major project thrust, we have developed and patented this PECC system that I just mentioned. It's got a very unique architecture, it's been deployed in the field for almost 2 years now, running real world off-grid buildings, and it's been completely trouble free, so that development effort is really around optimizing its simplicity, reducing cost, adding features and benefits. We currently have our own UL inverters under test at UL and so we have complete UL 1741 grid tie, which will be available within a few months. And we have a range of power going up to 250 kW power out of one of these systems. So, again it's going to be the most efficient, the lowest project cost and the most capable electronics platform out there by a long way and we think we got a big lead in that industry.

**Smallcaps.us: That's certainly impressive. Now, since I last interviewed you, ZBB has acquired Tier Electronics. What can you tell us about that company and its suitability to complement ZBB?**

**Eric Apfelbach:** The Tier Electronics acquisition was exciting for us because Tier was founded and run by a gentleman named Jeff Reichard who's a well-known expert and visionary power electronics design person. He has been responsible for designing things like the inverters and wind capability that American superconductor uses. He sold another company to them at one point. So, his capability at Tier is so high, it just happens that the company was a quarter mile from our facility, we were already working with him on some key programs, and then it became natural that the two companies should work together closer, so we acquired them and close that in January of this year.

Our whole strategy there is that we want to have the fastest product cycle times, so we can respond to customer's needs in these developing renewable energy and smart grid world. We're going to be the fastest and best product development house anywhere, that's our goal! And the combination of Tier with ZBB really gives us that capability and we're seeing product development cycles come out at very high rates now from ZBB.

**Smallcaps.us: You also reached a very nice deal with Honam Petrochemical. Can you describe the deal and its benefits for both the Company and its shareholders?**

**Eric Apfelbach:** Yes, our view on storage flow batteries is that they are the lowest cost solutions for these on a global basis and my view is that we have to have the highest tech/lowest cost battery in that market.

We have a partnership strategy here. Honam is a \$12 billion plastics company and does a huge amount of research on base materials for batteries in South Korea and I think anybody who looks at South Korea, they know that in terms of price performance of any high tech product, they tend to be the leaders and we're

excited because the capabilities and knowledge base within Honam literally complement us exactly. They wanted to be involved in flow batteries, but had no prior experience with it; and we obviously have all the flow battery experience and needed better depth on technology in the materials themselves to really leapfrog on price performance. And that relationship is going extremely well and we expect again, to maintain the lead in flow battery with that relationship. And our view is we want to be the global scale, lowest producer of flow batteries and that's what that will facilitate.

**Smallcaps.us: Okay. Clearly, things are moving in the right direction. ZBB is expanding and you're experiencing a sharp rise in orders in North America and overseas. So, how is ZBB handling this growth?**

**Eric Apfelbach:** Well, yes you're right, we're still a small company by many standards. We are hiring people, we're growing, we are very busy, which is good; and you're right, basically we have to do a lot of planning on what we bite off with all of the demand around the world. Partnership strategy is one way we're handling the growth.

Strategically, we have engineered our products, both the battery and the electronics, so that they are very scalable and can be ramped up in manufacturing very quickly. This comes from engineering in automated manufacturing here in the V3 design cycle and also engineering and commonality in parts and design and subsystems in the electronics. So we have a very streamlined supply chain and manufacturing process.

Again, it doesn't have a lot of manual labor in it and can be ramped very quickly, and without a lot of capital expense. And that's where we're positioned extremely well. Our current facility here in Milwaukee, just on the battery side in our current facility, we got enough installed capacity to go up into the \$36 – \$40 million range on revenue and that's a nice place to be because we don't want to consume huge cash to ramp.

**Smallcaps.us: Orders have also been coming from abroad. How has China's interest, for example, in ZBB impacted the Company?**

**Eric Apfelbach:** Yes, we bought business in China. As most people know it's a massive market. They are very well financed and focused to have a smart grid, and they have infrastructure development in China, they got extremely strong wind and solar propagation plan there, and also they are pushing car charging and electrification of the car fleet.

So when those things come together, as well as drivers like... they have a more unstable grid than we do here in the U.S. and they use a lot of diesel gen sets, we can alleviate all those problems while giving them a path to the future. So the amount of business in China that you can get is staggering.

Right now they've got massive programs in every type of storage, and every type of power electronics and distributed generation. So, our intent there is to be a lead player in the flow battery space and in the smart power electronics space in China. Obviously, it's a lot to take on, we view it as one of the top growth markets in the world obviously.

**Smallcaps.us: I see. And all these orders have led to a record backlog of \$6 million dollars?**

**Eric Apfelbach:** Yes, we have a very good backlog going into the end of the year. We are putting the V3 battery through design validation right now so it starts shipping in September and the UL 1741 is happening now so that will also start shipping in about the August timeframe with the UL grid tie capabilities. So we expect our backlog to continually grow. And then most of it will come from a mix of business and geography that we're seeing now as a similar mix, but we're seeing a very strong funnel.

**Smallcaps.us: We've also noticed that since our first interview, ZBB has done well in the financing department, successfully raising several millions of dollars with relative ease. Can you comment on this and do you expect**

**this ability to continue?**

**Eric Apfelbach:** Yes, we've been very fortunate. Our capital strategy has been one where we want long-term strategic investor. And we've spent some time to bring a lot of people in and show them what we're doing. And I think the combination of our executions and what we've told people we're going to do, along with the exciting prospects for the company have very strategically-minded investors that are excited about the growth they can get in the stock.

So we've been able to raise capital off our shelf. And also on S1 as we needed it, and we would expect that to continue. And we believe that as we hit these milestones and start to release these new products in the fall, we'll see some appreciation in our stock and allow us to raise capital at less dilutive amounts over time.

**Smallcaps.us: Fantastic. And can you shed some light on the tax credit of \$14.35 million dollars that ZBB received? Why did you receive that and how does the Company plan to use the credit?**

**Eric Apfelbach:** This is a 48C IRS tax credit. It is roughly a 30% tax credit based on the amount of equipment we buy, so we are currently contemplating our next phase of capacity that would require us to spend a fair amount of money, up to \$50 million on equipment for an automated factory for both power electronics and the battery. So, it's a great program, because we can basically reduce the cost to capital by a substantial portion and be able to ramp manufacturing quickly. And so we're fortunate to have that there and be able to use it as the market picks up.

As you can imagine a lot of customers when they look at the grid and situations like the growth in China, some of the request for the scaling factor on flow batteries and electronics gets pretty large, pretty fast, so we have no doubt that as these markets develop, we'll need to expand out of our current building, and consume that credit.

**Smallcaps.us: Before we go, do you have any final thoughts you'd like to share with our listeners, and where would you like to see ZBB in 12 months from now?**

**Eric Apfelbach:** Yes, obviously we're transitioning to a very high growth phase in the company. We're extremely excited about it because what we see as what's going on right now is – distributed solar is starting to get towards grid parity in many places in the country, and we see places like Hawaii and California which already are having unstable grid situations due to the saturation of distributed renewables. These things are going to come together.

We're having requests from grid operators and utilities asking: "Okay, we love what you're doing if we have the smart storage in these buildings, we're not going to need to do things like "demand response" where we turn off your lights and your air-conditioning. Instead the model will be – we're just going to request your

PECC to use a storage periodically and customers will not have to turn off their lights, or their air-conditioning, because they're going to add smart storage out near the loads.

And that smart storage is going to be managing the renewables, giving the grid operator the ability to have stabilization and there won't be big voltage dips. Again because the building will automatically be running on the storage if there is a peak in demand. And that is the future, we believe, where things are headed. And they're heading there fairly quickly, so we're excited about what this new kind of smart grid smart storage world will look like and we're really well positioned for it.

**Smallcaps.us: Well Eric, it's been a pleasure. Thanks for taking time out of your schedule to speak with us, and we look forward to getting back in touch for another update.**

**Eric Apfelbach:** Great. Thank you.

## **Interview Feedback**

We welcome your questions and feedback regarding this interview at: <http://smallcaps.us/smallcaps-us-captures-the-mood-at-zbb-energy-in-a-new-interview>

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