**SIEWCast Season 3: Episode 1**

*Interview with Puah Kok Keong, CEO, EMA*

**Michelle Martin (Money FM 89.3)** 00:00

This SIEWCast is brought to you by Singapore International Energy Week and Money FM 89.3, in partnership with Saudi Aramco. Climate change requires a global strategy. So where is Singapore on her path to achieving net zero emissions by 2050?

Welcome, this is an exclusive SIEWCast. I'm your host, Michelle Martin, and in this episode, we are joined by Puah Kok Keong, who is the Chief Executive of the Energy Market Authority. He's just months into his role.

**Puah Kok Keong (EMA)** 00:29

Yes, 2 months only!

**Michelle Martin (Money FM 89.3)** 00:30

2 months only but here with us to talk about his vision for Singapore's energy sector. How has the two months been?

**Puah Kok Keong (EMA)** 00:35

Well, it has been really busy, but it's also, in a way, engaging. I think energy is a very fascinating topic. We need it for many aspects of modern life right. When you go home, you turn on the lights, when you want to turn on the TV, you want to charge your mobile phone. All this needs energy. So, it is something that is essential, something that is even in some cases, existential. Without energy, modern life as they know it, many of the things we do cannot be done.

**Michelle Martin (Money FM 89.3)** 1:02

Well said! Now you have extensive experience in MHA. Tell us, now that you're in your role with Energy Market Authority, what are your primary goals for the Singapore energy sector, and how do you plan to address the very unique challenges and opportunities ahead?

**Puah Kok Keong (EMA)** 1:20

Well, the way that we like to characterise the key priorities for energy is to look at what we call the energy trilemma. It sounds like a big word, but it's really just three main points. First, it is about energy security. How do we make sure we have a reliable source of energy? How do we make sure we keep the lights on? So, energy security. Second, look at sustainability, especially in the midst of now, every country having to do our best to mitigate climate change. How do we do so? And third, is a look at affordability or economic competitiveness.

And maybe let me take one of them, each in turn, right? So, on energy security, it is absolutely important. One of the key missions is to make sure that we continue to have electricity to power our economy, to support the households of Singaporeans to do the daily activities. So, ensuring that we have a diverse supply of energy sources is one of the key aspects of ensuring energy security. The second is also to make sure that we have sufficient, what we call reserves, or backups, if you may, sufficient reserve generation capacity, sufficient reserves in our grid, to make sure that even if one part of the grid is down, there are other parts that can continue to meet the supply, and also sufficient reserves in terms of our fuel sources. So, if we have sufficient reserves in our power station, so if fuel does run out from a particular source, there's enough on site to last us for several more days.

So that is how we look at energy security.

But going to the second part of the energy trilemma is about sustainability. Singapore is committed to reach a net zero by the year 2050 - that sounds far away, but it's actually only about 25 years from today. So, it's something that's happening right now, happening very real. We call it the energy transition, because we are now at a point where we are at about 95 percent based on natural gas for our power generation, and to get to net zero, it does mean that we need to explore many, many more sources.

We like to express or tell our strategy by using what we call the Four Switches. So, which are the four switches? First switch is still natural gas, because we think we still need it for some time to come, but we want to look at using more efficient natural gas turbines, and that will help to reduce our carbon emissions. So gas will still be around for a while. But second, we are going quite big into domestic solar energy production and NH solar PV prices that came down dramatically in the last five, six years or so. Right now, in actually many places, even in Singapore, it is actually the cheapest source of electricity. So we are trying to max it out. Today we already have about 1.2 gigawatt-peak of solar installations, and we are looking at increasing that to 2 gigawatt-peak by about the year 2030.

So if anybody in Singapore has a roof, be it a roof in your house, a roof on your factory, a roof in your commercial building, my best advice to you is to really, really consider putting up solar panels. That will really help in addressing not just your electricity bills, but also contributing your part towards reducing carbon emissions.

So, Four Switches, first, natural gas, second, solar. Third, we are looking at utilising the ASEAN power grid for imports of renewable energy or low carbon energy from around the region. To date, we have given out nine conditional approvals or conditional licenses to projects around the region. Many of them are from Indonesia, but also we have projects from Cambodia and Vietnam to look at importing green electricity. If we do that, actually, that will go a long way in terms of, first, increasing our energy supply, second, also reducing the carbon intensity of our electricity production. Fourth kind of switch, so natural gas, solar energy, imports, the fourth switch is to continue to look at alternative energy sources. So these are the very new things that we are trying to explore and make it possible somewhere in the future. And this includes looking at whether hydrogen is possible, whether ammonia is possible. We are exploring geothermal energy, and we are also trying to increase our capabilities in understanding nuclear technology, if one day it becomes something that is possible in Singapore.

**Michelle Martin (Money FM 89.3)** 5:56

Okay, so a lot of work on a lot of fronts, which means the infrastructure being put in place now to enable interconnectivity and cooperation. In fact, exciting news, Singapore recently announced that the International Energy Agency, or IEA, will open its first regional cooperation center here. It will work with all countries in Southeast Asia, but I'm wondering what opportunities this presents for Singapore?

**Puah Kok Keong (EMA)** 6:20

We are really happy that IEA has decided to open its first overseas office here, right in Singapore. The IEA, as an organisation, has a very long and rich history. It was set up, I think, almost 50 years ago, in response to addressing the oil crisis and making sure that countries are prepared to deal with emergencies in oil supply. But since then, it has evolved and now developed many more areas in terms of energy data, energy analysis, policy recommendations and solutioning. And I think, IEA deciding to establish its first overseas center right here in Singapore speaks about a couple of things. First, is about Asia. Asia actually counts for about 50 percent of global electricity production. Asia also accounts for about 50 percent of global carbon emissions. So, I think, IEA, seeing that there's a need to engage this region, there's a need to have a stronger presence in this region, speaks to the importance of a global approach to dealing with energy issues, be in terms of energy security, or be in terms of reducing carbon emissions. So that's one key reason.

What’s second for choosing the site in Asia and the site in Singapore also speaks much to Singapore's role, that the role that we play in being a hub for people to come together, being a hub to connect governments to industries, industries with technology. And they, seeing that that's the role they've been playing for a while, and that they think that they can find being here, can find the kind of partners, stakeholders, they can work with. I think we're very happy that they've chosen to set up that center here.

We have already been working with them, and we will step up our engagement with them, to engage many of the other countries and stakeholders in the region to jointly work on energy solutions.

**Michelle Martin (Money FM 89.3)** 8:15

We talk a lot about the ASEAN power grid on this particular series. What is your view of how Singapore can play a role in the development of the ASEAN power grid, and how will this benefit Singapore and the region?

**Puah Kok Keong (EMA)** 8:28

The idea of ASEAN power grid has been around for quite a long time, 20 to 30 years. I think people do recognise its benefits. For one, it will help to increase the resilience of every country's own power system, because if there's a disruption in your home country, because a power station may have some faults or some trips, then you can actually bring in power from a neighbouring country. However, to make the ASEAN power grid a reality, it will require investments in interconnections between countries. It requires countries to agree to review policies and even technical aspects of interconnections. So, because of these challenges, it has never really quite taken off in the past 10, 20, years. But I think now the timing is right, because in addition to addressing resilience and so on, there's a great need for addressing climate change.

ASEAN as a region is very rich in renewable energy resources. We have places where there’s plenty of sunshine, places with a lot of hydropower, wind power, even geothermal energy resources. But where you can find the renewable energy resources may not be where you have people or the industries or the commercial operations that need the power. So, you need to find ways to bring the energy from far away - where the supply is, to where the demand is.

So increasingly people feel that actually, yeah, if we can build a grid that connects all the ASEAN countries together, connect all the different islands and peninsulas together, then actually we will be able to bridge the distance between supply and demand. If we can do that, it will also allow investors to come in to invest in new renewable energy production, and then that will allow them to then find customers in the load center.

So, in Singapore's case, we have a growing demand for energy. Unfortunately, our country is really small. We don't have that much space to pull up a lot of solar panels. We don't have hydropower, we don't have a lot of wind power, and not even the space to put up a lot of wind turbines. But there are regional countries that can do so. So if we can work with them to develop the ASEAN power grid, then we will be able to harness the renewable energy resources, and also lead to increased investments in the countries that are producing this.

So, bit by bit, we are working hard on it. We are, for example, working with Lao PDR, Thailand, Malaysia and Singapore on the power integration project. And there was a first phase of a trial run between 2022 and 2024, so that went quite well, and we are now hoping to start a second phase. Singapore has given the okay and waiting for, engaging the other countries to also give their approvals for it.

**Michelle Martin (Money FM 89.3)** 11:31

I wonder if you can talk a little bit about what role you see regional partnerships playing in Asia being able to meet our collective sustainability goals.

**Puah Kok Keong (EMA)** 11:40

Yes, I think the energy challenge facing all of us is a tremendous one. I talk about, we having 25 years to transit from where we are today, being mainly fossil fuel based, to net zero by 2050. And that, to me, is not just an energy transition, it’s an energy transformation. And the pace of the transformation needed is, I would say, has been probably unprecedented in the history of the energy industry.

So no country can really do it all on its own. No country on its own has all the financial resources, all the technology and all the renewable energy resources to do it on its own, therefore getting countries to come together, to cooperate, to look at, hey, how can we link our markets together? How can we bring our people together to look at exploring certain technological solutions, and therefore, thereby, enabling each of us to learn something and thereby, allowing each of us to scale up those kind of operations in our home countries.

So an example that that I can use is Singapore is trying to look at carbon capture and storage. So, we are engaging Shell and ExxonMobil through the S-Hub to look at in Singapore, at Jurong Island, to be able to collect carbon dioxide, liquify it, and then ship it to somewhere else within this region, and then inject it into aquifer where it be there for permanent storage. So, this project alone will require the Singapore government working with the industry, but the industry too will also need to engage foreign governments where to get the right kind of permits and to get an agreement to look at sequestration of carbon dioxide. So, we are trying to put this project to work. If it succeeds, then that will then allow more of similar projects to take off within the region.

**Michelle Martin (Money FM 89.3)** 13:40

Fantastic. Can we talk a little of the National Climate Change Secretariat aims to reduce emissions to 60 million tons of carbon dioxide. You mentioned one strategy, CCUS. Are there more in the works? How else can the reduction of carbon dioxide become a reality across Southeast Asia?

**Puah Kok Keong (EMA)** 14:00

Firstly, I think, as I said earlier, there is plenty of renewable energy resources in the region. So, a chief part of it is, how do we make sure that we can attract investors to come in, to put their money in constructing these renewable energy projects, find the resources and the approvals needed to lay the energy connections from where the renewable energy are, to where the demand is, mainly the city centers and the industrial estates. If we can do that, I think that will really go a long way to reducing kind of carbon emissions. But renewable energy projects, there's a beauty in it, in that the sources are very cheap or free – once you have built a solar panels, the sunshine is free. But it does mean that upfront investments can be huge. So a large scale solar PV and battery system can cost upwards of a few billion dollars to construct.

So therefore, from the point of view of the investors, from the point of view of the bankers, they want to make sure that we can reduce the risk as much as possible. They want to make sure that the project can be successful. They want to make sure that you can keep to the timeline and that the producers can find customers who will eventually buy the power from them. So I think it is important to look at how countries can work together to give greater amount of regulatory certainty, a greater amount of confidence to the investors, so that they are willing to plunk in these billions of dollars for these very large renewable energy projects.

**Michelle Martin (Money FM 89.3)** 15:40

It's going to be a high-level meeting at Singapore International Energy Week. Many stakeholders will come together between the 21st and the 25th of October. Can you give our listeners a sense of the highlights of SIEW 2024?

**Puah Kok Keong (EMA)** 15:52

Certainly, the Singapore International Energy Week is one of the premier energy events around the world. It is one where leaders from governments, leaders from industries, and leaders from thinktanks are coming to Singapore to jointly look at ways that we can solve our many common energy challenges.

The theme for this year's Singapore International Energy Week is *“A Connected and Sustainable Energy World.”* So, we can look forward to discussions on a number of key topics, and that includes regional connectivity, low carbon technologies, project financing, innovations, hydrogen, and ammonia. Some of the new programs will include Singapore, engaging the International Energy Agency, as well as the International Renewable Energy Agency to look at forums on renewable energy development, as well as on regional energy connectivity.

Singapore is also hosting, together with the US, the Singapore-US Forum, and they will also discuss topics of interest, both for the Singapore and the US side. So, it's going to be a very exciting week at SIEW, many people are coming, and I really hope that as many of you who are interested in energy issues to sign up, attend SIEW, and I'll see you there.

**Michelle Martin (Money FM 89.3)** 17:14

I know it's a busy time in the run up to SIEW, so we thank you for making some time to be with us here on the SIEWCast. Mr. Puah Kok Keong is Chief Executive of the Energy Market Authority. Mr. Puah, it's been a pleasure meeting you. Thank you for being here.

**Puah Kok Keong (EMA)** 17:27

Thanks for having me here. Thank you very much.

**Michelle Martin (Money FM 89.3)** 17:29

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