

Building a new business model in Egypt - an interview with Ahmed Zahran, CEO, KarmSolar

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Power distribution entrepreneur combines solar and grid power for commercial projects across Egypt, seeking 100% renewables penetration gradually; innovative business model finds new ways to finance SMEs

KarmSolar (<https://www.karmsolar.com/>) was founded in 2011 by Ahmed Zahran, Randa Fahmy, Yumna Madi, and Xavier Auclair in a cafe in Zamalek with a vision to empower Egyptian businesses and communities with renewable energy. The name KarmSolar was inspired by Karm Eco-lodge in the St. Catherine's area of Sinai where the founders were on retreat.

We met Ahmed at the Egypt Energy conference (<https://energy-utilities.com/egypt-energy-outlines-plans-for-regional-power-news119263.html>) in Cairo last fall and got together again for an interview last week.

Energy & Utilities You founded the company in 2011. What was the need you saw in Egypt which led to KarmSolar?

Ahmed Zahran I never saw myself as an entrepreneur. I was working in renewable energy investment, but the revolution happened that year and I lost my job.

E&U So you had a background in renewable energy, you knew the market and needs in Egypt?

AZ Not really. I had been working outside of Egypt, in gas distribution and trading with Shell. But I didn't have much experience in renewables.

E&U Was your focus initially on off-grid?

AZ Yes, when we started it was. We got a patent for powering submersible pumps using solar energy. We developed software to run the pumps using variable frequency drives, so the pumps could use solar power. That was new at the time. That helped us to sell our systems to farms in the western desert.

E&U Are you still in that business?

AZ We were out after three or four years, after small shops figured out how to use inverters and do the work much more cheaply, far less efficiently than us but it didn't matter.

E&U What was your next move?

AZ We started investing in solar stations for cellular towers and signed our first contract in 2015. And we were the first company in Egypt to get licensed to sell kilowatt-hours from a solar station.

E&U When did you move into power distribution?

AZ In 2018 we decided to expand our business model to more than power generation. We started investing in power distribution grids, grid connected and off-grid. That business grew very quickly. Most of our business at the moment is connected to the grid, but we're interested in off-grid as well.

E&U What was the business case for distribution?

AZ We realized, for renewable energy to become the mainstream source of electricity, it's not enough to just be solar developers, it doesn't make sense to limit investment in solar stations, because you can't grow with the system. The solar penetration depends on the system. The way to increase the penetration is by controlling the entire system, so we are able to control the entire energy mix, not just the renewable part.

E&U Is that part of a renewables strategy?

AZ Yes. You phase out the fossil fuel part, bit by bit, and increase renewable energy penetration.

E&U When you develop a system, for example for resorts, you're developing a hybrid system with solar panels and diesel power?

AZ Yes, at the beginning it was the diesel gensets plus solar. Then we connected them to the national grid, with support from their on-site solar station. For example, we built the Marsa Alam Solar Grid (for the Red Sea resort town), connecting five different concessions we have.

We control the energy mix, part of the kilowatt-hours we buy from the government utility, we resell to the clients, and the other part we generate from solar. And every year we increase the solar component, until eventually it will become 100% solar.

E&U What is the solar penetration for the Marsa Alam Solar Grid today?

AZ About 30% solar penetration. The total capacity of the grid is 10.9 MVA, at this point about 3.5 MVA is operational, this is expected to climb to 5 MVA by end of this year. We're expected to reach the maximum in three years.

E&U What is the solar capacity as of now?

AZ Right now about 1 MW. This will increase to 100% of grid power in three years.

E&U So it's a project in process.

AZ Yes. The project is financed, it is operational and keeps expanding.

E&U What other projects are you working on now?

AZ We just reached financial closure for the Farafra Solar Grid. It will provide about 100k hectares of farms with electricity. The mix is solar plus diesel, with batteries. The solar penetration on the first day of operations will be about 61%. It's about 3.5 MW solar, and 3.25 MWh storage capacity.

E&U What about your commercial zone projects?

AZ We have the Marakez retail district project, at 23 MVA, it began operation this month although the solar penetration is still very low. In West Cairo we have the Arkan commercial zone, it's 15 MVA.

E&U You've created a way to help commercial tenants to finance their power purchases. How does that work?

AZ It's not financing power purchases, it's financing anything.

The beauty of power distribution is that it allows you to build a platform of connected power meters. So we get to see a lot of data, the consumption, payment and non-payment, and can correlate power consumption with the business activities.

SME's have difficulty getting financing from banks, it takes a lot of time, a lot of paperwork. So we devised a new way by which financial institutions can develop a credit score for the subscribers to our power grid. We're using the data from the meter.

So they can get a credit score based on consumption behaviour. They can receive a loan which they repay using the power bill, paying on instalments with each power bill.

E&U So they can be considered a good credit risk if their business is going well?

AZ Yes, it's assessed based on their power consumption and payment. It's like having a credit card from a financial institution on their meter.

E&U And you collect payments?

AZ We have the right to collect payments, within our power distribution zone, and collect any type of fees from our subscribers if we're asked by another service provider to do that.

E&U How do you want to grow the business now?

AZ We want to expand in the region. We have pending approvals on larger projects in Egypt. But the idea is to become a solar power utility. So that we're no longer a solar developer, we're a utility company that is aiming to make renewable energy its mainstream source of electricity for its subscribers.

E&U Can you do that and remain a privately-held company?

AZ We're aiming for an IPO within the next five years, so we will eventually become a public company.

E&U What is the competitive environment like for KarmSolar? Do you have a unique niche in Egypt?

AZ There are a lot of solar developers. There are a lot of private power distribution companies. But none use our business model. The developers restrict their investment to solar stations or wind farms. The distribution companies offer power distribution as a service, so they don't own the assets, the grids.

We're the only company that is owning and investing in power distribution grids and seeking to use renewable energy as the main source of electricity for that.

E&U Has that approach been key to your success?

AZ People in our sector view what we're doing as strange, it's not convincing most of them.

E&U Why is that?

AZ The utility business is traditional, there's not a lot of innovation. It still functions in pretty much the same way, the companies structured in the same way, for a long time. The meter might become a digital meter but that's about it.

E&U It seems you're on the vanguard of what people have been asking for in Egypt. There have been calls for privatization of government entities.

AZ There's a difference between privatization and allowing the private sector into a certain market. The private sector has been allowed in power generation and distribution for more than 20 years. But privatization of public companies has not happened in the energy sector yet.

E&U Will it happen in Egypt?

AZ I don't know.

E&U What advanced technologies are you using?

AZ It's not a new technology, it's a new business model. There is not much technical innovation in power distribution today. What we're doing is changing the use of the meter, so it will be used like an electronic wallet that will allow consumers to trade kilowatt hours.

It will allow them to produce kilowatt hours and trade them, or to buy kilowatt hours through a futures market to keep until price increases. It's the same as what is occurring with power trading globally, usually between big utility companies. We will open it up for very small businesses and individuals, to be able to trade in the same manner. That's the innovation we're working on.

E&U Are you deploying smart meters for this?

AZ We're working with contractors to build new types of meters for this.

E&U What about batteries? Are you working with new technology?

AZ I think we're currently the biggest buyer of batteries in Egypt. I'm not sure if there is innovation here. The Farafra Solar Grid, for example, is using 3.25 MWh lithium-ion batteries. It's allowing us to reach 61% solar penetration. It's one of a kind in the country, but I would not say there's innovation with it.

E&U Going forward, will your projects become larger, or remain at the same scale?

AZ Yes, larger. I believe in starting small with new ideas and approaches. That allows testing different conditions, perfecting the product while in the market. So we'll continue with similar size projects but it will not stop us from working on much larger projects.

E&U In industrial? Or residential?

AZ When you develop power distribution with a certain geographic area concession, you're obligated to provide power to everyone in that area.

E&U You can see yourself becoming power provider to an entire city?

AZ Currently we are provider for the northern part of Marsa Alam city. So we are moving in that direction.

E&U Looking at the big picture for Egypt, the country wants to become a regional power exporter, and there's been a great number of new renewable power and hydrogen project announcements. Where does KarmSolar fit into this?

AZ KarmSolar will be an integrated part of the power interconnections with other countries. It's something we will be a big part of over the coming five years.

Our approach is a bit different, unlike other developers who usually start with securing government contracts, we focus on private sector contracts because we believe this allows us to better understand the market.

E&U Will you extend your work into neighbouring countries?

AZ Absolutely, yes. Our strategy is focused on countries that will be connected to Egypt. Any country connected to the Egyptian power grid will be a target market for us.

E&U With the same business model going into them, focused on private sector work?

AZ Yes.

E&U Thanks very much Ahmed for your thoughts.

AZ My pleasure.

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