



Webinar

Global Sustainability Outlook 2026: APAC Region

Date: February 26, 2026

00:00:03 --> 00:00:07: For people who just join online, thank you for joining
00:00:07 --> 00:00:11: us and good morning, afternoon wherever, wherever you are.
00:00:12 --> 00:00:15: We might have people continue to join as I know
00:00:15 --> 00:00:18: it's a lunchtime for for many of you.
00:00:18 --> 00:00:18: So appreciate it.
00:00:18 --> 00:00:22: But in the meantime, we will get started with the
00:00:22 --> 00:00:25: intro and then other people feel free to join.
00:00:25 --> 00:00:27: So welcome everyone officially.
00:00:27 --> 00:00:31: Thank you for joining this webinar to hear about the
00:00:31 --> 00:00:36: newest ULI thought leadership piece, which is our 6th annual
00:00:36 --> 00:00:39: Global Sustainability Outlook for 2026.
00:00:39 --> 00:00:43: We're really happy to be bringing together industry leaders
00:00:44 --> 00:00:48: on
00:00:48 --> 00:00:50: key topics surrounding sustainability and their business case
00:00:50 --> 00:00:54: for the
00:00:54 --> 00:00:57: real estate industry.
00:00:57 --> 00:01:00: Let me quickly pull up a deck here.
00:01:00 --> 00:01:05: All right.
00:01:05 --> 00:01:07: Yeah.
00:01:07 --> 00:01:12: So just bit of quick intro, quick self intro.
00:01:12 --> 00:01:14: Hi, I'm Jenny.
00:01:14 --> 00:01:17: I am the Director for Sustainability for EOLA Asia Pacific.
00:01:17 --> 00:01:21: I will be your host today.
00:01:21 --> 00:01:25: And really at EOLA, our role here is to build
00:01:25 --> 00:01:31: a platform as the regional connector of knowledge of our
00:01:31 --> 00:01:33: vast membership network experts and also be kind of an
00:01:33 --> 00:01:36: orchestrator of industry initiatives and partnerships with part
00:01:36 --> 00:01:37: of industry
00:01:37 --> 00:01:40: as well as other organizations.
00:01:40 --> 00:01:43: So really happy to have everyone here and joining us
00:01:43 --> 00:01:46: online.
00:01:46 --> 00:01:49: Before we jump into our topic today, just a few

00:01:40 --> 00:01:42: quick housekeeping notes.

00:01:42 --> 00:01:46: This webinar will be recorded and uploaded to the ULI

00:01:46 --> 00:01:50: Knowledge Finder, which will be available to all of our

00:01:50 --> 00:01:52: global network member network.

00:01:53 --> 00:01:57: And we will be using AQ and a box for

00:01:57 --> 00:01:58: the Q&A process.

00:01:58 --> 00:02:03: So during anytime during the webinar, if you have questions

00:02:03 --> 00:02:07: for panelists, please feel free to use the Q&A box

00:02:07 --> 00:02:10: and our panel will try to address some of it

00:02:10 --> 00:02:13: either along the chats or toward the end when we

00:02:14 --> 00:02:15: have AQ and a session.

00:02:16 --> 00:02:20: And so I want to share a little bit about

00:02:20 --> 00:02:25: the process of So each year the global sustainably outlook

00:02:25 --> 00:02:31: is informed by interviewing member experts around the

00:02:31 --> 00:02:35: world.

00:02:35 --> 00:02:38: So we do this through doing focus group with three

00:02:38 --> 00:02:40: of our regional sustainability product Council.

00:02:40 --> 00:02:43: So in APAC, we have the Net 0 Council, in

00:02:43 --> 00:02:46: Europe, we have the Europe Sustainability Council and the

00:02:46 --> 00:02:50: US

00:02:50 --> 00:02:55: we also have the Sustainable Development Council.

00:02:55 --> 00:02:59: And this year we've added something new, which is we've

00:02:59 --> 00:03:02: also included District Council and local council sustainable

00:03:02 --> 00:03:08: committees so

00:03:08 --> 00:03:12: that we can get a more holistic and ground level

00:03:12 --> 00:03:15: picture of what's ahead in 2026 from practitioners.

00:03:15 --> 00:03:19: And these discussions are really central around the key

00:03:19 --> 00:03:23: theme

00:03:23 --> 00:03:27: of asking our member network what sustainably topics and

00:03:27 --> 00:03:28: issues

00:03:28 --> 00:03:33: are on the rise for them, why do they matter,

00:03:33 --> 00:03:35: and what actions should the industry pursue moving forward.

00:03:35 --> 00:03:38: And then the team will basically synthesize all of these

00:03:38 --> 00:03:41: conversations into top five issues each year to look out

00:03:41 --> 00:03:42: for in the upcoming year.

00:03:42 --> 00:03:46: So what we'll do is we'll share in the chat

00:03:46 --> 00:03:49: the two links.

00:03:49 --> 00:03:52: One is the link to this year's article.

00:03:52 --> 00:03:55: So the five topics that I'll briefly go over for

00:03:55 --> 00:03:58: 2026.

00:03:58 --> 00:04:01: And we've also done something try something new this year

00:04:01 --> 00:04:04: as we have another article that looks at the the

00:04:04 --> 00:04:07: sustainably outlook report for the past five years to kind

00:03:52 --> 00:03:55: of look at how our focus have been shifting and
00:03:55 --> 00:03:57: refine over the past five years.
00:03:58 --> 00:04:01: So that's also an interesting kind of pre read to
00:04:01 --> 00:04:04: this year's article to give you a bit of context.
00:04:06 --> 00:04:09: So as I mentioned, this is our 6th edition of
00:04:09 --> 00:04:11: this global sustainably outlook.
00:04:12 --> 00:04:17: So this research started as a full report to highlight
00:04:17 --> 00:04:20: and the five trends for each year.
00:04:20 --> 00:04:24: And then we realized that actually the the summary article
00:04:24 --> 00:04:27: that we put out were much more popular and digestible
00:04:27 --> 00:04:28: for people.
00:04:28 --> 00:04:33: So starting last year, we've pivoted to a article format
00:04:33 --> 00:04:37: to give people a really snappy shot of the keep
00:04:37 --> 00:04:40: top things to keep in mind.
00:04:40 --> 00:04:43: So that's also what we've done for this year.
00:04:44 --> 00:04:50: And here is a quick overview of this year's theme.
00:04:51 --> 00:04:54: So quickly over go over these and then we'll get
00:04:54 --> 00:04:55: into our panel discussion.
00:04:55 --> 00:04:58: And these are not ranked in order per SE, but
00:04:58 --> 00:05:03: are instead more of interconnected themes that impact what
industry
00:05:03 --> 00:05:05: stakeholders are choosing to act on.
00:05:06 --> 00:05:10: So the continuation to recognize the financial risk of inaction
00:05:10 --> 00:05:14: and business case for decarbonization is very much central
and
00:05:14 --> 00:05:17: linked to the second one, which is more from the
00:05:17 --> 00:05:21: perspective of how we're doing this as an industry just
00:05:21 --> 00:05:26: by standardizing and integrating sustainably metrics into
investment decisions into
00:05:26 --> 00:05:28: models and valuations.
00:05:28 --> 00:05:31: And then the Third Point also, you know, regarding a
00:05:31 --> 00:05:35: whole life cycle perspective and a shift towards scalable
solutions
00:05:35 --> 00:05:39: is how we're thinking about accelerating our progress, our
collective
00:05:39 --> 00:05:40: progress.
00:05:40 --> 00:05:42: And we'll also be diving deeper into this topic today
00:05:42 --> 00:05:43: with our panelists.
00:05:43 --> 00:05:46: Sharings from the practical experience.
00:05:46 --> 00:05:48: And you've probably been hearing a lot about AI.
00:05:48 --> 00:05:51: There's lots of other webinars on the rise of AI
00:05:51 --> 00:05:55: and how it's rewiring everything, how we're doing many
things.

00:05:56 --> 00:05:59: So from a sustainability angle, it's both a tool to
00:05:59 --> 00:06:03: accelerate the discovery and implementation of our solutions
as well
00:06:03 --> 00:06:05: as a resource challenge itself.
00:06:05 --> 00:06:08: So this is more about how we can best leverage
00:06:08 --> 00:06:12: technology to have a net positive outcome, balancing these
sort
00:06:12 --> 00:06:15: of two sides on our resource utilization.
00:06:15 --> 00:06:19: And last but not least, escalating physical climate risk.
00:06:19 --> 00:06:23: I think it's very much a current, not a future
00:06:23 --> 00:06:23: risk.
00:06:23 --> 00:06:27: So now the focus is much more on operationalizing our
00:06:27 --> 00:06:30: preparedness at both the asset level as well as the
00:06:30 --> 00:06:33: kind of market and neighborhood level.
00:06:33 --> 00:06:35: So that's these are some of the topics that are
00:06:35 --> 00:06:37: rising to the top of the agenda as well.
00:06:38 --> 00:06:42: So today we are very happy to have our cross
00:06:42 --> 00:06:44: region expert panel.
00:06:45 --> 00:06:49: So we have Edward joining us from Singapore Building
Construction
00:06:49 --> 00:06:54: Authority and then May joining us from Salzer Brothers, Han
00:06:54 --> 00:06:58: joining us from Keppel, who's based in Singapore and Paul
00:06:58 --> 00:07:01: is our moderator joining us from Italia 10.
00:07:01 --> 00:07:04: So without further ado, I'm gonna hand it over to
00:07:04 --> 00:07:05: Paul.
00:07:07 --> 00:07:09: Thanks so much, Jenny, and good day, everybody.
00:07:10 --> 00:07:12: It's really a pleasure to be here with this extraordinary
00:07:12 --> 00:07:12: panel.
00:07:12 --> 00:07:16: We've got lots of insights to share about the 2026
00:07:16 --> 00:07:17: global sustainability outlook.
00:07:19 --> 00:07:22: We're going to ask talk through the four of the
00:07:22 --> 00:07:24: five themes as a group.
00:07:25 --> 00:07:28: And while we're talking, if anything pops to mind, please
00:07:28 --> 00:07:29: post questions.
00:07:29 --> 00:07:31: We'll be reviewing them as you post them and we'll
00:07:31 --> 00:07:32: weave them into the discussion.
00:07:32 --> 00:07:34: And then we'll catch the rest of your questions or
00:07:34 --> 00:07:36: as many of them as we can at the end.
00:07:37 --> 00:07:40: So starting with the first point, a very timely 1.
00:07:42 --> 00:07:46: Clearly, momentum in the property industry has shifted from
why
00:07:46 --> 00:07:49: are we going to be sustainable to how are we
00:07:49 --> 00:07:50: going to be more sustainable?

00:07:50 --> 00:07:52: And critically, how does this add value to my assets
00:07:53 --> 00:07:53: and My Portfolio?
00:07:54 --> 00:07:57: I'm really keen to hear from our panelists.
00:07:57 --> 00:08:01: How is this drive towards decarbonization and greater sustainability now
00:08:01 --> 00:08:05: shaping your business cases for investment both in existing assets
00:08:05 --> 00:08:07: and the development of new assets?
00:08:08 --> 00:08:09: And let's hear first from May.
00:08:11 --> 00:08:15: Well, we're actually seeing a lot of through climate reporting,
00:08:15 --> 00:08:19: there's a convergence of people seeing the value impact of
00:08:19 --> 00:08:19: doing nothing.
00:08:20 --> 00:08:23: And that actually is quite scary because obviously our insurance
00:08:23 --> 00:08:27: has premiums have gone through the roof and everyone's experiencing
00:08:27 --> 00:08:27: that.
00:08:27 --> 00:08:30: And there's no seem to be no end insight.
00:08:30 --> 00:08:35: But when you've done the climate reporting, you've actually understood
00:08:35 --> 00:08:37: now what they see that we haven't seen before.
00:08:38 --> 00:08:42: And so when people talk about stranded buildings, it's not
00:08:42 --> 00:08:47: necessarily stranded in that way, but it's just that the
00:08:47 --> 00:08:51: additional capital to try to fix your buildings and be
00:08:51 --> 00:08:55: the onslaught of what next is far scarier than actually
00:08:55 --> 00:08:57: the decarbonisation track.
00:08:57 --> 00:09:02: So whilst it's, you know, necessary to reallocate cafes, you
00:09:02 --> 00:09:05: just have to take a long term thinking and that's
00:09:05 --> 00:09:07: that actually has been amazing.
00:09:07 --> 00:09:09: They be able to have that foresight.
00:09:11 --> 00:09:11: Terrific.
00:09:11 --> 00:09:14: So the shift from short term to long term kind
00:09:14 --> 00:09:17: of appreciation of values clearly something I hear from my
00:09:17 --> 00:09:18: clients.
00:09:18 --> 00:09:21: And Han, in your quick couple, how are you building
00:09:21 --> 00:09:27: decarbonization considerations and sustainability into the
everyday business case work
00:09:27 --> 00:09:29: that you do when considering investments?
00:09:30 --> 00:09:30: Yeah.
00:09:31 --> 00:09:33: So thanks for the introduction.
00:09:33 --> 00:09:36: To expand a bit of my role, I am the
00:09:36 --> 00:09:40: Director of Sustainability and ESG strategy for capital in our
00:09:40 --> 00:09:44: fund management and investment business.

00:09:44 --> 00:09:48: And what we therefore do is to look at different
00:09:48 --> 00:09:53: types of portfolios across real estate, infrastructure and data
centers
00:09:53 --> 00:09:57: and connectivity types of some assets and look at, you
00:09:57 --> 00:10:01: know, the best ways of actually deriving value.
00:10:02 --> 00:10:06: And that leads us to the conversation on sustainability
because
00:10:06 --> 00:10:09: once you decarbonize, there's going to be a lot of
00:10:09 --> 00:10:12: value to be had from sustainability and there's going to
00:10:13 --> 00:10:15: be a lot of value to be had as well
00:10:15 --> 00:10:19: from, well, things like putting in, in your underwriting your
00:10:19 --> 00:10:20: climate value at risk.
00:10:20 --> 00:10:24: Things like putting in sufficient investments to protect your
asset
00:10:25 --> 00:10:28: against climate change or the threats of climate change, for
00:10:28 --> 00:10:29: instance.
00:10:29 --> 00:10:33: But also putting in these types of solutions and technologies
00:10:33 --> 00:10:37: that will decarbonize your asset over time, especially in its
00:10:38 --> 00:10:38: operations.
00:10:39 --> 00:10:43: So as the asset starts to save more energy throughout
00:10:43 --> 00:10:47: its operations, it will also start to improve its asset
00:10:48 --> 00:10:51: value as a function of the percentage of or rather
00:10:51 --> 00:10:55: the dollar savings divided by the cap rate.
00:10:55 --> 00:10:59: So if your asset, for instance, saves \$1 million per
00:10:59 --> 00:11:02: year, and if a cap rate of your built asset
00:11:02 --> 00:11:06: or your real asset is 4%, that's 100, divide by
00:11:06 --> 00:11:11: 4 and that's a 25,000,000 value appreciation year on year.
00:11:11 --> 00:11:13: And so that is significant when you talk about it
00:11:13 --> 00:11:16: in these terms, rather than, you know, what the payback's
00:11:16 --> 00:11:19: gonna be or rather than just what the payback's gonna
00:11:19 --> 00:11:20: be and so on.
00:11:20 --> 00:11:24: And we're seeing the cost curves really come down as
00:11:24 --> 00:11:28: a result of the lower costs of technology and production
00:11:28 --> 00:11:31: due to a huge proliferation of these types of energy
00:11:31 --> 00:11:35: savings technologies, especially coming out of North Asia.
00:11:36 --> 00:11:39: So I think what we're therefore seeing is a Nexus
00:11:40 --> 00:11:43: of the availability of such solutions at a fairly relatively
00:11:43 --> 00:11:47: low price point compared to say 10-15 years ago.
00:11:47 --> 00:11:51: And the conversation and the narrative has also shifted
towards
00:11:51 --> 00:11:54: what sort of asset value you would get as a
00:11:54 --> 00:11:58: result of going green as a result of decarbonization, right?
00:11:58 --> 00:12:02: So when all this is therefore underwritten, including things

like

00:12:02 --> 00:12:06: the savings of shadow carbon, shadow carbon or embodied carbon,

00:12:06 --> 00:12:09: including things like what sort of returns due to a

00:12:09 --> 00:12:14: sustainable solutions specifically, right, that becomes part of the investment

00:12:14 --> 00:12:17: thesis and that immediately becomes measurable, right?

00:12:17 --> 00:12:20: So we're seeing an industry sort of shift towards that,

00:12:21 --> 00:12:21: right?

00:12:21 --> 00:12:24: There are still gaps, certainly, right?

00:12:24 --> 00:12:28: The gaps are such that you still cannot evaluate how

00:12:28 --> 00:12:31: much your embodied carbon savings will lead to in terms

00:12:31 --> 00:12:36: of investment value as opposed to operational carbon, for instance.

00:12:36 --> 00:12:40: And the other gaps also include the relatively short fund

00:12:40 --> 00:12:43: cycles and the short life cycles of funds compared to

00:12:43 --> 00:12:46: the actual life cycles of buildings.

00:12:46 --> 00:12:48: So that's another gap to bridge.

00:12:50 --> 00:12:53: It sounds like it's fair to say both for you

00:12:53 --> 00:12:57: Han and you may sustainability is gone for being a

00:12:57 --> 00:13:01: check box kind of suddenly done criteria in business cases

00:13:01 --> 00:13:05: to being quite a complex and multi criteria assessment in

00:13:05 --> 00:13:06: your business cases.

00:13:06 --> 00:13:09: And then you, as you said, not just the the

00:13:09 --> 00:13:11: forms, but the the thesis for investment.

00:13:12 --> 00:13:13: That's right, yeah.

00:13:13 --> 00:13:16: Yeah, it's about true value now that can be calculated.

00:13:18 --> 00:13:18: Right.

00:13:18 --> 00:13:20: And it's gone from being not just a cost but

00:13:20 --> 00:13:23: to to value, which is a huge conceptual shift, which

00:13:23 --> 00:13:24: is really terrific.

00:13:24 --> 00:13:26: And it's great to see that's not just happening in

00:13:26 --> 00:13:29: our region, but globally, as this points out.

00:13:29 --> 00:13:32: I think just the complexity of this is a nice

00:13:32 --> 00:13:36: segue to the next headline from the global sustainability outlook,

00:13:37 --> 00:13:40: which is the challenge we're all facing of how we

00:13:40 --> 00:13:44: standardize our descriptions of sustainability and the way we integrate

00:13:44 --> 00:13:46: them into our business models.

00:13:46 --> 00:13:48: We now care so much about so many different things.

00:13:50 --> 00:13:52: This has become quite a big task to the point

00:13:52 --> 00:13:54: that I was just in in a kind of strategy

00:13:54 --> 00:13:57: session yesterday for Australian sustainability leaders.

00:13:57 --> 00:14:00: And the discussion around how difficult it is to align

00:14:00 --> 00:14:03: the boundaries around scope 3 reporting what a very technical

00:14:03 --> 00:14:06: subject, you know, was causing, you know, mountains of work

00:14:06 --> 00:14:10: for the sustainability managers, the investment managers, the investor relation

00:14:10 --> 00:14:11: folks.

00:14:11 --> 00:14:14: So, you know, we know that that there are many

00:14:14 --> 00:14:17: challenges that are coming as we as we try to

00:14:17 --> 00:14:20: standardize how we work through business models here.

00:14:21 --> 00:14:23: You know, what do you each think?

00:14:23 --> 00:14:25: And then we'll start with Han and then go to

00:14:25 --> 00:14:28: May and then Edward, what do you think are our

00:14:28 --> 00:14:31: biggest challenges or the the biggest needs to standardize our

00:14:31 --> 00:14:34: way of grappling with sustainability in our business models?

00:14:35 --> 00:14:37: If you could pick a thing to just get everybody

00:14:37 --> 00:14:39: to agree under the standards Han for you, what would

00:14:39 --> 00:14:40: that be?

00:14:41 --> 00:14:45: Yeah, I think the standardization of, you know, things like

00:14:45 --> 00:14:48: building ratings and so on are is going to continue

00:14:48 --> 00:14:51: to become or to be challenging because of the, you

00:14:51 --> 00:14:55: know, vastly deferring climates that we all live in.

00:14:55 --> 00:14:59: So what is a green building in Singapore for instance,

00:14:59 --> 00:15:03: is measured against the average or the nominal building here

00:15:03 --> 00:15:06: in Singapore as opposed to a building in the temperate

00:15:06 --> 00:15:11: climates which would experience a very different heat profile, a

00:15:11 --> 00:15:13: very different a cooling load profile.

00:15:14 --> 00:15:18: And what we therefore see is the the optimization of

00:15:18 --> 00:15:22: an asset relative to its market or relative relative to

00:15:22 --> 00:15:26: its climate as opposed to what is universally and absolutely

00:15:26 --> 00:15:26: green.

00:15:27 --> 00:15:30: So standardization would would have to come with these

00:15:30 --> 00:15:31: types

00:15:30 --> 00:15:31: of considerations.

00:15:32 --> 00:15:36: And also similarly, because we're all across different

00:15:36 --> 00:15:40: geographies, at

00:15:36 --> 00:15:40: least in the entire ULI population, what we'll also see

00:15:40 --> 00:15:44: is a variation across what is value at risk due

00:15:44 --> 00:15:46: to both physical and transition risks.

00:15:46 --> 00:15:50: For example, because we're all at, you know, different levels

00:15:50 --> 00:15:52: of exposure to climate risks.

00:15:53 --> 00:15:56: We're also at different levels of adoption of many of

00:15:56 --> 00:16:00: these strategies, which also puts us at different different rankings

00:16:00 --> 00:16:04: at different rates of adopting transition risk mitigation measures or

00:16:04 --> 00:16:05: adaptation measures.

00:16:06 --> 00:16:08: And so that's going to be 1 huge challenge.

00:16:08 --> 00:16:11: But I think as long as we're cognizant of the

00:16:11 --> 00:16:16: presence of these different diversities, the way forward really is

00:16:16 --> 00:16:20: to identify a horizontal where we can learn from each

00:16:20 --> 00:16:21: different market.

00:16:21 --> 00:16:24: And we can then price to May's point earlier as

00:16:24 --> 00:16:28: well where we can then price what is true sustainably,

00:16:28 --> 00:16:31: what is green state, what's true greenness, right?

00:16:31 --> 00:16:33: And therefore, how do you, how do you price and

00:16:33 --> 00:16:36: insure against these types of things when it comes to

00:16:36 --> 00:16:40: underwriting and investments, when it comes to a valuation of

00:16:40 --> 00:16:43: assets and ultimately also when it comes to operational efficiencies

00:16:43 --> 00:16:45: and running these assets?

00:16:46 --> 00:16:46: Terrific.

00:16:46 --> 00:16:50: And thank you for being so hopeful and optimistic about

00:16:51 --> 00:16:54: the challenge of hurting a lot of rating cats and

00:16:54 --> 00:16:57: measurement cats in the same direction.

00:16:58 --> 00:17:01: May what would be your request for the thing we

00:17:01 --> 00:17:03: can all do to come to agreement about a way

00:17:04 --> 00:17:07: to put sustainability into our business models?

00:17:09 --> 00:17:13: I think if you think, look at how everyone's converging

00:17:13 --> 00:17:17: in a real estate form, Grays, it becomes actually quite

00:17:17 --> 00:17:21: has actually dictated what is green in the space and

00:17:21 --> 00:17:25: and they're now moving into data centers, which actually then

00:17:25 --> 00:17:28: completes the full spectrum of buildings.

00:17:28 --> 00:17:32: And I actually think it's actually heralded as the champion

00:17:32 --> 00:17:36: for real estate because it's the one common language that

00:17:36 --> 00:17:39: we need to gauge across and then allows us to

00:17:39 --> 00:17:42: share the data in the most respective way.

00:17:42 --> 00:17:46: And sometimes and they're willing to actually do something.

00:17:47 --> 00:17:52: It's interesting the way they operate because it's always continuous

00:17:52 --> 00:17:56: improvement so that your benchmark gains 100 and the

easier

00:17:56 --> 00:17:58: questions drops out every year.

00:17:58 --> 00:18:01: And so therefore you're always chasing your own tail.

00:18:01 --> 00:18:04: So it means that you're always vigilant and I'm hungry

00:18:05 --> 00:18:06: to to make change.

00:18:06 --> 00:18:08: So you're not ever even if you get the same

00:18:08 --> 00:18:11: score last year, it would have meant that you've jumped

00:18:11 --> 00:18:14: to significant hurdles to get the same score.

00:18:14 --> 00:18:18: It's frustrating it that way, but but I think that

00:18:18 --> 00:18:23: actually then speaks to what's coming next because they've

00:18:23 --> 00:18:28: always
used industry participation to figure out where should we

00:18:28 --> 00:18:32: align

00:18:28 --> 00:18:32: ourselves and the, the scoring is usually two years ahead

00:18:32 --> 00:18:36: of policy because it's a voluntary system.

00:18:36 --> 00:18:40: And so you're keeping in touch with what's happening in

00:18:40 --> 00:18:44: the world they're talking about now, the natural systems and

00:18:44 --> 00:18:48: that component and allows the industry to award the leaders,

00:18:48 --> 00:18:51: create a pathway so that the middle of the pack

00:18:51 --> 00:18:56: lifts up the game because the leaders have actually stumbled

00:18:56 --> 00:18:59: through the the top end and then enables us to

00:18:59 --> 00:19:02: understand, OK, so the rest of us, how do we

00:19:02 --> 00:19:02: do it?

00:19:02 --> 00:19:03: Well, that's OK.

00:19:03 --> 00:19:08: Grayson has already have 1000 cohorts paving that way for

00:19:08 --> 00:19:09: you.

00:19:09 --> 00:19:12: And so if you're softening the landing for the stragglers

00:19:12 --> 00:19:15: come through, they'll say, OK, you just knew this, this

00:19:15 --> 00:19:17: and this, you'd skip all the learnings.

00:19:17 --> 00:19:23: And I think that in itself creates that consistency.

00:19:23 --> 00:19:24: I would say it crossed out industry and I think

00:19:25 --> 00:19:25: that's important.

00:19:27 --> 00:19:29: I couldn't agree more, May, and thanks so much for

00:19:29 --> 00:19:32: shouting out Chris for the good work they've been doing

00:19:32 --> 00:19:34: to get us all to talk about sustainability.

00:19:34 --> 00:19:37: In a similar fashion, we see that European taxonomy for

00:19:37 --> 00:19:39: green buildings doing similar work.

00:19:41 --> 00:19:44: Edward, you've been waiting very patiently and you've got a

00:19:44 --> 00:19:47: unique perspective on all of this from your work with

00:19:47 --> 00:19:51: the Building Construction Authority where you both set the

00:19:51 --> 00:19:54: regulation,

00:19:51 --> 00:19:54: but then you also set the kind of the incentive

00:19:54 --> 00:19:56: frameworks and the kind of the the the above and

00:19:56 --> 00:19:59: beyond frameworks through the the green mark system.

00:20:00 --> 00:20:04: How do you see your organization and the other industry

00:20:04 --> 00:20:07: kind of fault leadership organizations like the BCA?

00:20:07 --> 00:20:11: How do you see your kind of your immediate contributions

00:20:11 --> 00:20:15: to further standardizing especially the the way we measure sustainability

00:20:15 --> 00:20:18: and we standardize it for business cases?

00:20:19 --> 00:20:20: Yeah, thanks, Paul.

00:20:20 --> 00:20:24: So fully agree with what Han and Maid have said.

00:20:24 --> 00:20:28: Actually, if you think about it, I think the strong

00:20:28 --> 00:20:32: partnership between businesses and policy makers are really critical.

00:20:33 --> 00:20:36: I think in Singapore's context, Han can feel free to

00:20:36 --> 00:20:37: add on as well.

00:20:37 --> 00:20:41: For the past 20 years, we have been closely partnering

00:20:41 --> 00:20:46: with industry stakeholders, the likes of Singapore Green Building Council.

00:20:46 --> 00:20:49: I think we Co create what we call Singapore Green

00:20:49 --> 00:20:50: Building Master Plans.

00:20:51 --> 00:20:54: So we have the latest editions of the master plans.

00:20:54 --> 00:20:59: Basically it essentially developed the ecosystem of green building in

00:21:00 --> 00:21:07: Singapore starting from standards, green building rating systems, industry capabilities,

00:21:07 --> 00:21:07: research.

00:21:08 --> 00:21:10: I think we also have policies in terms of carrot

00:21:10 --> 00:21:11: and sticks.

00:21:12 --> 00:21:15: Over the years we have rolled out incentives in terms

00:21:15 --> 00:21:19: of green mark incentive schemes for new buildings, for existing

00:21:19 --> 00:21:22: buildings as well as sticks in terms of regulations.

00:21:22 --> 00:21:26: I think back in 2:08 we introduced the code on

00:21:26 --> 00:21:32: environmental sustainability where we mandate new buildings of a certain

00:21:32 --> 00:21:36: size minimum of 2000 square meter and above to be

00:21:36 --> 00:21:41: green and then then we define what is green buildings.

00:21:41 --> 00:21:46: So essentially it's green mark satisfied minimally and it it

00:21:46 --> 00:21:50: can go even beyond what we call super low energy

00:21:50 --> 00:21:51: buildings today.

00:21:52 --> 00:21:56: So I think my take away is really one strong

00:21:56 --> 00:22:03: partnership with industry businesses, NGOs like ULIW, GB, CS, GB

00:22:03 --> 00:22:05: CI think is really critical.

00:22:06 --> 00:22:08: It has to be both bottoms up and top down

00:22:08 --> 00:22:09: as well.

00:22:09 --> 00:22:12: Then the second point is really the backing of the

00:22:12 --> 00:22:13: policy makers.

00:22:13 --> 00:22:14: I think it's very important.

00:22:15 --> 00:22:19: That's how you can move some of the regulations.

00:22:19 --> 00:22:22: In fact last year we just passed the regulations on

00:22:22 --> 00:22:25: mandatory energy improvement in buildings.

00:22:25 --> 00:22:30: So essentially that keep building owners like Khan and other

00:22:30 --> 00:22:33: developers on their toes for existing buildings.

00:22:34 --> 00:22:37: So I think over the years together with businesses, we

00:22:37 --> 00:22:41: have been also collecting some of the energy consumption data.

00:22:42 --> 00:22:43: So this is really a ground up.

00:22:45 --> 00:22:49: So I think the second point is basically we need

00:22:49 --> 00:22:52: the support of industry practitioners.

00:22:53 --> 00:22:57: I think the experts, industry experts are really critical as

00:22:57 --> 00:22:59: we build up the data.

00:22:59 --> 00:23:03: I think that's one important factor that we we realized

00:23:03 --> 00:23:05: over the past 20 years.

00:23:05 --> 00:23:08: Without the data, we can't really move any of the

00:23:08 --> 00:23:10: legislation or regulations.

00:23:10 --> 00:23:13: We need to to be informed by the data and

00:23:13 --> 00:23:16: then we need to make sense of it.

00:23:16 --> 00:23:18: And then we we analyse and we Co create the

00:23:18 --> 00:23:20: policies together with industry.

00:23:20 --> 00:23:25: So All in all, I think we have this target

00:23:25 --> 00:23:28: what we call 808080 in 20-30.

00:23:28 --> 00:23:31: So basically we want to have 80% of buildings to

00:23:31 --> 00:23:35: be green in 20 thirty, 80% of new developments to

00:23:35 --> 00:23:39: be super low energy buildings from 20-30 and also 80%

00:23:39 --> 00:23:43: of energy efficiency improvement from the 2005 level.

00:23:43 --> 00:23:47: That's where we started the green mark in Singapore by

00:23:47 --> 00:23:47: 20-30.

00:23:48 --> 00:23:51: So and just to share even the last last month

00:23:52 --> 00:23:57: our minister have also launched a publications on build environment

00:23:57 --> 00:24:00: decarbonization technology road map.

00:24:01 --> 00:24:06: So it's essentially encapsulate all the thinking.

00:24:06 --> 00:24:09: I think we have done a lot of round tables,

00:24:09 --> 00:24:13: series of discussions with industries and how to capture the

00:24:13 --> 00:24:17: next pound of technologies over the next 10 to 15

00:24:17 --> 00:24:18: years.

00:24:18 --> 00:24:22: I think so far for Singapore, we have achieved 72%
00:24:22 --> 00:24:24: of energy efficiency.
00:24:24 --> 00:24:26: That's the best in class green buildings to date.
00:24:27 --> 00:24:29: But really we want to push even further.
00:24:29 --> 00:24:33: As you know, we are targeting towards net zero in
00:24:33 --> 00:24:33: 2050.
00:24:33 --> 00:24:34: Yeah.
00:24:34 --> 00:24:38: So I think these two essence, I mean these two
00:24:38 --> 00:24:43: challenge that we turn into opportunities are very critical.
00:24:43 --> 00:24:46: One is strong partnership, second is data.
00:24:46 --> 00:24:47: Yeah, thanks.
00:24:48 --> 00:24:48: Terrific.
00:24:48 --> 00:24:49: Thanks, Edward.
00:24:49 --> 00:24:52: And I just want to reflect that the work you've
00:24:52 --> 00:24:55: been doing to create the decarbonization road map sets the
00:24:55 --> 00:24:58: stage for the methods that then build in the business
00:24:58 --> 00:25:01: cases that we then, you know, can work out all
00:25:01 --> 00:25:04: the details of how we measure stuff and report stuff
00:25:04 --> 00:25:05: and calculate value of stuff.
00:25:05 --> 00:25:09: So having that early sense of where things are going
00:25:09 --> 00:25:10: is so valuable to all of us.
00:25:11 --> 00:25:12: Thank you for the work you're doing there.
00:25:14 --> 00:25:17: It also, so it's a point, it's a good segue
00:25:17 --> 00:25:20: into the third headline of a third big deal from
00:25:20 --> 00:25:24: the global sustaining builder outlook, which is how we are
00:25:24 --> 00:25:29: all shifting to whole of life, life cycle decarbonization, not
00:25:29 --> 00:25:32: just the kind of operational but whole of life.
00:25:32 --> 00:25:35: And also how we're doing this beyond the scale of
00:25:35 --> 00:25:37: a chiller or a building, but how we're doing this
00:25:37 --> 00:25:38: across portfolios.
00:25:39 --> 00:25:42: And it was interesting that in our kind of discussion
00:25:42 --> 00:25:46: for this session, several of us in different ways came
00:25:46 --> 00:25:49: to want to talk about the opportunity of kind of
00:25:49 --> 00:25:54: operating our built environment and our buildings in ways that
00:25:54 --> 00:25:57: we can take better advantage of hour by hour kind
00:25:57 --> 00:26:02: of grid carbon intensities, energy carbon intensities that we can
00:26:02 --> 00:26:06: immediately reduce our our operational carbon intensity.
00:26:06 --> 00:26:07: So this is a new idea for some parts of
00:26:08 --> 00:26:10: the world, although it's been going on for a while
00:26:10 --> 00:26:12: in California and other areas.
00:26:12 --> 00:26:15: So since everyone is really keen to talk about this

00:26:15 --> 00:26:17: as a big, big shift, I want to start out
00:26:17 --> 00:26:20: with you may tell us why you and Sultan brothers
00:26:20 --> 00:26:24: are excited about kind of smart buildings and real time
00:26:24 --> 00:26:25: decarbonization.
00:26:27 --> 00:26:31: Oh, we're actually, I mean, if you look at the
00:26:31 --> 00:26:37: way that the grid's decarbonizing to date, solar and wind
00:26:37 --> 00:26:41: and now far cheaper to operate and then coal and
00:26:41 --> 00:26:42: gas.
00:26:42 --> 00:26:46: So globally everyone's found the secret sauce.
00:26:46 --> 00:26:49: It doesn't matter whether you're a cold climate or not
00:26:49 --> 00:26:51: or you, you will use a mixture of those two.
00:26:51 --> 00:26:57: Now those two technologies though, you're exposed to
weather patterns
00:26:57 --> 00:27:01: as we get towards, I would say the greenhouse gas
00:27:01 --> 00:27:06: effect and you know, as we converge towards 2?? things,
00:27:06 --> 00:27:11: weather patterns will be much more diverse and the stability
00:27:11 --> 00:27:14: of the grid, it becomes a challenge.
00:27:14 --> 00:27:18: So we got to actually use our buildings where the
00:27:18 --> 00:27:23: buildings represent 30%, sometimes 40% of all the energy
source.
00:27:23 --> 00:27:25: We've got to used it smartly.
00:27:25 --> 00:27:28: So we're going to have to be a very good
00:27:28 --> 00:27:29: interactive building.
00:27:29 --> 00:27:32: So we got to have to match the load and
00:27:32 --> 00:27:34: by doing that we're rewarded.
00:27:34 --> 00:27:37: So we're talking about a lot of companies now have
00:27:37 --> 00:27:40: something called power purchase agreement.
00:27:40 --> 00:27:44: They there is a mixture of wind and solar and
00:27:44 --> 00:27:47: wind, wind and solar is at the cheapest is where
00:27:47 --> 00:27:49: we want our energy to run.
00:27:49 --> 00:27:52: Now obviously buildings run because people are in it.
00:27:52 --> 00:27:55: We're using it 9:00 to 5:00 or in or in
00:27:55 --> 00:27:58: a hotel in a different 24/7, a different way.
00:27:58 --> 00:28:01: So we can't expect people to change the way they
00:28:01 --> 00:28:01: use energy.
00:28:01 --> 00:28:04: So we're going to really then work towards OK, we're
00:28:04 --> 00:28:07: going to be rewarded by cheap energy.
00:28:07 --> 00:28:10: How can we put in new technologies to capture ways
00:28:11 --> 00:28:15: to shift that load towards that kind to match what's
00:28:15 --> 00:28:16: out in the grid?
00:28:16 --> 00:28:20: And so we're, we're looking at thermal storage, which is,
00:28:20 --> 00:28:24: although it can be quite a new challenge, it's not

00:28:24 --> 00:28:27: as an old problem, but these days we've got much
00:28:27 --> 00:28:31: more stability and also battery storage has become very,
very
00:28:31 --> 00:28:33: cheap in Australia.
00:28:33 --> 00:28:36: So with those two technologies, we're actually being able to
00:28:36 --> 00:28:39: kind of really enjoy the cheap power.
00:28:39 --> 00:28:42: So in Australia we now have so much solar we're
00:28:43 --> 00:28:44: giving it away for free.
00:28:44 --> 00:28:48: So somewhere between the hours of 11 to maybe like
00:28:48 --> 00:28:53: 2 or maybe 10 to, to one, we're actually challenging
00:28:53 --> 00:28:56: the grid to give power to everyone.
00:28:56 --> 00:28:59: Now it's only available to residential, which is a fair
00:29:00 --> 00:29:03: component, but it's not long before we have so much
00:29:03 --> 00:29:05: solar that it will be free.
00:29:05 --> 00:29:08: So we, so as a building owner, we must look
00:29:08 --> 00:29:12: ahead and actually try some of these technologies because
we
00:29:13 --> 00:29:15: want to move with the transition.
00:29:15 --> 00:29:18: We want to actually allow our buildings to be able
00:29:18 --> 00:29:22: to save the transition, save all that energy and the
00:29:22 --> 00:29:25: use it later when it's energy is going to be
00:29:25 --> 00:29:26: extremely expensive.
00:29:27 --> 00:29:28: So it's really exciting.
00:29:28 --> 00:29:31: And a very quick follow up May in your properties,
00:29:31 --> 00:29:35: are you already installing chilled water tanks or hot water
00:29:35 --> 00:29:35: tanks?
00:29:35 --> 00:29:37: Are you installing electrical batteries?
00:29:37 --> 00:29:38: Are you preparing We're.
00:29:39 --> 00:29:42: We're lucky in a hotel there's always hot water tanks
00:29:42 --> 00:29:42: already.
00:29:43 --> 00:29:47: So there's a level of hot water tanks available.
00:29:47 --> 00:29:50: It's a matter of actually putting a smart controller on
00:29:50 --> 00:29:54: top and generating that at the time that is required.
00:29:54 --> 00:29:55: So it's not.
00:29:55 --> 00:29:58: So we're not really doing a huge amount in that
00:29:58 --> 00:30:03: way because hotels have always traditionally have huge
amount of
00:30:03 --> 00:30:07: water tanks because Australia's always had issues with not
water
00:30:07 --> 00:30:09: reliability, but pressure reliability.
00:30:09 --> 00:30:13: So most of the hotels remnant of the the issue
00:30:13 --> 00:30:18: that was prevailed in the 80s already have huge storage
00:30:18 --> 00:30:20: tanks sitting on the roof.

00:30:21 --> 00:30:23: And then they they're just re changing the way that
00:30:23 --> 00:30:25: you would use the controls and storage.
00:30:25 --> 00:30:28: And then they are having that ability to kind of
00:30:28 --> 00:30:31: then use that and having a smart control to then
00:30:31 --> 00:30:33: say, when is the best time Do we do this?
00:30:33 --> 00:30:34: Now?
00:30:34 --> 00:30:37: Of course we have to put in new technologies like
00:30:37 --> 00:30:40: heat pumps that are electrified version of it to really
00:30:40 --> 00:30:42: capture that component.
00:30:42 --> 00:30:45: But it's a small investment compared to, you know, compared
00:30:46 --> 00:30:48: for all the gains that you would get.
00:30:49 --> 00:30:52: Yeah, I love that you're taking advantage of under underused
00:30:52 --> 00:30:55: resources and underused kind of assets in your properties to
00:30:55 --> 00:30:56: drive energy storage.
00:30:56 --> 00:30:57: It's very clever.
00:30:57 --> 00:31:00: Hahn at Keppel How are you grappling with smart grids
00:31:00 --> 00:31:03: and real time decarbonization, and what sort of value are
00:31:04 --> 00:31:04: you pursuing?
00:31:05 --> 00:31:08: Yeah, I think with smart grids, a lot of it
00:31:08 --> 00:31:10: is infrastructural in nature.
00:31:10 --> 00:31:14: So you kind of have to have the operating municipality
00:31:14 --> 00:31:19: or the operating country even adopt these types of policies.
00:31:19 --> 00:31:22: But by and large in Singapore, we do sort of,
00:31:22 --> 00:31:26: you know, with any renewables, some of it that is
00:31:26 --> 00:31:30: unconsumed can actually go back to the grid.
00:31:30 --> 00:31:34: We're still in the process of establishing a more robust
00:31:34 --> 00:31:37: sort of grid sharing type of ecosystem, which will I
00:31:38 --> 00:31:41: would say shave off some of the peaks and troughs
00:31:41 --> 00:31:45: and and allow for a more constant throughput of renewable
00:31:45 --> 00:31:45: energy.
00:31:45 --> 00:31:49: And I think that's something hopefully that within the next
00:31:49 --> 00:31:53: 10-15 years, we can look forward to including the possibilities
00:31:53 --> 00:31:57: and the potential of battery of building energy storage
systems
00:31:57 --> 00:32:01: via batteries, especially for things like EV charging and so
00:32:01 --> 00:32:02: on, right.
00:32:02 --> 00:32:05: So once that's, I would say set up or once
00:32:05 --> 00:32:09: that's institutionalized, then we'll be able to work that together
00:32:09 --> 00:32:13: with the current decarbonization systems that we do have in
00:32:13 --> 00:32:18: our buildings, which includes, you know, much more energy
efficient
00:32:18 --> 00:32:19: equipment, for instance.
00:32:20 --> 00:32:24: But also the ability to manage the intelligence of these

00:32:24 --> 00:32:30: buildings through new technologies, which includes like with everything these

00:32:30 --> 00:32:35: days, artificial intelligence that's therefore able to trend and detect

00:32:36 --> 00:32:41: potential failures, trend and detect potential downtimes and be able

00:32:41 --> 00:32:45: to either preempt or manage these ahead of the event,

00:32:45 --> 00:32:48: right ahead of actual failures happening.

00:32:48 --> 00:32:52: So a combination of all these things that is adequately

00:32:52 --> 00:32:57: managed, adequately or efficiently operated as well as appropriately priced

00:32:57 --> 00:33:01: right would lead us towards, I'll say a better and

00:33:01 --> 00:33:05: then and a bigger journey towards decarbonization for our assets

00:33:05 --> 00:33:06: in the future.

00:33:07 --> 00:33:08: Terrific.

00:33:08 --> 00:33:11: And Edward at BCA, do you see a role in

00:33:11 --> 00:33:16: research and regulation and and reward systems around smart grids

00:33:17 --> 00:33:21: and a more nimble with energy purchase so that it

00:33:21 --> 00:33:24: tracks with lower carbon intensity power?

00:33:25 --> 00:33:27: Yes, certainly, Paul.

00:33:27 --> 00:33:31: So as what Han has mentioned, in Singapore actually like

00:33:31 --> 00:33:36: for example, renewables, you can already send the excess renewables,

00:33:36 --> 00:33:38: excess energy to the grid.

00:33:38 --> 00:33:42: So I think what in terms of research, what we

00:33:42 --> 00:33:44: are trying to do at 2 fronts, 1 is at

00:33:44 --> 00:33:46: the district level.

00:33:46 --> 00:33:50: I think there are test bed pilots ongoing at the

00:33:50 --> 00:33:56: district level, for example, Drong Lake District, Drong Innovation District

00:33:56 --> 00:34:00: where I think at the district level some of this

00:34:00 --> 00:34:03: peak energy or what you call it peak shave, it

00:34:03 --> 00:34:05: can be done even better.

00:34:06 --> 00:34:09: So there has been some pilots as well in in

00:34:09 --> 00:34:14: fact involving capital together with JDCI think they signed an

00:34:15 --> 00:34:17: MOU last year on smart micro grids.

00:34:19 --> 00:34:23: So I think certainly from from the policy maker perspective

00:34:23 --> 00:34:28: in terms of research, we continue to help through the

00:34:28 --> 00:34:30: grants through funding platforms.

00:34:30 --> 00:34:33: But I think that is as what may have also

00:34:33 --> 00:34:37: mentioned, there's a lot of benefits in in doing so.

00:34:37 --> 00:34:41: And then we continue to look out for solutions that
00:34:41 --> 00:34:44: has been done as well overseas, including Australia.
00:34:45 --> 00:34:47: I think there's a lot to be learnt.
00:34:47 --> 00:34:48: We are quite nimble.
00:34:50 --> 00:34:54: I think the micro grids, smart grids solutions will certainly
00:34:54 --> 00:34:58: be the next bound and how at the national level
00:34:58 --> 00:35:01: we can reduce carbon emissions further.
00:35:01 --> 00:35:05: But it's not easy at the building level.
00:35:05 --> 00:35:06: From BCH's perspective.
00:35:06 --> 00:35:10: From green mark, I think we continue to equip the
00:35:10 --> 00:35:13: buildings through the green mark scheme.
00:35:14 --> 00:35:17: That's why we have what we call it intelligence batch
00:35:17 --> 00:35:21: so that the buildings at the building level minimally it
00:35:21 --> 00:35:25: is future ready to be connected for that eventuality micro
00:35:25 --> 00:35:26: grids, smart grids.
00:35:27 --> 00:35:30: So yeah, I think we are fully supportive and it's
00:35:30 --> 00:35:34: I think it's it's more or less at Test building
00:35:34 --> 00:35:34: stage.
00:35:34 --> 00:35:38: Hopefully it is something that we can scale up further.
00:35:38 --> 00:35:39: Yeah, thanks.
00:35:41 --> 00:35:42: Thanks Edward.
00:35:42 --> 00:35:45: And I'll just observe quickly that here in Australia where
00:35:45 --> 00:35:48: we use a system called neighbors to assess the operational
00:35:48 --> 00:35:51: energy of buildings and they smiling because she has to
00:35:51 --> 00:35:53: do with this stuff all the time.
00:35:54 --> 00:35:57: The measured operational energy of buildings which is
converted on
00:35:58 --> 00:36:01: an annual basis, an annual average basis to building
emissions
00:36:01 --> 00:36:02: intensity.
00:36:02 --> 00:36:06: The scheme as it's currently rated actually works against real
00:36:06 --> 00:36:10: time kind of grid decarbonization, smart grid stuff, because it
00:36:10 --> 00:36:14: always uses a little bit more energy to save energy,
00:36:14 --> 00:36:16: so there's a bit in storage.
00:36:16 --> 00:36:20: So even if you're building through, saving energy
substantially reduces
00:36:20 --> 00:36:23: its annual emissions profile on an hour by hour basis.
00:36:23 --> 00:36:26: Look at it at on average, use more energy, therefore
00:36:26 --> 00:36:27: use more carbon.
00:36:27 --> 00:36:31: So the way we measure carbon intensity is in the
00:36:31 --> 00:36:36: process of being reviewed and updated to acknowledge the
good
00:36:36 --> 00:36:40: work that buildings can do to save energy, to store

00:36:40 --> 00:36:43: energy, to deploy it right time.

00:36:44 --> 00:36:48: So just these these systems, especially the complex robust ones,

00:36:48 --> 00:36:51: take time to adjust to emerging practices.

00:36:53 --> 00:36:55: We've got some questions coming in, which is terrific.

00:36:55 --> 00:36:56: Thanks, Hannah, for your questions.

00:36:56 --> 00:36:57: Thanks, John, for yours.

00:36:57 --> 00:36:58: We'll turn to those in a few minutes.

00:36:58 --> 00:37:01: I encourage the rest of you to submit questions as well.

00:37:01 --> 00:37:02:

00:37:02 --> 00:37:04: One more for our panel before we pick up a couple of questions from the audience.

00:37:04 --> 00:37:06:

00:37:08 --> 00:37:11: Just thinking about we, we've been talking quite specifically about

00:37:11 --> 00:37:13: a kind of series of technologies.

00:37:14 --> 00:37:19: What other technologies or development practices or building operational practices

00:37:19 --> 00:37:23: do you all see as driving really substantial and meaningful decarbonization in our property, building our properties, in our portfolios?

00:37:23 --> 00:37:28:

00:37:28 --> 00:37:30: And let's start with you, Edward, you're at the cutting edge of this.

00:37:30 --> 00:37:31:

00:37:31 --> 00:37:33: What is going to really decarbonize our build environment?

00:37:34 --> 00:37:35: Yeah, thanks, Bon.

00:37:36 --> 00:37:41: So based on what we gathered from Green Mark projects,

00:37:41 --> 00:37:44: I think we have a lot more super low energy buildings.

00:37:44 --> 00:37:45:

00:37:45 --> 00:37:49: What we define as super low energy is basically when you achieve 60% energy efficiency improvement over the 2005 levels.

00:37:49 --> 00:37:53:

00:37:54 --> 00:37:58: So when we started the SLE program back 5-6 years ago, it was only a few and there was only

00:37:58 --> 00:38:02: institutional buildings.

00:38:02 --> 00:38:04:

00:38:04 --> 00:38:09: I think there are more and more our technologies on board and we have close to 200 SLE buildings today,

00:38:09 --> 00:38:13: so encompassing commercial, residential, non residential, industrial building.

00:38:14 --> 00:38:21:

00:38:21 --> 00:38:23: So I think this is really encouraging.

00:38:23 --> 00:38:26: So the next part of technology if you ask me

00:38:26 --> 00:38:29: is really about alternative cooling technologies.

00:38:30 --> 00:38:33: So if you think about it in at least minimally

00:38:33 --> 00:38:37: in our context we need cooling and we have a hot and humid climate and I think the need for

00:38:37 --> 00:38:40:

00:38:40 --> 00:38:43: energy for cooling is really very high.
00:38:44 --> 00:38:48: So what is needed is really how we can get
00:38:48 --> 00:38:54: out of ourselves from the dependency on on ACMV systems.
00:38:55 --> 00:38:57: So I think that's that's really critical.
00:38:57 --> 00:39:00: And if you think about it in our context, we
00:39:00 --> 00:39:05: have very high rise buildings, both residential and non
residential.
00:39:05 --> 00:39:08: So if I ask the likes of Athelia Tans, Urbana
00:39:08 --> 00:39:12: Jerong, I think it's very challenging to to achieve 80%
00:39:13 --> 00:39:15: energy efficiency improvement.
00:39:15 --> 00:39:19: So knowing that, I think what we can do is
00:39:19 --> 00:39:24: really back-to-back to basics and how architects, building
designers design
00:39:25 --> 00:39:26: the buildings.
00:39:26 --> 00:39:30: So I think that's very important, how we can harness
00:39:30 --> 00:39:35: more natural ventilation in our buildings, how we can put
00:39:35 --> 00:39:38: hybrid cooling seamlessly into buildings.
00:39:38 --> 00:39:42: Because if you think about it as building occupants, there's
00:39:42 --> 00:39:46: a lot of transitional spaces in our buildings and like
00:39:46 --> 00:39:51: atrium, live lobbies, even toilets, people are not working there
00:39:51 --> 00:39:51: 24/7.
00:39:52 --> 00:39:55: So there's a lot of excess energy that we can
00:39:55 --> 00:39:57: cut through our building design.
00:39:58 --> 00:40:00: So I think from this perspective.
00:40:01 --> 00:40:04: We came out with GBIC challenge, what we call Green
00:40:04 --> 00:40:06: green building innovation Challenge.
00:40:07 --> 00:40:12: And I think last year we call for challenge call
00:40:12 --> 00:40:17: for projects came on board and it, it basically studied
00:40:17 --> 00:40:24: all the various building topologies from hotel, commercial,
office topologies
00:40:24 --> 00:40:29: and then residential mixed development as well.
00:40:29 --> 00:40:32: So a mix of retail and as well as commercial.
00:40:32 --> 00:40:35: So I think that the the study finding is, is
00:40:35 --> 00:40:37: very interesting.
00:40:38 --> 00:40:40: OK, So the outcome will be released in a in
00:40:40 --> 00:40:43: a couple of months when we have the International Build
00:40:43 --> 00:40:44: Environment Week.
00:40:45 --> 00:40:46: So stay tuned.
00:40:48 --> 00:40:52: One of the findings really suggests that back to basics
00:40:52 --> 00:40:56: in terms of building design is very important how we
00:40:56 --> 00:40:59: can harness natural ventilation.
00:40:59 --> 00:41:03: I think what you call mixed mode ventilation as well,
00:41:03 --> 00:41:07: how we can activate cooling system in a smart way,

00:41:07 --> 00:41:11: not not just fully on throughout the day for example.

00:41:12 --> 00:41:15: So some of this alternative cooling technologies is quite

00:41:15 --> 00:41:16: new.

00:41:16 --> 00:41:18: I think we are trying to promote it in both

00:41:18 --> 00:41:21: public sector and private sector buildings.

00:41:21 --> 00:41:23: We have more and more buildings coming on board.

00:41:23 --> 00:41:26: We are collecting data and I think this could be

00:41:26 --> 00:41:30: the next bound minimally for for temperate countries, I mean,

00:41:30 --> 00:41:34: minimally for hot and humid countries like us, but perhaps

00:41:34 --> 00:41:37: in other temperate countries there could be other solutions as

00:41:37 --> 00:41:38: well.

00:41:38 --> 00:41:39: Yeah, maybe I'll stop here.

00:41:39 --> 00:41:39: Thanks.

00:41:40 --> 00:41:43: Right, that's exciting and I'm excited to read the well,

00:41:43 --> 00:41:45: all the secrets that are going to be devolved.

00:41:45 --> 00:41:49: I released the reported and not Harnick Keppel.

00:41:49 --> 00:41:53: Where are you investing your time and effort in practices

00:41:53 --> 00:41:58: and emerging technologies to decarbonize us, whether it's

00:41:58 --> 00:42:00: construction, embodied

00:42:01 --> 00:42:02: or operational, the full realm of carbon?

00:42:02 --> 00:42:06: Yeah.

00:42:06 --> 00:42:10: So across our assets, we do work quite closely with

00:42:10 --> 00:42:15: some of the institutional agencies including BCA and well

00:42:15 --> 00:42:20: agencies

00:42:20 --> 00:42:25: that encourage the proliferation of these startup types of

00:42:25 --> 00:42:27: companies

00:42:27 --> 00:42:30: in Singapore as well in sourcing for the appropriate types

00:42:30 --> 00:42:32: of technologies for decarbonization as well As for operational

00:42:32 --> 00:42:36: efficiency,

00:42:36 --> 00:42:39: usually both, right.

00:42:39 --> 00:42:43: So when it comes to materials, for instance, we're in,

00:42:43 --> 00:42:47: we'd like to preserve some embodied carbon.

00:42:47 --> 00:42:52: Further, these are where low, low embodied carbon types of

00:42:52 --> 00:42:56: materials can certainly come in, whether it's concrete, steel,

00:42:56 --> 00:42:58: glass

00:42:58 --> 00:43:01: or any mode of interior finishing or interior materials, right?

00:43:01 --> 00:43:05: So having what we would define as low embodied carbon

00:43:05 --> 00:43:09: types of materials will be the start of that conversation.

00:43:09 --> 00:43:13: And that is if we're doing any mode of renovation

00:43:13 --> 00:43:17: or rebuild at all.

00:43:17 --> 00:43:21: But prior to that conversation, it would be an active

00:43:21 --> 00:43:25: decision to retrofit an existing asset as much as possible

00:43:25 --> 00:43:29: simply to strategically enhance its life cycle and therefore

preserve

00:43:09 --> 00:43:12: to some extent the embodied carbon that's already there, right.

00:43:12 --> 00:43:16: So you can't necessarily save every building, but for what you can, you could actually preserve all the years of embodied carbon that came before that and how it was put together in the 1st place.

00:43:16 --> 00:43:20:

00:43:20 --> 00:43:24:

00:43:24 --> 00:43:26: And making that sort of conscious decision instead of demolishing

00:43:26 --> 00:43:30:

00:43:30 --> 00:43:33: and rebuilding it does save us a significant amount of embodied carbon.

00:43:33 --> 00:43:34:

00:43:34 --> 00:43:37: So once we get past that stage, it would be about implementing a, a well curated, a set of solutions that actually work well with one another.

00:43:37 --> 00:43:40:

00:43:40 --> 00:43:42:

00:43:42 --> 00:43:46: So these could be anything from, well, cooling to lighting optimization types of technologies to ventilation technologies to building controls,

00:43:46 --> 00:43:52:

00:43:52 --> 00:43:53: right?

00:43:53 --> 00:43:55: So it's a combination of what's out there in the market, what is already, you know, household name in the market, plus any of these new types of technologies that might come up, right?

00:43:55 --> 00:43:58:

00:43:58 --> 00:44:01:

00:44:01 --> 00:44:02:

00:44:02 --> 00:44:05: So these would include sensing technologies.

00:44:05 --> 00:44:10: These would also include a mixed mode ventilation technologies that

00:44:10 --> 00:44:14: Edwards touched upon earlier and ultimately in building management and

00:44:14 --> 00:44:15: automation.

00:44:16 --> 00:44:18: So it's not just the absolute performance of the building that we need to look at, it's also about how the building is being used.

00:44:18 --> 00:44:20:

00:44:20 --> 00:44:21:

00:44:22 --> 00:44:25: So there's a lot of interplay between the optimization of space, like for instance, in a in an open office, in an open hot desk office, how would that differ in terms of its consumption profile to a fixed desk office?

00:44:25 --> 00:44:29:

00:44:29 --> 00:44:32:

00:44:32 --> 00:44:35:

00:44:35 --> 00:44:36:

00:44:36 --> 00:44:38: So we study these types of differences.

00:44:38 --> 00:44:41: We study heat maps as to where people tend to congregate in an open office type of environment, for instance,

00:44:41 --> 00:44:45:

00:44:45 --> 00:44:48: where people tend to congregate in a cool living type of asset, for instance.

00:44:48 --> 00:44:49:

00:44:49 --> 00:44:54: And then we optimize the technologies behind that

00:44:54 --> 00:44:57: accordingly, be
00:44:57 --> 00:45:00: it in terms of the purging of still air or
00:45:01 --> 00:45:06: the redistribution of fresher and cooler air.
00:45:06 --> 00:45:10: So once all these things are basically responsive based on
00:45:10 --> 00:45:13: demand, right, we also see peaks being shaved.
00:45:13 --> 00:45:16: We also see, you know, incremental savings to be had
00:45:16 --> 00:45:19: and you shouldn't sort of just ignore some of these
00:45:19 --> 00:45:22: savings even though there's, you know, two 3% or 5%
00:45:22 --> 00:45:27: because once you add it all up together, they could
00:45:27 --> 00:45:30: contribute significantly to the overall decarbonization journey
00:45:31 --> 00:45:32: and therefore the
00:45:32 --> 00:45:35: savings per year and therefore the valuation of the building
00:45:36 --> 00:45:36: per annum, for instance, right.
00:45:37 --> 00:45:39: So it's it's sort of snowballs to something that's a
00:45:39 --> 00:45:41: lot bigger.
00:45:41 --> 00:45:42: Yeah, that's a lot of insights on what you said,
00:45:42 --> 00:45:43: Hon, not the least of which is we've got to
00:45:43 --> 00:45:44: tackle this on many fronts.
00:45:44 --> 00:45:47: There's no silver bullet.
00:45:47 --> 00:45:50: The other issue that your comment raises for me, it's
00:45:50 --> 00:45:54: aside is there's an interesting point where I think an
00:45:54 --> 00:45:58: interesting discussion that we need to have about how much
00:45:58 --> 00:46:01: the office experience or the residential experience matters
00:46:01 --> 00:46:03: versus the
00:46:03 --> 00:46:05: energy we save by optimizing performance to spring every
00:46:05 --> 00:46:08: last
00:46:08 --> 00:46:10: walk out of operations.
00:46:10 --> 00:46:12: There are a few buildings in the world that are
00:46:12 --> 00:46:13: open plan, but you're only allowed to sit in the
00:46:13 --> 00:46:15: open plan areas that have been open so that they
00:46:15 --> 00:46:17: can try and keep as much of the building shut
00:46:17 --> 00:46:18: down as possible.
00:46:18 --> 00:46:20: Now that's cool from a standpoint of reducing energy use,
00:46:19 --> 00:46:21: but you know, it's a little bit Big Brother, you
00:46:21 --> 00:46:23: get to the office, you want to go to that
00:46:23 --> 00:46:24: nice sunny corner and the you're not, you know, there's
00:46:24 --> 00:46:27: no lights on, there's no security, there's nothing there
00:46:27 --> 00:46:28: because
00:46:28 --> 00:46:29: that part of the building is not opened up.
00:46:29 --> 00:46:31: That sort of defeats the purpose of going into work
00:46:29 --> 00:46:31: and doing your thing.
00:46:29 --> 00:46:31: So is that right?
00:46:29 --> 00:46:31: You know, are those lots worth it?

00:46:32 --> 00:46:33: Maybe they are.

00:46:33 --> 00:46:36: And that's where there's a kind of the, the possibilities

00:46:36 --> 00:46:39: of highly automated controls for a bump up against the

00:46:39 --> 00:46:42: needs of us as people in our workplaces and our

00:46:42 --> 00:46:43: homes and our our things.

00:46:45 --> 00:46:48: May your thoughts on on the kind of the a

00:46:48 --> 00:46:53: practice or a technology that's going to meaningfully

00:46:53 --> 00:46:57: decarbonize, you know your portfolio at Salter Brothers or broader property

00:46:59 --> 00:47:03: portfolios.

00:47:03 --> 00:47:06: I'm keeping an eye on three things, the technology one

00:47:06 --> 00:47:11: of them, the first one is a water source heat pump chiller because ultimately you, you all, everyone needs

00:47:11 --> 00:47:15: cooling,

00:47:15 --> 00:47:18: but you know, you also provides free heating.

00:47:19 --> 00:47:22: So in most countries, particularly in a moderate country like

00:47:23 --> 00:47:26: Australia or it doesn't matter, not necessarily Australia, but if

00:47:26 --> 00:47:29: you're a hot country like Singapore, but you've got hotels

00:47:29 --> 00:47:33: with a swimming pool or anything with a heat source,

00:47:33 --> 00:47:35: it's actually quite good technology to kind of have free

00:47:36 --> 00:47:42: heating as a, as a by product of cooling.

00:47:42 --> 00:47:45: So that's actually #1 #2 is people counting occupancy

00:47:46 --> 00:47:49: senses.

00:47:49 --> 00:47:52: So traditionally we've always said if you improve outside

00:47:52 --> 00:47:56: there

00:47:56 --> 00:47:59: and Green Star makes everyone happy, it therefore gives you

00:48:00 --> 00:48:01: green points because you know, you're my more.

00:48:01 --> 00:48:04: What's happened is with the Evan and Covic, we're not

00:48:04 --> 00:48:08: actually using our office the way we're used to.

00:48:08 --> 00:48:09: There's a lot more people working from home.

00:48:09 --> 00:48:12: So in itself we still run the building as we

00:48:12 --> 00:48:15: would be in a full tenancy because that's how we've

00:48:15 --> 00:48:20: always done it.

00:48:20 --> 00:48:23: But now we're working from home or in a large

00:48:23 --> 00:48:27: office environment with meeting rooms.

00:48:27 --> 00:48:30: The people counting occupancy sensor can really

00:48:30 --> 00:48:33: significantly reduce the

00:48:33 --> 00:48:36: outside air and at a temperature like 28?? in Singapore

00:48:33 --> 00:48:36: and humidity, which is the challenge that creates extra

00:48:33 --> 00:48:36: energy

00:48:33 --> 00:48:36: to try to reduce that that to a comfortable level

00:48:33 --> 00:48:36: because you still not only do you have to deal

00:48:33 --> 00:48:36: with the humidity, but also the sensible load.

00:48:36 --> 00:48:40: So in a people counting scenario, it's very simple technology,
00:48:40 --> 00:48:44: you're not changing too much, but one sensor makes such
00:48:44 --> 00:48:45: a huge difference.
00:48:45 --> 00:48:46: So that's number two.
00:48:46 --> 00:48:50: And then of course, the AI native language and its
00:48:50 --> 00:48:54: ability to capture data across multiple facets.
00:48:54 --> 00:48:58: Right now we run silos, electrical system talks to itself,
00:48:58 --> 00:49:00: a high track system is run by BMS, the list
00:49:00 --> 00:49:04: system has on BMS management system and then the grid
00:49:04 --> 00:49:05: doesn't talk to anybody.
00:49:06 --> 00:49:09: Now in an AI world, we would pick that all
00:49:09 --> 00:49:13: up together and the AI can decide which is the
00:49:13 --> 00:49:17: priority because we cannot as a human person can't
understand.
00:49:17 --> 00:49:19: There's too many inputs all at once.
00:49:19 --> 00:49:22: You know, if I want to do the man management,
00:49:22 --> 00:49:24: which I try to do manually in the ICC, I
00:49:25 --> 00:49:27: can only watch 2 screens at once.
00:49:27 --> 00:49:30: So I can know maybe one floor, 2 floors I
00:49:30 --> 00:49:33: can watch in terms of what the energy is going.
00:49:33 --> 00:49:36: I can't watch all 20 floors and figure out at
00:49:36 --> 00:49:38: which point I need to stop my energy savings measure
00:49:38 --> 00:49:40: and then turn it back on.
00:49:40 --> 00:49:42: So I can't capture that.
00:49:42 --> 00:49:45: And I feel that with the way AI is scaling
00:49:45 --> 00:49:49: so fast and I'm seeing some really, really amazing AI
00:49:49 --> 00:49:52: products out there, I think that's going to be the
00:49:52 --> 00:49:56: next crystal ball for us that we're really going to
00:49:56 --> 00:50:00: see a huge emerging field coming through that picks up
00:50:00 --> 00:50:04: all those, all those vertical layers and bring it all
00:50:04 --> 00:50:05: together.
00:50:07 --> 00:50:09: Yeah, and maybe it's not even AI.
00:50:09 --> 00:50:11: It could just be thoughtful algorithms.
00:50:12 --> 00:50:15: Whatever works, you know, we just, we needed the data
00:50:15 --> 00:50:17: and we need the data to talk to each other.
00:50:17 --> 00:50:17: That's it.
00:50:17 --> 00:50:17: That's right.
00:50:18 --> 00:50:19: Bringing computational power to bear.
00:50:19 --> 00:50:20: I fully agree.
00:50:21 --> 00:50:24: Now we've got said lots of good questions to come
00:50:24 --> 00:50:24: in.
00:50:24 --> 00:50:27: A special shout out to Helena Chu in Singapore who's

00:50:27 --> 00:50:28: been firing off lots of great ones.

00:50:30 --> 00:50:33: And Helena asks a question here about how do we

00:50:33 --> 00:50:39: basically rigorously and appropriately account for business case for the

00:50:39 --> 00:50:43: cost of climate inaction and how do we build that

00:50:43 --> 00:50:45: into our business cases.

00:50:46 --> 00:50:49: And I wanted to hear again from from each, especially

00:50:49 --> 00:50:53: from home and from May, how are your business cases?

00:50:53 --> 00:50:55: How are your businesses and your work?

00:50:55 --> 00:50:58: How are you valuing resilience?

00:50:58 --> 00:51:00: How are you valuing adaptation?

00:51:00 --> 00:51:02: Are you building in cost of inaction?

00:51:03 --> 00:51:06: Are you building in some cost to advocate for more

00:51:06 --> 00:51:07: action by everyone else?

00:51:07 --> 00:51:08: To.

00:51:08 --> 00:51:11: Protect the value of your assets and your businesses like

00:51:11 --> 00:51:15: the As the world changes and gets weirder and Otter

00:51:15 --> 00:51:19: and more complicated, how is resilience shaping like hard nosed

00:51:19 --> 00:51:20: business decisions?

00:51:21 --> 00:51:23: Yeah, maybe I'll, I'll start.

00:51:23 --> 00:51:27: And I think we've gone from running businesses sustainably to

00:51:27 --> 00:51:31: running a sustainable business because ultimately you can't escape from

00:51:31 --> 00:51:35: the fact that, you know, global warming is really happening.

00:51:35 --> 00:51:37: I mean, every summer is a good reminder of that.

00:51:37 --> 00:51:39: It just keeps getting hotter and hotter.

00:51:39 --> 00:51:42: Either that or tolerance is getting lower and lower, which

00:51:42 --> 00:51:42: is unlikely.

00:51:42 --> 00:51:46: So definitely the plan is getting hotter and I think

00:51:46 --> 00:51:50: businesses would be unwise to not factor any of these

00:51:50 --> 00:51:54: types of costs in mitigation or in at least adapting

00:51:54 --> 00:51:57: to these changes as part of their modus operandi.

00:51:58 --> 00:52:01: And certainly I think for investments this takes the form

00:52:01 --> 00:52:02: of a couple of things.

00:52:02 --> 00:52:07: One is factoring in sufficient expenditure for these measures and

00:52:07 --> 00:52:12: also determining what is the value at risk rate should

00:52:12 --> 00:52:17: Touchwood any sort of calamity that's climate related happen.

00:52:17 --> 00:52:19: And so all this has been talked about in some

00:52:19 --> 00:52:21: ways earlier on in the past hour.

00:52:22 --> 00:52:24: What I also want to talk about is the allocation
00:52:24 --> 00:52:25: of capital.
00:52:25 --> 00:52:28: So to chance first question as well.
00:52:28 --> 00:52:31: I think her question is around how do you justify
00:52:31 --> 00:52:34: for you know the original CapEx or what used to
00:52:34 --> 00:52:37: be called the green premium simply because you know you
00:52:37 --> 00:52:41: can sort of counter that argument with somewhat of
increased
00:52:41 --> 00:52:42: building valuation.
00:52:42 --> 00:52:45: And the fact is that is a great question because
00:52:45 --> 00:52:47: it is something that we look at both in terms
00:52:47 --> 00:52:50: of strategy as well as accounting right from the very
00:52:50 --> 00:52:53: beginning of underwriting in any given asset.
00:52:53 --> 00:52:56: Because if you look at factoring in CapEx, which is
00:52:56 --> 00:52:59: part of the building cost, that immediately pumps up the
00:52:59 --> 00:53:03: cost of the building, whether or not it's for material,
00:53:03 --> 00:53:06: for amenities or in this case for sustainability.
00:53:07 --> 00:53:10: And the moment that's sort of bumped up, it makes
00:53:10 --> 00:53:13: your investment returns or your return on equity or return
00:53:14 --> 00:53:17: of investment or even your IRR that impacts that figure,
00:53:17 --> 00:53:18: right?
00:53:18 --> 00:53:20: And it's a shift in the spreadsheet because if that
00:53:20 --> 00:53:23: figure goes up, you know, inversely, the returns figure comes
00:53:23 --> 00:53:26: down and then it just doesn't pass that gateway that
00:53:26 --> 00:53:28: needs to be passed in order for investment to go
00:53:28 --> 00:53:29: ahead, right?
00:53:29 --> 00:53:32: So what then needs to be done is to look
00:53:32 --> 00:53:35: at how we can break down the cost of such
00:53:35 --> 00:53:35: CapEx.
00:53:35 --> 00:53:39: Of course, I talked earlier about the cost curves coming
00:53:39 --> 00:53:43: down, right, for building technologies and for decarbonization
technologies.
00:53:43 --> 00:53:45: But as much as that is true, it still comes
00:53:45 --> 00:53:45: at a cost.
00:53:46 --> 00:53:49: So how then do you sort of place that into
00:53:50 --> 00:53:54: a more gradual, consistent and well more sustainable in that
00:53:54 --> 00:53:58: sense of the word, sort of expenditure that is then
00:53:58 --> 00:54:02: distributed over its life cycle or at least the asset
00:54:02 --> 00:54:07: or the fund life cycle across its operational expenditure, right.
00:54:07 --> 00:54:10: So factoring in these types of things and, and also
00:54:10 --> 00:54:14: employing, you know, sustainability as a service type of
products
00:54:14 --> 00:54:18: and types of services will actually distribute the cost over

00:54:18 --> 00:54:19: time.

00:54:19 --> 00:54:22: And if the cost is distributed over time, all the

00:54:22 --> 00:54:25: more the pressure to gain these savings to supersede or

00:54:26 --> 00:54:29: too far offset these costs will then come in right.

00:54:29 --> 00:54:32: So it's in some ways positive pressure that will lead

00:54:32 --> 00:54:35: you to be even more clever and be even more

00:54:35 --> 00:54:39: strategic about putting in the right source of solutions plus

00:54:39 --> 00:54:42: the right types of accounting models for the asset, right.

00:54:43 --> 00:54:45: I don't know if that's left enough time for anyone

00:54:45 --> 00:54:47: else, but that's that's really how we're looking at it.

00:54:47 --> 00:54:49: It's different on a case by case basis.

00:54:49 --> 00:54:51: It's different depending on the cost of technology and it's

00:54:51 --> 00:54:54: certainly different for different geographies that we operate in.

00:54:54 --> 00:54:55: Yeah.

00:54:55 --> 00:54:57: And and I think fundamentally it shares the responsibility of

00:54:57 --> 00:54:58: responding.

00:54:58 --> 00:55:01: So it's not just one thing, it's many things over

00:55:01 --> 00:55:02: many realms over time.

00:55:03 --> 00:55:05: And my quick one, how are you?

00:55:05 --> 00:55:05: Yeah.

00:55:05 --> 00:55:06: OK.

00:55:06 --> 00:55:09: So just just something like, I mean Hans talked quite

00:55:10 --> 00:55:12: a lot about understanding that pathway.

00:55:12 --> 00:55:15: I think the challenge a lot of this is actually

00:55:15 --> 00:55:17: a lot of the value at risk component is really

00:55:17 --> 00:55:19: done through insurance and insurance.

00:55:19 --> 00:55:23: So not necessarily want to share the data with you

00:55:23 --> 00:55:27: because they, they hold all the cards, but what we're

00:55:27 --> 00:55:30: seeing at least is that you have to have one

00:55:30 --> 00:55:33: foot in each camp because you have to focus.

00:55:33 --> 00:55:36: What can you do operationally that that reduces your risk

00:55:37 --> 00:55:38: in, in the climate context?

00:55:38 --> 00:55:42: And then also you have to then accept that they

00:55:42 --> 00:55:45: will be, is it better to look at avoidance and

00:55:45 --> 00:55:50: actually just, you know, create systems like, but you know,

00:55:50 --> 00:55:54: like ground, ground tanks for storm water drainage to make

00:55:54 --> 00:55:57: sure you never flood or, or is it best to

00:55:58 --> 00:56:01: kind of look at your increase in insurance premium?

00:56:01 --> 00:56:03: But you it's not an isolation.

00:56:03 --> 00:56:06: I think the major component is that you have to

00:56:06 --> 00:56:11: bear some responsibility into the loss of your day-to-day

business.

00:56:11 --> 00:56:14: And then from there, you have to actually look at

00:56:14 --> 00:56:18: what level of CapEx you need to introduce because obviously

00:56:18 --> 00:56:20: this is new signs for everybody.

00:56:20 --> 00:56:22: No one's got the money for resilience.

00:56:22 --> 00:56:25: People just need to kind of have to weigh the

00:56:25 --> 00:56:28: cost of, OK, if I'm going to be an operational

00:56:28 --> 00:56:32: out for a day, that's \$1,000,000, OK, find \$1,000,000 because

00:56:32 --> 00:56:34: insurance only start on day 2.

00:56:35 --> 00:56:37: You're absorbing \$1,000,000 then.

00:56:37 --> 00:56:40: OK, then if I hit that once or once every

00:56:40 --> 00:56:44: five years, then maybe, you know, I'm going to have

00:56:44 --> 00:56:48: to divert 200 every year just to avoid that or

00:56:48 --> 00:56:51: I can actually put in a 500 half a mil

00:56:51 --> 00:56:51: system.

00:56:51 --> 00:56:55: So those are the kind of characteristics that we're working

00:56:55 --> 00:56:55: towards.

00:56:55 --> 00:56:58: But like I said, the data is sporadic.

00:56:58 --> 00:57:01: You're just going to have to do it and then

00:57:01 --> 00:57:05: as more data comes around you just have to complete

00:57:05 --> 00:57:08: and re evaluate your position on this.

00:57:10 --> 00:57:14: Edward, quick comment on where BCA is going with resilience.

00:57:14 --> 00:57:19: How are you encouraging property owners to operationalize resilience and

00:57:19 --> 00:57:20: adaptation?

00:57:21 --> 00:57:21: Yeah, thanks both.

00:57:21 --> 00:57:25: So fully agree with what Han and May have said.

00:57:25 --> 00:57:30: In fact, we took resilience quite seriously early on when

00:57:30 --> 00:57:35: we developed the Green Mark back in 2020-2021, hence the

00:57:35 --> 00:57:38: the last version on Green Mark 2021.

00:57:38 --> 00:57:41: We already have a resilience batch section in in Green

00:57:41 --> 00:57:46: Mark alongside other badges like whole life, carbon intelligence, maintainability,

00:57:46 --> 00:57:47: health and well-being.

00:57:48 --> 00:57:51: So resilience I think is is very important especially for

00:57:51 --> 00:57:52: Singapore.

00:57:53 --> 00:57:57: Low lying lands more and we are prone to higher

00:57:58 --> 00:58:02: rainfall intensity, higher temperatures.

00:58:02 --> 00:58:06: I think eventually it will affect buildings and building occupants.

00:58:06 --> 00:58:11: So we need to adjust on how the building operates.
00:58:11 --> 00:58:14: I think back during COVID, together with the Ministry of
00:58:14 --> 00:58:17: Health, we even issue guidance how the building need to
00:58:18 --> 00:58:18: operate.
00:58:18 --> 00:58:22: As what also made may have said, there has to
00:58:22 --> 00:58:25: be a balance between the energy and the indoor air
00:58:26 --> 00:58:26: quality.
00:58:27 --> 00:58:31: So yeah, in terms of resilience section and green Mark,
00:58:31 --> 00:58:33: we are doing a refresh.
00:58:33 --> 00:58:38: Ultimately it's basically to keep pace with what the financial
00:58:38 --> 00:58:44: institutions, bank corporate businesses like capital will need
to incorporate
00:58:44 --> 00:58:47: eventually in their disclosures.
00:58:47 --> 00:58:50: And, and, and as part of the green financing, we
00:58:50 --> 00:58:53: even heard from the banks that they started to take
00:58:53 --> 00:58:57: in climate risks and resilience as very important in in
00:58:57 --> 00:58:59: the checklist for the investors.
00:58:59 --> 00:59:04: So I think it's going to be quite mainstream perhaps
00:59:04 --> 00:59:06: in, in, in the near future.
00:59:06 --> 00:59:09: And I think from the green building rating system perspective,
00:59:09 --> 00:59:12: at least for green Mark, we need to be quite
00:59:12 --> 00:59:12: future ready.
00:59:12 --> 00:59:14: We need to cater for that.
00:59:14 --> 00:59:17: Hence we are doing a refresh to update some of
00:59:17 --> 00:59:19: these requirements as well.
00:59:19 --> 00:59:19: Yeah.
00:59:20 --> 00:59:20: Terrific.
00:59:20 --> 00:59:22: Well, we've reached the end of our hour.
00:59:22 --> 00:59:25: Thanks so much, Edward, Hahn and Mei, for all of
00:59:25 --> 00:59:28: your insights about the challenges of sustainability ahead of
us
00:59:28 --> 00:59:29: in 2026 and beyond.
00:59:30 --> 00:59:32: And back to you, Jenny, to wrap us up.
00:59:33 --> 00:59:35: Yes, big round of Cynthia.
00:59:35 --> 00:59:38: Thank you to all the speakers and also for those
00:59:38 --> 00:59:41: online for joining us today and answering, asking you
questions.
00:59:41 --> 00:59:44: And we look forward to continuing these conversations to
continue
00:59:44 --> 00:59:46: to highlight the business case for sustainability.
00:59:47 --> 00:59:49: And we've put the resources that are mentioned today into
00:59:50 --> 00:59:50: the chat.
00:59:50 --> 00:59:53: So that includes the article for this year on the

00:59:53 --> 00:59:56: trends that we've been discussing as well as we can
00:59:56 --> 00:59:59: see how these trends have changed over the last five
00:59:59 --> 01:00:01: years as the world has changed.
01:00:01 --> 01:00:06: And also the technology decarp map that Edward has
mentioned
01:00:06 --> 01:00:09: that that was just put out last month.
01:00:09 --> 01:00:12: So with that, everyone hopefully have a lovely rest of
01:00:12 --> 01:00:13: your day and thank you for joining us.
01:00:15 --> 01:00:16: Thank you.
01:00:17 --> 01:00:17: Thank you.
01:00:17 --> 01:00:17: Thank.
01:00:18 --> 01:00:18: You.
01:00:19 --> 01:00:19: Thanks.

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