SUMERNET "RESEARCH 4 ALL" PODCAST SERIES
EPISODE 15 - VIETNAM'S RENEWABLE ENERGY TRANSITION AND THE PRIVATE SECTOR

Full transcript

[0:23-1:20]
Rajesh: Vietnam's energy production is set to double by 2030 and grow tenfold by 2050. And in this, renewables are going to make up 31% of the mix. In this episode, we explore how businesses, investors, and innovators are reshaping Vietnam's energy landscape – what's working, what's not, and what it means for Southeast Asia's climate future. We unpack the story behind the country's renewable energy growth, the challenges of policy and grid infrastructure and the role of private capital in powering a renewable energy transition.

We're really happy to welcome our guest for this episode, Loan Luong from AMPERES in Vietnam. She works at the intersection of policy and practice in Vietnam's renewable energy transition. Welcome to this episode, Loan.

[1:21 - 1:25]
Loan Luong: Thank you for having me today, and I look forward to our discussion.

[1:26 - 1:49]
Rajesh: Thank you, Loan. Let's talk about energy, which is often emphasized as infrastructure of infrastructure or the backbone of national economies. Within the energy transition context, we also know that the tech for energy storage has shifted. From an optional add-on to a critical component of power system infrastructure. Could you explain why is that?

[1:50 - 3:24]
Loan Luong: Yes. Energy is the backbone of the economy and you know that last year [2025] Vietnam achieved 8% of GDP growth and this year we even aim for two-digit number and this target remain to 2030. So, it means that we need a lot of energy for achieving our economic growth and Vietnam power system now is projected to be double as you say but actually, Vietnam revised the Jet P, which is a Just Energy Transition Partnership, and that one is a political commitment and it's revised our goal of having renewable energy target from 36 to 47% – very ambitious target here and renewables make up for that chunk of energy. That's why we need to talk about the fundamental challenge of renewable energy.

Renewable energy is not working like the traditional power source like oils and gas and coal power plant. It depends on the weather and you cannot mobilize the energy when you need it. So, the supply and the demand will not respond to each other. That's why battery storage can solve this. It has to decouple the energy when it generated and when it consumed. And it captures the solar power during the day and dispatches in the evening.

[3:25 - 3:52]
Rajesh: Let us talk broadly about renewable energy and the transition to renewable energy in the Mekong Region, because as you know, Loan, the different countries in the Mekong Region are at varying degrees of transition. Within Vietnam, we also want to explore the role of private sector in Vietnam's energy transition or decarbonization. Can you provide us some context about the role of the private sector and of course, Vietnam's own renewable energy transition?

[3:53 - 4:55]
Loan Luong: Yes, private sector has been the key driver in the Vietnam energy transition actually. The Vietnam solar boom started in 2017 and by 2023 we already have become the largest solar producer in Southeast Asia and it's a remarkable speed. Among that, there's 58% of the investment came from domestic private investor and another 27% come from joint venture. So, we see here about more than 80% is a private last investment.

And that was the first thing. Phase one was about building capacity, putting solar panel and wind turbine. Now, we're entering the next phase. Now, we need to talk about integration to making sure that all the renewable energies work reliably and that's where storage and flexible energy management becomes central and the private sector will need to step up again in a new way.

[4:56 - 5:07]
Rajesh: It's very interesting, Loan, that in Vietnam the private sector has been really active. Can you tell us a little bit about why this extreme interest by the private sector in Vietnam's renewable energy growth?

[5:07 - 5:42]
Loan Luong: Yes, there is a story behind this booming because since 2017 Vietnam has very generous feed-in tariff structure which encourage investors to in to start investing in renewable energy so they can sell the renewable energy to Vietnam Electricity (EVN), but until 2020 for the solar and 2021 for the wind power, the feed-in tariff stopped. So that's when we have a slower pace of investment since last period.

[5:43 - 5:47]
Rajesh: I see. That's interesting. So, this feed-in tariff, is that what it's called?

[5:47 - 5:52]
Loan Luong: Feed-in means they sell electricity to the grid. It's called feed-in.

[5:52 - 6:31]
Rajesh: Thank you, Loan. That is interesting story on how Vietnam's national energy strategies have been emphasizing private investment in energy. I also heard that the scale of ambition has changed. Because I had read that in the revised power development plan there are storage targets that are quite high. You're jumping from, for example, 300 megawatts to up to 16,000 plus megawatts, almost a 50-fold increase. And it seems to signal something, for example, that storage is moved from the margins to the center of Vietnam's energy strategy. Can you tell us a little bit more about this? Because as we focus on the transition, I think we may have to focus more on battery storage.

[6:32 - 7:22]
Loan Luong: Yes, sure. The fundamental challenge is the electricity has to be balanced in real time. Unlike oils and gas, you can store it in a tank. Traditional power source like coals, gases are dispatchable. You can switch them on when you need them. But for renewables, there are variables. Solar depends on the sun; wind depends on the weather. You can't command them to produce during evening peak. So, that's where battery storage jumps in – to decouple electricity when it generated from when it consumes and it captures solar during the day and releases in the evening. The number really tells its story. It has moved the batteries storage from the margin to the center of Vietnam energy planning.

[7:23 - 7:31]
Rajesh: In that sense, can you tell us a little bit about Vietnam's initiatives and how they encourage the involvement of the private sector in energy production?

[7:32 - 8:28]
Loan Luong: So, we see the big target but target alone doesn't have to build anything. We need a framework that make it viable for infrastructure. And since January 2026, we see that two important regulations have come to effect. First is a pricing framework for battery storage service. So, it gives investors a clarity on how they can earn revenue. And the second is the pilot on the two-component tariff. These are real signals that help the commercial environment and can be a signal for business to start investing in the battery storage. The early adopters are likely the industrial park and large manufacturer because they have the economic of scale to make it work and that's also the area where one of our research focuses on.

[8:28 - 8:43]
Rajesh: So, you're mentioning that Vietnam is launching a two-component retail electricity tariff, and I understand it was launched in January 2026 and you also mentioned your own research. Can you tell us a little bit more about this two-component tariff?

[8:43 - 9:39]
Loan Luong: The two-component tariff's including capacity charge and the energy charge. So, energy charge is, most of us, already know that we pay for the total of electricity that we consume, but the capacity charge is different. It's based on the highest level of power that you draw at any time from the grid at a moment, particularly during peak hours. One example is like a toll during rush hours. You do not only pay for the journey, you also pay for travelling when the road is most congested. And batteries will help business to avoid this peak during peak hours. It can absorb renewable energy from the grid and during peak hours it can discharge, so it can reduce the peak and it significantly cut the capacity charge.

[9:40 - 9:50]
Rajesh: Yeah, that's interesting. So, they're actually going to be paying for certain peak periods. Can you tell us, Loan, what is that? What is defined as a peak period?

[9:51 - 11:02]
Loan Luong: So, think of the load profile of factory like a graph that the demand across the day rises and falls with the spikes during business production hours. The peak shaving means using the battery to flatten these spikes. And instead of pulling heavily from the grid at the moment that everyone else's doing at the same time, you draw from the battery instead. So, from the grid perspective, your demands look smoother and lower and that's exactly what cuts your capacity charge.

Peak hour is a period when most people start using electricity. So normally it's for residential area, it is the evening. So, when everyone's back from work, they start cooking, turn on AC, TV and other electrical appliances. But for businesses it's different because different factories have their different production demand and then some can have their peak in the morning, some have in mid-day and some in the afternoon. Yeah, so that's what we call the peak. It's like rush hour in traffic.

[11:02 - 11:12]
Rajesh: I understand you're leading a study into something called business battery clusters. Can you tell us more about this and how and why it is often efficient to do this?

[11:13 - 12:40]
Loan Luong: Yes, there are three reasons. First is about the economy of scale as a larger centralized business. So, as a large, centralized battery system, it has a lower cost per unit for capacity. The second is the nature of business. Factories don't have peaks at the same time as I explained in the previous question. And the third is that the share battery can utilize the assets. So, it can continue to work long time and manage and optimize intelligently as a single source.

In the study, our team simulated a shared battery system across factories in two industrial parks. They have different demand and patterns. And the results show a significant potential of cost saving compared to each factory having their own battery storage. But the exact figure will depend on each industrial park's profile and data. That's why we're actively inviting industrial park and business to join our study so we can run tailor-made modelling based on their actual electricity data and provide them informed decision whether this model steals them, whether they should invest in such battery storage system.

[12:40 - 12:56]
Rajesh: Thank you. So given that Vietnam's going full speed ahead with its renewable energy transition, could you wrap up with some policy actions and recommendations that came from your study so that we can know what steps are going on and also in future.

[12:57 - 14:31]
Loan Luong: Yes. So, from my point of view, there are three things that we can help to accelerate the adoption of battery storage and to encourage the private sector to invest in this area. First's that we need to work with pilots, build a strong business case in this space because, in energy space, technology's advancing in rapid pace and industrial demand is also evolving very quickly. So, when we do pilot, we learn, iterate and we have real evidence and it will help the business have the new business case.

The second is we genuinely increase incentive for private sector. For example, in the solar boom when there are incentives, the private sector will start to see the signal and start investing and the third I think is around the framing of the energy transition. It should be the combination of the flexibility and the digitalization. So, not just about adding more solar and battery, but it also needs to be smart systems that run these physical assets. As Vietnam has the ambition and the momentum, the question is whether we have enabling environment, we have the regulation and the digital infrastructure, so with the skill and this mindset, I believe that we can.

[14:32 - 14:43]
Rajesh: Thank you very much. So, Loan, tell us a little bit about how these clusters are managed because you were proposing virtual power plants, VPPs. Can you tell us a little bit about this?

[14:44 - 15:32]
Loan Luong: Yes, virtual power plant actually is a digital platform that sits on top of physical assets including solar panels, battery storage, any flexible load or even electrical vehicle (EV).
It helped to orchestrate all the assets and run it as one single unified unit. So, from the grid perspective, a grid operator can see this VPP as one controllable power plant that have to not only consume the electricity but also can feed the electricity to the grid. So that's we call it a virtual power plant, not a real physical power plant.

[15:32 - 15:40]
Rajesh: That is fascinating, the idea of virtual power plants. Are they already in use or is it an idea for the future?

[15:41 - 16:20]
Loan Luong: es. So virtual power plant already has been applied in worldwide in many countries like Japan, US, Australia because virtual power plant also related to the regulation. So, for example for market like Vietnam we do not have mechanisms to use virtual power plant yet, but we are exploring the opportunity once Vietnam is transformed to the comprehensive competitive electricity market. That's when there's more freedom for actors to play role in selling and buying electricity to the grid.

[16:20 - 16:23]
Rajesh: Vietnam does not have virtual power plans yet?

[16:24 - 16:50]
Loan Luong: So, actually they have some kind of pilot. So, in term of piloting, we see a few years ago EVN already had a pilot of peer-to-peer trading. It's also a form of VPP, but after that we haven't had any scale up. It also depends on the road map of transforming our energy market to a more liberation market.

[16:51 - 17:02]
Rajesh: OK. Thank you very much. If I understand correctly, it is used in example countries in Australia, Japan and so on, but in Vietnam it is still at a pilot stage, right?

[17:03 - 17:13]
Loan Luong: Yes. That pilot ended in 2023. There's no expand of the pilot. So that's why we want to bring it up in our study.

[17:13 - 17:15]
Rajesh: Will it come back, do you think?

[17:16 - 17:55]
Loan Luong: Yeah, I think it's very soon because we see there's the demands as a regulation that already start forming and create an enabling environment. So, we hope to see the real virtual power plant or any demand respond solution coming up to help us to deal with the energy security and especially in our context of this geopolitical conflicts. So, it will help Vietnam and other country in the region to ensure our energy security.

[17:56 - 18:09]
Rajesh: Yeah. Thank you very much. That helps to wrap up this episode on Vietnam's renewable energy transition and of course, what policy actions and recommendations would be taken up in the future. Thank you very much, Loan.

[18:10 - 18:28]
Loan Luong: Thank you for having me and if any industrial park operators are listening to this podcast and want to be part of our study, we're actively looking for partners and we can run tailor-made modeling based on your electricity data. Please reach out to us. Thanks Rajesh for having me.