Webinar

CRREM North America Project Final Update

Date: December 04, 2024

00:00:00 --> 00:00:03: Hello and welcome to today's webinar hosted by the KREM
00:00:03 --> 00:00:04: North America Project team.
00:00:04 --> 00:00:06: To close out the work we've done over the last
00:00:06 --> 00:00:09: year and a half, we're really proud of this project
00:00:09 --> 00:00:12: and the robust stakeholder engagement process, and we're excited to
00:00:12 --> 00:00:14: share some of the outputs with you today.
00:00:15 --> 00:00:16: My name is Blakely Jarrett.
00:00:16 --> 00:00:19: I'm a Vice President with the Urban Land Institute and
00:00:19 --> 00:00:21: the global lead for ULI Greenprint.
00:00:21 --> 00:00:24: I LED this project alongside the other panelists on the
00:00:24 --> 00:00:26: call and I'll be your moderator for the next hour.
00:00:27 --> 00:00:31: Please use the Q&A function to submit questions as we
00:00:31 --> 00:00:31: go.
00:00:31 --> 00:00:34: We will go come through those and answer as many
00:00:34 --> 00:00:35: as we can at the end.
00:00:36 --> 00:00:38: And I also want to remind you this webinar is
00:00:38 --> 00:00:41: being recorded and anyone who registered for the webinar will
00:00:41 --> 00:00:44: receive an e-mail with a recording following today's session.
00:00:46 --> 00:00:46: Next slide.
00:00:48 --> 00:00:51: So we'll begin by introducing you to the Creme North
00:00:51 --> 00:00:52: America project team.
00:00:53 --> 00:00:56: We'll then provide an introduction to Creme and it's decarbonization
00:00:56 --> 00:00:59: planning framework will Orient you to this project and its
00:01:00 --> 00:01:00: key milestones.
00:01:01 --> 00:01:04: Then we'll walk through some of the stakeholder driven changes
00:01:04 --> 00:01:07: that we implemented to create more granular curves for the

00:01:07 --> 00:01:08: US and Canada.

00:01:09 --> 00:01:12: And we'll then conclude by reviewing some key stakeholder feedback

00:01:12 --> 00:01:14: and previewing what's next.

00:01:15 --> 00:01:15: Next slide.

00:01:18 --> 00:01:21: I'll start by saying that utilize really appreciative of the

00:01:21 --> 00:01:24: productive partnership we've built with this product team across 4

00:01:24 --> 00:01:26: organizations in three time zones.

00:01:26 --> 00:01:29: So we led the real estate stakeholder engagement for this

00:01:29 --> 00:01:34: effort, organizing the working group sessions, compiling stakeholder feedback and

00:01:34 --> 00:01:37: communicating with the industry In the US and Canada.

00:01:38 --> 00:01:42: Lawrence Berkeley National Lab served as the technical Co lead,

00:01:42 --> 00:01:46: sifting through stakeholder feedback, buying their independent scientific judgement to

00:01:46 --> 00:01:50: propose the best path forward to create more granular curves.

00:01:51 --> 00:01:53: And Crim was our other technical Co lead, working in

00:01:53 --> 00:01:56: tandem with Berkeley Lab from the start to ensure that

00:01:56 --> 00:01:59: criminal stakeholders were in the loop as the project progressed.

00:02:00 --> 00:02:03: And then finally, LaSalle Investment Management served as the real

00:02:03 --> 00:02:04: estate working group chair.

00:02:05 --> 00:02:08: During that, we had the practitioners voice involved throughout the

00:02:08 --> 00:02:08: project.

00:02:09 --> 00:02:10: Next slide.

00:02:12 --> 00:02:15: So specifically, I want to introduce you to the today's

00:02:15 --> 00:02:15: panelists.

00:02:16 --> 00:02:17: I've already introduced myself.

00:02:18 --> 00:02:21: I'm joined by Joshua Case from Lawrence Berkeley National Lab,

00:02:21 --> 00:02:26: Elena Alschuler from LaSalle Investment Management and Sebastian Loitner and

00:02:26 --> 00:02:28: Christopher Wright representing KREM.

00:02:29 --> 00:02:32: I also want to acknowledge Haley Tong and Marta Schantz,

00:02:32 --> 00:02:34: who are integral parts of this project team.

00:02:36 --> 00:02:36: Next slide.

00:02:42 --> 00:02:44: So now I will hand it off to Sebastian from

00:02:44 --> 00:02:46: KREM to introduce the KREM framework.

00:02:47 --> 00:02:49: Yeah, thanks Blakey for the intro.

00:02:49 --> 00:02:52: I will do a short and very general introduction to
00:02:53 --> 00:02:54: the concept of CRAM.
00:02:55 --> 00:02:59: When CRAM was founded back in 2018, the mission was
00:02:59 --> 00:03:03: to provide real estate stakeholders first in Europe but then
00:03:03 --> 00:03:08: also globally with a clear but science based target to
00:03:08 --> 00:03:09: net 0 emissions.
00:03:10 --> 00:03:15: The starting point for the CRAM pathways is a remaining
00:03:15 --> 00:03:20: global carbon budget according to the IA, which aims to
00:03:20 --> 00:03:23: limit global warming ideally to 1.5??.
00:03:23 --> 00:03:27: And this budget is then downscaled to the real estate
00:03:27 --> 00:03:28: specific sector.
00:03:29 --> 00:03:33: And so we can derive intensity values on a square
00:03:33 --> 00:03:37: foot or square meter basis from 2020 to 2015.
00:03:38 --> 00:03:42: So now the idea behind our North America project, the
00:03:42 --> 00:03:46: wars that so far crime pathways covered only the 15
00:03:46 --> 00:03:50: largest city within the United States and there was only
00:03:50 --> 00:03:52: one single pathway for Canada.
00:03:53 --> 00:03:57: So our aim was to make pathways more granular that
00:03:57 --> 00:04:02: all stakeholders within North America can apply our pathways in
00:04:02 --> 00:04:03: their regions.
00:04:05 --> 00:04:09: Our project work was made possible by the great support
00:04:09 --> 00:04:13: of our project partners at ULILBNL and LaSalle, represented by
00:04:14 --> 00:04:17: Alina and of course by all of you who have
00:04:17 --> 00:04:21: actively contributed to this project over the now nearly two
00:04:21 --> 00:04:25: years, either via the public comment period or via the
00:04:25 --> 00:04:27: working group sessions.
00:04:28 --> 00:04:30: So a big thanks here from our end.
00:04:32 --> 00:04:35: On the next slide, we can see that FROM not
00:04:36 --> 00:04:40: only represents carbon pathways, but also EUI pathways.
00:04:41 --> 00:04:45: And why is it important to consider both carbon and
00:04:45 --> 00:04:45: UI?
00:04:46 --> 00:04:50: It is because with the current energy consumption levels and
00:04:50 --> 00:04:54: the property sector, there won't be enough renewable energy to
00:04:54 --> 00:04:57: offset the current energy demand.
00:04:57 --> 00:05:00: So we at the OR in the real estate sector
00:05:00 --> 00:05:02: really have to do our homework.
00:05:02 --> 00:05:05: So in the 1st place, we have to make our
00:05:05 --> 00:05:11: properties as efficient as possible, replace fossil fuels with electrified
00:05:11 --> 00:05:16: heating system, increase on on site renewable energy

production as
00:05:16 --> 00:05:20: much as possible and then work also with building automation,
00:05:21 --> 00:05:25: for example, smart metering, try to influence tenant behaviour for
00:05:26 --> 00:05:27: example by green leases.
00:05:28 --> 00:05:31: And then in the very last step, if we have
00:05:31 --> 00:05:35: have done our homework and we see that there is
00:05:35 --> 00:05:39: still a gap between our performance we can achieve and
00:05:39 --> 00:05:44: net 0 emissions, we can work with market based solutions
00:05:44 --> 00:05:47: to get the OR to close the gap to to
00:05:47 --> 00:05:48: net 0 emissions.
00:05:48 --> 00:05:52: But what we are currently seeing that in the industry
00:05:52 --> 00:05:56: or in the market there are more green energy contracts
00:05:56 --> 00:05:59: out there than green energy actually produced.
00:06:00 --> 00:06:04: So the key message from the slide is efficiency first
00:06:04 --> 00:06:08: and and in the end as the very last step
00:06:08 --> 00:06:10: consider market based solutions.
00:06:12 --> 00:06:15: And the next slide we can see how Creme can
00:06:15 --> 00:06:18: be used for for risk management.
00:06:18 --> 00:06:23: As mentioned in the first slide, Gram derives pathways from
00:06:23 --> 00:06:27: 2020 to 2050 on square metre or square metre basis.
00:06:27 --> 00:06:31: And then I have in the end an intersection point
00:06:31 --> 00:06:34: either at the asset level or at the whole portfolio
00:06:34 --> 00:06:37: level and then I can derive a relative risk.
00:06:39 --> 00:06:42: The key message on this slide is because or as
00:06:42 --> 00:06:45: I have also included the bell shaped curve on the
00:06:45 --> 00:06:49: slide is CRAM pathways really reflect the market average.
00:06:49 --> 00:06:52: So it's not about black and white or CRAM shouldn't
00:06:53 --> 00:06:55: be considered as a binary benchmark.
00:06:55 --> 00:06:58: It should be considered as per definition as the market
00:06:58 --> 00:06:58: average.
00:06:58 --> 00:07:01: So in the end there will always some properties which
00:07:02 --> 00:07:05: are above the curve and some properties which are below
00:07:05 --> 00:07:06: the curve.
00:07:06 --> 00:07:09: And then I, I take a potential intersection point with
00:07:09 --> 00:07:13: the cram pathways and put it into my risk management
00:07:13 --> 00:07:17: or into my potential investment considerations or retrofit plans.
00:07:18 --> 00:07:21: So, yeah, it is really important here not to say
00:07:21 --> 00:07:25: it's black or white or we often hear the term
00:07:25 --> 00:07:29: stranded assets or considered the asset to be worthless.
00:07:29 --> 00:07:32: It's really to consider the relative risk.

00:07:33 --> 00:07:36: And I think in the upcoming slides, Alina will tell

00:07:36 --> 00:07:40: us a bit more about the intended purpose of decarbonisation

00:07:40 --> 00:07:41: pathways.

00:07:41 --> 00:07:44: So handing over to you, Alina.

00:07:46 --> 00:07:47: Thank you so much, Sebastian.

00:07:47 --> 00:07:49: You can go ahead to the, I believe we're on

00:07:49 --> 00:07:50: to the next section here.

00:07:52 --> 00:07:55: So just taking a step back from crime specifically to

00:07:55 --> 00:07:58: decarbonization pathways more broadly.

00:07:58 --> 00:08:02: I think there's been a a groundswell of support among

00:08:02 --> 00:08:07: the real estate community and our partners looking for pathways

00:08:07 --> 00:08:11: or targets with timelines associated with them to get a

00:08:11 --> 00:08:14: sense of are you on track or what is your

00:08:14 --> 00:08:18: relative transition risk on an energy and EUI basis.

00:08:18 --> 00:08:22: And so some of the sort of guiding principles for

00:08:22 --> 00:08:26: this project was we want to be able to understand

00:08:26 --> 00:08:31: carbon performance against a 1.5?? target and we want to

00:08:31 --> 00:08:36: separately be able to understand building energy use performance versus

00:08:36 --> 00:08:38: grid related risk.

00:08:38 --> 00:08:42: And that sort of interplay allows you to use green

00:08:42 --> 00:08:47: power, understand the gap of what's needed with additional technology

00:08:47 --> 00:08:49: or green power solutions.

00:08:50 --> 00:08:53: And that really is meant as a risk assessment tool.

00:08:53 --> 00:08:57: As we've been talking about, your relative performance against those

00:08:57 --> 00:09:00: benchmarks would give you a sense of a property's ability

00:09:00 --> 00:09:03: to meet evolving regulations and market demand.

00:09:05 --> 00:09:06: Next slide, please.

00:09:08 --> 00:09:12: So our goals for this working group were, first of

00:09:12 --> 00:09:15: all, to make sure we had the best available data

00:09:15 --> 00:09:18: for the United States and Canada for the inputs to

00:09:18 --> 00:09:23: this analysis, to really increase the granularity and make sure

00:09:23 --> 00:09:26: that it covers all of the geographies of the US

00:09:26 --> 00:09:31: and Canada, reflecting the variations in climate zone, the different

00:09:31 --> 00:09:32: grids and things like that.

00:09:34 --> 00:09:38: I think also the US and Canadian real estate community

00:09:38 --> 00:09:42: really wanted to understand more of the methodology and how

00:09:42 --> 00:09:43: it's determined.

00:09:43 --> 00:09:46: But I would like to make sure everyone understands that
00:09:46 --> 00:09:49: changing the methodology was not part of the scope of
00:09:49 --> 00:09:49: this project.
00:09:50 --> 00:09:54: It was really very much focused on geographic coverage and
00:09:54 --> 00:09:54: inputs.
00:09:55 --> 00:09:58: But in doing that, we also really gained a very
00:09:58 --> 00:10:02: deep understanding of the methodology and we did some work
00:10:02 --> 00:10:06: to compare these pathways with building performance standards and other
00:10:07 --> 00:10:11: commonly used tools such as Energy Star portfolio manager scores
00:10:11 --> 00:10:14: and the federal definition of 0 emissions buildings.
00:10:15 --> 00:10:18: So we're trying to sort of understand everything, put it
00:10:18 --> 00:10:20: in context, make sure it has the best inputs and
00:10:21 --> 00:10:22: really take a close look at it.
00:10:26 --> 00:10:26: Next slide.
00:10:26 --> 00:10:30: So just quick thank you to the project sponsors.
00:10:30 --> 00:10:34: This was a sort of Co funded, you know, stakeholder
00:10:34 --> 00:10:37: bottom up effort where a lot of us were talking
00:10:37 --> 00:10:40: about the need to dig in on this and everyone
00:10:40 --> 00:10:43: threw some money in the pot to Co fund it.
00:10:44 --> 00:10:47: And then we had, you know, over 300 people on
00:10:47 --> 00:10:50: the working group e-mail list and over 100 or 150
00:10:50 --> 00:10:53: people at every single working group session.
00:10:54 --> 00:10:56: So just thank you so much to all of our
00:10:56 --> 00:10:59: project sponsors and to everyone who participated.
00:10:59 --> 00:11:02: We just feel so great about the level of engagement
00:11:02 --> 00:11:05: and feedback that we got throughout this process.
00:11:05 --> 00:11:05: So thank you all.
00:11:10 --> 00:11:10: Great.
00:11:11 --> 00:11:13: So I'm going to walk y'all high level through the
00:11:13 --> 00:11:14: the project timeline.
00:11:15 --> 00:11:18: So we launched with a crim press release in May
00:11:18 --> 00:11:19: 2023.
00:11:20 --> 00:11:22: We then sort of the meat of the project, we
00:11:22 --> 00:11:24: hosted 5 virtual working group sessions.
00:11:25 --> 00:11:27: Those were open to the public.
00:11:27 --> 00:11:28: They were broadly advertised.
00:11:29 --> 00:11:31: And the purpose of it was those of those was
00:11:31 --> 00:11:35: to surface real estate stakeholders sort of key challenges with
00:11:35 --> 00:11:38: the Crim framework in the US and Canada and identify

00:11:38 --> 00:11:42: the opportunities that that we could work on to improve
00:11:42 --> 00:11:44: the granularity in the US and Canada.
00:11:45 --> 00:11:47: As Elena mentioned, we were really excited that we had
00:11:47 --> 00:11:50: over 100 participants join each of those sessions.
00:11:51 --> 00:11:54: You don't always expect that for a pretty niche, wonky
00:11:54 --> 00:11:56: topic, but we had a lot of excitement, a lot
00:11:56 --> 00:11:59: of really smart input, and we just really appreciate and
00:12:00 --> 00:12:02: we feel excited about that widespread momentum.
00:12:04 --> 00:12:07: About a year later, we published draft curves on our
00:12:07 --> 00:12:08: web page.
00:12:08 --> 00:12:12: We also published a methodology memo so that we could
00:12:12 --> 00:12:17: transparently document how we'd implemented feedback from those working group
00:12:17 --> 00:12:20: sessions to propose draft curves for the US and Canada.
00:12:21 --> 00:12:24: We then held a 45 day public comment period for
00:12:24 --> 00:12:28: folks to review the methodology memo, to review the draft
00:12:28 --> 00:12:31: curves and the inputs we had used for those curves
00:12:31 --> 00:12:34: and give us feedback on the ways that we could
00:12:34 --> 00:12:37: further improve the granularity and the accuracy.
00:12:38 --> 00:12:42: We got 22 submissions from individuals, but also from companies
00:12:42 --> 00:12:45: and then also from industry groups like me, Reed and
00:12:45 --> 00:12:49: the Real Estate Roundtable representing their collective membership voices.
00:12:50 --> 00:12:51: We really appreciate that feedback.
00:12:53 --> 00:12:55: Around that time, I also want to note that the
00:12:55 --> 00:12:57: Real Estate Roundtable sent a letter to U.S.
00:12:57 --> 00:12:59: Treasury and nay, Reid sent a letter to Crim outlining
00:12:59 --> 00:13:02: some sort of similar concerns and challenges that they saw
00:13:02 --> 00:13:03: with the framework.
00:13:04 --> 00:13:07: And then finally, yesterday, we we posted the final project
00:13:07 --> 00:13:10: deliverables that have incorporated all of that stakeholder feedback.
00:13:11 --> 00:13:13: And we're hosting this webinar today to update you all
00:13:13 --> 00:13:14: on our progress.
00:13:15 --> 00:13:16: Next slide, please.
00:13:18 --> 00:13:21: So I won't read all of these, but this gives
00:13:21 --> 00:13:23: you a sense of the major things this project focused
00:13:23 --> 00:13:26: on, driven by that working group feedback that I mentioned.
00:13:27 --> 00:13:30: So we looked at things like assumptions around future grid
00:13:31 --> 00:13:34: carbon intensity, the way that markets were divided up within
00:13:34 --> 00:13:37: the US and Canada, the number of asset classes included
00:13:37 --> 00:13:38: in the curves.

00:13:39 --> 00:13:42: We also compared Crim targets to some of the targets
00:13:42 --> 00:13:46: set by building performance standards around the US and Canada
00:13:46 --> 00:13:50: to see the sort of relative level of aggressiveness.
00:13:51 --> 00:13:53: And then I just want to highlight, Elena mentioned this
00:13:53 --> 00:13:56: earlier, but we agreed from the start that, you know,
00:13:56 --> 00:13:59: because this is geographically focused on these two countries, we
00:13:59 --> 00:14:02: couldn't fundamentally alter Crim's global methodology.
00:14:02 --> 00:14:06: So any feedback that pertained to the global methodology, Crim's
00:14:06 --> 00:14:10: governance or the Crim tool was really considered out of
00:14:10 --> 00:14:11: scope for this project.
00:14:11 --> 00:14:14: But we documented it in AUI memo that we'll touch
00:14:14 --> 00:14:18: on later just so that we the feedback was received
00:14:18 --> 00:14:19: and it was documented.
00:14:19 --> 00:14:22: We just couldn't act on it in this particular project.
00:14:23 --> 00:14:23: Next slide.
00:14:26 --> 00:14:28: So I'm now going to hand it off to Josh
00:14:28 --> 00:14:31: from Berkeley Lab to talk in more detail about the
00:14:31 --> 00:14:32: project's technical analysis.
00:14:35 --> 00:14:36: Thanks, Blakely.
00:14:37 --> 00:14:40: Yeah, and thanks everyone for joining today and for the
00:14:40 --> 00:14:42: engagement over the course of this project.
00:14:42 --> 00:14:45: I know both Elena Blakely and Sebastian all spoke to
00:14:45 --> 00:14:49: it, but we're really appreciative of the engagement we got
00:14:49 --> 00:14:50: throughout this project.
00:14:50 --> 00:14:54: And the feedback was was invaluable to, you know, us
00:14:54 --> 00:14:57: producing the best possible work product here.
00:14:58 --> 00:15:01: Just to quickly introduce myself, Joshua Case, I'm a technology
00:15:01 --> 00:15:03: researcher here at Berkeley Lab.
00:15:04 --> 00:15:07: Been with the lab for a couple years now, but
00:15:07 --> 00:15:10: prior to that did work in real estates, mostly with
00:15:10 --> 00:15:15: existing building portfolios from a ESG sustainability and energy efficiency
00:15:15 --> 00:15:17: consulting perspective.
00:15:17 --> 00:15:22: So long history working with real energy use in buildings.
00:15:22 --> 00:15:25: So it was very excited when I joined the lab
00:15:25 --> 00:15:27: to have this project transition to me.
00:15:28 --> 00:15:30: And yeah, we're definitely really proud of the the effort
00:15:31 --> 00:15:31: overall.
00:15:31 --> 00:15:34: So this is going to be a balance of sort

00:15:34 --> 00:15:37: of one O 1 of the project and and making
00:15:37 --> 00:15:40: sure everyone gets to the same page with, you know,
00:15:40 --> 00:15:43: more nuance as I get deeper into it, as we
00:15:43 --> 00:15:46: did talk about a lot of these concepts in the
00:15:46 --> 00:15:49: previous working group sessions.
00:15:49 --> 00:15:51: So I'll try to walk that line as as best
00:15:51 --> 00:15:52: as I can.
00:15:53 --> 00:15:58: Broadly speaking, the initial projects status when we started to
00:15:58 --> 00:16:02: dive in, as was mentioned earlier, you know, we had
00:16:02 --> 00:16:06: we had certain geographic divisions, so country level pathways for
00:16:06 --> 00:16:10: the US and Canada and then major cities in in
00:16:10 --> 00:16:10: the US.
00:16:11 --> 00:16:14: So this was a good starting point, but obviously left
00:16:15 --> 00:16:18: more to be desired in terms of granularity across the
00:16:18 --> 00:16:22: board and then how comprehensive the the sub regions were.
00:16:22 --> 00:16:24: So if you have a building that's maybe on the
00:16:24 --> 00:16:27: outskirts of the city are using the countrywide curve or
00:16:27 --> 00:16:29: do you use the city curve as much as we
00:16:30 --> 00:16:32: could remove Gray area, It was definitely one of the
00:16:32 --> 00:16:35: the core priorities of the of the effort to the
00:16:35 --> 00:16:36: next slide.
00:16:40 --> 00:16:43: So I presented this slide before, but just to, to
00:16:43 --> 00:16:46: reiterate for folks, this was sort of the process we
00:16:47 --> 00:16:47: went through.
00:16:47 --> 00:16:50: You know, it is, there were stages to the process
00:16:50 --> 00:16:52: here, but it was also iterative.
00:16:52 --> 00:16:54: So we did go back and make sure that we
00:16:54 --> 00:16:56: were doing the best possible things based off of what
00:16:57 --> 00:16:59: we were seeing in in the future steps.
00:16:59 --> 00:17:03: So, but probably speaking, you know, this was the, the,
00:17:03 --> 00:17:06: the overarching order of operations here.
00:17:06 --> 00:17:08: So we started with making sure that we have the
00:17:08 --> 00:17:10: best geographic divisions.
00:17:11 --> 00:17:15: This was nuanced from the standpoint of everyone wants granularity
00:17:15 --> 00:17:18: and for, you know, pathways to be tailored to their
00:17:18 --> 00:17:19: specific location.
00:17:20 --> 00:17:23: But you need to balance that with overall complexity of
00:17:23 --> 00:17:25: the tool with data availability.
00:17:26 --> 00:17:30: If you don't have the right comprehensive data sets for

00:17:30 --> 00:17:35: the more granular geographic delineations, it's not going to have

00:17:35 --> 00:17:36: too much meaning.

00:17:36 --> 00:17:39: And so that was something that we did have to

00:17:39 --> 00:17:42: balance and I think we ended up in a good,

00:17:42 --> 00:17:44: good spot across both the US and Canada.

00:17:44 --> 00:17:46: I'll get into where we landed on those.

00:17:48 --> 00:17:51: Once the geographic divisions were set up, it was about

00:17:51 --> 00:17:56: establishing the best empirical data sources for starting EU wise,

00:17:56 --> 00:18:00: so starting energy use intensity values as a key input

00:18:00 --> 00:18:02: into the Creme pathways overall.

00:18:03 --> 00:18:07: And then from there it was about building what CREME

00:18:07 --> 00:18:11: defines as weighted emission factors, which are essentially an emission

00:18:11 --> 00:18:15: factor that is appropriate for the entire consumption of a

00:18:15 --> 00:18:16: building.

00:18:16 --> 00:18:19: So it's taking into account both the energy mix of

00:18:19 --> 00:18:23: an individual asset in addition to the cleanliness of the

00:18:23 --> 00:18:26: grid both now and into the into the future.

00:18:27 --> 00:18:30: So this was also an iterative process, but we wanted

00:18:30 --> 00:18:32: to make sure that we did things again as granularly

00:18:32 --> 00:18:36: as we could while still maintaining accurate and and comprehensive

00:18:36 --> 00:18:37: data sources.

00:18:38 --> 00:18:41: And then from there, the last step of the process

00:18:41 --> 00:18:44: was looking through the inputs to the new, the new

00:18:44 --> 00:18:45: final targeted UI process.

00:18:45 --> 00:18:49: I say new from the standpoint that this was something

00:18:49 --> 00:18:52: that was implemented in Creme V2 and I'll get a

00:18:52 --> 00:18:55: little bit more into this as we go in terms

00:18:55 --> 00:18:59: of what we were able to provide within the existing

00:18:59 --> 00:19:04: methodology and then additional comparison reference points next slide.

00:19:07 --> 00:19:07: All right.

00:19:07 --> 00:19:11: So just broadly speaking, this is a sort of bulleted

00:19:11 --> 00:19:15: summary and this is within our technical report as well

00:19:15 --> 00:19:19: of the major changes that were recommended through through the

00:19:19 --> 00:19:21: the analysis and the project.

00:19:23 --> 00:19:25: I, I won't go through each of these individually for

00:19:25 --> 00:19:26: the sake of time.

00:19:26 --> 00:19:31: But just broadly speaking, the major change that we

instituted
00:19:31 --> 00:19:35: relative to both the US and Canada curves was a
00:19:35 --> 00:19:40: rounding process that was happening with the sector level UI
00:19:40 --> 00:19:40: targets.
00:19:41 --> 00:19:44: Without getting too much into the the details here, numbers
00:19:45 --> 00:19:47: are being rounded down to the nearest 10s digit which
00:19:47 --> 00:19:48: led to some inequity.
00:19:48 --> 00:19:51: If you know building you know we give the example
00:19:51 --> 00:19:54: here of the the commercial energy use intensity of of
00:19:54 --> 00:19:55: the US was 78.3.
00:19:55 --> 00:19:59: We wanted to make sure that was being rounded down
00:20:00 --> 00:20:00: to 70.
00:20:01 --> 00:20:04: Kremens confirmed with us that we are using the 78.3
00:20:04 --> 00:20:08: value directly as part of the calculation process now.
00:20:08 --> 00:20:09: So that was something that.
00:20:10 --> 00:20:13: Give a little bit more equity to the to the
00:20:13 --> 00:20:15: targets across the board for Canada.
00:20:15 --> 00:20:18: We were able to break the the geography down into
00:20:18 --> 00:20:19: provinces.
00:20:20 --> 00:20:24: This was again both relative to what data was available,
00:20:24 --> 00:20:27: which a lot of it was at the province level
00:20:27 --> 00:20:30: and you know did give some level of, of clean
00:20:30 --> 00:20:32: granularity there.
00:20:33 --> 00:20:36: We then went through the process of making sure we're
00:20:36 --> 00:20:39: using the best possible sources of, of data.
00:20:40 --> 00:20:43: The primary source for UI information in, in both the
00:20:43 --> 00:20:48: US and Canada were government issued and verified energy use
00:20:48 --> 00:20:51: surveys of actual energy use in buildings.
00:20:51 --> 00:20:53: This was important for us.
00:20:53 --> 00:20:56: We know that there is a gap that exists between
00:20:56 --> 00:20:59: the, the, the best intentions of an energy model design
00:20:59 --> 00:21:02: of a building and the actual consumption of that asset
00:21:02 --> 00:21:03: once it's in operation.
00:21:04 --> 00:21:07: And so the operational performance is really what you are
00:21:07 --> 00:21:10: evaluating when you're looking at a building relative to the
00:21:10 --> 00:21:11: to the pathway.
00:21:11 --> 00:21:14: And so SEIU and SEU were were the two primary
00:21:15 --> 00:21:16: sources there.
00:21:17 --> 00:21:20: We went through the process of also making sure the
00:21:20 --> 00:21:23: best most updated projections were being used for electric grid
00:21:23 --> 00:21:25: factors now and into the future.

00:21:26 --> 00:21:29: And then we did some splitting of property types that
00:21:29 --> 00:21:31: I'll get into in in the summary slides for each
00:21:31 --> 00:21:33: of the two regions next slide.
00:21:38 --> 00:21:41: So for the US same general process again that we
00:21:41 --> 00:21:42: followed here.
00:21:42 --> 00:21:46: C Beck's Rex in addition to Fannie Mae survey were
00:21:46 --> 00:21:50: used in order to make sure the best starting UI
00:21:50 --> 00:21:51: values were used.
00:21:52 --> 00:21:57: In terms of the geographic subdivisions, it didn't necessarily make
00:21:57 --> 00:22:00: sense for us to split things by state for a
00:22:00 --> 00:22:02: number of reasons.
00:22:02 --> 00:22:06: One being that you have states that are covering multiple
00:22:06 --> 00:22:09: climate zones and then you have E grid regions or
00:22:09 --> 00:22:14: electric grid regions that are overlapping different different States and
00:22:14 --> 00:22:16: and states in a partial way.
00:22:16 --> 00:22:19: So we found that the best approach both in terms
00:22:19 --> 00:22:24: of materiality of the geographic divisions to the pathways themselves
00:22:24 --> 00:22:27: and in terms of data availability was to subdivide the
00:22:27 --> 00:22:30: US into both climate zones and E grid regions.
00:22:30 --> 00:22:33: So if you were to overlay a map of we
00:22:33 --> 00:22:37: used C BEX climate zones, which are slightly less granular
00:22:37 --> 00:22:39: than ASHRAE climate zones.
00:22:40 --> 00:22:43: If you were to overlay that with the grid regions
00:22:43 --> 00:22:48: across the US and then divide that into different geographic
00:22:48 --> 00:22:52: subdivisions, you'd end up with 57 different regions across the
00:22:52 --> 00:22:56: US that are using the most appropriate value for both
00:22:56 --> 00:23:00: the climate zone of that region and the and the
00:23:00 --> 00:23:02: electric grid operating region.
00:23:02 --> 00:23:06: And so this, as I noted, led to 57 different
00:23:06 --> 00:23:07: delineations.
00:23:08 --> 00:23:13: C vacs and Rex were used across the climate zones
00:23:13 --> 00:23:17: and then both E grid and cambium, which I've spoken
00:23:17 --> 00:23:23: about in previous previous presentations here were used for the
00:23:23 --> 00:23:27: starting and future electric grid projections.
00:23:28 --> 00:23:31: From here, we're going to get into each of the
00:23:31 --> 00:23:34: two regions and and some of the findings.
00:23:34 --> 00:23:36: And so that'll also get into the property type changes
00:23:36 --> 00:23:37: that we made.

00:23:38 --> 00:23:38: So next slide.
00:23:43 --> 00:23:43: All right.
00:23:43 --> 00:23:45: So this is probably the densest of the slides that
00:23:45 --> 00:23:48: we're going to have here and apologies to people's eyes,
00:23:48 --> 00:23:50: but it was the best way for us to get
00:23:50 --> 00:23:53: all this information onto a onto an individual slide here.
00:23:53 --> 00:23:56: These are also again in the the technical report, I
00:23:56 --> 00:24:00: have shown this slide before the slides, the the absolute
00:24:00 --> 00:24:04: values of the starting position have changed slightly based off
00:24:04 --> 00:24:07: of some of the the feedback that we got and
00:24:07 --> 00:24:08: some changes that were made.
00:24:08 --> 00:24:11: But for the most part, this is similar to what
00:24:11 --> 00:24:11: we had shown.
00:24:12 --> 00:24:16: On the left side of the chart, we're showing Creme
00:24:16 --> 00:24:18: V2 both starting and final UI targets.
00:24:19 --> 00:24:23: And then the left side shows the new property type
00:24:23 --> 00:24:24: breakdowns.
00:24:24 --> 00:24:28: As you can see, you know Rezi multifamily, the first
00:24:28 --> 00:24:32: one we have listed here, we split into three different
00:24:32 --> 00:24:35: property types for for the US and each of these
00:24:35 --> 00:24:39: 3 is then associated with each of the climate zones
00:24:39 --> 00:24:40: across the board here.
00:24:40 --> 00:24:44: Since climate zone was the primary driver of differences in
00:24:44 --> 00:24:47: AUI, that's what we're displaying here.
00:24:48 --> 00:24:50: The one addition we have to this chart is the
00:24:50 --> 00:24:53: year range you'll see under each of the the climate
00:24:53 --> 00:24:54: zones.
00:24:54 --> 00:24:58: So for multifamily high rise greater than 20 units, we
00:24:59 --> 00:25:02: have 2031 through 2038 as the the the levelling year
00:25:02 --> 00:25:03: range.
00:25:04 --> 00:25:07: And so this is the point at which the final
00:25:07 --> 00:25:10: target needs to be hit for an individual building.
00:25:11 --> 00:25:13: The reason why we have a range of years here
00:25:13 --> 00:25:17: is because we have different E grid regions associated with
00:25:17 --> 00:25:19: each of the each of the climate zones.
00:25:19 --> 00:25:21: And so this is to give a bit of a
00:25:21 --> 00:25:24: better picture of not just the aggressiveness of the absolute
00:25:24 --> 00:25:27: target, but when that target needs to be to be
00:25:27 --> 00:25:27: hit.
00:25:28 --> 00:25:34: Next slide here we're going to show some some comparisons.
00:25:36 --> 00:25:39: The comparisons here weren't super easy for us to do

00:25:39 --> 00:25:42: just because we were going from, you know for the
00:25:42 --> 00:25:46: most part the country level curves as compared to now
00:25:46 --> 00:25:48: 57 different geographic divisions.
00:25:48 --> 00:25:50: But I did my best here to sort of give
00:25:50 --> 00:25:54: a sampling of different pathways broken down by the the
00:25:54 --> 00:25:58: major geographic divisions that we talked about before.
00:25:58 --> 00:26:01: So I picked three different grid regions that were representative
00:26:01 --> 00:26:04: of, you know, a cleaner grid, a dirtier grid, and
00:26:04 --> 00:26:07: then one that fits somewhere in the middle.
00:26:07 --> 00:26:09: And then you'll see sort of along the bottom within
00:26:09 --> 00:26:10: the legend.
00:26:10 --> 00:26:13: We tried to also make sure that those grid regions
00:26:13 --> 00:26:16: covered the a good variety of the climate zones from,
00:26:17 --> 00:26:19: you know, hot, very hot all the way through to
00:26:19 --> 00:26:20: to cold or very cold.
00:26:22 --> 00:26:27: And So what we're showing here is for distribution warehouses,
00:26:27 --> 00:26:31: a lot of these curves landing above, some landing below.
00:26:31 --> 00:26:33: And I think that was sort of the the theme
00:26:33 --> 00:26:36: throughout the effort is we did see changes in in
00:26:36 --> 00:26:38: both directions across the board here.
00:26:38 --> 00:26:42: But hopefully this gives a decent picture of where things
00:26:42 --> 00:26:44: were versus where things are now.
00:26:45 --> 00:26:49: We could hop to the next slide here.
00:26:50 --> 00:26:51: So here we're showing US offices.
00:26:51 --> 00:26:54: This one is a little bit tighter in terms of
00:26:54 --> 00:26:55: the differences between the two.
00:26:56 --> 00:26:59: And you can see that the Creme V2 target actually
00:26:59 --> 00:27:02: felt pretty pretty much in the middle relative to the
00:27:02 --> 00:27:06: the output final targets of the of the new curves.
00:27:06 --> 00:27:10: Final targets are driven mostly by degree days, both heating
00:27:10 --> 00:27:11: and and cooling.
00:27:12 --> 00:27:15: And so it would make sense that with greater granularity
00:27:15 --> 00:27:18: across different climate zones, you would end up with a
00:27:19 --> 00:27:22: greater granularity of targets across the board here.
00:27:23 --> 00:27:26: The other note here is you'll, you'll see that the
00:27:26 --> 00:27:29: leveling year is a little bit later than than the
00:27:30 --> 00:27:32: the national curve was previously.
00:27:33 --> 00:27:36: And then the next slide, this is one of the
00:27:36 --> 00:27:40: the more major changes that we that we saw, which
00:27:40 --> 00:27:42: is for large multifamily.

00:27:42 --> 00:27:44: So these are high rise multifamily assets.
00:27:45 --> 00:27:49: We ended up with a lot of curves that were
00:27:49 --> 00:27:53: that were above the country level curve for for crown
00:27:53 --> 00:27:54: B2.
00:27:55 --> 00:27:57: Again, this wasn't the case for every property type.
00:27:57 --> 00:28:00: And hopefully the UI target summary gives you a good
00:28:00 --> 00:28:02: lay of the land in terms of which ones became
00:28:02 --> 00:28:05: more aggressive as part of this process, which ones became
00:28:05 --> 00:28:05: less aggressive.
00:28:06 --> 00:28:09: And you can see that the the variation in in
00:28:09 --> 00:28:10: leveling years here.
00:28:10 --> 00:28:14: One thing you will notice in these charts that I'll
00:28:14 --> 00:28:17: I'll point out is that the middle grid region, so
00:28:17 --> 00:28:20: the ones that are represented by the lavender purple colors
00:28:20 --> 00:28:22: tend to be more aggressive.
00:28:23 --> 00:28:26: The reason for that is actually tied more to the
00:28:26 --> 00:28:29: fact that they that middle grid region happens to be
00:28:29 --> 00:28:31: in a warmer climate zone.
00:28:31 --> 00:28:34: So it has lower starting points in terms of more
00:28:34 --> 00:28:39: mild weather and lower final targets as well because of
00:28:39 --> 00:28:43: the less heating degree days associated with those regions.
00:28:45 --> 00:28:46: Up to the next slide.
00:28:49 --> 00:28:53: So Elena mentioned before that we also did a comparison
00:28:53 --> 00:28:58: early on in the project around building performance standards and
00:28:58 --> 00:28:59: the Creme pathways.
00:29:00 --> 00:29:03: So those who have been working group participants have seen
00:29:04 --> 00:29:07: the chart on the left already, which is a comparison
00:29:07 --> 00:29:11: of the solid lines representing building performance standard targets.
00:29:11 --> 00:29:15: So absolute targets that are set over, you know compliance
00:29:15 --> 00:29:18: periods yielding sort of the stair step shape.
00:29:19 --> 00:29:23: And then the KREM curves themselves obviously representing a more
00:29:23 --> 00:29:26: smoothed process from start to finish.
00:29:26 --> 00:29:29: But we are, you know, we did see with the
00:29:29 --> 00:29:32: original what we broadly wanted to see, which is that
00:29:32 --> 00:29:37: BPS targets of minimum requirements for energy or environmental performance
00:29:37 --> 00:29:40: of your building are above the, the Creme pathways.
00:29:41 --> 00:29:43: I think that's always something you would want to see.
00:29:43 --> 00:29:47: As you know, BPS policies are, are really a manifestation

00:29:47 --> 00:29:49: of, of transition risk.

00:29:50 --> 00:29:53: And so we, we did want to also run this

00:29:53 --> 00:29:56: comparison based off of the new pathways and, and this

00:29:56 --> 00:29:58: one did come out pretty interesting.

00:29:59 --> 00:30:02: We didn't have timer availability to do this more comprehensively

00:30:02 --> 00:30:04: and we would love to do that moving forward.

00:30:04 --> 00:30:08: But we did pick out multifamily as one that we

00:30:08 --> 00:30:11: ran the updated curves through.

00:30:11 --> 00:30:15: And you can see it, it maintains its position as

00:30:15 --> 00:30:19: being under the, the BPS policy targets, but it is

00:30:19 --> 00:30:21: a little bit more proportional.

00:30:21 --> 00:30:24: So in the original 1 you saw Boston was was

00:30:24 --> 00:30:28: pretty close in terms of the original KREM pathway versus

00:30:28 --> 00:30:29: the BPS standard.

00:30:30 --> 00:30:33: With the new pathways, they ended up running pretty cleanly

00:30:33 --> 00:30:37: and more proportionately between Boston and and New York City.

00:30:37 --> 00:30:41: So this is definitely an interesting finding.

00:30:41 --> 00:30:44: And 1:00, we'd love to dive into deeper as BPS

00:30:44 --> 00:30:48: is probably the most prominent transition risk that exists today

00:30:48 --> 00:30:49: across the the US.

00:30:51 --> 00:30:57: Next slide, another very dense slide here, but running through

00:30:57 --> 00:31:01: the overall UI targets for Canada.

00:31:01 --> 00:31:04: This is broken down across two different slides as we

00:31:04 --> 00:31:06: had to list out each of the provinces here.

00:31:06 --> 00:31:09: But again, the major change with this visual is the

00:31:09 --> 00:31:11: levelling year that we're showing.

00:31:12 --> 00:31:15: Notice that there isn't a range of years with this

00:31:15 --> 00:31:19: one and that's because the same geographic divisions are being

00:31:19 --> 00:31:21: used for climate zone and for grid region.

00:31:21 --> 00:31:27: So grid regions were by provinces where the the starting

00:31:27 --> 00:31:28: UIUI values.

00:31:28 --> 00:31:31: So each one had a a specific and absolute leveling

00:31:31 --> 00:31:33: year associated with it.

00:31:34 --> 00:31:36: You can go to the next slide just to show

00:31:36 --> 00:31:39: the other provinces across the board here.

00:31:40 --> 00:31:43: And you'll notice we did try to align as much

00:31:44 --> 00:31:48: as possible the new property types across the board here,

00:31:48 --> 00:31:51: meaning the US and Canada as much as we could

00:31:51 --> 00:31:53: have the same property types we did.

00:31:54 --> 00:31:57: But we did run into limitations with our data sources

00:31:57 --> 00:32:00: and the way that buildings were were characterized within, within

00:32:00 --> 00:32:03: the energy consumption surveys that were that were used.

00:32:03 --> 00:32:06: So because of that, we only have two different divisions

00:32:06 --> 00:32:09: for multifamily just as an example here versus the US

00:32:09 --> 00:32:10: where we had three.

00:32:12 --> 00:32:12: All right.

00:32:12 --> 00:32:15: We can hop to the next slide to look at

00:32:15 --> 00:32:17: some comparison of Canada pathways.

00:32:19 --> 00:32:22: Thanks to to Sebastian for getting these charts together.

00:32:22 --> 00:32:26: But you could see sort of an office building here

00:32:26 --> 00:32:30: sort of sitting in the middle of the different provinces

00:32:30 --> 00:32:33: that are broken down now as a starting point and

00:32:33 --> 00:32:38: then towards the end ends up being slightly less aggressive

00:32:38 --> 00:32:41: than a lot of the geographic breakdowns.

00:32:41 --> 00:32:41: On the final side.

00:32:42 --> 00:32:44: We could hop to the next slide.

00:32:46 --> 00:32:51: This is showing the results for a distribution warehouse, you

00:32:51 --> 00:32:52: know, for these.

00:32:52 --> 00:32:54: And again, you know, we see variety across each of

00:32:54 --> 00:32:56: these property types 'cause there's a number of different inputs

00:32:56 --> 00:32:57: that go into them.

00:32:57 --> 00:33:00: And that's, that's sort of what we what we plan

00:33:00 --> 00:33:02: to see coming into it.

00:33:02 --> 00:33:07: In this case, distribution warehouses were pretty universally less aggressive

00:33:07 --> 00:33:09: than the Creme V2 version.

00:33:09 --> 00:33:14: And then hopping to the next slide, also true for

00:33:14 --> 00:33:20: large multifamily that these curves were above the the original

00:33:20 --> 00:33:21: Creme B2.

00:33:21 --> 00:33:25: This makes sense from the standpoint of we are splitting

00:33:25 --> 00:33:29: out multifamily as as high rise buildings which do tend

00:33:29 --> 00:33:35: to have substantively higher energy intensities relative to other multifamily

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

00:33:39 --> 00:33:40: We go up to the next slide.

00:33:40 --> 00:33:43: I'm going to get into just the feedback that we

00:33:43 --> 00:33:48: received post public comment period revisions that we made associated

00:33:48 --> 00:33:49: with those comments.
00:33:49 --> 00:33:53: So thanks again for everyone for putting in the time
00:33:53 --> 00:33:57: and effort to both read our report and to provide
00:33:57 --> 00:33:58: granular feedback on it.
00:33:59 --> 00:34:01: Just to run through these quickly.
00:34:01 --> 00:34:05: So we did have a couple stakeholders point out a
00:34:05 --> 00:34:10: issue that we had with essentially residential on site fuel
00:34:10 --> 00:34:12: use that was not natural gas.
00:34:12 --> 00:34:15: So fuel oil use on site in addition to propane,
00:34:15 --> 00:34:19: things like that, that was being classified as carbon free
00:34:19 --> 00:34:22: energy and it obviously shouldn't have been.
00:34:22 --> 00:34:24: And so we were able to correct those emission factors.
00:34:25 --> 00:34:28: It was a, you know, relatively minor but substantive difference.
00:34:28 --> 00:34:30: And so we're glad we were able to both get
00:34:30 --> 00:34:32: that flagged and rectify that issue.
00:34:33 --> 00:34:36: The next few items that we have here were more
00:34:36 --> 00:34:39: clarifications that were asked for as part of the stakeholder
00:34:39 --> 00:34:42: process, but people had asked about the transition from E
00:34:43 --> 00:34:46: grid to Cambium regions that the new final version of
00:34:46 --> 00:34:48: the report does get into in more detail.
00:34:48 --> 00:34:51: So hopefully that'll help clarify for people what we did
00:34:51 --> 00:34:51: there.
00:34:51 --> 00:34:54: We did work actively with the the Cambium team last
00:34:54 --> 00:34:57: year to make sure that we took the best approach
00:34:57 --> 00:35:00: across the board with this showing pathways in both kWh
00:35:00 --> 00:35:03: and KBTQ is something that we did try to do
00:35:03 --> 00:35:07: wherever possible heating degree day and cooling degree day calculations.
00:35:07 --> 00:35:11: There is some understandable confusion and and need for or
00:35:11 --> 00:35:16: you know want for clarification here, mainly because degree days
00:35:16 --> 00:35:20: are calculated in different ways unfortunately depending on the region
00:35:20 --> 00:35:21: that you're in.
00:35:21 --> 00:35:24: So we did have to take, you know, the US
00:35:24 --> 00:35:29: and Canada standardized best practice approaches that are used by
00:35:29 --> 00:35:33: platforms like Energy Star and convert that wherever we needed
00:35:33 --> 00:35:36: to into IEA data for the purposes of final target
00:35:36 --> 00:35:37: setting.
00:35:37 --> 00:35:40: The international process for degree days was a bit different

00:35:40 --> 00:35:42: and so the report gets into that now with with
00:35:42 --> 00:35:43: more detail.
00:35:43 --> 00:35:46: We also added an ASHRAE climate zone numbers to the
00:35:46 --> 00:35:49: existing CBEC climate zones so that you know which ASHRAE
00:35:49 --> 00:35:53: climate zones are nested underneath the CBEC climate zones.
00:35:54 --> 00:35:57: And then we did also go through an effort of
00:35:57 --> 00:36:02: adding more granular subregion and property type energy mixes into
00:36:02 --> 00:36:04: the input data set.
00:36:04 --> 00:36:06: So previously this had been done at the sector level.
00:36:06 --> 00:36:10: So the energy mix between electricity, gas and and other
00:36:10 --> 00:36:14: being done both at the commercial level and the residential
00:36:14 --> 00:36:15: level.
00:36:16 --> 00:36:18: We got a good amount of feedback asking to get
00:36:18 --> 00:36:20: more granular than this and we were able to to
00:36:20 --> 00:36:21: do so with available data.
00:36:21 --> 00:36:25: So showing energy mix at the property type level more
00:36:25 --> 00:36:29: granularly than the sector was definitely an important part of
00:36:29 --> 00:36:30: the the process here.
00:36:32 --> 00:36:35: We also note here some of the outer scope feedback
00:36:35 --> 00:36:39: which I think we'll be you know getting into more
00:36:39 --> 00:36:40: in subsequent slides.
00:36:41 --> 00:36:43: Hop to the next slide for me and I am
00:36:43 --> 00:36:45: going a little long here, so I will try to
00:36:45 --> 00:36:47: run through these a little bit quicker.
00:36:49 --> 00:36:53: On the last working group column and messaging around this,
00:36:53 --> 00:36:56: we did also, as Linda was mentioning, get into some
00:36:56 --> 00:37:00: additional reference points for EUI targets over time.
00:37:01 --> 00:37:03: This is, you know, a very tough nut to crack
00:37:03 --> 00:37:06: overall in terms of how to apply the best energy
00:37:06 --> 00:37:11: efficiency requirements for buildings while also holding the grid accountable
00:37:11 --> 00:37:13: for doing their part of the the the process.
00:37:13 --> 00:37:14: Overall.
00:37:14 --> 00:37:16: There's going to be some give and take and going
00:37:16 --> 00:37:17: to be some Gray area there.
00:37:18 --> 00:37:21: But we did run through sort of additional comparison points
00:37:22 --> 00:37:24: when it came to final EUI targets.
00:37:24 --> 00:37:26: And we will be releasing a short memo with with
00:37:26 --> 00:37:29: some of those findings based off of what we had

00:37:29 --> 00:37:29: available.
00:37:30 --> 00:37:33: Really with the intention of of hoping that we could
00:37:33 --> 00:37:36: dive deeper into this in the future and be more
00:37:36 --> 00:37:40: comprehensive across all property types and deliver the best possible
00:37:40 --> 00:37:43: value to building owners as they look to evaluate their
00:37:43 --> 00:37:44: buildings.
00:37:45 --> 00:37:47: You can hop to the next slide just to show
00:37:47 --> 00:37:51: a visual of how some of these additional technical reference
00:37:51 --> 00:37:51: points work.
00:37:51 --> 00:37:54: So we have Office and Warehouse here and then we
00:37:54 --> 00:37:58: have some reference lines that were added to show equivalent
00:37:58 --> 00:38:01: Energy Star scores associated with these final targets.
00:38:01 --> 00:38:04: So you can see Office score of 99 puts you
00:38:04 --> 00:38:07: very well below the Creme UI targets and score of
00:38:07 --> 00:38:09: 95 puts you just above.
00:38:10 --> 00:38:13: With Warehouses it was slightly different scores of 95 and
00:38:13 --> 00:38:13: 99.
00:38:14 --> 00:38:17: These are all sort of interesting findings and ones that
00:38:17 --> 00:38:20: we want to make sure that yeah, we included everything
00:38:20 --> 00:38:22: that was available to us in terms of the the
00:38:22 --> 00:38:26: output references and then, you know, set the stage for
00:38:26 --> 00:38:29: potential future work that can be done to help evaluate
00:38:29 --> 00:38:32: these targets more in a more nuanced way moving forward.
00:38:33 --> 00:38:33: Next slide.
00:38:36 --> 00:38:39: These are within the technical report, but just to to
00:38:39 --> 00:38:43: frame this a little bit, the other comparison beyond ESPN
00:38:43 --> 00:38:47: 95, which is shown here in orange, We also did
00:38:47 --> 00:38:50: a process to build a set of net zero energy
00:38:50 --> 00:38:54: targets based primarily off new building institutes 0 energy targets
00:38:54 --> 00:38:58: and database, but also leveraging Ashley 100 to be a
00:38:58 --> 00:39:02: little bit more comprehensive across different property types.
00:39:03 --> 00:39:05: And so this shows this and the next slide are
00:39:05 --> 00:39:09: going to show the comparison between those again also available
00:39:09 --> 00:39:11: within the the technical report.
00:39:11 --> 00:39:14: So you can have to the next slide and I
00:39:14 --> 00:39:17: think one of the the takeaways here was that there
00:39:17 --> 00:39:20: is a lot of work to be done in terms
00:39:20 --> 00:39:23: of squaring the circle of of what a really good
00:39:23 --> 00:39:28: final energy target should be for for an individual, individual

00:39:28 --> 00:39:29: building next slide.

00:39:31 --> 00:39:35: So just to sum up the technical deliverables across the

00:39:35 --> 00:39:38: board, here we have our methodology memo.

00:39:38 --> 00:39:39: We're now calling it a technical report.

00:39:39 --> 00:39:44: I think it's graduated in terms of its semantic there

00:39:44 --> 00:39:47: a look up of ZIP codes to the KREM pathways

00:39:47 --> 00:39:52: and then a the pilot technical analysis which should be

00:39:52 --> 00:39:54: forthcoming relatively soon.

00:39:55 --> 00:39:57: And then on the KREM side, we our part of

00:39:57 --> 00:40:01: our deliverables, we're also giving the direct inputs to Creme.

00:40:01 --> 00:40:04: So this is weighted emission factors across those 57 regions

00:40:04 --> 00:40:07: and the Canadian provinces in addition to starting EUI values

00:40:07 --> 00:40:11: and degree days for final target calculations, which have now

00:40:11 --> 00:40:14: been produced into curves and the associated risk assessment tool,

00:40:14 --> 00:40:16: which should be available shortly.

00:40:16 --> 00:40:20: And and with that, I think I'll be handing it

00:40:20 --> 00:40:21: back to you, Blakely.

00:40:24 --> 00:40:24: Great.

00:40:24 --> 00:40:25: Thank you, Josh.

00:40:25 --> 00:40:29: So I'll spend the next few minutes walking you through

00:40:29 --> 00:40:33: some of the the out of scope stakeholder feedback that

00:40:33 --> 00:40:37: we received, which we documented in that first ULI memo.

00:40:37 --> 00:40:41: It's linked up top and is posted on our project

00:40:41 --> 00:40:41: web page.

00:40:43 --> 00:40:48: So first, stakeholders underscored that while CRIM measures 2 elements

00:40:48 --> 00:40:52: of transition risk, so it measures greenhouse gas related transition

00:40:52 --> 00:40:55: risk and energy use risk, an asset that is off

00:40:55 --> 00:40:59: track relative to its CRIM curve shouldn't be considered stranded.

00:41:00 --> 00:41:03: So there are other factors that contribute to transition risk

00:41:03 --> 00:41:05: like tenant preferences and local policy.

00:41:06 --> 00:41:09: Sebastian mentioned this up top earlier in today's presentation.

00:41:09 --> 00:41:11: And this really is sort of a a stakeholder and

00:41:12 --> 00:41:15: investor education piece around terminology and, and understanding what the

00:41:15 --> 00:41:17: curves measure and and what they don't measure.

00:41:19 --> 00:41:23: Second, stakeholders noted that friends EUI targets are set by

00:41:23 --> 00:41:28: downscaling the global greenhouse gas budget to the building level

00:41:28 --> 00:41:29: based on grid intensity.

00:41:30 --> 00:41:33: So this penalizes buildings that rely on dirtier grids by

00:41:33 --> 00:41:35: setting more aggressive EUI targets.

00:41:36 --> 00:41:39: And So what we heard over and over is that

00:41:39 --> 00:41:43: stakeholders would really like to separate that methodology for EUI

00:41:43 --> 00:41:47: targets from the carbon intensity of the grid, so they

00:41:47 --> 00:41:50: can work clearly show the role of building level versus

00:41:50 --> 00:41:55: grid decarbonization responsibility to meet their global climate goals.

00:41:56 --> 00:42:01: And then finally, stakeholders noted insufficient transparency and robustness around

00:42:01 --> 00:42:05: Crim's governance structure and around the mechanisms to provide input

00:42:05 --> 00:42:07: and feedback to the global organization.

00:42:08 --> 00:42:11: I will note CRIM has launched a new nonprofit earlier

00:42:11 --> 00:42:13: this week and we'll hear more about that later.

00:42:14 --> 00:42:17: They do have plans to to revisit their governance structure.

00:42:19 --> 00:42:20: So I'll go to the next slide, please.

00:42:20 --> 00:42:24: So now we're going to spend the next few minutes

00:42:24 --> 00:42:28: walking you through what's next for CRIM and decarbonization curves.

00:42:29 --> 00:42:31: Christopher, I'll hand it to you to speak to that

00:42:31 --> 00:42:34: new crim nonprofit and some of the upcoming governance changes.

00:42:42 --> 00:42:42: Thank you.

00:42:42 --> 00:42:46: I need permission to start my camera eve.

00:42:48 --> 00:42:50: Let's see, can we upgrade Christopher?

00:43:00 --> 00:43:00: See.

00:43:08 --> 00:43:09: I can start.

00:43:10 --> 00:43:12: Yeah, I think it'd be great if you go ahead

00:43:12 --> 00:43:12: and start.

00:43:12 --> 00:43:13: We will try and fix someone.

00:43:13 --> 00:43:15: If someone can upgrade Christopher to a panelist so he

00:43:15 --> 00:43:17: can show his video, that would be great.

00:43:17 --> 00:43:18: Thank you.

00:43:18 --> 00:43:21: So, so as like they said, we, we set up

00:43:21 --> 00:43:24: a new nonprofit and this is this is actually a

00:43:24 --> 00:43:25: big step.

00:43:27 --> 00:43:29: It was there we go.

00:43:30 --> 00:43:30: Thank you.

00:43:32 --> 00:43:35: So it was originally in a European research project and

00:43:35 --> 00:43:36: then it has grown into a global initiative.

00:43:36 --> 00:43:41: So, so particularly on the governance side, it's much more,
00:43:41 --> 00:43:44: it's much easier to to think as this as an
00:43:44 --> 00:43:48: organization with this a clear, a board with a clear
00:43:48 --> 00:43:53: remit, governing bodies and operational team, how it fits together
00:43:53 --> 00:43:56: if you have a legal entity behind it.
00:43:56 --> 00:43:59: So that we have now established it's a, it's a
00:43:59 --> 00:44:02: nonprofit organization that was also an important objective.
00:44:04 --> 00:44:07: The core operational team, including Sebastian here remains in place.
00:44:07 --> 00:44:10: So that ensures the continuity on that side.
00:44:10 --> 00:44:15: We've also secured some philanthropic funding for this transition.
00:44:16 --> 00:44:19: We will appoint a new CEO, Sven Beanart, who was
00:44:19 --> 00:44:23: leading this on the operational side since the inception has
00:44:23 --> 00:44:25: decided to step down.
00:44:25 --> 00:44:29: So, so that's we need to replace him, you know,
00:44:29 --> 00:44:33: small shoes to fill and that will be a priority
00:44:33 --> 00:44:36: for the for the early next year or as soon
00:44:37 --> 00:44:38: as possible.
00:44:38 --> 00:44:42: Basically the key principles of CRAM will remain in place.
00:44:42 --> 00:44:46: So it's, it's designed to be independent of narrow commercial
00:44:46 --> 00:44:47: or political interests.
00:44:47 --> 00:44:51: So it has has some objectivity built into it.
00:44:52 --> 00:44:53: It's open source.
00:44:54 --> 00:44:55: We believe that this is a public good.
00:44:56 --> 00:45:00: The market benefits from having this resource available.
00:45:02 --> 00:45:04: And so that's going to be an important principle going
00:45:04 --> 00:45:05: forward.
00:45:05 --> 00:45:06: It's global in scope.
00:45:06 --> 00:45:09: So it means that there needs to be some methodologies
00:45:09 --> 00:45:11: that provide some comparability across countries.
00:45:12 --> 00:45:16: It's particularly important for real estate investors that hold globally
00:45:16 --> 00:45:19: diversified portfolios across different property types.
00:45:19 --> 00:45:22: And then finally, scientific integrity, it needs to maintain the
00:45:23 --> 00:45:25: highest standards in methodology and data.
00:45:26 --> 00:45:30: And that's obviously means you have to constantly update it,
00:45:30 --> 00:45:34: you have to constantly review available data sources.
00:45:34 --> 00:45:38: And so that, that's a dynamic process, but that's basically
00:45:38 --> 00:45:40: what decides the the design.
00:45:42 --> 00:45:44: I should say that the pathways are a tool for
00:45:44 --> 00:45:45: for risk management.

00:45:46 --> 00:45:49: We know that 1 1/2 degree pathway is an important
00:45:49 --> 00:45:51: marker for many investors and the market as a whole.
00:45:51 --> 00:45:55: So that is the reason why that pathways been chosen.
00:45:55 --> 00:45:59: But we recognize this is the case that the market
00:45:59 --> 00:46:03: participants have different preferences for risk and we'll price this
00:46:03 --> 00:46:05: risk differently.
00:46:05 --> 00:46:08: There are also other elements that influence carbon related risk
00:46:08 --> 00:46:09: that I completely agree with.
00:46:10 --> 00:46:14: So these pathways as, as as was mentioned earlier, are,
00:46:14 --> 00:46:17: are averages for, for regions and and building types and
00:46:17 --> 00:46:22: they will be kind of specific characteristics of buildings that
00:46:22 --> 00:46:25: might explain why why a particular asset is is above
00:46:25 --> 00:46:27: or below a certain pathway.
00:46:27 --> 00:46:30: So it's a risk management tool that I think, I
00:46:30 --> 00:46:32: think can be used in the in the wider market.
00:46:34 --> 00:46:37: I sit on an interim board together with the two
00:46:37 --> 00:46:39: other investors.
00:46:39 --> 00:46:41: The idea is to expand that over time.
00:46:42 --> 00:46:45: And I think in this transition period, we have, we
00:46:46 --> 00:46:48: have 3 broad goals or 41 is to set up
00:46:48 --> 00:46:53: an organization that can provide more regional granularity in terms
00:46:53 --> 00:46:54: of the pathways.
00:46:55 --> 00:46:56: That's clearly a demand.
00:46:56 --> 00:47:00: And it's natural that this type of initiative starts with
00:47:00 --> 00:47:04: more of a global standard kind of a uniform methodology.
00:47:04 --> 00:47:08: But then over time, as the market starts using the
00:47:08 --> 00:47:12: pathways, as we get feedback on, on the on their
00:47:12 --> 00:47:16: value, we start regionalizing some of the some of the
00:47:16 --> 00:47:17: work.
00:47:17 --> 00:47:19: And I think this North America project has really shown
00:47:20 --> 00:47:20: the value of that.
00:47:21 --> 00:47:25: We're also going to cover more property types to make
00:47:25 --> 00:47:29: sure that this is applicable to to larger parts of
00:47:29 --> 00:47:34: the market robust and well governed organization that's clearly and
00:47:34 --> 00:47:35: ambition.
00:47:35 --> 00:47:38: So what that means is that we're going to review
00:47:38 --> 00:47:40: the governance setup that we have.
00:47:40 --> 00:47:44: That means the the board, it's composition, the scientific committee,

00:47:45 --> 00:47:48: which which is has central role in updating the pathways.
00:47:48 --> 00:47:51: So the size of that committee, the composition of the
00:47:51 --> 00:47:54: committee and the role of the committee is important.
00:47:54 --> 00:48:00: And then potentially other bodies, including regional stakeholder groups that
00:48:00 --> 00:48:04: can tie in market participants and views with KREM on
00:48:04 --> 00:48:05: an ongoing basis.
00:48:05 --> 00:48:08: So instead of having these as kind of ad hoc
00:48:08 --> 00:48:13: relationships and we certainly have relationships with many regional groups
00:48:13 --> 00:48:17: already, but to build on those and and formalize it
00:48:17 --> 00:48:20: slightly so that there is a better communication both to
00:48:20 --> 00:48:24: KREM and from KREM to those regions, we intend to
00:48:24 --> 00:48:26: learn from similar organizations.
00:48:26 --> 00:48:29: And so we're going to seek expert input from an
00:48:29 --> 00:48:33: independent expert with some relevant experience in the real estate
00:48:33 --> 00:48:36: space that can advise us on how to set this
00:48:36 --> 00:48:36: up.
00:48:37 --> 00:48:41: And then the setup itself will be subject to some
00:48:41 --> 00:48:43: kind of public consultation.
00:48:43 --> 00:48:47: So, so we can get input also from the from
00:48:47 --> 00:48:51: the market on how how this initiative can best be
00:48:51 --> 00:48:52: governed.
00:48:53 --> 00:48:58: In addition, this last point that that Blakely made mentioned
00:48:58 --> 00:49:02: on the transparency is we're going to issue a process
00:49:03 --> 00:49:07: guide or some kind of documentation on how pathways are
00:49:07 --> 00:49:13: updated, how they're decided and the roles of various governing
00:49:13 --> 00:49:16: bodies, including stakeholder groups.
00:49:16 --> 00:49:20: And there'll be a comment period around that because it's
00:49:20 --> 00:49:23: central to the credibility of the initiative.
00:49:24 --> 00:49:26: I think at this up until now that hasn't been,
00:49:26 --> 00:49:30: I mean that the information has been there, but it
00:49:30 --> 00:49:33: hasn't been communicated, but perhaps as well as it should
00:49:33 --> 00:49:33: be.
00:49:34 --> 00:49:37: And I think it's really important for the market to
00:49:37 --> 00:49:39: to not be to have that information that that that
00:49:39 --> 00:49:42: the update process is predictable in terms of when it
00:49:42 --> 00:49:45: will happen and on what basis it will happen.
00:49:45 --> 00:49:52: So that helps everyone plan and and makes also communication
00:49:52 --> 00:49:52: easier.

00:49:53 --> 00:49:58: So I would say right now we've just set up
00:49:58 --> 00:50:04: this, this nonprofit, it's a, so it's fairly fresh.
00:50:04 --> 00:50:06: We decided to go out with, with what our ambitions
00:50:06 --> 00:50:06: are.
00:50:06 --> 00:50:09: We don't have that many answers right now, but we
00:50:09 --> 00:50:12: do this because it's important for you to know that
00:50:12 --> 00:50:15: this process is starting and that will probably we will,
00:50:15 --> 00:50:18: we will reach out and and that will take take
00:50:18 --> 00:50:21: the input that's already been put together here.
00:50:21 --> 00:50:24: That's very helpful and then also engage with you further.
00:50:25 --> 00:50:27: So if you know if anybody wants to reach out
00:50:27 --> 00:50:30: to us, you can do it through the operational team,
00:50:30 --> 00:50:33: through Sebastian or or through myself on the board.
00:50:36 --> 00:50:38: Thank you, Grace.
00:50:38 --> 00:50:40: We can go to the next slide.
00:50:44 --> 00:50:47: So I also wanted to pull some highlights from a
00:50:47 --> 00:50:50: second UI memo that's also published on the project web
00:50:50 --> 00:50:50: page.
00:50:50 --> 00:50:53: It's linked up top and this one really outlines what
00:50:53 --> 00:50:57: we heard from stakeholders around how practitioners in the US
00:50:57 --> 00:51:00: and Canada view crim and then some of the best
00:51:00 --> 00:51:03: practices for contextualizing crim results with other analysis.
00:51:04 --> 00:51:06: So this sort of goes back to clearly communicating what
00:51:06 --> 00:51:09: crim does measure and what it doesn't measure and sort
00:51:09 --> 00:51:11: of contextualizing those results.
00:51:12 --> 00:51:14: So I will just go top level through some of
00:51:14 --> 00:51:15: those principles.
00:51:15 --> 00:51:17: You can read the memo for more details.
00:51:17 --> 00:51:19: So 1 is the crim.
00:51:19 --> 00:51:21: CRIM is a top down benchmark.
00:51:21 --> 00:51:24: So it doesn't really provide decision useful data at the
00:51:24 --> 00:51:27: asset level because those assumptions may not be accurate when
00:51:27 --> 00:51:29: you drill down to the the asset level at that
00:51:29 --> 00:51:30: level of granularity.
00:51:31 --> 00:51:33: And so it's best used as a relative portfolio level
00:51:34 --> 00:51:35: indicator of transition risk.
00:51:35 --> 00:51:38: I think you've heard that throughout today's presentation.
00:51:39 --> 00:51:42: The second bullet which I think you've heard throughout today's
00:51:42 --> 00:51:44: presentation is that CRIM is a partial measure of transition
00:51:44 --> 00:51:44: risk.

00:51:45 --> 00:51:49: So it specifically measures greenhouse gas risk and energy use

00:51:49 --> 00:51:49: risk.

00:51:50 --> 00:51:53: A building may be off track relative to KREM and

00:51:53 --> 00:51:56: still retain financial value because tenants are willing to lease

00:51:56 --> 00:51:59: it and buyers are willing to purchase it.

00:52:01 --> 00:52:05: The third is that for greenhouse gas related transition risk,

00:52:05 --> 00:52:08: KREM is viewed as one tool to measure that risk

00:52:08 --> 00:52:11: and to give portfolio owners a 1 1/2 degree aligned

00:52:11 --> 00:52:16: greenhouse gas budget for their portfolio or a typical building.

00:52:16 --> 00:52:19: We did hear the owners also use things like greenhouse

00:52:19 --> 00:52:23: gas based building performance standards and associated fines as a

00:52:23 --> 00:52:26: proxy for their greenhouse gas related transition risk.

00:52:28 --> 00:52:32: And then regarding energy use transition risk, stakeholders continue to

00:52:32 --> 00:52:35: express that they prefer a method to assess energy use

00:52:35 --> 00:52:38: transition risk that's not dependent on grid variables.

00:52:39 --> 00:52:43: So the current EUI methodology results in EUI targets and

00:52:43 --> 00:52:46: timelines that aren't technically feasible for a lot of buildings

00:52:46 --> 00:52:47: in the US and Canada.

00:52:49 --> 00:52:52: We lay this out actually in the LBNL tactical memo

00:52:52 --> 00:52:55: if you'd like to see a comparison of some of

00:52:55 --> 00:52:58: the crim EUI targets relative to other technical standards.

00:52:59 --> 00:53:02: So for this reason, many owners in the US and

00:53:02 --> 00:53:05: Canada prefer to use Energy Star, including the one to

00:53:05 --> 00:53:08: 100 score Energy Star certification Next Gen.

00:53:08 --> 00:53:11: and target Finder to measure and communicate that energy use

00:53:11 --> 00:53:12: transition risk.

00:53:13 --> 00:53:18: And then stakeholders also expressed an interest in exploring how

00:53:18 --> 00:53:21: to use Energy Star to set UI targets in Pathways

00:53:21 --> 00:53:22: next slide.

00:53:30 --> 00:53:33: So we will go ahead and Add all the registrants

00:53:33 --> 00:53:36: for today's webinar to our mailing list to keep you

00:53:36 --> 00:53:38: all in the loop on any future initiative related to

00:53:38 --> 00:53:41: Crim or to D CARB curves in the US and

00:53:41 --> 00:53:41: Canada.

00:53:42 --> 00:53:44: We ask you to also watch our web page for

00:53:44 --> 00:53:45: updates.

00:53:45 --> 00:53:49: So for one, Josh mentioned earlier that pilot technical analysis

00:53:49 --> 00:53:53: from Berkeley Lab, it's going to show EUI equivalents for
00:53:53 --> 00:53:54: EPA Energy Star scores.
00:53:55 --> 00:53:57: As soon as that's ready, we'll we'll be posting it.
00:53:57 --> 00:54:00: We'll also post, you know, any additional industry letters.
00:54:00 --> 00:54:03: We posted Crim's press release this week about the new
00:54:04 --> 00:54:06: nonprofit and as sort of our centralized hub.
00:54:07 --> 00:54:09: And then I also wanted to update you on a
00:54:09 --> 00:54:13: few industry activities that may be informed by the outputs
00:54:13 --> 00:54:15: of this CRAN North America project.
00:54:16 --> 00:54:19: So 1 is that the USEPA will be holding stakeholder
00:54:19 --> 00:54:23: listening sessions to explore the concept of creating pathways for
00:54:23 --> 00:54:27: commercial real estate in the US, building on existing federal
00:54:27 --> 00:54:31: guidelines and tools like Portfolio Manager, Target Finder and others.
00:54:32 --> 00:54:35: And then I also wanted to highlight there are other
00:54:35 --> 00:54:39: potential opportunities for ULI working Group participants to participate or
00:54:39 --> 00:54:43: support ongoing collaboration around D CARB pathway tools and frameworks
00:54:43 --> 00:54:44: in the US and Canada.
00:54:45 --> 00:54:47: So we'll share those opportunities with the mailing list, but
00:54:47 --> 00:54:49: please reach out and let us know if you want
00:54:49 --> 00:54:50: to support this work.
00:54:51 --> 00:54:55: We will maintain that friend project at ULI e-mail account.
00:54:56 --> 00:54:59: And then finally, I just want to highlight that US
00:54:59 --> 00:55:02: and Canadian real estate organizations will continue engaging their stakeholders
00:55:02 --> 00:55:03: on this topic.
00:55:03 --> 00:55:07: So for example, I know nee REIT supporting Reit's and
00:55:07 --> 00:55:11: setting portfolio specific sustainability goals using US GB CS Perform
00:55:11 --> 00:55:12: platform.
00:55:15 --> 00:55:18: So that gets us to the end of our slides.
00:55:19 --> 00:55:22: So, Grace, if you want to bring down the the
00:55:22 --> 00:55:25: presentation, so we recognize that we are coming up on
00:55:25 --> 00:55:28: the end of the hour, we're going to try and,
00:55:28 --> 00:55:30: and go, you know, 10 or 15 minutes over just
00:55:31 --> 00:55:33: to answer some of the questions that we received.
00:55:34 --> 00:55:36: We got quite a few questions, but for those of
00:55:36 --> 00:55:39: you who need to drop, I'm going to go ahead
00:55:39 --> 00:55:40: and drop a link in the chat.
00:55:41 --> 00:55:45: We put together just like a three question survey to

00:55:45 --> 00:55:47: get your feedback on this project.
00:55:47 --> 00:55:50: If you participated in how it went to let us
00:55:50 --> 00:55:52: know if you'd like to be involved in any next
00:55:52 --> 00:55:55: steps and to, to let us know of any tools
00:55:55 --> 00:55:58: or resources that would be helpful for you in your
00:55:58 --> 00:56:01: decarbonization planning moving forward.
00:56:01 --> 00:56:02: So I went ahead and dropped it in the chat.
00:56:02 --> 00:56:04: If you have to leave at the bottom of the
00:56:04 --> 00:56:05: hour, please open up that survey.
00:56:05 --> 00:56:07: We'd love to, to hear your feedback.
00:56:11 --> 00:56:14: So I'd like to start with a, a question that
00:56:14 --> 00:56:17: we got from Dwayne as the non-technical person on the
00:56:17 --> 00:56:19: line that took a stab at this.
00:56:20 --> 00:56:23: Josh, could you explain in more detail how the the
00:56:23 --> 00:56:27: underlying crim methodology, which again we couldn't touch through this
00:56:27 --> 00:56:30: project, how it sets EUI curves for for a specific
00:56:30 --> 00:56:34: building dependent in part on the grid's carbon intensity and
00:56:34 --> 00:56:37: kind of link that to how that's beyond the the
00:56:37 --> 00:56:39: ability of building owners to control?
00:56:39 --> 00:56:42: Yeah, how, how do the leveling targets in years work
00:56:42 --> 00:56:43: is the question.
00:56:43 --> 00:56:45: We've gotten 4 different times.
00:56:46 --> 00:56:47: Yeah.
00:56:47 --> 00:56:49: And I'll, I'll do my best to to give a
00:56:49 --> 00:56:50: quick answer here.
00:56:50 --> 00:56:53: I did also answer Dwight in the Q&A, a couple
00:56:53 --> 00:56:54: page references.
00:56:54 --> 00:56:57: I'm going to see if I can share my screen
00:56:57 --> 00:57:01: on this 'cause it is a helpful visual here if
00:57:01 --> 00:57:05: I can do it, screen share hopefully is working.
00:57:07 --> 00:57:07: Yeah.
00:57:07 --> 00:57:12: So these breakdown our understanding of where different data source
00:57:13 --> 00:57:17: inputs within the Creme process manifest themselves in the the
00:57:17 --> 00:57:19: pathways themselves.
00:57:19 --> 00:57:21: So the top one we're showing here, US office is
00:57:22 --> 00:57:22: just for reference.
00:57:23 --> 00:57:25: This applies to to any property type, any region.
00:57:26 --> 00:57:29: The starting point for the curves, which is really based
00:57:30 --> 00:57:33: off of the starting median intensity, then applied to the
00:57:33 --> 00:57:37: weighted emission factor starting in 2020, you have the

shape
00:57:37 --> 00:57:38: of the curve itself.
00:57:38 --> 00:57:42: So how aggressive the the the downscaling is, which is
00:57:42 --> 00:57:46: driven by the budgeting process and those weighted emission factors
00:57:46 --> 00:57:50: as they're translated back into the energy pathway here.
00:57:51 --> 00:57:54: And then, you know, the final target on the CO2
00:57:54 --> 00:57:57: pathway is obviously straightforward as net zero.
00:57:57 --> 00:58:00: But the energy pathway, we have this concept of the
00:58:00 --> 00:58:03: levelling year that was introduced in, in V2.
00:58:03 --> 00:58:07: So a point at which the EUI levels off because
00:58:07 --> 00:58:11: the building is essentially at a level of efficiency deemed
00:58:11 --> 00:58:14: appropriate for a net 0 ecosystem.
00:58:16 --> 00:58:18: And so the way that this target year is, is
00:58:18 --> 00:58:22: developed actually have a different visual down here that that
00:58:22 --> 00:58:23: shows it pretty well.
00:58:23 --> 00:58:27: So the final EUI targets are calculated via degree day
00:58:27 --> 00:58:31: methodology that we've talked about in previous working groups and
00:58:32 --> 00:58:34: we do get into detail up here in terms of
00:58:34 --> 00:58:36: how that breaks down.
00:58:37 --> 00:58:39: But that finally UI target if you were to put
00:58:39 --> 00:58:41: it on this this Y axis and just draw a
00:58:41 --> 00:58:44: line to the left, wherever that intersects with the the
00:58:44 --> 00:58:47: original, the pre V2 version of the energy pathways that's
00:58:47 --> 00:58:49: down scaled from the CO2 budget.
00:58:49 --> 00:58:54: The intersection point between those two is your levelling year
00:58:54 --> 00:58:59: for that given building grid region and property type and
00:58:59 --> 00:58:59: I.
00:58:59 --> 00:59:02: Try to say that in like a little more plain
00:59:02 --> 00:59:02: language.
00:59:02 --> 00:59:03: Please let.
00:59:03 --> 00:59:06: Me try to say it back to you, OK, so
00:59:07 --> 00:59:12: the actual EUI target is based on the IEA pathway.
00:59:12 --> 00:59:15: And I know there was a question that we may
00:59:15 --> 00:59:18: not get to about why that was picked, but that
00:59:18 --> 00:59:21: is the what it's all downscaled from is there's an
00:59:21 --> 00:59:23: IEA 2050 net zero scenario.
00:59:23 --> 00:59:27: And in that global scenario it says that this is
00:59:27 --> 00:59:31: how much energy real estate is using and then that
00:59:31 --> 00:59:35: is divided down across and divvied up all the pie.
00:59:36 --> 00:59:40: So that based on heating and cooling degree days, this

00:59:40 --> 00:59:42: is the energy target for buildings.

00:59:43 --> 00:59:47: And I think that's been part of what we've been

00:59:47 --> 00:59:51: talking about is how we compare that sort of global

00:59:51 --> 00:59:57: budget derived energy target to things like Ashtray 100, Energy

00:59:57 --> 01:00:00: Star and BIBPS standards, et cetera.

01:00:01 --> 01:00:03: And then how fast you have to get to that

01:00:03 --> 01:00:06: target is determined by how dirty your grid is.

01:00:06 --> 01:00:09: So if you're on a dirtier grid, you have to

01:00:09 --> 01:00:12: get to that target faster 'cause you're burning your carbon

01:00:12 --> 01:00:13: budget faster.

01:00:13 --> 01:00:15: And if you're on a cleaner grid, then you have

01:00:15 --> 01:00:16: more time to get to that target.

01:00:20 --> 01:00:23: 100% correct, well characterized.

01:00:23 --> 01:00:23: Thank you, Elena.

01:00:25 --> 01:00:26: Thank you both.

01:00:28 --> 01:00:31: Josh, there's a question around whether we're going to provide

01:00:31 --> 01:00:33: an EUI technical target supplement as part of the final

01:00:33 --> 01:00:34: updates.

01:00:34 --> 01:00:36: Maybe you could just give a little more context for

01:00:36 --> 01:00:38: that pilot technical analysis.

01:00:39 --> 01:00:40: Yeah.

01:00:40 --> 01:00:43: So sort of as part of our initial effort as

01:00:43 --> 01:00:48: we're establishing starting UI values, we used empirical survey data,

01:00:48 --> 01:00:52: verified survey data wherever we could, But there were a

01:00:52 --> 01:00:57: few different situations where the empirical data wasn't enough for

01:00:57 --> 01:00:59: us to characterize things appropriately.

01:00:59 --> 01:01:04: And in those scenarios, we leveraged Energy Star and Energy

01:01:04 --> 01:01:09: Star scoring methodologies to produce essentially a median a score

01:01:09 --> 01:01:12: of 50 building and the equivalent site EUI.

01:01:12 --> 01:01:15: So we had these calculations already built out.

01:01:15 --> 01:01:17: And so we were able to, you know, take that

01:01:17 --> 01:01:21: concept and push it to a more aggressive Energy Star

01:01:21 --> 01:01:24: score, which would be, you know, we're, we're not specifying

01:01:24 --> 01:01:26: or prescribing any particular score.

01:01:26 --> 01:01:29: That is, you know what what is needed across the

01:01:29 --> 01:01:32: board, but gives a reference point relative to what you

01:01:32 --> 01:01:35: know, the language that that a lot of building owners

01:01:35 --> 01:01:38: in the US and Canada speak, which is portfolio manager
01:01:38 --> 01:01:40: and portfolio manager Energy Stars scores.
01:01:40 --> 01:01:43: And so that memo, we're going to talk a little
01:01:43 --> 01:01:46: bit about the, the, the target, final targets and compare
01:01:46 --> 01:01:49: those to the visuals that I was showing previously.
01:01:51 --> 01:01:56: ASHRAE 100 MBI but mainly the Energy Star.
01:01:56 --> 01:02:00: Different increments of Energy Star scores and what the equivalent
01:02:00 --> 01:02:04: site EUI would be associated with those, which hopefully would
01:02:04 --> 01:02:06: be a good starting point for further work to be
01:02:06 --> 01:02:10: done to develop more sophisticated target setting longer term.
01:02:12 --> 01:02:13: Thanks, Josh.
01:02:14 --> 01:02:17: So we also have a handful of questions related to
01:02:17 --> 01:02:20: the grid and emission factors.
01:02:20 --> 01:02:21: So there was one, you know.
01:02:21 --> 01:02:25: Is it true that KREM, the grid weighted emission factors
01:02:25 --> 01:02:29: don't incorporate state specific D card plans, Instead they're done
01:02:29 --> 01:02:30: at the E grid level?
01:02:33 --> 01:02:33: Yeah.
01:02:33 --> 01:02:38: So essentially the way that the the starting emission factors
01:02:38 --> 01:02:40: are built off of of E grid.
01:02:41 --> 01:02:43: So it's 2020 through 2022.
01:02:45 --> 01:02:48: The data source that was used for the longer term
01:02:48 --> 01:02:52: emission factors is a product called Cambium developed by the
01:02:52 --> 01:02:54: National Renewable Energy Laboratory.
01:02:55 --> 01:02:57: And the Cambium version that we are using is Post
01:02:57 --> 01:03:01: Inflation Reduction Act, which is an important thing we wanted
01:03:01 --> 01:03:02: to make sure was done.
01:03:03 --> 01:03:08: Cambium's process does get down to the generator levels of
01:03:08 --> 01:03:11: individual power plants and modeling them out.
01:03:12 --> 01:03:15: And so as much as state plans were already integrated
01:03:15 --> 01:03:18: into utility plans, which are already then integrated into the
01:03:18 --> 01:03:22: existing and future planned energy mix, there's a very long
01:03:22 --> 01:03:25: way of saying yes, for the most part those state
01:03:25 --> 01:03:27: level plans are are included there.
01:03:27 --> 01:03:31: I can't say it includes every single proposed plan at
01:03:31 --> 01:03:34: the state level, but the granularity of the data source
01:03:34 --> 01:03:38: is such that it absolutely could include because you're getting
01:03:38 --> 01:03:40: down to individual generation assets.

01:03:43 --> 01:03:43: Great.
01:03:44 --> 01:03:47: Will there be average pathways for each grid region?
01:03:51 --> 01:03:51: No.
01:03:51 --> 01:03:55: So each grid region will essentially have one pathway for
01:03:55 --> 01:03:59: each climate zone that exists within that that great region.
01:04:00 --> 01:04:02: There was no real way to aggregate those in an
01:04:02 --> 01:04:03: in an average way.
01:04:06 --> 01:04:09: So there's another question around whether we have a spreadsheet
01:04:09 --> 01:04:12: of the actual electricity emission factors per kWh for each
01:04:12 --> 01:04:15: region, and not just the weighted emission factors.
01:04:17 --> 01:04:19: Each region, yeah.
01:04:19 --> 01:04:22: So we, you know those are taken directly from Cambium.
01:04:23 --> 01:04:25: And so yeah, we could definitely point in the direction
01:04:25 --> 01:04:26: of where those those are available.
01:04:27 --> 01:04:29: And then I think we, we do give an example
01:04:29 --> 01:04:32: within the report that has that, but definitely reach out
01:04:32 --> 01:04:34: if you're looking to, to dive deeper on it.
01:04:34 --> 01:04:36: Happy to provide what you need.
01:04:37 --> 01:04:39: Yeah, I should say for all of these questions, we're
01:04:39 --> 01:04:40: not going to get to everything.
01:04:40 --> 01:04:42: We will do our best to follow up to the
01:04:42 --> 01:04:43: extent that we know who asked them.
01:04:43 --> 01:04:46: But you know the person who's asked this question about
01:04:46 --> 01:04:49: the electricity emission factor, feel free to to follow up
01:04:49 --> 01:04:51: and we'll connect you to that resource.
01:04:53 --> 01:04:56: I think we can maybe try to do an FAQ
01:04:56 --> 01:04:57: document after this.
01:04:57 --> 01:04:59: We're basically on a budget, but we'll do our best
01:04:59 --> 01:05:02: to publish all these questions and answers.
01:05:06 --> 01:05:06: OK.
01:05:06 --> 01:05:09: So I think we can get to at least one
01:05:09 --> 01:05:12: more question, which is this is from Chris Pike.
01:05:12 --> 01:05:15: It says the analysis focused on the single IEA 2050
01:05:15 --> 01:05:19: pathway, one that wasn't used by the IPCC or other
01:05:19 --> 01:05:20: climate assessments.
01:05:21 --> 01:05:23: This is but one of many possible pathways.
01:05:23 --> 01:05:26: So what are the implications of using this pathway or
01:05:26 --> 01:05:28: more robust set of pathways?
01:05:31 --> 01:05:35: I mean, I think there is like several arguments.
01:05:35 --> 01:05:39: I think 1 main argument was that the time we
01:05:39 --> 01:05:42: we decided for the IEA was that IPCC relied a

01:05:42 --> 01:05:46: lot of a lot on carbon capture and storage technologies,
01:05:46 --> 01:05:51: which a lot of scientific articles stated that they won't
01:05:51 --> 01:05:53: be available in the near future.
01:05:54 --> 01:05:58: And then I think IPCC is like more I announced
01:05:59 --> 01:06:03: pledger scenario and the IEA is more like a what
01:06:03 --> 01:06:08: needs to be done to to achieve the 1.5?? scenario
01:06:08 --> 01:06:12: in the future and to be Paris aligned.
01:06:14 --> 01:06:19: But I think there is an extensive article on the
01:06:19 --> 01:06:25: IEA website which separates like how IPPC or what their
01:06:25 --> 01:06:32: methodology is and and how IEA handles handles kind of
01:06:32 --> 01:06:32: things.
01:06:34 --> 01:06:36: I'm actually going to lob one final question.
01:06:37 --> 01:06:40: So will there be a single family pathway in the
01:06:40 --> 01:06:42: future or anyone that the folks in the line could
01:06:42 --> 01:06:45: work with and how that could be done says, for
01:06:45 --> 01:06:48: example by comparing EU is within racks for different building
01:06:48 --> 01:06:49: types.
01:06:49 --> 01:06:51: So do we have any update on a possible single
01:06:51 --> 01:06:53: family pathway in the future?
01:06:56 --> 01:06:56: Maybe.
01:06:56 --> 01:06:57: I'll love that, the crim team.
01:07:00 --> 01:07:03: I think we brought up that and, and, and this
01:07:03 --> 01:07:07: project that single family is indeed very important and we
01:07:07 --> 01:07:10: got a lot of feedback not only North America but
01:07:10 --> 01:07:14: also in Asia Pacific that a lot of banks especially
01:07:14 --> 01:07:18: due to their collaterals near the single family pathway.
01:07:19 --> 01:07:21: So I think we have to see how we could
01:07:21 --> 01:07:26: work with existing data and what Josh already derived for
01:07:26 --> 01:07:30: multifamily and the data we used in North America.
01:07:30 --> 01:07:33: And then going forward we can see how we maybe
01:07:33 --> 01:07:37: can derive the the pathways also for single family properties.
01:07:39 --> 01:07:40: Great.
01:07:41 --> 01:07:43: So with that, I'll go ahead and close out today's
01:07:43 --> 01:07:43: webinar.
01:07:44 --> 01:07:46: Thank you everyone for joining and and for supporting our
01:07:46 --> 01:07:47: project from the start.
01:07:47 --> 01:07:50: We we really appreciate your support and literally couldn't have
01:07:51 --> 01:07:53: done it without your your input and feedback.
01:07:53 --> 01:07:54: So we appreciate that.
01:07:54 --> 01:07:57: Like I said, look out for future e-mail updates, monitor
01:07:57 --> 01:08:00: our web page, and look forward to continue to work

01:08:00 --> 01:08:01: with you.
01:08:03 --> 01:08:03: Thanks everyone.
01:08:04 --> 01:08:05: Thanks everyone.
01:08:05 --> 01:08:06: Thank you.
