Webinar

ULI San Francisco: Bricks & Bytes: AI and the Future of Data Centers

Date: September 26, 2025

00:00:04 --> 00:00:04: Great.
00:00:05 --> 00:00:07: Well welcome everybody.
00:00:07 --> 00:00:10: Thank you so much for joining us here today and
00:00:10 --> 00:00:13: a special thanks to all our wonderful panelists for being
00:00:13 --> 00:00:14: here with us today.
00:00:15 --> 00:00:17: Before we get started, we're going to just, I'm going
00:00:18 --> 00:00:20: to go through a few quick announcements for you and
00:00:20 --> 00:00:20: I.
00:00:21 --> 00:00:25: So we're here today to restart our webinar series called
00:00:25 --> 00:00:29: Bricks and Bytes where we'll be talking about AI and
00:00:29 --> 00:00:31: the future of data centres.
00:00:31 --> 00:00:33: I'm really looking forward to that conversation.
00:00:34 --> 00:00:35: Could we go to the next slide please?
00:00:37 --> 00:00:40: Before we start, a big thank you to ULI for
00:00:40 --> 00:00:41: making this possible.
00:00:42 --> 00:00:45: I've been a member of ULI since 2007, have built
00:00:45 --> 00:00:48: so many great relationships and have had so many inspiring
00:00:48 --> 00:00:50: conversations through ULI.
00:00:50 --> 00:00:53: In fact, I created this series back in 2020 when
00:00:53 --> 00:00:57: we were all kind of trapped behind our computer screens
00:00:57 --> 00:01:00: and the only way to connect with people was on
00:01:00 --> 00:01:01: a Zoom call.
00:01:01 --> 00:01:04: We the goal of this series was to bring together
00:01:04 --> 00:01:07: leaders in real estate, technology and venture capital.
00:01:08 --> 00:01:10: That's why we named it Bricks and Bytes.
00:01:10 --> 00:01:14: And we had a lot of thought, thought provoking conversations
00:01:14 --> 00:01:17: that, you know, to bring together the intersection of those
00:01:17 --> 00:01:18: 3 topics.
00:01:18 --> 00:01:22: And I'm delighted to resume the series now with a
00:01:22 --> 00:01:24: focus on digital infrastructure.
00:01:24 --> 00:01:29: We'll be talking about data centers, the opportunities and challenges

00:01:29 --> 00:01:31: today as we kick off the series.
00:01:31 --> 00:01:33: And next week, we have a session that's focused on
00:01:33 --> 00:01:34: just power.
00:01:34 --> 00:01:36: So I hope you'll join us for that as well.
00:01:37 --> 00:01:38: Next slide, please.
00:01:39 --> 00:01:42: And a big thank you to all ULI sponsors for
00:01:42 --> 00:01:46: making this webinar free for ULI members and for all
00:01:46 --> 00:01:47: the support.
00:01:48 --> 00:01:49: Thank you so much.
00:01:49 --> 00:01:52: And before we begin, you as the audience are all
00:01:52 --> 00:01:56: muted if you have questions and we'd love to hear
00:01:56 --> 00:01:56: from you.
00:01:56 --> 00:01:59: So don't be shy, post your questions in the Q&A
00:01:59 --> 00:02:00: section.
00:02:00 --> 00:02:02: And we plan to leave about 15 minutes to take
00:02:02 --> 00:02:05: your questions at the end of the event.
00:02:06 --> 00:02:08: And with that, let's go.
00:02:10 --> 00:02:11: So I'm Samita Takral.
00:02:11 --> 00:02:15: I am a Vice President of Data Center Investments at
00:02:15 --> 00:02:15: Prologis.
00:02:16 --> 00:02:19: I've been in the real estate industry for over 18
00:02:19 --> 00:02:19: years.
00:02:19 --> 00:02:23: I'm old and I've invested in and developed over $5
00:02:23 --> 00:02:29: billion of real estate, which includes office, residential, industrial and
00:02:29 --> 00:02:30: data centres.
00:02:31 --> 00:02:32: The Prologis.
00:02:32 --> 00:02:35: I've led the creation of our pipeline in the Western
00:02:35 --> 00:02:37: United States, which is over a GW today.
00:02:39 --> 00:02:44: I lead our teams through site selection, power procurement, execution,
00:02:44 --> 00:02:45: soup through nuts.
00:02:46 --> 00:02:48: And so why are we here today to talk about
00:02:48 --> 00:02:49: data centres, right?
00:02:50 --> 00:02:52: I mean, if any of you are reading the news,
00:02:52 --> 00:02:55: there's a big headline or more every day on AI
00:02:55 --> 00:02:57: and on data centres, right?
00:02:57 --> 00:03:01: We're just at the dawn of this AI revolution, right?
00:03:01 --> 00:03:03: Which which is going to be a game changer for
00:03:03 --> 00:03:04: humanity.
00:03:04 --> 00:03:07: I was just reading yesterday that through AI we can
00:03:07 --> 00:03:11: create these devices that allow people who are paralysed to

00:03:11 --> 00:03:14: start moving again with a robotic arm, right?
00:03:14 --> 00:03:18: There's food tech technology that can be created that could
00:03:18 --> 00:03:20: get rid of global hunger forever.
00:03:21 --> 00:03:25: There are technologies that could help detect and also target
00:03:25 --> 00:03:29: diseases like cancer and Alzheimer's much earlier than we're doing
00:03:29 --> 00:03:29: today.
00:03:29 --> 00:03:32: So we're just at the beginning of all these things.
00:03:32 --> 00:03:35: And then last but not the least, you can now
00:03:35 --> 00:03:39: create, you know, endless cute cat videos without ever needing
00:03:39 --> 00:03:40: a real cat, right?
00:03:41 --> 00:03:44: So a lot of exciting changes that will take place
00:03:44 --> 00:03:45: with AI.
00:03:45 --> 00:03:48: And I, I like this quote by Sundar Pichai.
00:03:48 --> 00:03:52: He said that AI is more profound than electricity or
00:03:52 --> 00:03:52: fire.
00:03:52 --> 00:03:56: But yet unlike those, it doesn't just exist.
00:03:56 --> 00:03:59: We need to build the infrastructure behind it.
00:04:00 --> 00:04:03: And so that's exactly what we'll be talking about today,
00:04:03 --> 00:04:07: building the infrastructure that's going to support the AI revolution.
00:04:08 --> 00:04:10: So with that, I'm going to turn over to our
00:04:11 --> 00:04:15: wonderful panelists and ask them to introduce themselves, talk a
00:04:15 --> 00:04:18: little bit about their journey, and also tell us a
00:04:18 --> 00:04:20: little bit about what they do.
00:04:21 --> 00:04:22: Gary, do you want to kick us off?
00:04:23 --> 00:04:24: Yeah, absolutely.
00:04:24 --> 00:04:24: Thanks, Amita.
00:04:24 --> 00:04:25: I appreciate it.
00:04:26 --> 00:04:29: Thanks so much for inviting me to this panel.
00:04:29 --> 00:04:31: It's a it's a great group of folks.
00:04:32 --> 00:04:37: So Gary Damasi, I work for MGX, which is a
00:04:37 --> 00:04:42: UAE based bond set up really to invest in artificial
00:04:42 --> 00:04:44: intelligence space.
00:04:45 --> 00:04:51: So we make investments in semiconductors, we make investments in
00:04:51 --> 00:04:52: software.
00:04:53 --> 00:04:56: And probably most importantly for me, a big part of
00:04:56 --> 00:05:01: the fund is focused on technical infrastructure, data centers, data
00:05:01 --> 00:05:06: center platforms, large data center projects, really lots of different

00:05:06 --> 00:05:09: aspects of the entire sort of data center ecosystem.
00:05:10 --> 00:05:12: MGX is a new fund.
00:05:12 --> 00:05:15: It's only about frankly, it's less than a year old
00:05:15 --> 00:05:19: and so it's relatively recently launched, but we're just starting
00:05:19 --> 00:05:23: to make some of our our most significant investments so
00:05:23 --> 00:05:23: far.
00:05:24 --> 00:05:28: Prior to that, I LED location strategy and energy at
00:05:28 --> 00:05:30: Google for 15 years.
00:05:31 --> 00:05:33: I was at Google for a total of 19 years.
00:05:33 --> 00:05:36: I joined at a time when it was a much
00:05:36 --> 00:05:39: smaller company, frankly, had not been a public company for
00:05:39 --> 00:05:42: very long, but actually for several years at that time
00:05:43 --> 00:05:46: had been building and designing and operating its own data
00:05:46 --> 00:05:49: centers at a scale that had never been seen before.
00:05:49 --> 00:05:54: So while at Google, we built dozens of campuses that
00:05:54 --> 00:05:59: that are today what we call hyperscale campuses.
00:05:59 --> 00:06:02: And so a long history of, of being part of
00:06:02 --> 00:06:06: what was a phenomenal sort of trajectory at Google in
00:06:06 --> 00:06:11: terms of building 1 of the world's largest infrastructure footprints.
00:06:12 --> 00:06:13: So that's a little bit about me.
00:06:13 --> 00:06:13: Thank you.
00:06:15 --> 00:06:16: Thanks, Gary.
00:06:17 --> 00:06:18: Raj.
00:06:19 --> 00:06:22: Yeah, thanks to me then let's nice to be here
00:06:22 --> 00:06:23: with everybody.
00:06:24 --> 00:06:25: My name is Raj Vora.
00:06:25 --> 00:06:29: I work with a group called Formation Data Centers.
00:06:29 --> 00:06:33: It's under a private equity investment development firm, so-called Thor
00:06:33 --> 00:06:36: Equities based out of New York, 30 plus year old
00:06:36 --> 00:06:41: real estate investment development firm in such every major asset
00:06:41 --> 00:06:41: class.
00:06:41 --> 00:06:43: We've been in the data center space for about four
00:06:43 --> 00:06:44: years.
00:06:44 --> 00:06:47: I run our U.S.
00:06:47 --> 00:06:48: data center investment program.
00:06:49 --> 00:06:55: We're developing horizontally development for data centers, everything from infrastructure
00:06:55 --> 00:06:59: entitlements, permitting through through of course power and and other
00:06:59 --> 00:07:03: utilities through warm shelf development for a range of hyper

00:07:03 --> 00:07:06: scale clients and owner operators.

00:07:06 --> 00:07:10: We're active right now, very active throughout the the Midwest,

00:07:10 --> 00:07:13: SE and and southern parts of the US and also

00:07:13 --> 00:07:16: active through many countries in Europe.

00:07:17 --> 00:07:21: Prior to my time here, I was also at Google

00:07:21 --> 00:07:23: as in fact I sat under Gary.

00:07:24 --> 00:07:27: I ran our north-south America acquisition program for a number

00:07:27 --> 00:07:28: of years.

00:07:28 --> 00:07:31: I also ran our global economic development and data center

00:07:31 --> 00:07:34: policy program for for data centers before coming over here

00:07:34 --> 00:07:35: two years ago.

00:07:37 --> 00:07:37: Great.

00:07:37 --> 00:07:38: Thank you, Raj.

00:07:40 --> 00:07:40: Michael.

00:07:41 --> 00:07:42: Hey, Rudy.

00:07:43 --> 00:07:47: Mike Hochnadel here, Managing Director I oversee data centers in

00:07:47 --> 00:07:50: digital infrastructure for Harrison St.

00:07:50 --> 00:07:53: Harrison Street is a investment management firm.

00:07:53 --> 00:07:56: We've managed about 100 billion at this point in AUM

00:07:56 --> 00:08:00: across a variety of different strategies, but I focus exclusively

00:08:01 --> 00:08:02: on on data centers.

00:08:03 --> 00:08:04: Joined five years ago.

00:08:04 --> 00:08:07: Prior to that, I was on the sell side of

00:08:08 --> 00:08:12: the business where I oversaw data center investment sales for

00:08:12 --> 00:08:16: JLL for many years and did my first data center

00:08:16 --> 00:08:19: back in 2005, which is hard to believe.

00:08:19 --> 00:08:22: So I've seen a lot of changes over the years,

00:08:22 --> 00:08:24: but it's been a fun ride.

00:08:26 --> 00:08:26: Thanks Michael.

00:08:26 --> 00:08:28: And last but not the least, Conan.

00:08:29 --> 00:08:30: Hello, everyone.

00:08:30 --> 00:08:31: Thanks for listening.

00:08:31 --> 00:08:32: Conan Lee here.

00:08:32 --> 00:08:34: I live and work in Seattle.

00:08:35 --> 00:08:37: I'm with JLL, which Mike had just mentioned.

00:08:37 --> 00:08:39: So many of you have probably heard of JLL, very

00:08:39 --> 00:08:41: large corporate real estate conglomerate.

00:08:42 --> 00:08:44: Within that I run AI and I should say about

00:08:44 --> 00:08:47: JLL, you know in the data center side we have

00:08:47 --> 00:08:51: thousands of full time employees that are exclusively dedicated to

00:08:51 --> 00:08:54: various kind of functions related to data centers.

00:08:54 --> 00:08:57: I run a team of 20 and we focus largely

00:08:57 --> 00:09:00: on behalf of a few clients related to site selection,

00:09:00 --> 00:09:06: power procurement, incentives, negotiations for large scale data center developments

00:09:06 --> 00:09:10: and then we focus on the real estate contracts, negotiating

00:09:10 --> 00:09:11: them therein.

00:09:11 --> 00:09:13: So very happy to be here.

00:09:14 --> 00:09:17: And yeah, have a telecommunications background prior to JLL and

00:09:18 --> 00:09:21: so kind of things from telecommunications perspective as well.

00:09:21 --> 00:09:23: And yeah, enjoying.

00:09:24 --> 00:09:25: Thank you, Conan.

00:09:26 --> 00:09:26: Right.

00:09:26 --> 00:09:29: So first question is kind of big picture, right?

00:09:30 --> 00:09:32: Like I talked about the headlines on AI and data

00:09:32 --> 00:09:33: centers.

00:09:33 --> 00:09:36: And the last one that I saw was that Google,

00:09:36 --> 00:09:40: Meta, Microsoft and AWS will be investing 365 billion in

00:09:40 --> 00:09:42: data centers this year, right?

00:09:43 --> 00:09:45: That's that's more than the GDP of Denmark.

00:09:45 --> 00:09:48: And as John Gray said, it's more than the budgets

00:09:48 --> 00:09:52: of NASA, the Department of State and the Department of

00:09:52 --> 00:09:53: Energy combined.

00:09:53 --> 00:09:55: So that's a massive amount of money, right?

00:09:57 --> 00:09:59: But and, and because there's such a big opportunity, that's

00:09:59 --> 00:10:00: why the investment is there.

00:10:01 --> 00:10:04: But we're also hitting bottlenecks and power labour, right.

00:10:04 --> 00:10:07: So how, what do you guys think the state of

00:10:07 --> 00:10:09: the industry is right now?

00:10:09 --> 00:10:12: What do you think is most exciting and and what

00:10:13 --> 00:10:15: keeps you up at night Gary?

00:10:15 --> 00:10:16: And I can kick off.

00:10:16 --> 00:10:17: Yeah, absolutely.

00:10:18 --> 00:10:19: Yeah.

00:10:19 --> 00:10:21: I mean, you know, and as you noted, I think

00:10:21 --> 00:10:25: in the beginning to meet at like there, you know,

00:10:25 --> 00:10:30: artificial intelligence actually offers us this incredible opportunity for innovation,

00:10:30 --> 00:10:33: for social impact, for technological impact.

00:10:34 --> 00:10:37: And it's, it's just this sort of feverish kind of
00:10:37 --> 00:10:40: environment that is frankly historical in nature.
00:10:40 --> 00:10:42: Like we've never seen the kind of demand that we're
00:10:43 --> 00:10:43: seeing today.
00:10:44 --> 00:10:47: People are talking about one GW sites the way they
00:10:48 --> 00:10:51: used to talk about 200 MW sites and they're starting
00:10:51 --> 00:10:54: to talk about 3 GW sites, even 5 GW sites.
00:10:54 --> 00:10:57: And so it's just, it's just outrageous how, how, how
00:10:57 --> 00:11:00: sort of feverish the, the industry has become.
00:11:01 --> 00:11:03: There is a, a, a, a kernel of truth that
00:11:03 --> 00:11:06: that sort of runs through that, that demand.
00:11:06 --> 00:11:09: We are seeing sites that are are larger than sites
00:11:09 --> 00:11:11: we've ever seen in the past.
00:11:12 --> 00:11:14: We've seen companies wanting to move faster.
00:11:14 --> 00:11:19: We've seen significant demand just sort of come out of
00:11:19 --> 00:11:23: the ether basically for 2627 and 28 that didn't exist
00:11:23 --> 00:11:24: a month ago.
00:11:24 --> 00:11:28: And so you just see these these astronomical increases in
00:11:28 --> 00:11:29: demand.
00:11:29 --> 00:11:31: And so all of those things present the kind of
00:11:31 --> 00:11:33: challenges that you described.
00:11:33 --> 00:11:36: But I guess from an MGX perspective sort of no
00:11:36 --> 00:11:39: longer with a hyper scaler sort of being on the
00:11:39 --> 00:11:41: capital side of the business.
00:11:41 --> 00:11:44: I really see how far the industry has come to
00:11:44 --> 00:11:48: providing really critical parts of that data center stack that
00:11:48 --> 00:11:51: used to be inside of Google or inside of Meta.
00:11:52 --> 00:11:57: The industry has gotten very sophisticated at, at delivering very
00:11:57 --> 00:12:01: large scale powered land shells, even turnkey data centers on
00:12:01 --> 00:12:02: a very, very large scale.
00:12:03 --> 00:12:06: And so I, I think, I think the, this challenges
00:12:06 --> 00:12:09: the marketplace to sort of meet the industry where it
00:12:09 --> 00:12:11: is and to help fill in some of those gaps
00:12:11 --> 00:12:14: that companies can no longer provision for themselves.
00:12:16 --> 00:12:18: Even at MGX as an example, we have a, a,
00:12:18 --> 00:12:22: a partnership with BlackRock called the AI partnership where we're
00:12:22 --> 00:12:26: bringing together a lot of the thought leaders in the
00:12:26 --> 00:12:26: space.
00:12:26 --> 00:12:29: We have NVIDIA, we have X AI, we have Microsoft,
00:12:29 --> 00:12:33: we have Energy Providers, GE Vernova, we have NextEra to

00:12:33 --> 00:12:37: come together to actually think of innovative ways to put
00:12:37 --> 00:12:39: pieces of the stack together.
00:12:39 --> 00:12:42: So that we can not only provision the kind of
00:12:42 --> 00:12:46: capacity that the market is looking for today through partnership,
00:12:46 --> 00:12:49: but also sort of innovate that stack along the way.
00:12:49 --> 00:12:52: Make sure that the stack comes together as efficiently as
00:12:52 --> 00:12:55: it can, as cost effectively as it can.
00:12:55 --> 00:12:58: And so I think this is an amazing moment for
00:12:58 --> 00:13:02: the market to react, the market to respond with innovation,
00:13:02 --> 00:13:06: with new ways of doing things, helping to actually provide
00:13:06 --> 00:13:10: the energy supply, for instance, along with the data center
00:13:10 --> 00:13:13: capacity, the grids are absolutely stressed.
00:13:14 --> 00:13:18: You, you, you, you hear these outrageous numbers of backlog,
00:13:18 --> 00:13:21: you know, sort of amounts of energy in the interconnection
00:13:21 --> 00:13:21: queue.
00:13:22 --> 00:13:25: But it's an amazing moment, I think for innovation.
00:13:25 --> 00:13:28: And frankly, I'm seeing a huge amount of innovation in
00:13:28 --> 00:13:29: the marketplace happening.
00:13:30 --> 00:13:32: And so I think that's the sort of optimistic view
00:13:32 --> 00:13:35: that we will innovate and meet, meet the, you know,
00:13:35 --> 00:13:38: sort of meet the demand that we're seeing in the
00:13:38 --> 00:13:38: market today.
00:13:40 --> 00:13:42: And what about what keeps you up at night, Gary?
00:13:44 --> 00:13:47: I think what keeps me up at night is it's
00:13:47 --> 00:13:49: sort of the flip side of partnership.
00:13:49 --> 00:13:53: It, it requires a huge amount of alignment across both
00:13:53 --> 00:13:57: private and, and, and sort of public realms and entities.
00:13:57 --> 00:13:59: You have to have the right regulation, you have to
00:13:59 --> 00:14:02: have the right engagement from utilities, from government.
00:14:03 --> 00:14:06: I think the sort of the, the, the private markets
00:14:06 --> 00:14:10: can bring their expertise to bear and their collaboration to
00:14:10 --> 00:14:11: bear.
00:14:11 --> 00:14:15: But really critically and really importantly, those two sort of
00:14:15 --> 00:14:18: those two sides have got to come together because we
00:14:18 --> 00:14:21: can't do this without sort of the, the the public
00:14:21 --> 00:14:24: side coming together along with the private.
00:14:25 --> 00:14:30: Yeah, yeah, well said Conan.
00:14:30 --> 00:14:31: You want to chime in or anyone else?
00:14:35 --> 00:14:37: I completely agree with what Gary said.
00:14:37 --> 00:14:40: If there's anything that you know, kind of keeps, you
00:14:40 --> 00:14:42: know, if you look at this from just a basic

00:14:42 --> 00:14:46: supply perspective there, there is very little supply to support
00:14:46 --> 00:14:49: the demand that Gary's talking about that's built to the
00:14:49 --> 00:14:51: specifications that these groups want.
00:14:51 --> 00:14:54: And so it's frustrating, but it is very exciting to
00:14:54 --> 00:14:57: see the innovations that are happening to allow for better
00:14:57 --> 00:15:00: use and better economies of things like power and water.
00:15:00 --> 00:15:03: So it's really, really exciting times.
00:15:03 --> 00:15:06: But apart from my clients, you know, emails keeping me
00:15:06 --> 00:15:09: up at night, I mean, it's it's really about, yeah,
00:15:09 --> 00:15:11: how how the the public is going to perceive all
00:15:11 --> 00:15:14: of this, you know, and, and how we can get
00:15:14 --> 00:15:18: the general public on board with these developments because people
00:15:18 --> 00:15:21: are going to start seeing them everywhere in their backyard
00:15:21 --> 00:15:23: here in a couple of years, you know?
00:15:24 --> 00:15:26: Yeah, yeah.
00:15:26 --> 00:15:28: And it's not just building approvals, right, that sit under
00:15:29 --> 00:15:29: the public sector.
00:15:29 --> 00:15:33: The utilities, although many of them are private, are controlled
00:15:33 --> 00:15:35: by these statewide PUC's.
00:15:36 --> 00:15:40: So ultimately, even the utility is effectively a, you know,
00:15:40 --> 00:15:41: a public entity.
00:15:43 --> 00:15:45: Raj, Michael, you want to any thoughts on the state
00:15:46 --> 00:15:48: of the market, opportunities, challenges?
00:15:49 --> 00:15:52: Yeah, I think that I mean a couple of different
00:15:52 --> 00:15:54: directions to to go here.
00:15:54 --> 00:15:58: I mean the the fundamentals are just phenomenally positive and
00:15:58 --> 00:16:00: I think that's why obviously so many of us are
00:16:01 --> 00:16:02: paying attention to the space.
00:16:02 --> 00:16:05: I think one thing that that is nice, it's kind
00:16:05 --> 00:16:08: of a double edged sword, but I think it's imposing
00:16:09 --> 00:16:13: some discipline on the industry collectively is that every input
00:16:13 --> 00:16:15: to the equation is constrained right now.
00:16:16 --> 00:16:19: And so you're not seeing, I mean, when fundamentals are
00:16:19 --> 00:16:22: like this, it would be typical in most other industries
00:16:22 --> 00:16:26: just to see massive overbuilding, you know, on a speculative.
00:16:26 --> 00:16:26: Business.
00:16:27 --> 00:16:29: In a way that that creates problems for many of
00:16:29 --> 00:16:30: the market participants.
00:16:31 --> 00:16:33: It's kind of hard for that to play out given

00:16:33 --> 00:16:35: the constraints that exist.

00:16:35 --> 00:16:38: I mean, particularly I mean all of the inputs really,

00:16:38 --> 00:16:42: but but power probably being the most important.

00:16:43 --> 00:16:47: But even beyond power, I mean, capitals are constrained, materials

00:16:47 --> 00:16:51: are constrained, you know, particularly, you know, some of the

00:16:51 --> 00:16:55: long lead time items, labor increasingly is a constraint.

00:16:55 --> 00:16:57: And so you kind of factor all of that in

00:16:57 --> 00:17:01: together and, and that is imposing discipline on all of

00:17:01 --> 00:17:01: us.

00:17:02 --> 00:17:04: So I, I think that's, that, that's an element of

00:17:04 --> 00:17:07: the market right now that that makes me feel very

00:17:07 --> 00:17:07: comfortable.

00:17:07 --> 00:17:09: I mean, to the extent that there are things that

00:17:09 --> 00:17:10: keep me up at night.

00:17:10 --> 00:17:14: Since you asked that question specifically, I would say it's

00:17:14 --> 00:17:17: the, the, the concentration of demand, right?

00:17:17 --> 00:17:21: I mean, if you think about the other things that

00:17:21 --> 00:17:23: we do as a firm at Harrison St.

00:17:23 --> 00:17:27: let's let's take for example, investing in student housing.

00:17:27 --> 00:17:32: You have, you know, massively distributed demand across, you know,

00:17:32 --> 00:17:36: huge segments of, of individual consumers.

00:17:36 --> 00:17:39: You know, here we're talking about a half dozen ultra

00:17:39 --> 00:17:43: large technology companies and then maybe a, an emerging cohort

00:17:43 --> 00:17:44: of, of neo clouds.

00:17:45 --> 00:17:48: And so it's just highly concentrated.

00:17:48 --> 00:17:50: And so the, to the extent that there's there's something

00:17:50 --> 00:17:51: that keeps me up at night, it's that.

00:17:52 --> 00:17:53: Yeah, agreed.

00:17:53 --> 00:17:56: It's just four or five big customers, right, which which

00:17:56 --> 00:17:58: I think is kind of different than the risks in

00:17:58 --> 00:18:01: many other asset classes where you can have just a

00:18:01 --> 00:18:04: small set of local customers that you lease your office

00:18:04 --> 00:18:06: or your residential building to, right.

00:18:06 --> 00:18:07: But here it's just those four or five.

00:18:08 --> 00:18:09: I agree with you.

00:18:10 --> 00:18:13: Let's double click on on, you know, what you were

00:18:13 --> 00:18:17: saying about supply not being that we're not oversupplied even

00:18:17 --> 00:18:20: though there's such a strong demand story, right?

00:18:20 --> 00:18:22: And Raj, I wonder if you want to chime in
00:18:22 --> 00:18:25: here, but there's a lot of questions that people have
00:18:25 --> 00:18:28: on is this a bubble because there are so many
00:18:28 --> 00:18:31: headlines and so many people are building these massive campuses.
00:18:31 --> 00:18:35: But I don't think we're getting oversupplied because at least
00:18:35 --> 00:18:38: in my observation, I don't see anyone going vertical without,
00:18:38 --> 00:18:41: you know, at least with one of those five big
00:18:41 --> 00:18:41: customers.
00:18:41 --> 00:18:43: What are you seeing, Raj?
00:18:44 --> 00:18:47: Yeah, I mean, look, you know, people throw around gigawatts
00:18:47 --> 00:18:49: these days like they're M&M's, right.
00:18:49 --> 00:18:52: And like, you know, a few years ago, like the
00:18:52 --> 00:18:55: idea of a, you know, GW out the gate type
00:18:55 --> 00:18:57: of campus was, was crazy.
00:18:57 --> 00:19:00: I mean, it was, you know, really, really just, I
00:19:01 --> 00:19:04: don't think people realize how unusual and how massive a
00:19:04 --> 00:19:07: GW is the way that the word gets thrown around
00:19:07 --> 00:19:08: these days.
00:19:09 --> 00:19:13: But you know, at the same time, the amount of
00:19:13 --> 00:19:17: you know, the amount of data and compute that is,
00:19:17 --> 00:19:21: you know, potentially on the horizon for us is you
00:19:21 --> 00:19:24: know, it, it is astronomical, right?
00:19:24 --> 00:19:27: And and you have to think about data and compute
00:19:27 --> 00:19:29: as as in itself a massive snowball, right?
00:19:29 --> 00:19:32: The more computations that are done, the more data that
00:19:32 --> 00:19:36: creates, the more data creates more computations that are done
00:19:36 --> 00:19:38: right and these things.
00:19:38 --> 00:19:39: Build upon themselves.
00:19:39 --> 00:19:39: Right.
00:19:39 --> 00:19:40: It is exponential.
00:19:40 --> 00:19:43: So you know, it's, it's not just, you know, you
00:19:43 --> 00:19:46: do the, you do the training once and you're done.
00:19:46 --> 00:19:48: You know, these things are going to continue to build
00:19:48 --> 00:19:49: upon themselves.
00:19:50 --> 00:19:52: But you know, the reality too is there's certainly I
00:19:53 --> 00:19:55: I think it's going to be a little bit difficult
00:19:55 --> 00:19:58: for anybody to really put their finger on what's the
00:19:58 --> 00:20:00: real demand at the end of the day.
00:20:00 --> 00:20:02: And like, where does that point of oversupply start?
00:20:02 --> 00:20:07: Because for sure there's a little bit of, you know,

00:20:07 --> 00:20:11: stake the claim to the power and to to good

00:20:11 --> 00:20:15: data center locations before anybody else does, right?

00:20:15 --> 00:20:17: Get there before your, your your.

00:20:19 --> 00:20:25: Competition does, particularly in the hyperscale space, but there's always

00:20:25 --> 00:20:30: been, there's always been a history of underestimating the ultimate

00:20:30 --> 00:20:31: demand.

00:20:31 --> 00:20:34: And I think everybody's from the user side is, is

00:20:34 --> 00:20:37: taking that position of like, let's not let that happen

00:20:37 --> 00:20:40: again this time, because it has met the difference in

00:20:40 --> 00:20:45: gaining traction in cloud historically and, and gaining traction ultimate

00:20:45 --> 00:20:46: scale of the of the business.

00:20:46 --> 00:20:49: So I, you know, will we hit a point of

00:20:50 --> 00:20:51: oversaturation?

00:20:52 --> 00:20:53: It's possible, right?

00:20:53 --> 00:20:56: But it's hard to tell where that is.

00:20:56 --> 00:20:58: And I do think there's so much, there's so much

00:20:58 --> 00:21:01: potential demand on the horizon that it's, it's hard to

00:21:01 --> 00:21:03: actually pinpoint that see that in the near term horizon.

00:21:04 --> 00:21:05: Yeah, Yeah.

00:21:06 --> 00:21:09: So, you know, we talked a little bit about how

00:21:09 --> 00:21:12: capital intensive this industry is, right?

00:21:12 --> 00:21:14: I mean, if you want to build a full turnkey

00:21:14 --> 00:21:16: data centre, you're looking at roughly 10 to 12 million

00:21:16 --> 00:21:17: a MW, right?

00:21:17 --> 00:21:20: So even 100 MW building, which, Raj, you were talking

00:21:20 --> 00:21:21: about gigawatts, right.

00:21:22 --> 00:21:24: But even 100 MW hits a billion.

00:21:24 --> 00:21:28: So let's talk about capital strategies, right?

00:21:28 --> 00:21:31: How are these these buildings getting financed?

00:21:31 --> 00:21:33: Where's the equity, the debt coming from?

00:21:33 --> 00:21:36: And then, you know, one thing that gets debated in

00:21:36 --> 00:21:39: pro largest a lot is what's the exit, right?

00:21:39 --> 00:21:43: When we build multiple billions of dollars of these buildings

00:21:43 --> 00:21:47: and they're stabilized with hyperscale credit, you know what happens

00:21:47 --> 00:21:47: then?

00:21:48 --> 00:21:49: Michael, do you want to kick us off?

00:21:50 --> 00:21:50: Sure.

00:21:51 --> 00:21:53: So I think that the way that I would start

00:21:53 --> 00:21:56: kind of thinking through this basket of questions is just

00:21:56 --> 00:21:59: kind of looking at the market structure and kind of
00:21:59 --> 00:22:02: what it was historically and what it's becoming.
00:22:02 --> 00:22:05: And I think the way that I think about it
00:22:05 --> 00:22:08: is it's really in the process of evolving from what
00:22:08 --> 00:22:11: historically had been a sort of niche alternative sector to
00:22:11 --> 00:22:15: one of the kind of important mainstream, you know, asset
00:22:15 --> 00:22:15: classes.
00:22:15 --> 00:22:17: You know, some people think about it as real estate,
00:22:17 --> 00:22:19: some people think about it as infrastructure.
00:22:20 --> 00:22:24: I think increasingly that distinction is, is falling away have
00:22:24 --> 00:22:27: been hearing it just called real assets, but it's becoming
00:22:27 --> 00:22:31: a mainstream, you know, allocation for many kind of primary
00:22:31 --> 00:22:33: institutional investors.
00:22:33 --> 00:22:36: And so, you know, because of that, you're seeing this,
00:22:36 --> 00:22:39: this influx of capital really across the capital stack in
00:22:39 --> 00:22:42: some cases, you know, rotating out of some of the
00:22:42 --> 00:22:44: the out of favor, you know, sectors that are lessen
00:22:44 --> 00:22:45: demand right now.
00:22:46 --> 00:22:49: And so we're just kind of going through that that
00:22:49 --> 00:22:49: process.
00:22:50 --> 00:22:54: We're also, you know, obviously at the early stage of
00:22:54 --> 00:22:57: of a very significant kind of paradigm shift in terms
00:22:57 --> 00:22:59: of the the development cycle.
00:22:59 --> 00:23:02: And so, you know, we we haven't, you know, had
00:23:02 --> 00:23:05: the the first series of exits, you know, related to,
00:23:05 --> 00:23:07: to kind of what we're building now.
00:23:07 --> 00:23:08: So we'll come back to that.
00:23:08 --> 00:23:11: But I think on the capitalization up front, you know,
00:23:11 --> 00:23:14: going back to those comments that I was making earlier
00:23:14 --> 00:23:18: around tenant concentration, you know, the good side of that
00:23:18 --> 00:23:22: is the, the tenant concentration resides with essentially the doesn't
00:23:22 --> 00:23:24: best credit profiles in the world.
00:23:24 --> 00:23:27: And to your point, you know, most of the capital
00:23:27 --> 00:23:32: is deployed alongside, you know, commitments made by that cohort.
00:23:32 --> 00:23:35: So even if you're going spec on the early portions
00:23:35 --> 00:23:39: of a development, you know, site acquisition, power procurement, you
00:23:39 --> 00:23:43: know, horizontal development work and maybe even building the building
00:23:43 --> 00:23:47: shell, typically, you know, the very large portions of capital
00:23:47 --> 00:23:50: are funded, you know, once a commitment has been made.

00:23:50 --> 00:23:52: And because of that, it unlocks quite a bit of
00:23:52 --> 00:23:53: liquidity.
00:23:53 --> 00:23:57: Think from what we see, you know, right now the,
00:23:57 --> 00:24:01: the debt markets are, are the most liquid for data
00:24:01 --> 00:24:04: centers compared to any other asset classes.
00:24:04 --> 00:24:07: And again, part of that is because we're drawing from
00:24:07 --> 00:24:10: capital that's coming both from sort of the, the, the
00:24:10 --> 00:24:13: real estate lending community as well as kind of the
00:24:13 --> 00:24:16: infrastructure and, and project finance community.
00:24:17 --> 00:24:21: And, and so leverage levels are, you know, seventy 7580%
00:24:21 --> 00:24:24: loan to cost depending on the circumstances.
00:24:24 --> 00:24:28: And maybe jumping to the the back end question around
00:24:28 --> 00:24:32: exits, there will have to be capital formation, you know,
00:24:32 --> 00:24:36: to support the exits kind of across the the spectrum
00:24:36 --> 00:24:37: of opportunities.
00:24:39 --> 00:24:40: You know, we're going to be a part of that.
00:24:40 --> 00:24:42: We have a core fund.
00:24:42 --> 00:24:47: We have made data centers an allocation within that core
00:24:47 --> 00:24:47: fund.
00:24:48 --> 00:24:51: So we, we will be, you know, have capital to
00:24:51 --> 00:24:53: participate in, in certain exits.
00:24:53 --> 00:24:54: We should sell them to you, right?
00:24:54 --> 00:24:55: Yeah, OK.
00:24:57 --> 00:24:57: Yeah.
00:24:57 --> 00:24:59: I mean we're going to be, we're going to be
00:24:59 --> 00:25:01: part of the market obviously, but there, there are going
00:25:01 --> 00:25:03: to be some other key things happening too.
00:25:04 --> 00:25:07: You know, 1 is, is the debt market for, for
00:25:07 --> 00:25:11: stabilized, You know, the ABS market has been very efficient.
00:25:11 --> 00:25:15: I think that'll be an important piece, particularly for turnkey
00:25:15 --> 00:25:18: and then I think various types of syndicated equity structures,
00:25:18 --> 00:25:22: you know, yield codes and ultimately, you know, public exit,
00:25:22 --> 00:25:25: I think will end up being part of the equation
00:25:25 --> 00:25:25: as well.
00:25:25 --> 00:25:28: But again, you know, the, the good news is that
00:25:28 --> 00:25:32: all of this is contracted with long term cash flow
00:25:32 --> 00:25:33: from great credits.
00:25:33 --> 00:25:37: So, you know, while there may be some time for
00:25:37 --> 00:25:41: these various executions to unfold, the the the downside is
00:25:41 --> 00:25:44: you've got a great yield with a long term.
00:25:47 --> 00:25:49: As long as they don't all get disrupted by AI,

00:25:49 --> 00:25:49: right?

00:25:51 --> 00:25:53: All these big, it's hard to imagine.

00:25:53 --> 00:25:54: Right.

00:25:54 --> 00:25:58: It's hard to imagine Amazon, Google, Microsoft not having pristine

00:25:58 --> 00:26:01: credit, but I suppose anything's possible.

00:26:02 --> 00:26:02: Yeah.

00:26:04 --> 00:26:05: Gary, what's your view?

00:26:05 --> 00:26:07: What kind of deals is MGX in?

00:26:08 --> 00:26:12: Well, I think Michael raised a great point about the

00:26:12 --> 00:26:15: treatment of data centers as an asset class and that

00:26:15 --> 00:26:19: has changed significantly in the last five to 10 years.

00:26:19 --> 00:26:22: Even I think people didn't know what to do with

00:26:22 --> 00:26:25: data centers before, as he, as he rightly points out.

00:26:25 --> 00:26:28: But it seems now that, that, that the capital markets

00:26:28 --> 00:26:33: are a lot more comfortable understanding data centers, thinking about

00:26:33 --> 00:26:36: financing data centers, it's not just sort of niche financing

00:26:36 --> 00:26:40: anymore, but you're seeing mainstream financing actually stepping in to,

00:26:40 --> 00:26:43: to help make some of these projects happen.

00:26:44 --> 00:26:47: From our perspective, you know, one of the, one of

00:26:47 --> 00:26:49: the roles that MGX has been playing and, and some

00:26:49 --> 00:26:53: of the larger projects that we're discussing or that we're

00:26:53 --> 00:26:56: executing on is sort of bringing together the different components

00:26:56 --> 00:26:58: of a successful development.

00:26:59 --> 00:27:03: We have deep relationships with the customers, whether it's the

00:27:03 --> 00:27:06: hyperscalers of the, the emerging labs and, and I sort

00:27:06 --> 00:27:08: of look at it as sort of three areas of

00:27:09 --> 00:27:10: potential investment.

00:27:10 --> 00:27:14: There's the energy component because increasingly you're seeing energy projects

00:27:15 --> 00:27:17: bundled with the data center projects in order to make

00:27:18 --> 00:27:19: a large project happen.

00:27:19 --> 00:27:21: I think that will become much more prevalent.

00:27:21 --> 00:27:26: The financing for energy projects is different, isn't necessarily the

00:27:26 --> 00:27:29: same financing that will finance sort of the real estate

00:27:29 --> 00:27:34: components of the development, the data center, the land, etcetera.

00:27:34 --> 00:27:36: And so I think we're going to have to be

00:27:36 --> 00:27:40: sophisticated to bring that capital that is specific to those

00:27:40 --> 00:27:42: sort of elements of the stack to the table to
00:27:42 --> 00:27:45: make a project happen and to provide sort of the
00:27:45 --> 00:27:47: capital stack for a project.
00:27:47 --> 00:27:50: And then I think there's the question of how chips
00:27:50 --> 00:27:54: get financed because chips are, are are really the largest
00:27:54 --> 00:27:57: part of the capital investment of a multi 100 MW
00:27:57 --> 00:27:58: to GW scale campus.
00:27:58 --> 00:28:02: Just the, the, the, the CapEx on chips is just
00:28:02 --> 00:28:03: astronomical.
00:28:03 --> 00:28:06: And so I think there will be parties emerging who
00:28:07 --> 00:28:11: specialize or really focus on financing sort of the chip
00:28:11 --> 00:28:12: component of the stack.
00:28:13 --> 00:28:15: It may not be MGX capital, it may be MGX
00:28:15 --> 00:28:19: capital, but it'll be it'll be the capital for which
00:28:19 --> 00:28:22: that part of the stack is best suited.
00:28:23 --> 00:28:25: And so I think it's going to take lots of
00:28:25 --> 00:28:26: different sort of sources.
00:28:26 --> 00:28:29: Now the good news is there is capital in the
00:28:29 --> 00:28:33: market, significant capital in the market looking to be deployed.
00:28:33 --> 00:28:34: It is available.
00:28:34 --> 00:28:38: It's just putting together viable projects and at the same
00:28:38 --> 00:28:41: time leveraging those capital sources to help a project happen.
00:28:42 --> 00:28:44: So when you come into a deal, right, are you
00:28:44 --> 00:28:47: the equity in a deal that's fully leased or do
00:28:47 --> 00:28:49: you come in earlier and help them connect to the
00:28:49 --> 00:28:51: hyper scale tenants?
00:28:51 --> 00:28:52: How do?
00:28:52 --> 00:28:55: You, it's, it's early in our journey, but I can
00:28:55 --> 00:28:58: tell you that, you know, as a young fund, but
00:28:59 --> 00:29:02: I can tell you, you know, Michael is correct, Like
00:29:02 --> 00:29:05: the whole thing gets sort of anchored by the fact
00:29:05 --> 00:29:09: that you have a, a off taker, right ultimately who
00:29:09 --> 00:29:12: provides the revenue back into the investment.
00:29:12 --> 00:29:13: That's that's pretty critical.
00:29:14 --> 00:29:17: But so far at MGX, because we have relationships on
00:29:17 --> 00:29:21: the customer side, the developer side, increasingly on the energy
00:29:21 --> 00:29:24: side, coming from Google, I feel feel like the our
00:29:24 --> 00:29:28: philosophy there was to think about a system level view
00:29:28 --> 00:29:30: of the, of the infrastructure.
00:29:30 --> 00:29:33: I think the role we will play is part of

00:29:33 --> 00:29:33: the role.
00:29:34 --> 00:29:36: One of the roles we will play is in helping
00:29:36 --> 00:29:39: to connect those dots to bring the right players to
00:29:39 --> 00:29:41: the table to help a project happen.
00:29:42 --> 00:29:44: Not every time, but I I can see that we
00:29:44 --> 00:29:47: will have the relationships in the market to be able
00:29:47 --> 00:29:49: to put those pieces together.
00:29:50 --> 00:29:52: And sometimes it just takes one to sort of accelerate
00:29:53 --> 00:29:54: the development of, of a project.
00:29:55 --> 00:29:58: The only other thing I'll point out on the capital
00:29:58 --> 00:30:02: side or the financing side is you do have credit
00:30:02 --> 00:30:05: tenants like let's say a Meta or Google or Microsoft,
00:30:05 --> 00:30:08: but you also have a lot of emerging AI companies,
00:30:08 --> 00:30:11: in particular the labs who are not necessary.
00:30:11 --> 00:30:14: They don't have credit ratings, they're not public entities.
00:30:15 --> 00:30:18: And what we're seeing there is some really interesting things
00:30:18 --> 00:30:21: with like partnership with companies like Oracle.
00:30:21 --> 00:30:24: Let's say, you know, open AI partners very closely with
00:30:24 --> 00:30:24: Oracle.
00:30:25 --> 00:30:28: Oracle is able to actually bring that, you know, the,
00:30:28 --> 00:30:32: the strength of their, their, their credit rating with them
00:30:33 --> 00:30:35: to help make a project happen.
00:30:35 --> 00:30:38: And so we're also seeing things like credit wrappers, we're
00:30:38 --> 00:30:41: seeing, you know, partners sort of step in to take
00:30:41 --> 00:30:43: on the infrastructure leases.
00:30:44 --> 00:30:47: There are innovative things happening to allow some of these
00:30:47 --> 00:30:49: start-ups to be able to scale because I think as
00:30:49 --> 00:30:52: we all know, this is a multi billion dollar business.
00:30:52 --> 00:30:57: You cannot stand up a project without without deploying significant
00:30:57 --> 00:30:59: capital in order to do so.
00:30:59 --> 00:31:02: And a lot of these companies, because they're so young,
00:31:02 --> 00:31:04: don't really have the wherewithal things that on their own.
00:31:05 --> 00:31:06: Yeah, yeah.
00:31:06 --> 00:31:09: And actually because of that, you'll, you'll see negotiations now
00:31:10 --> 00:31:13: with a tenant like that where basically the operators in
00:31:13 --> 00:31:17: negotiations, but their financial partner, partner or forward take out
00:31:17 --> 00:31:20: partner is right there basically dictating the terms and, and
00:31:20 --> 00:31:24: is the one that's really even potentially jeopardizing the transaction

00:31:24 --> 00:31:25: moving forward.
00:31:25 --> 00:31:27: So it's so much heavily or scrutinized than it was
00:31:28 --> 00:31:30: a couple of years ago related to financing and keeping
00:31:30 --> 00:31:33: in mind everything's coming out of the ground.
00:31:33 --> 00:31:35: So none of the money has actually been spent yet.
00:31:38 --> 00:31:41: That makes sense, Raj.
00:31:41 --> 00:31:42: Anything to add?
00:31:44 --> 00:31:44: I.
00:31:44 --> 00:31:46: Mean, I think the only thing I'll add in like
00:31:46 --> 00:31:49: the evolution of the capital stack is, you know, we're
00:31:49 --> 00:31:51: certainly it's gotten smarter.
00:31:52 --> 00:31:55: You know, there's been this always been this dichotomy of,
00:31:55 --> 00:32:00: you know, infrastructure funding level returns and expectations and real
00:32:00 --> 00:32:02: estate funding expectations of returns.
00:32:02 --> 00:32:05: And those two inherently, you know, had very kind of
00:32:05 --> 00:32:09: different visions for, for return profiles and, and that was
00:32:09 --> 00:32:12: always at odds in the data center space because it
00:32:12 --> 00:32:13: is a little bit of both.
00:32:13 --> 00:32:16: You have to, you have to think about this is
00:32:16 --> 00:32:19: both infrastructure and, and real estate to extend some something
00:32:19 --> 00:32:21: a little bit heavier on the real, on the, sorry,
00:32:21 --> 00:32:23: on the infrastructure side.
00:32:24 --> 00:32:26: So I and I still see a lot of, there's
00:32:26 --> 00:32:29: a lot of capital groups, you know, they're kind of
00:32:29 --> 00:32:33: historically anchored on, on one end or the other and
00:32:33 --> 00:32:36: starting to move towards that understanding of the middle as
00:32:36 --> 00:32:40: they learn more about how data centres really are, you
00:32:40 --> 00:32:43: know, are an infrastructure play with real estate.
00:32:45 --> 00:32:47: But I, I think there's, there's still a lot of
00:32:47 --> 00:32:50: capital out there that's still learning, right?
00:32:50 --> 00:32:52: And it's, there's, there's a handful to me that have
00:32:52 --> 00:32:54: really that have, they've got it.
00:32:54 --> 00:32:56: And they're, they're really moving quickly in the space.
00:32:57 --> 00:32:57: Yeah.
00:32:57 --> 00:33:00: But everything I heard you all say, I don't feel
00:33:00 --> 00:33:05: like there's an appetite to speculatively start construction vertical construction
00:33:05 --> 00:33:07: on a turnkey facility, right.
00:33:07 --> 00:33:09: I'm not seeing that a lot.
00:33:09 --> 00:33:10: Have you guys seen anyone?
00:33:11 --> 00:33:13: I guess maybe the vantages in the digital realties of

00:33:13 --> 00:33:13: the world?

00:33:14 --> 00:33:15: Yeah, there.

00:33:16 --> 00:33:20: There are circumstances where it makes sense for sure and

00:33:21 --> 00:33:26: and established markets with fundamentals supported and and in particular

00:33:26 --> 00:33:30: where you need to move forward with a project or

00:33:30 --> 00:33:33: you're at risk of not, you know, of losing your

00:33:33 --> 00:33:35: power allocation.

00:33:35 --> 00:33:36: Yeah.

00:33:36 --> 00:33:39: You know, the ultra large campuses that you hear about,

00:33:39 --> 00:33:43: you know, agree those are not spec obviously, but there

00:33:43 --> 00:33:46: are certain circumstances where I think it makes sense.

00:33:46 --> 00:33:49: Sometimes it's not so much about risking capital with the

00:33:49 --> 00:33:50: really large facilities.

00:33:50 --> 00:33:53: It's about at that scale, every end user, if you've

00:33:53 --> 00:33:56: not found one yet, is going to have a a

00:33:56 --> 00:33:58: completely different design.

00:33:58 --> 00:34:01: They'll have a different electricity design, they'll have a different

00:34:01 --> 00:34:04: water requirement, all for the same consumption of power.

00:34:04 --> 00:34:07: So it's really, if you're an operator to just start

00:34:07 --> 00:34:10: building, you know, because someone's going to come in and

00:34:10 --> 00:34:10: yeah.

00:34:11 --> 00:34:17: Yeah, drastically evolving the drastically, drastically evolving density requirements, right.

00:34:17 --> 00:34:20: You're saying using the range now between 100 kW rack

00:34:20 --> 00:34:23: and 16 kW rack, you know, depending on the users,

00:34:23 --> 00:34:25: you know, it's a real thing.

00:34:25 --> 00:34:29: That's a massively different and infrastructure.

00:34:29 --> 00:34:30: Yeah.

00:34:30 --> 00:34:32: I mean, you know, Gary talked about how the market's

00:34:32 --> 00:34:35: getting more efficient and it can deliver faster and, you

00:34:35 --> 00:34:38: know, help these customers do what they're not able to

00:34:38 --> 00:34:40: cope with because they need it so fast.

00:34:40 --> 00:34:43: And one of the benefits in a practical way of

00:34:43 --> 00:34:47: developers being able to finance and start off speculatively is

00:34:47 --> 00:34:50: they're then reducing the time frame, right?

00:34:50 --> 00:34:53: Because when a customer approaches you, they typically need something

00:34:53 --> 00:34:55: in the next 12 months or 18 months.

00:34:55 --> 00:34:58: And all of us here know that it takes more

00:34:58 --> 00:35:01: than that to, you know, get the land, the power

00:35:01 --> 00:35:02: and title, build it.
00:35:02 --> 00:35:05: And so by kicking things off earlier, you can actually
00:35:05 --> 00:35:08: reduce that friction for the customer and deliver it by
00:35:08 --> 00:35:10: the time they come to you in the time range
00:35:11 --> 00:35:11: that they want.
00:35:12 --> 00:35:15: But because it's so capital intensive, I feel like I
00:35:15 --> 00:35:17: haven't seen as much of that as I have say,
00:35:17 --> 00:35:21: five years ago when people were building for life science
00:35:21 --> 00:35:22: or for offices, right?
00:35:24 --> 00:35:27: So let's talk about those four or five big customers.
00:35:27 --> 00:35:30: Like you guys already started talking about them, right?
00:35:30 --> 00:35:33: And Conan, I think you probably even represent some of
00:35:33 --> 00:35:34: them.
00:35:35 --> 00:35:36: It's just a few, right?
00:35:36 --> 00:35:40: A few handful, Meta, Google, Oracle, Microsoft and you know,
00:35:40 --> 00:35:42: the emerging core weaves, etcetera.
00:35:43 --> 00:35:45: So because there's so few of them and there's such
00:35:45 --> 00:35:48: a massive demand story, you know, it feels like they're
00:35:48 --> 00:35:50: really dictating the terms, right?
00:35:50 --> 00:35:53: Just getting their attention is a big challenge, right?
00:35:54 --> 00:35:57: So how, you know, what's your thought on how do
00:35:57 --> 00:36:02: developers, how can they differentiate themselves to win credibility and,
00:36:02 --> 00:36:04: and win with these customers?
00:36:05 --> 00:36:07: And, and what do you, what do you think these
00:36:07 --> 00:36:09: customers are prioritizing the most?
00:36:09 --> 00:36:13: I mean, we know it's speed and a sustainability to
00:36:13 --> 00:36:14: stump some extent.
00:36:16 --> 00:36:17: So what's your thought on that Conan?
00:36:17 --> 00:36:17: So.
00:36:21 --> 00:36:21: Yeah.
00:36:21 --> 00:36:24: So, so, I mean, it is all the basics, especially,
00:36:24 --> 00:36:27: you know, the, the hyper scalers these days, they're contracting
00:36:27 --> 00:36:29: with, with everyone that they've been doing it with for
00:36:30 --> 00:36:32: the last 20 years, Digital Realty, Equinix, names that were
00:36:32 --> 00:36:33: mentioned.
00:36:33 --> 00:36:36: But there's also this new wave of groups that either
00:36:36 --> 00:36:37: hold land.
00:36:38 --> 00:36:42: They, they're, they're intending to participate in vertical construction, what
00:36:42 --> 00:36:42: have you.

00:36:42 --> 00:36:44: And they've not been exposed to this big group.
00:36:45 --> 00:36:47: And so if you're in the audience and you're one
00:36:47 --> 00:36:50: of those groups that's trying to get in, I mean,
00:36:50 --> 00:36:52: the first thing is, is just basically proving your site
00:36:52 --> 00:36:55: or your, you know, competency or whatever it is to
00:36:55 --> 00:36:57: show that you're qualified, that the power is in fact
00:36:57 --> 00:36:58: coming.
00:36:59 --> 00:37:02: And, and basically you've de risked it because you only
00:37:02 --> 00:37:04: really have one or two bites of the apples with
00:37:04 --> 00:37:06: these groups for each very specific opportunity.
00:37:07 --> 00:37:10: So that's one thing is just kind of coming at
00:37:10 --> 00:37:14: them correctly with all the information ready to engage, having
00:37:14 --> 00:37:18: as much flexibility as you can in their contract preference,
00:37:18 --> 00:37:21: you know, having as much flexibility you can in, in
00:37:21 --> 00:37:25: the contract terms themselves, because they carry so much weight,
00:37:25 --> 00:37:29: especially with start up, you know, types, they are extremely
00:37:29 --> 00:37:32: heavy-handed on their, on their, you know, red line and
00:37:32 --> 00:37:33: their contracts.
00:37:33 --> 00:37:36: And so you basically have to adhere to some risk
00:37:36 --> 00:37:39: and in our opinion, kind of accept some things that
00:37:39 --> 00:37:41: you wouldn't accept for other tenants.
00:37:42 --> 00:37:44: And then just basics, you know, the, the world has
00:37:44 --> 00:37:44: gotten so big.
00:37:44 --> 00:37:46: Everyone's gotten so busy.
00:37:46 --> 00:37:49: We, we see plenty of groups that aren't as responsive
00:37:49 --> 00:37:52: to hyper scalers as you would think and actually trying
00:37:52 --> 00:37:54: to put them in their bucket of how they move
00:37:54 --> 00:37:57: the process forward instead of the hyper scalers kind of
00:37:57 --> 00:37:58: moving the process forward.
00:37:59 --> 00:38:02: And so we're we're kind of of the white glove
00:38:02 --> 00:38:06: mind, you know, within reason, you know, create a boat
00:38:06 --> 00:38:10: bespoke solution to each of these hyper scalers and be
00:38:10 --> 00:38:13: extremely attentive and outline your ability to grow.
00:38:14 --> 00:38:16: I think those are the real big ones, you know?
00:38:16 --> 00:38:19: Yeah, yeah, Gary, you're just like still dusting off the
00:38:19 --> 00:38:22: Google dust off your clothes, right, so.
00:38:24 --> 00:38:24: Yeah.
00:38:24 --> 00:38:27: And you know, MGX doesn't necessarily have customers per SE,
00:38:27 --> 00:38:29: but we we engage with them all the time.
00:38:29 --> 00:38:33: And really it's, it's the obvious, it's speed and scale

00:38:33 --> 00:38:33: right now.
00:38:34 --> 00:38:38: And, and I think the most important thing to understand
00:38:38 --> 00:38:41: is that demand is only going up inside these organizations
00:38:41 --> 00:38:44: and it's going up substantially.
00:38:44 --> 00:38:47: Like just with numbers, you know, it'll, it'll might go
00:38:47 --> 00:38:51: up quarter over quarter what used to happen year over
00:38:51 --> 00:38:51: year, right?
00:38:52 --> 00:38:56: And So what these customers want is they want insurance
00:38:56 --> 00:39:01: that as their uncertain demand only goes up into the
00:39:01 --> 00:39:05: right, how fast can a, a, a service provider or
00:39:05 --> 00:39:07: a vendor flex with that demand?
00:39:08 --> 00:39:11: Meaning how to your point earlier, Samita, like you have
00:39:11 --> 00:39:14: to advance a site to a certain whole point where
00:39:14 --> 00:39:16: it's valuable to the customer.
00:39:17 --> 00:39:20: And that's probably a powered land sort of status.
00:39:20 --> 00:39:23: It doesn't necessarily even they need to have a shell,
00:39:23 --> 00:39:23: but it might.
00:39:24 --> 00:39:26: It certainly doesn't have a a data center by that
00:39:26 --> 00:39:29: point, but the most important thing is that it has
00:39:29 --> 00:39:31: a predictable timeline and a predictable cost.
00:39:31 --> 00:39:34: And after that one gets triggered, there's another one that
00:39:34 --> 00:39:36: can get triggered and another one that can get triggered
00:39:36 --> 00:39:38: and another one that can get triggered.
00:39:39 --> 00:39:41: If you can actually offer that kind of flexibility for
00:39:41 --> 00:39:44: a customer in today's environment, they will actually flex in
00:39:45 --> 00:39:46: a lot of different things.
00:39:46 --> 00:39:50: Cost, the cost of power increasingly it's not just a,
00:39:50 --> 00:39:55: a drive anymore to the absolute lowest cost of power.
00:39:55 --> 00:39:57: I'm, I'm seeing like a lot of these large end
00:39:58 --> 00:40:01: customers actually say, you know what, I can take another
00:40:01 --> 00:40:03: penny or two per kWh on the power if you
00:40:03 --> 00:40:07: can actually increase the certainty that the capacity will be
00:40:07 --> 00:40:08: there when I need it.
00:40:09 --> 00:40:12: Like what's the the surety of the electricity supply?
00:40:13 --> 00:40:15: If I, if I have three buildings, I want to
00:40:15 --> 00:40:18: trigger a 4th, 1/5 and 1/6, what is the mechanism
00:40:18 --> 00:40:20: to make sure that power supply is actually going to
00:40:20 --> 00:40:22: be there when I need it?
00:40:22 --> 00:40:24: Because these campuses are also sticky.
00:40:24 --> 00:40:27: These companies like to grow in place and they like
00:40:27 --> 00:40:29: surety that they can grow in place.
00:40:29 --> 00:40:32: And so I'm seeing a lot of things actually bend

00:40:32 --> 00:40:36: a little bit in favor of that certainty on upside.
00:40:38 --> 00:40:39: Got it.
00:40:39 --> 00:40:39: Got it.
00:40:39 --> 00:40:40: That makes sense.
00:40:41 --> 00:40:48: So credibility, speed, certainty, right, Raj, anything to add there?
00:40:48 --> 00:40:48: Yeah.
00:40:48 --> 00:40:51: But I think I'll just add on the credibility piece
00:40:51 --> 00:40:51: a little bit.
00:40:51 --> 00:40:54: I think everybody touched on the speed and scale for
00:40:54 --> 00:40:55: sure, right.
00:40:55 --> 00:40:58: And I mean there's like there's a lot of folks
00:40:58 --> 00:41:00: jumping into the space, right?
00:41:01 --> 00:41:04: And from every angle of the kind of real estate
00:41:04 --> 00:41:08: and infrastructure universe, right, Everybody that was a in touch
00:41:08 --> 00:41:11: real estate or everybody touch powers kind of try to
00:41:11 --> 00:41:13: jump into the, into the data center space.
00:41:15 --> 00:41:17: And it does, you know, in some ways it's good
00:41:17 --> 00:41:19: and creates more capacity options.
00:41:19 --> 00:41:22: But at the same time, it does also very noisy
00:41:22 --> 00:41:23: for folks, right?
00:41:23 --> 00:41:25: And, you know, talking to a lot of my, you
00:41:25 --> 00:41:28: know, friends and colleagues that are still sitting on the
00:41:28 --> 00:41:31: hyper scale side of the fence, it's gets very difficult
00:41:31 --> 00:41:34: for them to differentiate between what's real and what isn't.
00:41:34 --> 00:41:37: And real doesn't just mean like, do you have power
00:41:37 --> 00:41:39: or not, but you actually know how to deliver that
00:41:39 --> 00:41:40: project, right?
00:41:41 --> 00:41:43: I mean, the amount of like people that are saying
00:41:44 --> 00:41:46: that they've get that they're sitting on top of a
00:41:46 --> 00:41:48: GW of natural gas, you know, generation capacity is, is
00:41:48 --> 00:41:49: ridiculous, right?
00:41:49 --> 00:41:53: And like not really understanding what it will actually take
00:41:53 --> 00:41:56: to secure that, secure that pipeline, you know, build that
00:41:56 --> 00:41:58: generation to interconnect.
00:41:58 --> 00:42:00: Every site is being marketed as a power land site
00:42:00 --> 00:42:01: now, right?
00:42:01 --> 00:42:02: Yeah, yeah.
00:42:02 --> 00:42:05: So, you know, I, I think just that the credibility
00:42:05 --> 00:42:08: to me, you know, double clicking on on, you know,
00:42:08 --> 00:42:11: do you have the, the team, the organization, I, you
00:42:11 --> 00:42:14: know, I think the hyperscalers and end users do do

00:42:14 --> 00:42:14: really.
00:42:14 --> 00:42:18: They'll give you more time and, and they'll give you
00:42:18 --> 00:42:21: more, you know, leeway to kind of work and solve,
00:42:21 --> 00:42:23: solve problems together.
00:42:23 --> 00:42:25: If you know, you, they know you know how to
00:42:25 --> 00:42:26: do that, right.
00:42:27 --> 00:42:29: But if you're just kind of, you know, two guys
00:42:29 --> 00:42:31: in a truck with a, with a piece of land
00:42:32 --> 00:42:33: and a, you know, a gas pipe, yeah.
00:42:34 --> 00:42:36: It's, you know, unless it's something you got to really
00:42:36 --> 00:42:40: articulate how you're going to deliver that capacity with low
00:42:40 --> 00:42:40: risk.
00:42:40 --> 00:42:43: And on the timeline, you say you're going to timeline
00:42:43 --> 00:42:45: to, to, to deliver with, with confidence, right.
00:42:45 --> 00:42:47: It's a really difficult thing to do if you haven't
00:42:47 --> 00:42:49: been in this space somewhere, you know, somewhere in the
00:42:49 --> 00:42:50: value chain.
00:42:50 --> 00:42:51: Yeah, yeah.
00:42:51 --> 00:42:53: And that, that's a good segue to the next question.
00:42:53 --> 00:42:55: I was just going to say, you know, we talked
00:42:55 --> 00:42:57: about how much capital is needed, how quickly you need
00:42:58 --> 00:43:00: to move, how there are just 4 customers and they're
00:43:00 --> 00:43:02: looking for a lot of credibility, right?
00:43:02 --> 00:43:04: Gary called it his, you know, insurance.
00:43:05 --> 00:43:07: So how, how does that position a small startup or
00:43:07 --> 00:43:10: new, you know, because we consider at least in the
00:43:10 --> 00:43:13: real estate world, it's like a very entrepreneurial space, right?
00:43:13 --> 00:43:16: Two or three people get together, they raise some capital
00:43:16 --> 00:43:17: and they start building.
00:43:17 --> 00:43:21: So how is the the data centre world for these
00:43:21 --> 00:43:23: new entrants, right?
00:43:23 --> 00:43:27: Are they just limited to being powered land providers or
00:43:27 --> 00:43:30: is there a path to a start up actually slowly
00:43:30 --> 00:43:34: scaling and becoming the next pro largest or Digital Realty
00:43:34 --> 00:43:35: or Vantage?
00:43:38 --> 00:43:41: I think it's really hard to operate as a start
00:43:41 --> 00:43:43: up in this space right now for obvious reasons.
00:43:43 --> 00:43:48: I think, you know, access to capital being, being one
00:43:48 --> 00:43:52: very important and then, you know, credibility to, to the
00:43:52 --> 00:43:55: customer universe would be the other.
00:43:55 --> 00:43:59: I think what we are seeing is probably 3 buckets
00:43:59 --> 00:44:02: in terms of, of profile of groups that are trying

00:44:02 --> 00:44:05: to, to form and and execute and each is coming

00:44:05 --> 00:44:09: at it from a slightly different angle, but, and some

00:44:09 --> 00:44:13: of them, you know, are definitely going to be successful.

00:44:13 --> 00:44:15: I think the first cohort is, is groups that are

00:44:16 --> 00:44:20: leveraging development capabilities and other asset classes and, and kind

00:44:20 --> 00:44:22: of porting that into the data center space.

00:44:22 --> 00:44:25: And so you know, you've seen groups that have very

00:44:25 --> 00:44:29: strong industrial development capabilities, kind of leverage that, you know,

00:44:29 --> 00:44:33: add some key resources and and smoothly kind of transition

00:44:33 --> 00:44:34: in into data centers.

00:44:35 --> 00:44:37: So I'd say that's that's one bucket, not really a

00:44:37 --> 00:44:38: start up per SE.

00:44:38 --> 00:44:40: Obviously there's a, you know, substantial.

00:44:40 --> 00:44:41: Organization.

00:44:41 --> 00:44:45: That think that the next category would be, you know

00:44:45 --> 00:44:51: individual talent, either you know coming out of a hyperscaler

00:44:51 --> 00:44:55: or coming out of a large operator and trying to

00:44:55 --> 00:44:59: kind of form team and capital, you know around them

00:44:59 --> 00:45:00: to execute.

00:45:02 --> 00:45:04: We have seen a bunch of examples of of folks

00:45:04 --> 00:45:06: you know trying to do that.

00:45:06 --> 00:45:09: You know some have have had more success than others.

00:45:10 --> 00:45:14: And then I think the third category is groups that

00:45:15 --> 00:45:21: are trying to actually create a differentiated technology solution.

00:45:22 --> 00:45:25: So there there are a couple of start-ups out there,

00:45:25 --> 00:45:29: you know, doing different things with on site generation or

00:45:29 --> 00:45:31: cooling technologies or whatever the case may be.

00:45:32 --> 00:45:35: And I think some of those you have pretty compelling

00:45:35 --> 00:45:38: solutions to the extent that they can prove that concept

00:45:38 --> 00:45:41: out in a small footprint, I expect they would be

00:45:41 --> 00:45:42: able to get capital.

00:45:42 --> 00:45:45: So those are kind of the three categories that that

00:45:45 --> 00:45:46: we're seeing.

00:45:47 --> 00:45:50: It's, you know, it's not an easy game to to,

00:45:50 --> 00:45:53: to, to just stand up a data center developer.

00:45:53 --> 00:45:55: Yeah, yeah, makes sense.

00:45:56 --> 00:45:58: So we've got just a couple of questions from the

00:45:58 --> 00:46:00: audience in about 15 minutes.

00:46:00 --> 00:46:03: Why don't we jump to one of our questions which

00:46:03 --> 00:46:04: kind of mirrors the question.

00:46:04 --> 00:46:07: So there's a question from Kelly Greenwood.

00:46:07 --> 00:46:11: Is there an appetite for on site mini data centres

00:46:11 --> 00:46:13: with a new or existing office buildings?

00:46:14 --> 00:46:17: Are the handful of key customers looking ahead to how

00:46:17 --> 00:46:21: design construction development may be impacted by changing requirements for

00:46:21 --> 00:46:22: quantum computing?

00:46:23 --> 00:46:28: Is this impacting planning or financing for these projects, particularly

00:46:28 --> 00:46:31: where there is a longer horizon for development?

00:46:31 --> 00:46:35: So it's kind of two questions, one in quantum and

00:46:35 --> 00:46:36: one on office buildings.

00:46:39 --> 00:46:42: I I can try to answer that.

00:46:43 --> 00:46:46: I I think in terms of the deployments, most the

00:46:46 --> 00:46:50: deployments seem to be getting larger, not smaller.

00:46:50 --> 00:46:54: And so I, I think the lion share of the

00:46:54 --> 00:46:58: demand at least for mainstream sort of hyper scale kind

00:46:58 --> 00:47:03: of operators is, is Co located capacity to the extent

00:47:03 --> 00:47:06: possible in the hundreds of megawatts.

00:47:07 --> 00:47:11: I, I think it's difficult to even you know from

00:47:11 --> 00:47:15: a, a distance or latency perspective to network multiple large

00:47:15 --> 00:47:16: sites together.

00:47:16 --> 00:47:21: The preference is clearly for single house or very proximate

00:47:21 --> 00:47:23: large deployments of servers.

00:47:23 --> 00:47:27: And so there may be workloads ultimately, let's say closer

00:47:28 --> 00:47:30: to the edge or when in when in when the

00:47:30 --> 00:47:34: transition to inference really takes off and you have all

00:47:35 --> 00:47:39: of these computers, you know, whether it's self driving cars

00:47:39 --> 00:47:41: or, you know, whatever.

00:47:41 --> 00:47:44: Or in terms of like, you know, compute happening at

00:47:44 --> 00:47:47: the edge or in very sort of urban locations, which

00:47:47 --> 00:47:51: could benefit from smaller deployments that are approximate to urban

00:47:51 --> 00:47:54: centers inside office buildings or whatever.

00:47:54 --> 00:47:57: And so I, I, but, but I don't think in

00:47:57 --> 00:48:01: the near term that's the product that these, these customers

00:48:01 --> 00:48:03: are really looking for.

00:48:03 --> 00:48:06: Not today, but there could be a possibility tomorrow, right?

00:48:06 --> 00:48:07: You said about anything?

00:48:08 --> 00:48:12: When you're starting to see Los Angeles is an example,

00:48:12 --> 00:48:15: they have, you know, many large games coming to them

00:48:15 --> 00:48:19: over the over the next few years, highly public, highly

00:48:19 --> 00:48:21: attended publicized events.
00:48:21 --> 00:48:25: And because of that, you're starting to see increased appetite
00:48:25 --> 00:48:28: for, you know, smaller close in deployments that are, you
00:48:28 --> 00:48:32: know, within the central business district of of Los Angeles
00:48:32 --> 00:48:33: are close to it.
00:48:33 --> 00:48:35: And so you're starting to see that come back in
00:48:35 --> 00:48:36: big markets.
00:48:37 --> 00:48:39: But at the same time, if you look at just
00:48:39 --> 00:48:41: an office building, it's one of the worst things that
00:48:41 --> 00:48:42: you can adaptively reuse.
00:48:43 --> 00:48:46: It contains so many inherent flaws with it typically that
00:48:46 --> 00:48:50: make it so much more expensive incrementally to build that
00:48:50 --> 00:48:53: in a perfect world you're trying to get when that
00:48:53 --> 00:48:56: demand that Gary's speaking about comes.
00:48:56 --> 00:48:57: You're still.
00:48:57 --> 00:49:00: Looking for a facility that's more likely something that you
00:49:00 --> 00:49:02: can purpose built or even demolish.
00:49:03 --> 00:49:05: So what about ground floor retail?
00:49:05 --> 00:49:08: You have like 5000 square feet or 20,000 square feet.
00:49:08 --> 00:49:11: There's a lot of urban retail in San Francisco right
00:49:11 --> 00:49:12: now that's vacant, right?
00:49:12 --> 00:49:15: Is there a future for that to be used as
00:49:15 --> 00:49:17: a small edge facility?
00:49:18 --> 00:49:21: I mean that's, you know Vancouver, BC for example, almost
00:49:21 --> 00:49:24: every data center there is in some atrium floor that
00:49:24 --> 00:49:26: was intended for retail.
00:49:26 --> 00:49:28: But whether that's going to come back in the same
00:49:28 --> 00:49:29: way, I kind of inclined to agree with Gary.
00:49:29 --> 00:49:32: I think it's all going to be centralized to a
00:49:32 --> 00:49:35: point where you can, even in the metros, get more
00:49:35 --> 00:49:38: power, achieve economies of scale, have the ability to appease
00:49:39 --> 00:49:42: the hyper scalers and grow like Raj was talking about.
00:49:42 --> 00:49:45: Just yeah, Yeah, office is a tough sell, Yeah.
00:49:45 --> 00:49:48: Well, one observation is that, you know, the size of
00:49:49 --> 00:49:51: edge deployments is just a lot bigger.
00:49:51 --> 00:49:54: I think when we used to talk about edge, you
00:49:54 --> 00:49:55: know, it's like a MW.
00:49:55 --> 00:50:01: Now it's, you know, 5/10/20 megawatts, right?
00:50:01 --> 00:50:03: I mean it's, and so if that trend continues, I
00:50:03 --> 00:50:06: mean that's going to have impacts in terms of what
00:50:06 --> 00:50:08: that physical footprint looks like obviously.

00:50:09 --> 00:50:10: Yeah.
00:50:10 --> 00:50:13: I mean to that point even even the network requirements
00:50:13 --> 00:50:16: now have grown to several megawatts and let alone then
00:50:16 --> 00:50:19: you know the caching and and and and that compute
00:50:19 --> 00:50:22: that might need to get pushed through.
00:50:22 --> 00:50:25: So I, I do think like that we're looking at
00:50:25 --> 00:50:29: a minimum of, you know, several 10s of megawatts, you
00:50:29 --> 00:50:31: know, at the very minimum.
00:50:31 --> 00:50:33: And that's still not going to be easy to do
00:50:33 --> 00:50:36: in, you know, your standard office building and plus plus
00:50:36 --> 00:50:39: the components point of like the, the challenge in retrofitting
00:50:39 --> 00:50:41: and is really, really difficult.
00:50:41 --> 00:50:44: So you know, I there might be I think again
00:50:44 --> 00:50:47: few pieces here off, but I think it's a difficult
00:50:47 --> 00:50:49: like business plan to build off of.
00:50:50 --> 00:50:50: Yeah, yeah.
00:50:50 --> 00:50:54: There are a lot of really robust structural requirements, right,
00:50:54 --> 00:50:56: Especially a tall office building in downtown.
00:50:56 --> 00:50:57: I think that's the toughest.
00:50:58 --> 00:50:59: Yeah.
00:51:00 --> 00:51:00: All right.
00:51:00 --> 00:51:03: And then one other question from the audience.
00:51:03 --> 00:51:05: So it's from Dan Epstein.
00:51:05 --> 00:51:09: And he says that Jiggershah recently suggested that data centres
00:51:09 --> 00:51:13: could secure faster grid access and reduce stress on the
00:51:13 --> 00:51:16: electrical grid by agreeing to be flexible with their power
00:51:16 --> 00:51:19: usage for approximately 150 hours per year.
00:51:20 --> 00:51:24: Data centers could have batteries to replace electricity lost from
00:51:24 --> 00:51:27: the grid during those 150 hours or curtail use of
00:51:27 --> 00:51:29: electricity during that.
00:51:29 --> 00:51:32: Do you think that this is a solid mitigant for
00:51:32 --> 00:51:33: a high electricity demand?
00:51:34 --> 00:51:36: So he's talking about solving for the peak, right?
00:51:36 --> 00:51:39: Which is what constrains a lot of utility grids.
00:51:41 --> 00:51:42: Yeah, I mean, absolutely, right.
00:51:42 --> 00:51:45: The peak shaving, this is really just for peak shaving
00:51:45 --> 00:51:46: demand response, right, exactly.
00:51:47 --> 00:51:50: And I think there's been a lot of studies that
00:51:51 --> 00:51:54: have shown, you know, you can, you can have, you
00:51:54 --> 00:51:59: know, material capacity back on the kind of supply constraints

00:51:59 --> 00:52:04: through through this, you know, it, it does require cooperation
00:52:04 --> 00:52:07: by both the, the end user and the, the providers,
00:52:07 --> 00:52:10: right, the utility providers.
00:52:10 --> 00:52:12: But you know, I, I, I expect this is going
00:52:12 --> 00:52:15: to be, you know, we're starting to see a lot
00:52:15 --> 00:52:16: of this stuff pop up already.
00:52:16 --> 00:52:19: And you know, there's a lot of talk about natural
00:52:19 --> 00:52:21: gas and natural gas behind the meter and right, those
00:52:21 --> 00:52:24: things, you know, ultimately, even if they're acting as like
00:52:24 --> 00:52:27: a bridge island and solution today, they will ultimately likely
00:52:27 --> 00:52:30: be a supplement to the grid or provide for some
00:52:30 --> 00:52:32: peak shaving solutions down the road.
00:52:32 --> 00:52:34: So you can, you know, I think we see this
00:52:34 --> 00:52:36: happening with potential natural gas turbines.
00:52:36 --> 00:52:37: This is happening with batteries.
00:52:38 --> 00:52:40: And I think there's going to be a lot of
00:52:41 --> 00:52:44: technologies by where this, this becomes part of the, the,
00:52:44 --> 00:52:46: the overall ecosystem.
00:52:46 --> 00:52:49: But, you know, we're, we're still in early days to
00:52:49 --> 00:52:52: where, you know, end users are still trying to work
00:52:52 --> 00:52:55: this into their, their operations model.
00:52:55 --> 00:52:57: But I, I expect it's going to be, you know,
00:52:57 --> 00:52:59: it's going to be a necessity as a matter of
00:52:59 --> 00:53:01: mention here more than anything else.
00:53:03 --> 00:53:06: Yeah, I would, I would just add that I, I
00:53:06 --> 00:53:09: think load flexibility is going to have to be part
00:53:10 --> 00:53:13: of sort of the the future dynamic between the grid
00:53:13 --> 00:53:16: utilities and and the load centers.
00:53:16 --> 00:53:19: And you know, even and, and the challenge comes with
00:53:19 --> 00:53:24: you know sort of mission critical, let's say enterprise workloads
00:53:24 --> 00:53:28: in the cloud space, which can't be curtailed and backing
00:53:28 --> 00:53:33: those things up with things like batteries because diesel Gen.
00:53:33 --> 00:53:36: sets are probably not a reliable way to help peak
00:53:36 --> 00:53:36: shave.
00:53:36 --> 00:53:40: And so those technologies will have to be part of
00:53:40 --> 00:53:42: the equation, but it can be done.
00:53:42 --> 00:53:46: For instance, Google during the European energy crisis a few
00:53:46 --> 00:53:51: years ago, they actually instituted and they're they're public about
00:53:51 --> 00:53:51: this.
00:53:51 --> 00:53:55: I don't think they're public about exactly how much, but
00:53:55 --> 00:53:58: but they actually were able to to curtail their European

00:53:58 --> 00:54:02: footprint on request for a certain amount of time at
00:54:02 --> 00:54:03: a certain percentage.
00:54:04 --> 00:54:05: And so it can be done.
00:54:05 --> 00:54:09: And those were all kinds of workloads being impacted across
00:54:09 --> 00:54:10: the continent.
00:54:11 --> 00:54:12: And so it can be done.
00:54:12 --> 00:54:14: And and I think in order to access power, I
00:54:14 --> 00:54:17: think companies are going to have to do that.
00:54:17 --> 00:54:20: They're going to have to agree to to some flexibility.
00:54:20 --> 00:54:24: We already see it in conversations with utilities, utilities that
00:54:24 --> 00:54:28: can't provide, you know, A59 power supply, hey, I can
00:54:28 --> 00:54:31: provide a three nines power supply and get get you
00:54:31 --> 00:54:34: another 100 megawatts or another 200 megawatts.
00:54:34 --> 00:54:38: And they're surprised, you know that that that companies are
00:54:38 --> 00:54:38: open to it.
00:54:38 --> 00:54:40: But when you really start taking a work look at
00:54:40 --> 00:54:43: your workloads, maybe there are portions of your workloads that
00:54:43 --> 00:54:46: can actually accommodate that kind of downtime.
00:54:46 --> 00:54:49: It's just going to take more precision in how you
00:54:49 --> 00:54:52: manage that from one type of workload to another.
00:54:53 --> 00:54:55: But those those capabilities can be developed.
00:54:55 --> 00:54:58: Yeah, it's interesting you say that, you know, Google was
00:54:58 --> 00:55:00: able to do that because, you know, if I'm a
00:55:00 --> 00:55:03: developer and I'm negotiating an agreement with the power company,
00:55:03 --> 00:55:05: this is going to give me a lot of heartburn
00:55:05 --> 00:55:08: because now I don't know if this is going to
00:55:08 --> 00:55:10: be attractive to a customer, right, That there's some kind
00:55:11 --> 00:55:13: of curtailment happening during peak hours.
00:55:13 --> 00:55:16: And it's a very customer dependent issue, right, that a
00:55:16 --> 00:55:18: customer has to say yes to.
00:55:18 --> 00:55:20: And it kind of makes your site less favourable.
00:55:20 --> 00:55:23: But it's interesting to note that it does have the
00:55:23 --> 00:55:25: ability to unlock a lot more power in the grid.
00:55:25 --> 00:55:25: I.
00:55:26 --> 00:55:30: Mean as a developer, you can't go make those promises,
00:55:30 --> 00:55:30: right?
00:55:30 --> 00:55:32: Like, yeah, we're dealing with this now.
00:55:32 --> 00:55:35: Like I, I can't, I can't tell the utility and
00:55:35 --> 00:55:36: XYZ market that we're doing this.
00:55:37 --> 00:55:40: Like, hey, we will do you know supply, demand response,

00:55:40 --> 00:55:42: we will do curtailment like we can't.
00:55:42 --> 00:55:45: Unless you have an on site energy generation that makes
00:55:45 --> 00:55:48: out for it's your customer's still getting 59.
00:55:48 --> 00:55:51: On site generation and and you've developed that range of
00:55:51 --> 00:55:53: menu options so as well as well, right?
00:55:53 --> 00:55:55: Like what, what, what is a utility want what, what
00:55:56 --> 00:55:58: is possible, you know, what would make for a good
00:55:58 --> 00:56:00: solution for both end users?
00:56:00 --> 00:56:02: So you then kind of have a product set that,
00:56:02 --> 00:56:04: you know, when you go to a customer, it's like,
00:56:04 --> 00:56:07: hey, look, you know, we've got, I'll make up a
00:56:07 --> 00:56:08: number, right, 500 megawatts.
00:56:09 --> 00:56:12: But if you're willing to do supply demand and you're
00:56:12 --> 00:56:15: willing to do curtailment, you know, that could be a
00:56:15 --> 00:56:17: GW 1.2 GW, whatever it might be, right.
00:56:17 --> 00:56:19: If you if again, this goes back to the idea
00:56:19 --> 00:56:21: of like if you really kind of know how to
00:56:21 --> 00:56:24: navigate that universe, you know, you can at least have
00:56:24 --> 00:56:27: the range of menu options out there and know what's
00:56:27 --> 00:56:28: within the realm of possibility.
00:56:28 --> 00:56:31: So that again, you've saved, you've saved the customer and
00:56:31 --> 00:56:34: the end user sometimes and having to to navigate that.
00:56:35 --> 00:56:36: Yeah, Yeah.
00:56:36 --> 00:56:38: There's one other question that's come in.
00:56:38 --> 00:56:42: Any thoughts on the combination of data centers and residential
00:56:42 --> 00:56:43: development together?
00:56:43 --> 00:56:46: Are you seeing more desire for this?
00:56:46 --> 00:56:48: And do you think this sort of combination could truly
00:56:48 --> 00:56:49: be successful?
00:56:49 --> 00:56:52: I think it's been done right in Europe and Vancouver
00:56:52 --> 00:56:56: that heat coming out of data center has been harvested
00:56:56 --> 00:56:57: for other uses.
00:56:57 --> 00:56:59: Have you guys seen it in any of your projects
00:56:59 --> 00:57:00: in North America?
00:57:02 --> 00:57:04: I just worry more about the Nimbyism when I think
00:57:04 --> 00:57:05: residential and data centers.
00:57:05 --> 00:57:07: Like right now there's oil and water in the US.
00:57:07 --> 00:57:07: Right.
00:57:07 --> 00:57:09: Proximity, yeah.
00:57:09 --> 00:57:14: Proximity, right, for sure there there's there's heat sharing some
00:57:14 --> 00:57:17: offtake things that we see in Europe, but to me

00:57:17 --> 00:57:21: this, this just screams me worries of of just, you
00:57:21 --> 00:57:24: know, I think in this past two weeks, I've seen
00:57:24 --> 00:57:28: news articles of six different major projects, you know, getting
00:57:28 --> 00:57:31: getting shot down and it's and put some big names.
00:57:32 --> 00:57:35: So to me that it's more about that that proximity
00:57:35 --> 00:57:36: issue.
00:57:36 --> 00:57:39: We've more got a the the bigger piece before you
00:57:39 --> 00:57:44: can think about combining these things is is getting better
00:57:44 --> 00:57:49: about educating the public on, you know, the benefits of
00:57:49 --> 00:57:54: of data centers in their community and sustainability etcetera.
00:57:54 --> 00:57:55: Welcome other stops.
00:57:56 --> 00:57:59: Which I feel like there's been a, a big focus
00:57:59 --> 00:58:02: for Uli, honestly, and helping in that regard is, is
00:58:02 --> 00:58:04: trying to get the information out there as to why
00:58:05 --> 00:58:07: data centers can be a, a, a positive force as
00:58:07 --> 00:58:09: a neighbor and a community.
00:58:09 --> 00:58:12: I mean, obviously you know, the the headlines tend to
00:58:12 --> 00:58:14: focus on a a handful of things that could be
00:58:14 --> 00:58:17: viewed as negative, but there's quite a bit that that
00:58:17 --> 00:58:19: that could be quite positive as well.
00:58:20 --> 00:58:24: If you just isolated to heat rejection, there's so much
00:58:24 --> 00:58:29: lost potential currently that are operating in central business districts
00:58:29 --> 00:58:32: that did not create some type of a heat system.
00:58:32 --> 00:58:34: And so, you know, I think even if it's not
00:58:34 --> 00:58:38: residential, if it's something else, agriculture there, there should be
00:58:38 --> 00:58:41: a future and there's companies that are working to that
00:58:41 --> 00:58:42: end right now.
00:58:42 --> 00:58:45: Yeah, and I think you're not, you're seeing that lost
00:58:45 --> 00:58:47: potential because of what Raj said, right?
00:58:47 --> 00:58:49: There are so many of these things that hold up
00:58:49 --> 00:58:52: 1 is you don't want to be close to residential.
00:58:52 --> 00:58:52: 2.
00:58:52 --> 00:58:55: There's also a legal liability issue, right?
00:58:55 --> 00:58:58: Like you become the heat provider for 100 homes near
00:58:58 --> 00:58:58: you.
00:58:58 --> 00:59:00: And you know, no one really wants to take that
00:59:00 --> 00:59:00: on.
00:59:00 --> 00:59:02: They don't want to now, you know, turn into a
00:59:02 --> 00:59:03: utility provider.
00:59:04 --> 00:59:05: So I think those are some of the hold UPS.

00:59:07 --> 00:59:11: We have about one minute left, so why don't we
00:59:11 --> 00:59:13: just end with everybody?
00:59:13 --> 00:59:16: Maybe just, you know, in the next two years, if
00:59:16 --> 00:59:19: we were to bring this group together, what are you
00:59:19 --> 00:59:21: most optimistic about?
00:59:21 --> 00:59:23: Why don't we end with some optimism, right, Raj?
00:59:23 --> 00:59:24: Why don't you want to kick us off?
00:59:25 --> 00:59:27: Maybe one word, 1 sentence.
00:59:28 --> 00:59:32: I'm excited to see how the energy market evolves, right?
00:59:32 --> 00:59:35: Like we've, we've been at a, we've got a very
00:59:35 --> 00:59:38: archaic system and again, kind of back to this necessity
00:59:38 --> 00:59:39: as mother of invention.
00:59:40 --> 00:59:43: While, you know, there's a lot of concerns about those
00:59:43 --> 00:59:46: constraints on the system, like it's going to force.
00:59:47 --> 00:59:48: Some energy innovation.
00:59:48 --> 00:59:53: Innovation space, everything from SMRS to great innovation, etcetera.
00:59:53 --> 00:59:54: So I'm excited to see how that, you know, where
00:59:55 --> 00:59:56: we are in, yeah, maybe in two years, but you
00:59:56 --> 00:59:58: know, 5 or 6 years, I think it's going to
00:59:58 --> 00:59:59: be a very different bioscale.
01:00:00 --> 01:00:01: That's our next panel on Friday.
01:00:01 --> 01:00:04: We're talking to a bunch of off grid energy providers
01:00:04 --> 01:00:05: including nuclear.
01:00:07 --> 01:00:09: So Michael, you want to go next since you're unmuted?
01:00:10 --> 01:00:15: Yeah, I'm excited to see what the AI use cases
01:00:16 --> 01:00:17: end up being.
01:00:17 --> 01:00:20: You know, I feel like we're just.
01:00:20 --> 01:00:22: Besides the cat videos, right?
01:00:22 --> 01:00:23: I'm sorry.
01:00:23 --> 01:00:24: Yeah, exactly.
01:00:25 --> 01:00:27: Yeah, No, I mean, if you think about it, I
01:00:27 --> 01:00:30: mean there are just endless opportunities in terms of the
01:00:30 --> 01:00:32: the types of things that can be created to leverage
01:00:32 --> 01:00:32: AI.
01:00:34 --> 01:00:36: You know, there are going to be things that we're
01:00:36 --> 01:00:37: not even thinking about yet.
01:00:37 --> 01:00:40: And so I'm excited to see what that landscape looks
01:00:41 --> 01:00:41: like.
01:00:42 --> 01:00:45: You know, I'm excited to see who the emerging kind
01:00:45 --> 01:00:47: of new winners are.
01:00:47 --> 01:00:50: They're probably going to be, you know, wholly new

companies
01:00:50 --> 01:00:52: created that we're not we're not even thinking about yet.
01:00:52 --> 01:00:56: And so, yeah, I'm excited to see how that all
01:00:56 --> 01:00:56: plays out.
01:00:57 --> 01:00:58: Yeah, Gary.
01:01:00 --> 01:01:02: Yeah, I'll, I'll just sort of riff on what, what
01:01:02 --> 01:01:05: Ross said, 'cause I'm, I'm also a believer that really
01:01:05 --> 01:01:08: energy is the, the sort of heart of the data
01:01:08 --> 01:01:09: center problem.
01:01:09 --> 01:01:12: And you know, I, I, I don't want us to
01:01:12 --> 01:01:14: abandon our carbon commitments.
01:01:14 --> 01:01:16: And so that's sort of top of mind.
01:01:16 --> 01:01:20: But I am optimistic about the work that's being done
01:01:20 --> 01:01:25: in SMRS and fusion technology, even traditional nuclear like the
01:01:25 --> 01:01:31: AP 1000 reactors, geothermal batteries, fuel cells seem to be
01:01:31 --> 01:01:32: coming back.
01:01:33 --> 01:01:35: And so I just see a huge amount of focus
01:01:35 --> 01:01:36: and innovation in that space.
01:01:36 --> 01:01:39: And I feel like we're on good trajectory by the
01:01:39 --> 01:01:42: middle of the next decade to be bringing some of
01:01:42 --> 01:01:46: those technologies, you know, at scale into this equation and
01:01:46 --> 01:01:50: getting back to our carbon commitments and making sure that
01:01:50 --> 01:01:51: we stay focused on them.
01:01:52 --> 01:01:55: That's truly optimistic and I I hope that that happens.
01:01:55 --> 01:01:58: It's really nice to hear you say that, Gary Conan.
01:01:59 --> 01:02:00: I mean that that's where my head is too.
01:02:00 --> 01:02:05: I'm cautiously optimistic about the sustainability of data centers and
01:02:05 --> 01:02:08: even Bitcoin facilities and everything else in the future is
01:02:08 --> 01:02:11: kind of really on behalf of my kids, anyone, anyone
01:02:11 --> 01:02:12: young.
01:02:12 --> 01:02:15: We, we always talk about power, but there's a lot
01:02:15 --> 01:02:17: of bad actors in the water world.
01:02:17 --> 01:02:19: And we're in a, and we're in a kind of
01:02:19 --> 01:02:22: a global state of, of nearing a water crisis.
01:02:22 --> 01:02:24: And so I'd love to see in two years what
01:02:24 --> 01:02:27: advances we're making toward water technologies and cooling technologies such
01:02:27 --> 01:02:30: as immersive cooling and all these things that I'm really
01:02:30 --> 01:02:30: excited about.
01:02:31 --> 01:02:32: Yeah, fantastic.

01:02:33 --> 01:02:34: This was a great conversation.
01:02:34 --> 01:02:36: I really loved chatting with all of you.
01:02:36 --> 01:02:39: Thank you so much for making the time and thank
01:02:39 --> 01:02:42: you to everyone in the audience for joining us and
01:02:42 --> 01:02:45: looking forward to seeing you all next week on Friday
01:02:45 --> 01:02:46: at 12:00 PM.
01:02:47 --> 01:02:48: Thanks everybody.
01:02:48 --> 01:02:48: Thank you.
