

## Webinar

## ULI Europe: Carbon Pricing

Date: July 19, 2023

| 00:00:08> 00:00:12: | Hello everyone. Thank you for joining us for this webinar.                 |
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| 00:00:12> 00:00:15: | My name is Simon Chin, I'm Head of Research and                            |
| 00:00:15> 00:00:19: | Advisory Services for Urban Land Institute in Europe. For those            |
| 00:00:20> 00:00:24: | that aren't already aware of ULII, thought I'd just start                  |
| 00:00:24> 00:00:28: | with a brief overview and background of our organization. So               |
| 00:00:28> 00:00:32: | the Urban Land Institute is a global member driven organization            |
| 00:00:32> 00:00:34: | comprising around 50,000.  |
| 00:00:35> 00:00:40: | Real estate and Urban Development professionals dedicated to advancing the |
| 00:00:40> 00:00:44: | Institute's mission to shape the future of the built environment           |
| 00:00:44> 00:00:47: | for transformative impact in communities worldwide.                        |
| 00:00:48> 00:00:52: | ULI is the oldest and largest network of cross disciplinary                |
| 00:00:52> 00:00:55: | real estate and land use experts in the world with                         |
| 00:00:55> 00:00:59: | a presence in the Americas, Europe and Asia Pacific. And                   |
| 00:00:59> 00:01:03: | at ULI we published for leadership and knowledge sharing for               |
| 00:01:03> 00:01:07: | best practices in the real estate industry and also provide                |
| 00:01:07> 00:01:12: | an educational platform to inform and instill best practice in             |
| 00:01:12> 00:01:16: | the next generation of diverse leaders in the real estate                  |
| 00:01:16> 00:01:16: | industry.  |
| 00:01:17> 00:01:21: | And the purpose of today's session is to provide an                        |
| 00:01:21> 00:01:25: | informational and educational look at carbon pricing and how it            |
| 00:01:25> 00:01:30: | can impact decarbonization in the real estate sector. We'll begin          |
| 00:01:30> 00:01:34: | the session with a short presentation and then after that                  |
| 00:01:34> 00:01:37: | we'll open up to a panel discussion with some experts                      |
| 00:01:37> 00:01:41: | on the topic. So firstly, what is carbon pricing and                       |
| 00:01:41> 00:01:44: | why are we talking about it the climate crisis?                            |

| 00:01:45> 00:01:49: | Is one of the biggest social and environmental challenges of                      |
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| 00:01:49> 00:01:55: | our time, causing extreme weather events, crop failures, forced migration,        |
| 00:01:55> 00:01:59: | among other adverse impacts. It's also one of the biggest                         |
| 00:01:59> 00:02:04: | economic challenges for society. And greenhouse gas emissions such as             |
| 00:02:04> 00:02:09: | carbon dioxide is a classic example of what economists call                       |
| 00:02:09> 00:02:10: | externality.  |
| 00:02:10> 00:02:15: | Emissions contribute to climate change, which impacts everybody's well-being and  |
| 00:02:15> 00:02:19: | the environment. The problem is that the averse impacts and                       |
| 00:02:19> 00:02:23: | effects of emissions are not reflected in market prices. So                       |
| 00:02:23> 00:02:27: | Simply put, a price on carbon, from an economic standpoint                        |
| 00:02:27> 00:02:30: | is an effective way to get polluters to pay for                                   |
| 00:02:30> 00:02:34: | this negative externality that their emissions inflict on the planet.             |
| 00:02:35> 00:02:39: | The majority of carbon emissions are currently unpriced. A study                  |
| 00:02:39> 00:02:43: | by the World Bank estimates that only around 23% of                               |
| 00:02:43> 00:02:47: | global emissions are currently subject to a carbon pricing scheme.                |
| 00:02:47> 00:02:50: | And as the world shifts to a low carbon economy,                                  |
| 00:02:50> 00:02:56: | carbon pricing is increasingly important for investment decisions. Carbon pricing |
| 00:02:56> 00:02:59: | is also a topic that's becoming more and more prevalent.                          |
| 00:03:00> 00:03:04: | Generating a lot of media attention as countries look to                          |
| 00:03:04> 00:03:09: | tackle climate change and meet their decarbonization targets. It's for            |
| 00:03:09> 00:03:13: | this reason that in this year's Global Emerging Trends in                         |
| 00:03:13> 00:03:17: | Real Estate report, Uli, in partnership with PwC, undertook a                     |
| 00:03:17> 00:03:20: | deep dive into carbon pricing and how it can impact                               |
| 00:03:20> 00:03:23: | decarbonization in the real estate sector.  |
| 00:03:24> 00:03:27: | Now to start, there are two main forms of external                                |
| 00:03:27> 00:03:31: | carbon pricing mechanisms, carbon taxes and cap and trade programs                |
| 00:03:31> 00:03:35: | or emissions trading schemes. And these are called external because               |
| 00:03:35> 00:03:39: | they're implemented and managed by a government or regulatory body,               |
| 00:03:39> 00:03:43: | and they're often compliance based for a particular industry or                   |
| 00:03:43> 00:03:46: | sector. So firstly on carbon taxes, the carbon tax is                             |
| 00:03:46> 00:03:49: | a fixed price that must be paid for every ton                                     |
| 00:03:49> 00:03:52: | of carbon dioxide emitted into the atmosphere.                                    |
| 00:03:53> 00:03:57: | The carbon levy aims to internalize that externality, what's                      |

|                     | known  |
|---------------------|--|
| 00:03:58> 00:04:02: | as the polluter pays principle. The tax usually increases over           |
| 00:04:02> 00:04:07: | time, which provides an incentive, a financial incentive, for            |
|                     | businesses   |
| 00:04:07> 00:04:12: | to reduce their carbon footprint. Revenue generated from this tax        |
| 00:04:12> 00:04:16: | can then be used to fund clean energy initiatives or                     |
| 00:04:16> 00:04:20: | support communities that are affected by climate change.<br>The other    |
| 00:04:20> 00:04:21: | external.  |
| 00:04:23> 00:04:27: | Carbon pricing mechanism is emission trading schemes also                |
|                     | known as   |
| 00:04:27> 00:04:31: | cap and trade systems. So these are when a government                    |
| 00:04:31> 00:04:35: | or regulatory body sets a limit on the total amount                      |
| 00:04:35> 00:04:39: | of emissions that can be emitted within a certain sector                 |
| 00:04:39> 00:04:42: | over a given period of time. So for example, a                           |
| 00:04:42> 00:04:46: | companies in an impacted sector are allocated a number of                |
| 00:04:46> 00:04:49: | permits to emit carbon each year and then the.                           |
| 00:04:50> 00:04:53: | Cap is imposed on that sector, and if companies exceed                   |
| 00:04:53> 00:04:57: | that cap in terms of emissions, they are then sanctioned                 |
| 00:04:57> 00:05:01: | with fines or have to purchase additional carbon permits from            |
| 00:05:01> 00:05:04: | others in the sector. As firms become more energy efficient              |
| 00:05:05> 00:05:08: | and increase their use of renewables, they're able to sell               |
| 00:05:08> 00:05:12: | surplus credits back into the market, leading to this market             |
| 00:05:12> 00:05:14: | mechanism for carbon pricing.  |
| 00:05:14> 00:05:18: | And the pool of permits decreases every year in line                     |
| 00:05:18> 00:05:22: | with the remaining carbon budget. So hopefully over time we              |
| 00:05:22> 00:05:26: | see that reduction in carbon emissions from that sector through          |
| 00:05:26> 00:05:31: | these external pricing mechanisms. There is effectively a price put      |
| 00:05:31> 00:05:34: | on carbon. And the example of this is showing here                       |
| 00:05:34> 00:05:37: | on this on this chart on the on the slide                                |
| 00:05:37> 00:05:40: | which shows the weekly carbon spot price in euros per                    |
| 00:05:40> 00:05:44: | metric ton in the E U's emissions trading system.                        |
| 00:05:44> 00:05:47: | Which is one of the largest in the world and                             |
| 00:05:47> 00:05:51: | covers the highest emitting industries, responsible for 45% of           |
|                     | the  |
| 00:05:51> 00:05:54: | EU's total emissions. And the prices spiked when the EU                  |
| 00:05:54> 00:05:58: | announced plans to reduce the cap and increase its emissions             |
| 00:05:58> 00:06:02: | reductions target, briefly surpassing ???100 per metric ton earlier this |
| 00:06:02> 00:06:03: | year.  |

| 00:06:04> 00:06:07: | And the chart on the right shows the price variance                      |
|---------------------|--|
| 00:06:07> 00:06:11: | across various jurisdictions globally for carbon prices. It's also worth |
| 00:06:11> 00:06:15: | pointing out that these figures are averages across all sectors          |
| 00:06:15> 00:06:19: | within those markets. So there's significant variance in the carbon      |
| 00:06:19> 00:06:22: | price, but many of these prices remain well below the                    |
| 00:06:22> 00:06:23: | levels to meet.  |
| 00:06:24> 00:06:28: | Net 0 targets. A study in the scientific journal Nature                  |
| 00:06:28> 00:06:32: | published in 2021 is estimated that a price of around                    |
| 00:06:32> 00:06:36: | \$130.00 per ton is needed to by 20-30 to decarbonize                    |
| 00:06:36> 00:06:40: | economies by 2050, in line with the Paris Agreement.                     |
| 00:06:42> 00:06:47: | External carbon pricing mechanisms are already having an impact on       |
| 00:06:47> 00:06:50: | the real estate across the world. Just to cover a                        |
| 00:06:50> 00:06:54: | few examples on this slide, in New York, buildings account               |
| 00:06:54> 00:06:58: | for 2/3 of carbon annual carbon dioxide emissions. And to                |
| 00:06:59> 00:07:03: | tackle this, the government recently introduced Local Law 97, which      |
| 00:07:03> 00:07:07: | requires buildings in New York City to track and report                  |
| 00:07:07> 00:07:12: | greenhouse gas emissions. It requires buildings over 25,000 square feet. |
| 00:07:12> 00:07:17: | To meet energy efficiency and greenhouse gas emissions, target reduction |
| 00:07:17> 00:07:21: | targets by 2024, and stricter limits are expected to come                |
| 00:07:21> 00:07:25: | into effect by 20-30. Buildings must comply with the caps                |
| 00:07:25> 00:07:30: | or face fines for exceeding emissions limits, and building owners        |
| 00:07:30> 00:07:33: | can also be fined if they fail to report on                              |
| 00:07:33> 00:07:34: | their emissions.   |
| 00:07:34> 00:07:37: | The law applies a penalty of \$268 per every tonne                       |
| 00:07:38> 00:07:41: | of carbon emitted above the limit, making it one of                      |
| 00:07:41> 00:07:45: | the most stringent regulations today for the real estate sector.         |
| 00:07:45> 00:07:48: | Tokyo is is one of the only major cities in                              |
| 00:07:48> 00:07:52: | the world to have implemented a carbon trading program for               |
| 00:07:52> 00:07:56: | buildings emissions, which was first introduced in 2010. This is         |
| 00:07:56> 00:08:01: | a mandatory emissions program for all large commercial and industrial    |
| 00:08:01> 00:08:02: | buildings in the city.   |
| 00:08:03> 00:08:07: | Owners of the buildings are required to meet allocated reduction         |
| 00:08:07> 00:08:12: | targets through onsite energy efficiency measures or an emission trading |

| 00:08:12> 00:08:16: | scheme. Owners that failed to meet the reduction obligations from          |
|---------------------|--|
| 00:08:16> 00:08:20: | this scheme are required to cover 1.3 times the reduction                  |
| 00:08:20> 00:08:23: | shortfall, are subject to a fine of around ??500,000 I                     |
| 00:08:23> 00:08:28: | think and will have their violation published externally creating that     |
| 00:08:28> 00:08:30: | that reputational pressure.  |
| 00:08:31> 00:08:36: | The scheme was proved successful in reducing building emissions with       |
| 00:08:36> 00:08:40: | the latest compliance period from 2015 to 2019 achieving a                 |
| 00:08:40> 00:08:45: | 17% reduction in based base year emissions. However, the effective         |
| 00:08:45> 00:08:49: | prices remains lower, around \$5 per ton of carbon. And                    |
| 00:08:49> 00:08:51: | then in Europe we have the.  |
| 00:08:52> 00:08:57: | Emissions Trading Scheme which indirectly impacts the built environment by |
| 00:08:57> 00:09:02: | affecting carbon intensive construction inputs to the sector such as       |
| 00:09:02> 00:09:05: | cement and steel. There are also plans to extend this                      |
| 00:09:05> 00:09:10: | emissions trading scheme from 2026 to cover fuel providers for             |
| 00:09:10> 00:09:13: | road and road transport and building. So this will impact                  |
| 00:09:13> 00:09:18: | fuel prices for tenants of commercial and residential real estate.         |
| 00:09:18> 00:09:21: | Carbon price The carbon border adjustment mechanism.                       |
| 00:09:22> 00:09:26: | Was legislated by the European Commission earlier this year and            |
| 00:09:26> 00:09:29: | will also take effect from 2026. And this is a                             |
| 00:09:29> 00:09:33: | carbon tax on carbon intensive imports to the EU, which                    |
| 00:09:33> 00:09:37: | covers construction materials such as steel at The aim of                  |
| 00:09:37> 00:09:40: | this measure is to reduce the the risk of carbon                           |
| 00:09:40> 00:09:44: | leakage by equalizing the price of carbon between domestic products        |
| 00:09:44> 00:09:47: | and imports internal carbon pricing.                                       |
| 00:09:48> 00:09:52: | Involves setting an internal charge on the amount of carbon                |
| 00:09:52> 00:09:56: | dioxide emitted from assets and investment projects so that companies      |
| 00:09:56> 00:10:00: | can see how, where and when their emissions could affect                   |
| 00:10:00> 00:10:04: | their profit and loss. Statements and investment choices.<br>According to  |
| 00:10:04> 00:10:08: | a 2019 study by McKinsey covering covering over 2500, of                   |
| 00:10:08> 00:10:12: | the world's largest companies, just 20, just 23% that they                 |
| 00:10:12> 00:10:15: | were using some form of internal carbon price in their                     |
| 00:10:15> 00:10:16: | operations.  |

| 00:10:17> 00:10:20: | But the number of firms using internal carbon pricing is                |
|---------------------|---|
| 00:10:20> 00:10:24: | likely to rise as regulatory requirements to incorporate it into        |
| 00:10:24> 00:10:28: | transit transition risk assessments are set to become mandatory in      |
| 00:10:28> 00:10:31: | a growing number of jurisdictions globally.                             |
| 00:10:31> 00:10:35: | More and more companies will need a better understanding of             |
| 00:10:35> 00:10:38: | carbon pricing and the impact it has on their business                  |
| 00:10:38> 00:10:41: | operations. There's a comment on the on the right side                  |
| 00:10:41> 00:10:44: | of the slide there from Bridgewater, one of the largest                 |
| 00:10:44> 00:10:47: | hedge funds in the world and which said that it                         |
| 00:10:47> 00:10:50: | it expects carbon price will overtime become an essential input         |
| 00:10:50> 00:10:54: | into economic activity just as oil, gas, coal and other                 |
| 00:10:54> 00:10:57: | commodities are common input costs. Now there are two main              |
| 00:10:57> 00:11:00: | types of internal carbon pricing, the shadow price involves.            |
| 00:11:01> 00:11:05: | Applying A theoretical price for every ton of carbon dioxide            |
| 00:11:05> 00:11:09: | emitted. This is used to mainly support investment decisions and        |
| 00:11:09> 00:11:12: | but the company doesn't set aside any money or put                      |
| 00:11:12> 00:11:16: | it towards a fund for decarbonization. An internal carbon fee,          |
| 00:11:16> 00:11:20: | by comparison, applies a price per each ton of carbon                   |
| 00:11:20> 00:11:24: | emitted and allocates this money internally to a decarbonization fund.  |
| 00:11:25> 00:11:29: | The company usually puts this money towards capital expenditure needed  |
| 00:11:30> 00:11:34: | to reduce portfolio emissions or fund carbon offsets. One example       |
| 00:11:34> 00:11:38: | of a real estate company using carbon internal carbon prices            |
| 00:11:38> 00:11:42: | at Great Portland Estates, it applies a carbon price of                 |
| 00:11:42> 00:11:46: | ??95 per ton of carbon dioxide emitted to embodied carbon               |
| 00:11:46> 00:11:51: | from its development schemes calculated at the practical completion and |
| 00:11:51> 00:11:52: | operational carbon.   |
| 00:11:53> 00:11:57: | Emissions from its investment portfolio. The money from this is         |
| 00:11:57> 00:12:01: | put towards a decarbonization fund which is used to finance             |
| 00:12:01> 00:12:06: | retrofitting and investment in onsite renewable energy. A non real      |
| 00:12:06> 00:12:10: | estate example is Microsoft, which charges a carbon fee across          |
| 00:12:10> 00:12:13: | all of its business units based on their scope 1-2                      |
| 00:12:13> 00:12:17: | and free emissions. The carbon fee ranges from \$15 per                 |
| 00:12:17> 00:12:20: | ton of carbon dioxide up to \$100 per ton for                           |

| 00:12:20> 00:12:21:  | business travel.   |
|--|--|
| 00:12:22> 00:12:26:  | Money raised internally is used to fund its carbon reduction   |
| 00:12:26> 00:12:29:  | efforts. Now the chart on the left of the slide  |
| 00:12:29> 00:12:33:  | here shows the use of carbon internal carbon pricing by  |
| 00:12:33> 00:12:37:  | selected industries from a study by McKinsey in 2019, which  |
| 00:12:37> 00:12:41:  | examines the top 100 firms by revenue in each sector.  |
| 00:12:41> 00:12:45:  | And it's clear that real estate lags behind other carbon   |
| 00:12:45> 00:12:49:  | intensive sectors such as energy, materials and industrials.   |
| 00:12:51> 00:12:55:  | Some of the reasons for the limited uptake in internal   |
| 00:12:55> 00:12:58:  | carbon pricing in real estate is primarily down to it  |
| 00:12:58> 00:13:02:  | being unregulated, the complexity of doing it, and also it   |
| 00:13:02> 00:13:07:  | raises concerns around competitiveness. If it's not applied universally across   |
| 00:13:07> 00:13:10:  | the sector, it could mean that people would miss out   |
| 00:13:10> 00:13:12:  | on going and going into deals.   |
| 00:13:13> 00:13:16:  | But it's clear that a growing number of real estate  |
| 00:13:16> 00:13:20:  | firms recognize the value in understanding and applying carbon price   |
| 00:13:20> 00:13:25:  | to their investments and portfolios, particularly from a transition risk   |
| 00:13:25> 00:13:28:  | perspective. And carbon pricing mechanisms are likely to have an   |
| 00:13:28> 00:13:31:  | impact on the sector in the near future, as one  |
|  |  |
| 00:13:31> 00:13:34:  | interviewee from our report put it into.   |
| 00:13:31> 00:13:34:<br>00:13:34> 00:13:38:   | Interviewee from our report put it into.<br>Into perspective by saying 15 years ago when people talked   |
|  |  |
| 00:13:34> 00:13:38:  | Into perspective by saying 15 years ago when people talked   |
| 00:13:34> 00:13:38:<br>00:13:38> 00:13:41:   | Into perspective by saying 15 years ago when people talked<br>about sustainability, people would roll their eyes at you, but   |
| 00:13:34> 00:13:38:<br>00:13:38> 00:13:41:<br>00:13:42> 00:13:45:  | Into perspective by saying 15 years ago when people talked<br>about sustainability, people would roll their eyes at you, but<br>today it's mandatory and there's a view that the similar<br>approach similar approach could happen with carbon pricing.  |
| 00:13:34> 00:13:38:<br>00:13:38> 00:13:41:<br>00:13:42> 00:13:45:<br>00:13:45> 00:13:49:   | Into perspective by saying 15 years ago when people talked<br>about sustainability, people would roll their eyes at you, but<br>today it's mandatory and there's a view that the similar<br>approach similar approach could happen with carbon pricing.<br>So in   |
| 00:13:34> 00:13:38:<br>00:13:38> 00:13:41:<br>00:13:42> 00:13:45:<br>00:13:45> 00:13:49:<br>00:13:49> 00:13:53:  | Into perspective by saying 15 years ago when people talked<br>about sustainability, people would roll their eyes at you, but<br>today it's mandatory and there's a view that the similar<br>approach similar approach could happen with carbon pricing.<br>So in<br>terms of the outlook for carbon pricing and real estate<br>opportunities and challenges there are there are some clear   |
| 00:13:34> 00:13:38:<br>00:13:38> 00:13:41:<br>00:13:42> 00:13:45:<br>00:13:45> 00:13:49:<br>00:13:49> 00:13:53:<br>00:13:53> 00:13:57:   | Into perspective by saying 15 years ago when people talked<br>about sustainability, people would roll their eyes at you, but<br>today it's mandatory and there's a view that the similar<br>approach similar approach could happen with carbon pricing.<br>So in<br>terms of the outlook for carbon pricing and real estate<br>opportunities and challenges there are there are some clear<br>benefits   |
| 00:13:34> 00:13:38:<br>00:13:38> 00:13:41:<br>00:13:42> 00:13:45:<br>00:13:45> 00:13:49:<br>00:13:49> 00:13:53:<br>00:13:53> 00:13:57:<br>00:13:57> 00:14:01:  | Into perspective by saying 15 years ago when people talked<br>about sustainability, people would roll their eyes at you, but<br>today it's mandatory and there's a view that the similar<br>approach similar approach could happen with carbon pricing.<br>So in<br>terms of the outlook for carbon pricing and real estate<br>opportunities and challenges there are there are some clear<br>benefits<br>of external internal carbon pricing mechanisms for for car for   |
| 00:13:34> 00:13:38:<br>00:13:38> 00:13:41:<br>00:13:42> 00:13:45:<br>00:13:45> 00:13:49:<br>00:13:49> 00:13:53:<br>00:13:53> 00:13:57:<br>00:13:57> 00:14:01:<br>00:14:01> 00:14:02:   | Into perspective by saying 15 years ago when people talked<br>about sustainability, people would roll their eyes at you, but<br>today it's mandatory and there's a view that the similar<br>approach similar approach could happen with carbon pricing.<br>So in<br>terms of the outlook for carbon pricing and real estate<br>opportunities and challenges there are there are some clear<br>benefits<br>of external internal carbon pricing mechanisms for for car for<br>carbon as it.<br>Increases awareness of the cost of carbon emissions and   |
| 00:13:34> 00:13:38:<br>00:13:38> 00:13:41:<br>00:13:42> 00:13:45:<br>00:13:45> 00:13:49:<br>00:13:49> 00:13:53:<br>00:13:53> 00:13:57:<br>00:13:57> 00:14:01:<br>00:14:01> 00:14:02:<br>00:14:03> 00:14:06:                        | Into perspective by saying 15 years ago when people talked<br>about sustainability, people would roll their eyes at you, but<br>today it's mandatory and there's a view that the similar<br>approach similar approach could happen with carbon pricing.<br>So in<br>terms of the outlook for carbon pricing and real estate<br>opportunities and challenges there are there are some clear<br>benefits<br>of external internal carbon pricing mechanisms for for car for<br>carbon as it.<br>Increases awareness of the cost of carbon emissions and<br>can<br>also nudge companies to investment decisions towards lower  |
| 00:13:34> 00:13:38:<br>00:13:38> 00:13:41:<br>00:13:42> 00:13:45:<br>00:13:45> 00:13:49:<br>00:13:49> 00:13:53:<br>00:13:53> 00:13:57:<br>00:13:57> 00:14:01:<br>00:14:01> 00:14:02:<br>00:14:03> 00:14:06:<br>00:14:06> 00:14:11: | Into perspective by saying 15 years ago when people talked<br>about sustainability, people would roll their eyes at you, but<br>today it's mandatory and there's a view that the similar<br>approach similar approach could happen with carbon pricing.<br>So in<br>terms of the outlook for carbon pricing and real estate<br>opportunities and challenges there are there are some clear<br>benefits<br>of external internal carbon pricing mechanisms for for car for<br>carbon as it.<br>Increases awareness of the cost of carbon emissions and<br>can<br>also nudge companies to investment decisions towards lower<br>carbon alternatives.<br>However, one of the challenges is the ongoing inconsistency       |
| 00:13:34> 00:13:38:<br>00:13:38> 00:13:41:<br>00:13:42> 00:13:45:<br>00:13:45> 00:13:49:<br>00:13:49> 00:13:53:<br>00:13:53> 00:13:57:<br>00:13:57> 00:14:01:<br>00:14:01> 00:14:02:<br>00:14:03> 00:14:06:<br>00:14:11> 00:14:15: | Into perspective by saying 15 years ago when people talked<br>about sustainability, people would roll their eyes at you, but<br>today it's mandatory and there's a view that the similar<br>approach similar approach could happen with carbon pricing.<br>So in<br>terms of the outlook for carbon pricing and real estate<br>opportunities and challenges there are there are some clear<br>benefits<br>of external internal carbon pricing mechanisms for for car for<br>carbon as it.<br>Increases awareness of the cost of carbon emissions and<br>can<br>also nudge companies to investment decisions towards lower<br>carbon alternatives.<br>However, one of the challenges is the ongoing inconsistency<br>in |

| 00:14:25> 00:14:28: | pricing would price them out of the market.                                  |
|---------------------|--|
| 00:14:28> 00:14:33: | And there's argue, but there's arguably an increasingly commercial advantage |
| 00:14:33> 00:14:37: | to getting ahead of increasing regulations on carbon emissions around        |
| 00:14:37> 00:14:42: | the world. So while external carbon pricing mechanisms are currently         |
| 00:14:42> 00:14:46: | mainly applied to the most carbon intensive industries like transport        |
| 00:14:46> 00:14:49: | and energy sectors, we all know the widely cited statistic                   |
| 00:14:49> 00:14:53: | that real estate contributes just under 40% of annual greenhouse             |
| 00:14:53> 00:14:57: | gas emissions. So it's highly likely that the sector will.                   |
| 00:14:57> 00:15:01: | Be impacted by some form of carbon emissions trading scheme                  |
| 00:15:01> 00:15:05: | in the near future, particularly as countries aim to reduce                  |
| 00:15:05> 00:15:09: | emissions in line with achieving decarbonization goals by 2050. So           |
| 00:15:09> 00:15:13: | that ends the presentation part of the session. Thank you                    |
| 00:15:13> 00:15:17: | for listening to my overview and introduction to the topic.                  |
| 00:15:17> 00:15:20: | I'll now pass over to Lizette van Dorn, CEO of                               |
| 00:15:20> 00:15:23: | ULI Europe, who will moderate the panel session. Over to                     |
| 00:15:23> 00:15:24: | you, Lizette.  |
| 00:15:27> 00:15:32: | Thank you, Simon, and good morning, everyone. My name is                     |
| 00:15:32> 00:15:36: | Lisa Van Dorn. I'm the Chief Executive for Urban Land                        |
| 00:15:36> 00:15:41: | Institute in Europe and I'm very pleased to moderate this                    |
| 00:15:41> 00:15:45: | session this morning. We have well maybe a bit of                            |
| 00:15:45> 00:15:49: | background how we've seen things evolve and as you took                      |
| 00:15:49> 00:15:54: | from Simon's presentation just now, it's a complex topic.                    |
| 00:15:54> 00:15:58: | And it's been interesting how we've seen the journey of                      |
| 00:15:58> 00:16:02: | the past, so six months when we started preparing for                        |
| 00:16:02> 00:16:06: | the global emerging trends report in which we covered carbon                 |
| 00:16:06> 00:16:10: | pricing, when we initially started to think about topics, common             |
| 00:16:10> 00:16:14: | pricing came up, but there was actually not so much                          |
| 00:16:14> 00:16:18: | discussed about it yet and we've seen that picking up.                       |
| 00:16:18> 00:16:21: | Simon also showed some some newspaper headings.                              |
| 00:16:21> 00:16:26: | And not specifically related to real estate, but the topic                   |
| 00:16:26> 00:16:30: | is getting a lot more attention generally as well as                         |
| 00:16:30> 00:16:34: | in real estate. So we feel it's very topical today                           |
| 00:16:34> 00:16:38: | to have this conversation. And also we've built this into                    |
| 00:16:39> 00:16:42: | a wider work as part of our UNIC change work                                 |
| 00:16:42> 00:16:47: | that focused on helping the real estate industry speed up                    |

| 00:16:47> 00:16:50: | the decarbonization and scale up initiatives.                            |
|---------------------|--|
| 00:16:51> 00:16:56: | We recently launched transition risk investment guidelines               |
|                     | that help to   |
| 00:16:56> 00:17:01: | better include the the transition risks into property valuations and     |
| 00:17:01> 00:17:04: | therefore have a clear view on what needs to happen                      |
| 00:17:04> 00:17:08: | to buildings to get them to net zero and what                            |
| 00:17:08> 00:17:11: | the impact is on a on on the valuation of                                |
| 00:17:11> 00:17:15: | the building and discounted cash flow. We've covered carbon pricing      |
| 00:17:15> 00:17:18: | that but only in a very generic way.                                     |
| 00:17:18> 00:17:22: | Realizing some of the issues that Simon also pointed out                 |
| 00:17:23> 00:17:26: | in terms of what is the right price level etcetera,                      |
| 00:17:26> 00:17:30: | that's why we said for this year's program of work,                      |
| 00:17:30> 00:17:34: | we set a target to dig deeper into carbon pricing                        |
| 00:17:34> 00:17:37: | and hopefully by the end of this year come up                            |
| 00:17:37> 00:17:41: | with further guidance how this could look for the real                   |
| 00:17:41> 00:17:45: | estate industry. Enough about that, for now, I'm very pleased.           |
| 00:17:48> 00:17:53: | I'm very pleased that I'm being joined by an excellent                   |
| 00:17:53> 00:17:57: | panel today and and I would like to introduce Emily                      |
| 00:17:57> 00:18:02: | Hamilton. She's Head of PSD at several investment management, Jeremy     |
| 00:18:02> 00:18:08: | Corlick, Associate Director at 103 Ventures and a deep experience        |
| 00:18:08> 00:18:12: | in in climate finance and Zara Wall. She's had evaluations               |
| 00:18:12> 00:18:16: | and performance at iput. Welcome everyone.                               |
| 00:18:18> 00:18:22: | I would like to kick off with kind of asking                             |
| 00:18:22> 00:18:26: | all three of you to just keep your reflections. You've                   |
| 00:18:26> 00:18:30: | all been already pretty well and immersed into the topic,                |
| 00:18:30> 00:18:34: | use carbon pricing in different ways. So I think it                      |
| 00:18:34> 00:18:37: | would be very interesting to hear from you on what                       |
| 00:18:38> 00:18:42: | are you doing with this, what are your observation, what                 |
| 00:18:42> 00:18:47: | are the biggest challenges and also reflecting on Simon's presentations. |
| 00:18:47> 00:18:50: | What you picked out from that, Sarah, can I start                        |
| 00:18:51> 00:18:51: | with you?  |
| 00:18:52> 00:18:55: | Yeah, No problem is that I think I started to                            |
| 00:18:55> 00:18:58: | start just to give some background to where we're on                     |
| 00:18:58> 00:19:01: | our journey as well and how we got to the                                |
| 00:19:01> 00:19:05: | carbon pricing. So as a phone, we generate carbon<br>emissions           |
| 00:19:05> 00:19:08: | in two areas of our business, the development of our                     |
| 00:19:08> 00:19:10: | assets and then their operations.  |
| 00:19:12> 00:19:15: | Our net Zero 23 strategy is leading us to focus                          |

| 00:19:15> 00:19:19: | on a pathway of reducing embodied carbon associated with the                       |
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| 00:19:19> 00:19:22: | materials used in the life cycle of our buildings and                              |
| 00:19:22> 00:19:27: | then reducing emissions in our operations by reducing energy intensity             |
| 00:19:27> 00:19:31: | and increasing the use of renewables. So our strategy has                          |
| 00:19:31> 00:19:35: | really been to focus on emissions from our directly managed                        |
| 00:19:35> 00:19:37: | portfolio and assets under development.  |
| 00:19:38> 00:19:40: | And this is where we're seeing that we can have                                    |
| 00:19:41> 00:19:44: | the greatest level of influence. And when we're looking at                         |
| 00:19:44> 00:19:47: | this, we're addressing I suppose the whole life are of                             |
| 00:19:47> 00:19:51: | an impact on our buildings across three names scopes as                            |
| 00:19:51> 00:19:54: | Simon referenced. But scope three is our main focus and                            |
| 00:19:54> 00:19:58: | it's the indirect emissions from our value chain including indirect                |
| 00:19:58> 00:20:03: | embodied carbon from our developments, our corporate emissions business operations |
| 00:20:03> 00:20:05: | and waste in our directly managed assets.  |
| 00:20:06> 00:20:10: | I think more importantly is that the emissions from our                            |
| 00:20:10> 00:20:14: | development project make up about 66% of our carbon footprint.                     |
| 00:20:14> 00:20:17: | So we really want to reduce this through the life                                  |
| 00:20:17> 00:20:21: | cycle of our buildings using carbon accounting, sustainable design and             |
| 00:20:21> 00:20:25: | engaging with our shareholders. My my role in the carbon                           |
| 00:20:25> 00:20:29: | pricing area is to ensure its adoption and financial modeling.                     |
| 00:20:30> 00:20:34: | Along working with our sustainability team and analyzing the risks                 |
| 00:20:34> 00:20:38: | and impacts of not having a transition plan, not implementing                      |
| 00:20:38> 00:20:43: | it, we recently launched in our sustainability responsible investment plan         |
| 00:20:43> 00:20:46: | that we are applying a carbon price within the fund                                |
| 00:20:46> 00:20:50: | of 80 year old per tonne on embodied carbon emissions                              |
| 00:20:50> 00:20:54: | generated in our development program between 2022 and 2030. And                    |
| 00:20:54> 00:20:57: | I suppose the purpose of this for us is really                                     |
| 00:20:57> 00:20:59: | to promote sustainable construction.   |
| 00:21:00> 00:21:03: | On operation practices within our supply chain and how it                          |
| 00:21:03> 00:21:07: | works is that we levy our developments during the development                      |
| 00:21:07> 00:21:11: | stage and then these funds are ring fenced. So Simon                               |
| 00:21:11> 00:21:15: | touched on, you know there's different ways companies are doing                    |
| 00:21:15> 00:21:18: | it and I think one of the limitations is that                                      |

| 00:21:18> 00:21:22: | there's no, there's no perfect methodology. So we're all learning                     |
|---------------------|---|
| 00:21:22> 00:21:24: | together, but what we're doing is.  |
| 00:21:25> 00:21:29: | These funds that we're, I suppose, taxing ourselves are                               |
|                     | being   |
| 00:21:29> 00:21:33: | ring fenced into a transition fund and then they're being                             |
| 00:21:33> 00:21:38: | reinvested in projects and initiatives that either improve sustainability performance |
| 00:21:38> 00:21:42: | of our existing assets or help decarbonize our portfolio. And                         |
| 00:21:42> 00:21:45: | I suppose a key differentiator for us is that we                                      |
| 00:21:45> 00:21:49: | do not use these funds just to retrofit assets within                                 |
| 00:21:49> 00:21:50: | the portfolio.  |
| 00:21:50> 00:21:54: | We believe cost but rhetoric fitting should already be built                          |
| 00:21:54> 00:21:58: | into the valuations as part of a good estate management.                              |
| 00:21:58> 00:22:01: | So instead what we're trying to do is to use  |
| 00:22:01> 00:22:05: | these funds to finance projects that focus on carbon avoidance                        |
| 00:22:05> 00:22:08: | and also removal at a much greater scale. During 2022,                                |
| 00:22:08> 00:22:12: | our fund accrued ???3 million and from a governance perspective                       |
| 00:22:12> 00:22:15: | this brings up you know a whole level of new  |
| 00:22:15> 00:22:16: | types of reporting.   |
| 00:22:17> 00:22:20: | We have a transition fund framework in place. We have                                 |
| 00:22:21> 00:22:24: | a steering committee and that's chaired by our CEO and                                |
| 00:22:24> 00:22:27: | is also members at the highest level from our senior                                  |
| 00:22:27> 00:22:30: | management team on it, including the CIOCOO and how to                                |
| 00:22:30> 00:22:34: | sustainability and they govern the use of this fund and                               |
| 00:22:34> 00:22:37: | decide how to use it. And there's certain criterias that                              |
| 00:22:37> 00:22:39: | we have to hit in order to be able to   |
| 00:22:39> 00:22:42: | access the funds in our transition fund. And you know                                 |
| 00:22:42> 00:22:47: | that includes anything from supporting research and innovative trials.                |
| 00:22:47> 00:22:50: | Of low carbon solutions and in order to reduce energy                                 |
| 00:22:50> 00:22:54: | use intensity across our assets and also more importantly to                          |
| 00:22:54> 00:22:58: | train and upskill not only our team, but our supply                                   |
| 00:22:58> 00:23:01: | chain and the wider stakeholders in the market and how                                |
| 00:23:01> 00:23:05: | we can develop and operate as opposed 0 carbon assets.                                |
| 00:23:08> 00:23:11: | Thank you. That's very helpful. Right, Jeremy?  |
| 00:23:12> 00:23:16: | You are an associate actor with 103. You actually do                                  |
| 00:23:16> 00:23:20: | work on the the sea change work and you especially                                    |
| 00:23:20> 00:23:24: | focus on the carbon pricing work and you've spoken to                                 |
| 00:23:24> 00:23:30: | many different Members and why the industry<br>representatives already on their       |
| 00:23:30> 00:23:34: | views on carbon pricing. Can you reflect on that and                                  |

| 00:23:34> 00:23:38: | also from your broader experience because you've been<br>working on  |
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| 00:23:38> 00:23:41: | climate finance for many years.                                      |
| 00:23:41> 00:23:46: | Across many different sectors. Can you share learnings from that?    |
| 00:23:48> 00:23:51: | Absolutely. Thanks, Lisette and thanks everybody. I see in looking   |
| 00:23:51> 00:23:54: | through the participant list that some of the people who             |
| 00:23:54> 00:23:57: | are joining are those that I've spoken with already on               |
| 00:23:57> 00:24:01: | this assignment and others are friends from other projects<br>I've   |
| 00:24:01> 00:24:03: | worked on. So it's great to see so many familiar                     |
| 00:24:03> 00:24:06: | faces. I have two sets of comments, so one in                        |
| 00:24:06> 00:24:09: | response to what Simon has presented earlier and then one            |
| 00:24:09> 00:24:11: | just generally on everything that I've.                              |
| 00:24:11> 00:24:15: | Gathered from especially the past two weeks of intensive interviews. |
| 00:24:15> 00:24:19: | So I've conducted over the past two weeks about 35                   |
| 00:24:19> 00:24:23: | interviews with a wide variety of stakeholders, and I effectively    |
| 00:24:23> 00:24:26: | have broken the responses that I've received as far as               |
| 00:24:26> 00:24:30: | carbon pricing into three different camps. The first? Those like     |
| 00:24:30> 00:24:34: | Zara, who wholeheartedly agree with the idea that we need            |
| 00:24:34> 00:24:38: | to find ways to incorporate carbon pricing and are experimenting     |
| 00:24:38> 00:24:41: | in different ways. Zara, as you said, there is no                    |
| 00:24:41> 00:24:41: | one.   |
| 00:24:41> 00:24:45: | Foolproof method. But instead there are different people who are     |
| 00:24:45> 00:24:47: | trying different ways to make this work. And one of                  |
| 00:24:47> 00:24:50: | the things that we're hoping with the efforts that we're             |
| 00:24:50> 00:24:53: | doing under sea change is that we will at least                      |
| 00:24:53> 00:24:56: | be able to introduce maybe different typologies that others who      |
| 00:24:56> 00:24:59: | are questioning this can start to adopt into the work                |
| 00:24:59> 00:25:02: | that they're doing. The second group, and probably the largest       |
| 00:25:02> 00:25:05: | group though, of everybody that I've spoken with, is those           |
| 00:25:05> 00:25:08: | that agree in principle with the idea that we need                   |
| 00:25:08> 00:25:09: | to find ways.  |
| 00:25:09> 00:25:12: | To be responsive to carbon, to be responsive to emissions            |
| 00:25:12> 00:25:16: | across, whether it be embodied carbon or operational carbon, but     |
| 00:25:16> 00:25:19: | find it very difficult to figure out the best way                    |

| 00:25:19> 00:25:23: | to operationalize this concept. And so they're looking for guidance, |
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| 00:25:23> 00:25:26: | looking to see what those emerging best practices can and            |
| 00:25:26> 00:25:29: | should be. And then the third camp are those that                    |
| 00:25:29> 00:25:33: | effectively are rejecting the thesis of carbon pricing because       |
|                     | they   |
| 00:25:33> 00:25:36: | say carbon pricing is already internalized in the work that          |
| 00:25:36> 00:25:37: | we're doing.   |
| 00:25:37> 00:25:40: | And until there is a clear mandate or regulations that               |
| 00:25:40> 00:25:43: | force us to follow certain pathways, we will be looking              |
| 00:25:43> 00:25:46: | instead at those that are maybe early adopters is doing              |
| 00:25:47> 00:25:50: | this from a voluntary perspective, but we don't necessarily think    |
| 00:25:50> 00:25:53: | that we want to be industry leaders in looking at                    |
| 00:25:53> 00:25:56: | this. So I think that it's interesting to look to                    |
| 00:25:56> 00:25:59: | see the ways that different people are approaching this philosophy.  |
| 00:25:59> 00:26:03: | Part of the philosophy though that we're that I'm gathering          |
| 00:26:03> 00:26:05: | and that I've seen in real estate but that I've                      |
| 00:26:05> 00:26:07: | seen in other sectors as well.                                       |
| 00:26:07> 00:26:10: | Is this question of should we be calling it carbon                   |
| 00:26:10> 00:26:14: | pricing because pricing or tax has a certain implication and         |
| 00:26:14> 00:26:18: | rather than calling it something that has a negative connotation     |
| 00:26:18> 00:26:20: | that's more of a stick, Is there in fact a                           |
| 00:26:20> 00:26:23: | way that we can offer a carrot? So is there                          |
| 00:26:23> 00:26:26: | a way that we can either offer a carbon incentive                    |
| 00:26:26> 00:26:29: | to those that are early adopters or to encourage early               |
| 00:26:29> 00:26:32: | adoption and or a carbon dividend to to make this                    |
| 00:26:32> 00:26:36: | just from the semantics behind it something that people are?         |
| 00:26:36> 00:26:39: | Comfortable with or want to pursue, which I think couples            |
| 00:26:40> 00:26:43: | very nicely with the concept of the idea of anticipatory             |
| 00:26:43> 00:26:46: | adoption of some of these concepts. So rather than waiting           |
| 00:26:46> 00:26:49: | for that regulation to come in and I think that                      |
| 00:26:49> 00:26:52: | the trends definitely are indicating that that we are heading        |
| 00:26:52> 00:26:56: | in that direction of seeing something mandatory coming in.<br>The    |
| 00:26:56> 00:26:59: | question is the timing on that, how do we anticipate                 |
| 00:26:59> 00:27:01: | this, how do we look to see the the best                             |
| 00:27:01> 00:27:04: | ways to be able to already factor this into decision                 |
| 00:27:04> 00:27:05: | making.  |
| 00:27:05> 00:27:08: | The final thing though that I'll say on this and                     |
| 00:27:08> 00:27:11: | I think Lizette, as per your question on what I've                   |
|                     |  |

| 00:27:11> 00:27:14: | seen in other sectors is this concept of what we                               |
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| 00:27:14> 00:27:17: | see in transportation and what we see in the power                             |
| 00:27:18> 00:27:20: | sector. So looking at EVs and what that means as                               |
| 00:27:21> 00:27:24: | far as that transition away from internal combustion engine to                 |
| 00:27:24> 00:27:28: | electric vehicles, that's largely driven by the fact again that                |
| 00:27:28> 00:27:32: | people are seeing that the regulations have changed and so                     |
| 00:27:32> 00:27:33: | we see that manufacturers.   |
| 00:27:34> 00:27:37: | And others who are participants in the supply chain are                        |
| 00:27:37> 00:27:40: | responding to that. And so they're saying we need to                           |
| 00:27:40> 00:27:43: | change how we do business as usual. Same thing in                              |
| 00:27:43> 00:27:46: | the power sector. We're seeing that there's a migration away                   |
| 00:27:46> 00:27:50: | from fossil fuels and increasingly towards renewables, driven by policymakers. |
| 00:27:50> 00:27:53: | And so the industries in those sectors have said we                            |
| 00:27:53> 00:27:56: | know that we need to be responsive and so we                                   |
| 00:27:56> 00:27:58: | need to change the way we do business as usual.                                |
| 00:27:58> 00:28:01: | My challenge, and I'll throw out, is that a lot                                |
| 00:28:01> 00:28:03: | of people that I've spoken to are saying.                                      |
| 00:28:04> 00:28:06: | You know what, we we are resistant to change and                               |
| 00:28:06> 00:28:08: | I feel like that's something that I get as a                                   |
| 00:28:09> 00:28:12: | common trope across the real estate and built environment players.             |
| 00:28:12> 00:28:14: | So is there in fact a way that we can  |
| 00:28:14> 00:28:17: | encourage not just the industry leaders but those who are                      |
| 00:28:17> 00:28:20: | generally thinking about this to follow that trend? As far                     |
| 00:28:20> 00:28:22: | as Simon's presentation, just a few small things that I                        |
| 00:28:22> 00:28:25: | thought were really interesting that hopefully we can pick up                  |
| 00:28:26> 00:28:26: | on later the 1st.  |
| 00:28:27> 00:28:29: | I thought that it was terrific to be able to                                   |
| 00:28:29> 00:28:32: | see New York and Tokyo as two examples, but it                                 |
| 00:28:32> 00:28:35: | really drives that we're looking at a very localized place                     |
| 00:28:35> 00:28:38: | based solution set rather than something which is more sweeping.               |
| 00:28:38> 00:28:41: | So is there a way that we can encourage that                                   |
| 00:28:41> 00:28:44: | the lessons learned from place based localized approaches can be               |
| 00:28:44> 00:28:47: | applied on a more general level? The second I appreciate                       |
| 00:28:47> 00:28:50: | the McKinsey study and the fact that there is an                               |
| 00:28:50> 00:28:53: | analysis of those 2500 firms, I am concerned about the                         |
| 00:28:53> 00:28:56: | fact that that's not necessarily capturing the smaller players.                |
| 00:28:56> 00:28:59: | And I think that this is going to be extremely                                 |
| 00:28:59> 00:29:02: | difficult for smaller players who will be I think far                          |
| 00:29:02> 00:29:06: | more price sensitive when looking at the question of                           |

|                     | decarbonization,   |
|---------------------|--|
| 00:29:06> 00:29:09: | especially of existing building stock. And then the Third Point    |
| 00:29:09> 00:29:12: | is the, the slide where it showed the regional variations          |
| 00:29:12> 00:29:15: | in carbon pricing. And I think that we need to                     |
| 00:29:15> 00:29:16: | just recognize the fact that.                                      |
| 00:29:17> 00:29:20: | As I've been doing the conversations I have with people            |
| 00:29:20> 00:29:23: | who are focused on UK versus EU versus US, there's                 |
| 00:29:23> 00:29:26: | different levels of appreciation and different levels of desire to |
| 00:29:26> 00:29:29: | adhere to different things. I know I've spoken for quite           |
| 00:29:29> 00:29:32: | a while, so I will stop, but I really enjoy                        |
| 00:29:32> 00:29:35: | this conversation and looking forward to hearing what Emily        |
|                     | has  |
| 00:29:35> 00:29:37: | to share as well. Thank you.                                       |
| 00:29:38> 00:29:41: | Thank you. Maybe one follow up question before I get               |
| 00:29:41> 00:29:44: | to to Emily, because I was triggered by what you                   |
| 00:29:44> 00:29:46: | said about transportation and.                                     |
| 00:29:47> 00:29:51: | Power as the other industries real estate is also known            |
| 00:29:51> 00:29:57: | as being extremely fragmented with even the biggest owner manager  |
| 00:29:57> 00:30:02: | having only a very small percentage of the total building          |
| 00:30:02> 00:30:06: | stock. Well, I think the other industries there is more            |
| 00:30:06> 00:30:11: | massive and bigger players. How do you see that complicates        |
| 00:30:11> 00:30:13: | the issue even more?   |
| 00:30:14> 00:30:17: | So absolutely, if you look at the fact that there                  |
| 00:30:17> 00:30:21: | is no majority shareholder that can drive that versus if           |
| 00:30:21> 00:30:24: | you look at, if you look at transportation, you look               |
| 00:30:24> 00:30:27: | at the fact that we are talking about major manufacturers          |
| 00:30:27> 00:30:30: | who do have a large percentage of market share. That               |
| 00:30:30> 00:30:31: | being said.  |
| 00:30:31> 00:30:34: | There are and maybe this is too much of A                          |
| 00:30:34> 00:30:37: | digression, but there are some new players who are coming          |
| 00:30:37> 00:30:39: | in. I mean you look at what Tesla has been                         |
| 00:30:39> 00:30:42: | able to do in the market and that's relatively new.                |
| 00:30:42> 00:30:45: | Some of the other players who are coming in who                    |
| 00:30:45> 00:30:48: | are seeing opportunities to step in, I feel like we                |
| 00:30:48> 00:30:50: | can start pointing to that as being ways that there                |
| 00:30:50> 00:30:53: | is responsiveness. But I think that it also comes back             |
| 00:30:53> 00:30:57: | to the point of this conversation around carbon pricing and        |
| 00:30:57> 00:31:00: | the fact that that whether you're established or whether you       |
| 00:31:00> 00:31:01: | are new to market.   |
| 00:31:02> 00:31:04: | You're starting to look at ways that you can play                  |
| 00:31:04> 00:31:08: | within existing and soon to be passed regulation. And so           |

| 00:31:08> 00:31:10: | I feel like we need to be examining that more                           |
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| 00:31:10> 00:31:13: | carefully. But I think it also plays into that question                 |
| 00:31:13> 00:31:16: | of smaller players and when we look at those smaller                    |
| 00:31:16> 00:31:20: | players. So I've had conversations with major players and with.         |
| 00:31:20> 00:31:23: | Small asset owners and when we look at those smaller                    |
| 00:31:23> 00:31:26: | players, they get very concerned about what this will mean              |
| 00:31:26> 00:31:28: | from a pricing perspective for them. And so I think                     |
| 00:31:28> 00:31:31: | that to your point on fragmentation, it becomes even more               |
| 00:31:31> 00:31:34: | of a sensitive question in real estate and built environment            |
| 00:31:34> 00:31:36: | than for others, which is why in part of the                            |
| 00:31:36> 00:31:38: | sea change work we are looking at what does this                        |
| 00:31:38> 00:31:41: | mean for smaller players rather than just for the industry              |
| 00:31:41> 00:31:42: | leaders? Thank you.   |
| 00:31:44> 00:31:47: | Thank you, Jeremy. We'll come back to the sort of                       |
| 00:31:47> 00:31:50: | unintended consequences topic later as well.                            |
| 00:31:50> 00:31:54: | And Emily, very interested to hear your views on the                    |
| 00:31:55> 00:31:55: | topic.  |
| 00:31:57> 00:32:00: | I think we're at a similar stage to what Zara                           |
| 00:32:00> 00:32:02: | described. So as far as I am, we've set a                               |
| 00:32:02> 00:32:05: | global net 0 carbon target of 2040 and we've used                       |
| 00:32:05> 00:32:10: | the better building partnership climate commitment to frame that, which |
| 00:32:10> 00:32:14: | encourages us to think about whole buildings and also embodied          |
| 00:32:14> 00:32:14: | carbon.   |
| 00:32:15> 00:32:18: | When we came to baseline our embodied carbon, because we                |
| 00:32:19> 00:32:22: | don't do that much development at the moment, it's it                   |
| 00:32:22> 00:32:26: | was actually less than about 10% of our overall emissions.              |
| 00:32:26> 00:32:29: | Our emissions are from operational, so our primary focus is             |
| 00:32:30> 00:32:33: | on reducing where we can energy and also looking at                     |
| 00:32:33> 00:32:36: | how we build in climate resilience. But that said, we                   |
| 00:32:36> 00:32:40: | do have some funds that are doing significant developments.             |
| 00:32:40> 00:32:44: | And one in particular is really forward thinking and we've              |
| 00:32:44> 00:32:47: | got a fantastic client that we work with who's a                        |
| 00:32:47> 00:32:51: | major pension fund and they've been allowing us to experiment           |
| 00:32:51> 00:32:54: | with carbon pricing with the view that we need to                       |
| 00:32:54> 00:32:58: | offset emissions in order to become net 0 carbon. So                    |
| 00:32:58> 00:33:02: | we've already designed the building to be extremely low carbon,         |
| 00:33:02> 00:33:05: | you know meetings of 350 kilograms of CO2 square meter                  |

| 00:33:05> 00:33:08: | and it's as low as we can for this industrial                              |
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| 00:33:08> 00:33:09: | logistics asset.   |
| 00:33:10> 00:33:13: | And it's Net 0 Carbon ready in the sense of                                |
| 00:33:13> 00:33:16: | if we bring in a tenant who operates it in                                 |
| 00:33:16> 00:33:18: | the way that we need them to, it can be                                    |
| 00:33:18> 00:33:21: | operated at Net 0 Carbon. What we can't get rid                            |
| 00:33:21> 00:33:25: | of is the fact that building buildings or even retrofitting                |
| 00:33:25> 00:33:30: | buildings creates embodied carbon, whether you're bringing solar panels to |
| 00:33:30> 00:33:34: | site or if you're having to build buildings from scratch                   |
| 00:33:34> 00:33:38: | because there's a need to have a wider sustainability angle.               |
| 00:33:39> 00:33:42: | And for us, we've been looking at how we were                              |
| 00:33:42> 00:33:45: | to offset that residual piece that we just could not                       |
| 00:33:45> 00:33:48: | get any lower for whichever reasons they were. And we                      |
| 00:33:48> 00:33:51: | first of all started looking at the UK carbon market                       |
| 00:33:51> 00:33:54: | and forestry and thought great we'll we'll go and offset                   |
| 00:33:54> 00:33:57: | through the forestry. Realize we can't do that because it                  |
| 00:33:57> 00:34:00: | doesn't exist enough credits yet. There will be PIU's and                  |
| 00:34:00> 00:34:04: | pending issuance units and you can't use that. We secondly,                |
| 00:34:04> 00:34:07: | we looked at the overseas market like Vera and others.                     |
| 00:34:07> 00:34:12: | But conscious that that would be very, very controversial                  |
|                     | given  |
| 00:34:12> 00:34:16: | that there's a lot around difference in carbon offsetting at               |
| 00:34:16> 00:34:19: | the moment and how effective they are. So we then                          |
| 00:34:19> 00:34:23: | suggested to the client, why don't we set up our                           |
| 00:34:23> 00:34:26: | own carbon pricing and we were looking around 95 to                        |
| 00:34:26> 00:34:29: | over ??100 per ton and the exact amount is still                           |
| 00:34:29> 00:34:33: | being investigated and through that we will set up a                       |
| 00:34:33> 00:34:36: | decarbonization fund which is looking to.                                  |
| 00:34:36> 00:34:39: | Not just retrofit buildings because I agree with Zara, we                  |
| 00:34:39> 00:34:43: | should be retrofitting as part of what we're doing. But                    |
| 00:34:43> 00:34:46: | in particular, we had long discussions with the client about               |
| 00:34:46> 00:34:50: | how can that fund be leveraged to help tenant emissions.                   |
| 00:34:50> 00:34:52: | And in real estate as it is fragmented, we have                            |
| 00:34:52> 00:34:55: | a lot of buildings where they're on what they call                         |
| 00:34:55> 00:34:57: | fully repaired and insured leases.   |
| 00:34:58> 00:35:02: | Where we don't necessarily have control over the operation of              |
| 00:35:02> 00:35:05: | that building and if we actually want to get it                            |
| 00:35:05> 00:35:07: | down to zero, we need to work with the tenant.                             |
| 00:35:08> 00:35:10: | So for us it's about looking at how we set                                 |
| 00:35:10> 00:35:13: | up a fund to get net 0 carbon across the                                   |
| 00:35:13> 00:35:16: | whole portfolio, not just one or two assets and to                         |

| 00:35:16> 00:35:19: | use that fund for that purpose. However, we also need                 |
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| 00:35:19> 00:35:22: | to offset to a certain extent to be compliant with                    |
| 00:35:22> 00:35:24: | current offsetting guidelines.  |
| 00:35:25> 00:35:28: | So we're using the other part of that carbon price                    |
| 00:35:28> 00:35:32: | to go and look for high quality removals, offsets where               |
| 00:35:32> 00:35:35: | we can, so that we're both meeting the removals and                   |
| 00:35:35> 00:35:40: | we're meeting this decarbonization fund. We've agreed with the client |
| 00:35:40> 00:35:45: | that if carbon pricing significantly increases in the market, so      |
| 00:35:45> 00:35:48: | at the moment carbon offset is anywhere between 20 to                 |
| 00:35:48> 00:35:50: | 40 units even for some removals.                                      |
| 00:35:51> 00:35:54: | Then we will review our strategy and once it gets                     |
| 00:35:54> 00:35:56: | to the point where 50% of the carbon price would                      |
| 00:35:57> 00:35:59: | have to be spent on offsetting, we won't do that                      |
| 00:35:59> 00:36:03: | anymore. We'll purely keep it as a carbonization fund. So             |
| 00:36:03> 00:36:05: | we're very lucky that we're using this fund and this                  |
| 00:36:06> 00:36:08: | client as a as a trial and they've been really                        |
| 00:36:08> 00:36:11: | happy to be the Guinea pig. And then what we're                       |
| 00:36:11> 00:36:13: | looking to do next is look at how we can                              |
| 00:36:13> 00:36:15: | roll that strategy out wider.   |
| 00:36:18> 00:36:20: | Thank you. That's very helpful.                                       |
| 00:36:21> 00:36:25: | Maybe Zara and Emily asking you both in terms of                      |
| 00:36:25> 00:36:29: | when you started, you said the initial objectives. What kind          |
| 00:36:29> 00:36:32: | of did it bring? Did it, did you achieve the                          |
| 00:36:33> 00:36:37: | objectives? I also take Zara's previous comment on we're learning     |
| 00:36:37> 00:36:41: | along the way and and maybe something on what have                    |
| 00:36:41> 00:36:44: | been the biggest challenges you've seen so far.                       |
| 00:36:47> 00:36:47: | Who wants to start?   |
| 00:36:48> 00:36:51: | I can give Emily a break for a moment. I                              |
| 00:36:51> 00:36:55: | think there's two parts. So obviously we're still in the              |
| 00:36:55> 00:36:59: | infancy stage of it. So I think like Emily referred                   |
| 00:36:59> 00:37:03: | to, setting the price is a really big part of                         |
| 00:37:03> 00:37:06: | it and takes a huge amount. And you know, we                          |
| 00:37:06> 00:37:07: | started on this.  |
| 00:37:08> 00:37:11: | A good few years ago and obviously 80 year old                        |
| 00:37:11> 00:37:14: | is our price and when initially we started it, my                     |
| 00:37:14> 00:37:17: | question was can we review it. So I suppose we                        |
| 00:37:18> 00:37:21: | all think in different ways, but I'm a have a                         |
| 00:37:21> 00:37:24: | real estate background so I sort of am now thinking                   |
| 00:37:24> 00:37:27: | we actually do badge to that. We have a rent                          |
| 00:37:27> 00:37:30: | review and property terms for our carbon price and in                 |

| 00:37:30> 00:37:34: | 2025 we're going to have a carbon rent review for                           |
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| 00:37:34> 00:37:37: | want of a better word where we sit back and                                 |
| 00:37:37> 00:37:37: | evaluate.   |
| 00:37:38> 00:37:41: | You know the pricing and assembly set costs are fluctuating.                |
| 00:37:41> 00:37:43: | We're seeing it as well. But but in setting the                             |
| 00:37:44> 00:37:46: | initial price, I think that was the one of the                              |
| 00:37:46> 00:37:48: | hardest parts of it. And what you do is we                                  |
| 00:37:48> 00:37:51: | have to look up here, it's we looked at national                            |
| 00:37:51> 00:37:54: | guidance at the time, you know Ireland's Climate Action Bill                |
| 00:37:54> 00:37:57: | and where we felt pricing was going to get to                               |
| 00:37:57> 00:37:59: | by the late, you know twenty 20s. We felt like                              |
| 00:37:59> 00:38:02: | it needed to be at a meaningful level and that's                            |
| 00:38:02> 00:38:05: | going back to some of the points Jeremy picked up                           |
| 00:38:05> 00:38:06: | on his interviews.  |
| 00:38:06> 00:38:09: | But not at a level where it's going to meet                                 |
| 00:38:09> 00:38:12: | huge resistance. And for us, really when you think about                    |
| 00:38:12> 00:38:15: | it, the focus should be on the correct measurement of                       |
| 00:38:15> 00:38:18: | the carbon emissions. What we're doing with the internal pricing            |
| 00:38:18> 00:38:22: | is we're translating it into money to make it measurable                    |
| 00:38:22> 00:38:25: | because in real estate we like to measure things. But                       |
| 00:38:25> 00:38:28: | really what we should be doing is factoring and having                      |
| 00:38:28> 00:38:31: | a really small transition fund because we're not actually, you              |
| 00:38:31> 00:38:34: | know, having that much embodied carbon being produced.                      |
| 00:38:35> 00:38:38: | So, so I think that's what we're learning. We're we're                      |
| 00:38:38> 00:38:42: | also learning in terms of measurement as well and we're                     |
| 00:38:42> 00:38:46: | really intensifying our methodology there. We use obviously Courage parties |
| 00:38:46> 00:38:49: | who assist with the calculation of our LCAS and we                          |
| 00:38:49> 00:38:53: | obviously at the beginning of a design process do preliminary               |
| 00:38:53> 00:38:56: | ones and that can be in developments or in assets.                          |
| 00:38:56> 00:38:59: | And then at the end of a project we do                                      |
| 00:38:59> 00:39:02: | it to look I suppose what happened on a representation                      |
| 00:39:02> 00:39:04: | as fair as possible of the end result.                                      |
| 00:39:05> 00:39:09: | And you mentioned, I suppose challenges as well that we've                  |
| 00:39:09> 00:39:12: | had. I think education is key around us. You know,                          |
| 00:39:12> 00:39:14: | when I first heard about it, I probably wasn't as                           |
| 00:39:14> 00:39:17: | much of A champion as I am now because the                                  |
| 00:39:17> 00:39:20: | perception is, and I think they'll probably come up a                       |
| 00:39:20> 00:39:23: | lot with Jeremy, that it's a bit of a disadvantage                          |
| 00:39:23> 00:39:26: | if you were looking at a development appraisal compared to                  |
| 00:39:26> 00:39:29: | a competitor and you're bidding on something in the market                  |

| 00:39:29> 00:39:31: | and I think it came up in Simon's.                                     |
|---------------------|--|
| 00:39:32> 00:39:35: | Comments as well. So are you pricing yourself out of                   |
| 00:39:35> 00:39:39: | an investment situation because you're trying to do better,<br>but     |
| 00:39:39> 00:39:42: | actually it shouldn't be seen like that. It's just a                   |
| 00:39:42> 00:39:47: | factor in investment consideration like everything else. So when we're |
| 00:39:47> 00:39:51: | looking at appraisals or things we obviously have, it's factored       |
| 00:39:51> 00:39:55: | into our appraisals, but we're able to extract it. It's                |
| 00:39:55> 00:39:57: | a one line almost like in the DCF as a                                 |
| 00:39:57> 00:40:00: | shadow cost. So we can extract it to look at                           |
| 00:40:00> 00:40:00: | what.  |
| 00:40:01> 00:40:03: | We think peers are pricing based on not having it                      |
| 00:40:03> 00:40:06: | in and then we have to be happy that are                               |
| 00:40:06> 00:40:09: | we happy having a smaller profit knowing that we're doing              |
| 00:40:09> 00:40:12: | something better, we're creating additionality you know in our figures |
| 00:40:12> 00:40:15: | and our appraisals. So I think once you start changing                 |
| 00:40:15> 00:40:18: | your mindset of how you're looking at things, it doesn't               |
| 00:40:18> 00:40:21: | have to be a negative just because it's called a                       |
| 00:40:21> 00:40:23: | tax or a cost or a levy. And so and                                    |
| 00:40:23> 00:40:26: | you know Jeremy's right, we probably badge it wrong if                 |
| 00:40:26> 00:40:28: | we just put it in money terms to make it                               |
| 00:40:28> 00:40:30: | on to file. So we know the cost of it.                                 |
| 00:40:33> 00:40:36: | Thank you. That's really helpful. In the meantime, we've also          |
| 00:40:37> 00:40:40: | received the question and I would encourage also others to             |
| 00:40:40> 00:40:43: | ask questions. And maybe Emily, you can also address that              |
| 00:40:43> 00:40:46: | because I think it serves the topic that we're not                     |
| 00:40:46> 00:40:49: | talking about really well. And you say more about how                  |
| 00:40:49> 00:40:53: | you're making sure you're actually measuring the carbon oil renaissed  |
| 00:40:53> 00:40:57: | gas emissions associated with your activity. What tools and data       |
| 00:40:57> 00:40:58: | are you using?   |
| 00:41:01> 00:41:05: | So we've just appointed a a carbon consultant across the               |
| 00:41:05> 00:41:08: | whole portfolio to be able to manage the net 0                         |
| 00:41:08> 00:41:11: | decarbonization pathway and part of their role is to be                |
| 00:41:11> 00:41:15: | able to capture the data. So the way that we've                        |
| 00:41:15> 00:41:18: | approached developments to date is to do a whole life                  |
| 00:41:18> 00:41:22: | carbon assessment and then to follow through. So that's the            |
| 00:41:22> 00:41:25: | kind of pre assessment and a post assessment.                          |
| 00:41:26> 00:41:28: | And that helps us to track what are the, what's                        |

| 00:41:28> 00:41:32: | the embodied carbon that's coming from these developments, but also |
|---------------------|---|
| 00:41:32> 00:41:34: | what are the hotspots. And what we found from that                  |
| 00:41:35> 00:41:37: | is to see what the industry finds, which is still                   |
| 00:41:37> 00:41:40: | is very carbon intensive. So then the major change that             |
| 00:41:40> 00:41:43: | we're looking at making is on the next development that             |
| 00:41:43> 00:41:46: | this fund is doing, they are actively now going to                  |
| 00:41:46> 00:41:49: | have discussions with our insurers to see if we could               |
| 00:41:49> 00:41:49: | use CLT.  |
| 00:41:50> 00:41:52: | Was when we tried the first time to use cross                       |
| 00:41:52> 00:41:55: | laminated timber, it was too early and we weren't able              |
| 00:41:55> 00:41:57: | to get the insurance that we needed. So I think                     |
| 00:41:58> 00:42:01: | from that perspective by doing a whole life carbon                  |
|                     | assessment,   |
| 00:42:01> 00:42:04: | we're able to track that and that includes things like              |
| 00:42:04> 00:42:07: | the embodied carbon that you're bringing to site through            |
|                     | things  |
| 00:42:07> 00:42:10: | like solar panels as well as it does through the                    |
| 00:42:10> 00:42:13: | construction process. So we're trying to make it as rigorous        |
| 00:42:13> 00:42:14: | as possible.  |
| 00:42:15> 00:42:18: | Currently we hold that data just on spreadsheets, but the           |
| 00:42:18> 00:42:21: | intention is that it will go into a data platform                   |
| 00:42:21> 00:42:24: | that we have where we store all our operational energy              |
| 00:42:24> 00:42:28: | emissions. So that's our next phase, but data is really             |
| 00:42:28> 00:42:30: | important and it it's one of the areas.                             |
| 00:42:30> 00:42:31: | That I think.   |
| 00:42:31> 00:42:33: | We struggle with not not just us, but as an                         |
| 00:42:33> 00:42:36: | industry, but on how to kind of track all of                        |
| 00:42:36> 00:42:36: | this.   |
| 00:42:38> 00:42:38: | Thank you.  |
| 00:42:39> 00:42:43: | I would like to move on also triggered by Zara's                    |
| 00:42:43> 00:42:47: | previous point and we've heard about it more around the             |
| 00:42:47> 00:42:52: | competitiveness issue. If you're one of the first movers in         |
| 00:42:52> 00:42:57: | terms of why is the industry approach so important and              |
| 00:42:57> 00:43:01: | would that help kind of the adoption of carbon pricing              |
| 00:43:01> 00:43:04: | us all moving in the same direction?                                |
| 00:43:05> 00:43:09: | And maybe, Jeremy, I see you nodding, maybe I'll hand               |
| 00:43:09> 00:43:13: | over to you first, it's how important is that industry              |
| 00:43:13> 00:43:18: | approach and and how can it help the further process                |
| 00:43:18> 00:43:23: | of decarbonization where there's already a lot happening,           |
|                     | many companies  |
| 00:43:24> 00:43:27: | have pledges, etc. What else can it do?                             |
| 00:43:28> 00:43:30: | So would love to answer that. I just want to.                       |
|                     |   |

| 00:43:31> 00:43:33: | Also do a quick response to some of the Emily                |
|---------------------|--|
| 00:43:33> 00:43:36: | raised as an important point. And so in the interviews,      |
| 00:43:36> 00:43:39: | one of the things I have been asking is on                   |
| 00:43:39> 00:43:42: | the embodied carbon question, What are we looking at as      |
| 00:43:42> 00:43:45: | far as construction materials? And when we talk about the    |
| 00:43:45> 00:43:47: | fact that if we are, if we want to go                        |
| 00:43:47> 00:43:50: | vertical and we want to have that density rather than        |
| 00:43:50> 00:43:53: | have horizontal sprawl, we do need to be looking at          |
| 00:43:53> 00:43:56: | construction materials that can handle that load. And so it  |
| 00:43:56> 00:43:59: | typically will be looking at steel and concrete.             |
| 00:43:59> 00:44:02: | Yet the idea is that we can in fact be                       |
| 00:44:02> 00:44:04: | relying more on on wood and how do we bring                  |
| 00:44:04> 00:44:07: | timber in CLT in particular in a meaningful way. And         |
| 00:44:07> 00:44:10: | one of the challenges and I think a lot of                   |
| 00:44:10> 00:44:13: | people want to find the the reasons why they can't           |
| 00:44:13> 00:44:16: | adopt things that are helpful from a carbon or environmental |
| 00:44:16> 00:44:20: | perspective. One of the things people raise is well the      |
| 00:44:20> 00:44:23: | insurance industry is not keeping up with us. And so         |
| 00:44:23> 00:44:25: | I feel like if we can find where those pain                  |
| 00:44:25> 00:44:28: | points are that prohibit the adoption of some of these.      |
| 00:44:29> 00:44:32: | These ideas that ends up being something that could be       |
| 00:44:32> 00:44:35: | helpful to point to. It of course triggers the next          |
| 00:44:35> 00:44:37: | question, which is, is that if we have a full                |
| 00:44:37> 00:44:41: | industry shift away from steel and concrete, which I think   |
| 00:44:41> 00:44:44: | is unlikely to happen. But if we start seeing more           |
| 00:44:44> 00:44:47: | timber get incorporated, is there a sufficient amount of     |
| 00.77.77            | sustainable  |
| 00:44:48> 00:44:50: | timber that gets brought in and how do we make               |
| 00:44:50> 00:44:51: | sure that that's not?  |
| 00:44:52> 00:44:55: | Creating a whole set of other unintended consequences from   |
|                     | а  |
| 00:44:55> 00:44:59: | carbon and environmental perspective, recognizing the        |
|                     | importance of forestry and                                   |
| 00:44:59> 00:45:02: | helping to make sure that climate change is mitigated as     |
| 00:45:02> 00:45:05: | much as possible. So there is that point that we're,         |
| 00:45:05> 00:45:07: | I think we also need to keep in mind, but                    |
| 00:45:07> 00:45:08: | as far as can.   |
| 00:45:08> 00:45:11: | You mind if I just add to your business, can                 |
| 00:45:11> 00:45:14: | you do that as well slightly so I think?                     |
| 00:45:14> 00:45:18: | You know we we've obviously used CLT in construction here.   |
| 00:45:18> 00:45:22: | We built the first timber frame logistics asset in the       |
| 00:45:22> 00:45:26: | double market. I think when you're looking at timber you     |
| 00:45:26> 00:45:29: | have to be look at what you're working with. So              |
|                     |  |

| 00:45:29> 00:45:32: | from the logistics point it worked on the tenant was                      |
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| 00:45:32> 00:45:36: | very engaged and operating in that zero asset and that's                  |
| 00:45:36> 00:45:39: | key around engagement from stakeholders but also.                         |
| 00:45:40> 00:45:42: | I don't think we're ever going to move to an                              |
| 00:45:42> 00:45:46: | all timber construction, you know, to to reduce our embodied              |
| 00:45:46> 00:45:49: | carbon. But what we have done now is we're looking                        |
| 00:45:49> 00:45:52: | at, you know, construction differently and it's not just being            |
| 00:45:52> 00:45:56: | because of the carbon pricing, but it's definitely consideration. We've   |
| 00:45:56> 00:45:59: | 2 assets on site at the moment. One of them                               |
| 00:45:59> 00:46:01: | we've retained 92% of the existing structure.                             |
| 00:46:02> 00:46:05: | And the second, we've retained 75% of the existing concrete               |
| 00:46:05> 00:46:08: | structure and what that's allowed us to do in the                         |
| 00:46:08> 00:46:11: | second one is we've saved 60% of the embodied carbon                      |
| 00:46:11> 00:46:15: | by retaining that. So it's not necessarily always moving to               |
| 00:46:15> 00:46:18: | a more sustainable product like timber, but it's actually we're           |
| 00:46:18> 00:46:22: | getting your supply chain and your advisors to reevaluate the             |
| 00:46:22> 00:46:24: | way you look at it. In the past, we would                                 |
| 00:46:24> 00:46:28: | have knocked down buildings, you know most developers<br>wouldn't rebuild |
| 00:46:29> 00:46:32: | them. Now you're challenging your design team, your supply.               |
| 00:46:32> 00:46:35: | Light chain on looking at using what's there, you know,                   |
| 00:46:35> 00:46:38: | trying to save on the embodied carbon. So sometimes actually              |
| 00:46:38> 00:46:41: | by keeping the concrete that has been there already, we're                |
| 00:46:41> 00:46:44: | able to really save. But again, it's a partnership, it's                  |
| 00:46:44> 00:46:48: | a partnership with your shareholders, it's a partnership with financing,  |
| 00:46:48> 00:46:51: | it's a partnership with tenants. And I think that's key.                  |
| 00:46:51> 00:46:54: | But carbon pricing isn't the driver of it, but it's                       |
| 00:46:54> 00:46:55: | definitely a consideration in it.   |
| 00:46:59> 00:47:00: | Emily, did you want to jump in before I?                                  |
| 00:47:01> 00:47:04: | I just completely agree with Zara. I put a post                           |
| 00:47:04> 00:47:06: | on LinkedIn about a week and a half ago about                             |
| 00:47:06> 00:47:09: | one of our retrofit projects and I was astounded when                     |
| 00:47:09> 00:47:11: | we went to site that it looks like a brand                                |
| 00:47:11> 00:47:14: | new building and development, but it's not. It's, it's a                  |
| 00:47:14> 00:47:16: | retrofit. And I think it just shows the power of                          |
| 00:47:16> 00:47:20: | retrofitting really well and not just thinking about carbon, but          |
| 00:47:20> 00:47:23: | all the other things like, you know, pedestrian access and                |
| 00:47:23> 00:47:25: | making it as inclusive as possible. And I think that's                    |
| 00:47:25> 00:47:28: | where the carbon price can really help drive that different               |
| 00:47:29> 00:47:29: | mindset.  |

| 00:47:33> 00:47:35: | Yeah. So I I think that it also comes back                                    |
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| 00:47:35> 00:47:38: | to the question that I think Simon alluded to and                             |
| 00:47:38> 00:47:41: | something that has come up in a number of the                                 |
| 00:47:41> 00:47:45: | interviews that I've been conducting, which is let's not conflate             |
| 00:47:45> 00:47:49: | carbon pricing with carbon offsets because these are two separate             |
| 00:47:49> 00:47:52: | but related concepts. And it comes down to the point                          |
| 00:47:52> 00:47:55: | that a number of people have raised, which is we                              |
| 00:47:55> 00:47:56: | can get to.   |
| 00:47:57> 00:47:59: | Close to carbon neutrality in the way that we design                          |
| 00:47:59> 00:48:03: | buildings, especially if we start incorporating other materials, but we       |
| 00:48:03> 00:48:06: | still are not going to say that a building necessarily                        |
| 00:48:06> 00:48:09: | is always going to be net zero at the point                                   |
| 00:48:09> 00:48:11: | that it's built. So if we want to say that                                    |
| 00:48:11> 00:48:13: | it is a net zero asset, we need to say  |
| 00:48:13> 00:48:17: | that we're incorporating better construction practices on the embodied carbon |
| 00:48:17> 00:48:19: | side, looking at the operational carbon.                                      |
| 00:48:20> 00:48:22: | Point as well. And then saying that if we want                                |
| 00:48:22> 00:48:25: | it to be something that can be badged as completely                           |
| 00:48:25> 00:48:28: | let's say net zero or carbon neutral, there is going                          |
| 00:48:28> 00:48:30: | to likely be a need for offsets as well. And                                  |
| 00:48:30> 00:48:32: | how do we, how do we put all of these   |
| 00:48:32> 00:48:35: | together, Which comes back to I think the question that                       |
| 00:48:35> 00:48:37: | Lizette initially asked me and I know we we went                              |
| 00:48:37> 00:48:39: | off track a little bit, but I hope it was                                     |
| 00:48:40> 00:48:42: | helpful for those who are listening and the.                                  |
| 00:48:42> 00:48:45: | I think that if we can come up with very                                      |
| 00:48:45> 00:48:48: | similar to what Sea change has done on other transition                       |
| 00:48:48> 00:48:51: | guidelines that the industry is able to adopt and accept,                     |
| 00:48:51> 00:48:53: | if we can do the same thing as far as   |
| 00:48:53> 00:48:56: | carbon pricing and make sure to. I think Zara you                             |
| 00:48:56> 00:48:59: | raised this point on awareness and education. If we can                       |
| 00:48:59> 00:49:02: | make sure that everybody at least is looking at this                          |
| 00:49:02> 00:49:05: | from the same point of view and regardless of whether                         |
| 00:49:05> 00:49:08: | we call it incentive or tax or pricing, if we                                 |
| 00:49:08> 00:49:10: | can say that this is something that everybody.                                |
| 00:49:11> 00:49:14: | Is using the same approach, the same mentality on this,                       |
| 00:49:14> 00:49:18: | then there won't necessarily be that competitor. Well, are we                 |
| 00:49:18> 00:49:21: | going to price this the same way as somebody else                             |
| 00:49:21> 00:49:23: | does? So if we can see that there is a  |

| 00:49:23> 00:49:27: | universally accepted approach to this and this is a<br>methodology        |
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| 00:49:27> 00:49:31: | that is used across the industry, I feel like that's                      |
| 00:49:31> 00:49:34: | a helpful direction to head in. It also means that                        |
| 00:49:34> 00:49:38: | policymakers will feel like this is something being well adopted          |
| 00:49:38> 00:49:39: | and accepted by industry.   |
| 00:49:40> 00:49:43: | Largely because of the fact that, again, policymakers often are           |
| 00:49:43> 00:49:47: | politicians and politicians need to be responsive to their constituents   |
| 00:49:47> 00:49:49: | if there is a price that's passed on to them,                             |
| 00:49:50> 00:49:52: | which is viewed as being unaffordable. So I feel like                     |
| 00:49:52> 00:49:55: | all of these end up needing to be things that                             |
| 00:49:55> 00:49:57: | we factor in together. And if there's a way that                          |
| 00:49:57> 00:50:00: | Uli can lead in that discussion and say this is                           |
| 00:50:00> 00:50:03: | what industry is effectively calling for, it becomes beneficial across    |
| 00:50:03> 00:50:04: | the board. Thank you.   |
| 00:50:06> 00:50:07: | Thank you.  |
| 00:50:08> 00:50:11: | Time is moving fast actually and we only have 8                           |
| 00:50:11> 00:50:15: | minutes left. There are also a couple of questions really                 |
| 00:50:15> 00:50:18: | good coming and that have come in and I would                             |
| 00:50:18> 00:50:21: | like to address a few of those. But before that,                          |
| 00:50:21> 00:50:25: | I would just briefly like to talk about the unintended                    |
| 00:50:25> 00:50:29: | consequences part because more broadly we already see this in             |
| 00:50:29> 00:50:33: | in in decarbonization. We've just launched the transition risk guidelines |
| 00:50:34> 00:50:36: | and you see that assets where the.  |
| 00:50:36> 00:50:40: | Almost the the the comparison between land value and the                  |
| 00:50:40> 00:50:44: | cost and the value of the building have a harder                          |
| 00:50:44> 00:50:47: | time or the total value have a harder time because                        |
| 00:50:47> 00:50:51: | the cost is very similar to make the business case                        |
| 00:50:51> 00:50:55: | thinking for example about social and affordable housing with a           |
| 00:50:55> 00:50:59: | potential risk also to create an even further divide in                   |
| 00:50:59> 00:51:02: | terms of what we're seeing already how do we prevent                      |
| 00:51:03> 00:51:05: | if we implement carbon price that that.                                   |
| 00:51:06> 00:51:10: | He almost increases that divide even further, not only in                 |
| 00:51:10> 00:51:14: | terms of types of property, but also types of players.                    |
| 00:51:14> 00:51:18: | We've already heard about smaller players Jeremy may be studying          |
| 00:51:18> 00:51:22: | with you, learning from other sectors where they must come                |

| 00:51:23> 00:51:27: | across unintended consequences as well other ways to<br>prevent this.             |
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| 00:51:27> 00:51:31: | Is it a dynamic pricing level? Is it? What is                                     |
| 00:51:31> 00:51:31: | it?   |
| 00:51:33> 00:51:34: | Great question and.   |
| 00:51:35> 00:51:38: | I would say that it's not, there's again no silver                                |
| 00:51:38> 00:51:41: | bullet answer that we can say this is how this                                    |
| 00:51:41> 00:51:44: | is applied across the board. But I think that having                              |
| 00:51:44> 00:51:47: | dynamic pricing levels is one of the important things that                        |
| 00:51:47> 00:51:50: | we start looking at as far as how do we   |
| 00:51:50> 00:51:53: | capture this. The other thing of course is having good                            |
| 00:51:53> 00:51:56: | feedback loops to make sure that this is not not                                  |
| 00:51:56> 00:52:01: | having significant consequences for certain players or certain certain vulnerable |
| 00:52:01> 00:52:04: | communities across what we're looking at, so being able to                        |
| 00:52:04> 00:52:04: | again.  |
| 00:52:05> 00:52:08: | Make sure that this is something that the regulations or                          |
| 00:52:08> 00:52:12: | the things that are introduced as something almost mandatory have                 |
| 00:52:12> 00:52:15: | that fluidity to be able to be responsive to what                                 |
| 00:52:15> 00:52:18: | the those changes are there happening across the board ends                       |
| 00:52:18> 00:52:21: | up being helpful. But I think that for me it                                      |
| 00:52:21> 00:52:24: | really is looking at the built environment it would be                            |
| 00:52:24> 00:52:27: | on the affordable housing side. How do we make sure                               |
| 00:52:27> 00:52:30: | that this doesn't end up becoming something if we see                             |
| 00:52:30> 00:52:32: | prices get passed along to to.  |
| 00:52:33> 00:52:35: | To those end users, how do we make sure that                                      |
| 00:52:35> 00:52:38: | especially if we're not talking about something which is fully                    |
| 00:52:38> 00:52:42: | government subsidized, but instead something where there is participation out     |
| 00:52:42> 00:52:45: | of the income of those who are maybe not in                                       |
| 00:52:45> 00:52:48: | the bottom income bracket but something slightly higher.<br>How do                |
| 00:52:48> 00:52:50: | we make sure that we are not making it something                                  |
| 00:52:50> 00:52:54: | which is so unaffordable that the percentage they're paying for                   |
| 00:52:54> 00:52:57: | rent hypothetically ends up exceeding what they can afford as                     |
| 00:52:57> 00:53:00: | part of their overall monthly income? And so how do                               |
| 00:53:00> 00:53:01: | we, how do we?  |
| 00:53:01> 00:53:04: | Maybe look to the public sector to provide a little                               |
| 00:53:04> 00:53:07: | bit of incentivization in the initial years of this transition,                   |
| 00:53:08> 00:53:11: | so that ultimately we know that this is something that                            |

| 00:53:11> 00:53:14: | is comfortable. And I would say that again that can             |
|---------------------|---|
| 00:53:14> 00:53:17: | be part of the regulations that are brought forward. But        |
| 00:53:17> 00:53:20: | on the incentivization side, so we say that this is             |
| 00:53:20> 00:53:23: | something that will phase out or graduate down and as           |
| 00:53:23> 00:53:25: | we graduate down people will.                                   |
| 00:53:25> 00:53:28: | Smart money will say, let's try to capture as much              |
| 00:53:28> 00:53:31: | of that subsidy as possible so that we we when                  |
| 00:53:31> 00:53:34: | that subsidy no longer exists, we're able to at least           |
| 00:53:34> 00:53:37: | demonstrate that this is financially viable.                    |
| 00:53:38> 00:53:41: | Thank you. And I'm just kind of picking out a                   |
| 00:53:41> 00:53:45: | couple of questions that we've received for the others and      |
| 00:53:45> 00:53:48: | because we won't be able to address all of them                 |
| 00:53:48> 00:53:52: | and we're very happy to respond separately and the ACE          |
| 00:53:52> 00:53:53: | with the panelists on that.                                     |
| 00:53:54> 00:53:57: | And then I would also like to ask maybe for                     |
| 00:53:57> 00:54:00: | you to close. I have one final question and I'll                |
| 00:54:00> 00:54:03: | give that one in a minute. We have a question                   |
| 00:54:03> 00:54:08: | on talking to sustainable finance experts. Out of the building  |
| 00:54:08> 00:54:12: | sectors, there were many investors seem hesitant to move        |
|                     | faster  |
| 00:54:12> 00:54:16: | towards sustainable investing due to the weak signals from the  |
| 00:54:16> 00:54:20: | government. Is that any different in the building sector?       |
| 00:54:21> 00:54:25: | Any comments on the policy investing in the sector? We          |
| 00:54:25> 00:54:29: | have a question on the inclusion of real estate in              |
| 00:54:29> 00:54:34: | the EU Emissions trading scheme. Currently on the revision, has |
| 00:54:34> 00:54:38: | some assessment been done or what the impact will be            |
| 00:54:38> 00:54:42: | on both landlords and tenants? And then do you find             |
| 00:54:42> 00:54:47: | that the decision making process is slowing when introducing?   |
| 00:54:47> 00:54:52: | Problem pricing as a factor in the investment strategy as       |
| 00:54:52> 00:54:56: | it's at another layer of required expertise. And then the       |
| 00:54:56> 00:55:00: | final question. So I encourage you to just pick out             |
| 00:55:00> 00:55:04: | one that you feel more sequated with to respond. And            |
| 00:55:04> 00:55:08: | then I'd like to finish up asking what do you                   |
| 00:55:08> 00:55:11: | think if you had one action you could ask for                   |
| 00:55:11> 00:55:12: | one wish?   |
| 00:55:12> 00:55:15: | What would it be for you that you feel will                     |
| 00:55:15> 00:55:20: | massively help the implementation of carbon pricing for the     |
|                     | real  |
| 00:55:20> 00:55:24: | estate industry as a whole? Sarah, I'll start with you.         |
| 00:55:25> 00:55:29: | Thanks. I think I might take going around the investment        |
|                     |   |

| 00:55:29> 00:55:33:  | strategy. So for us now it's I suppose carbon pricing        |
|----------------------|--|
| 00:55:33> 00:55:36:  | isn't that, it's across our entire.                          |
| 00:55:37> 00:55:40:  | Team So at the beginning, yes, it was takes a                |
| 00:55:40> 00:55:43:  | while to educate yourself and I come back to this            |
| 00:55:43> 00:55:47:  | education part of it because it is huge, but now             |
| 00:55:47> 00:55:50:  | it's embedded in the process. It's also just a factor        |
| 00:55:50> 00:55:52:  | like any other input.  |
| 00:55:52> 00:55:56:  | Into an investment consideration now it's like you know if   |
| 00:55:56> 00:55:59:  | you look back maybe 10 years ago, ESG wasn't doesn't         |
| 00:55:59> 00:56:02:  | much of A consideration now. It's inherent in every decision |
| 00:56:02> 00:56:06:  | that we make. It's exactly the same with carbon pricing.     |
| 00:56:06> 00:56:09:  | It's a factor now, it's established, we understand it, we    |
| 00:56:09> 00:56:12:  | know how to use it. So we don't see it                       |
| 00:56:12> 00:56:14:  | as slowing anything down. We see it now as as                |
| 00:56:14> 00:56:18:  | well as an enabler to create additionality really in the     |
| 00:56:18> 00:56:20:  | funds and we see it as a positive I think                    |
| 00:56:20> 00:56:21:  | to your second point.  |
| 00:56:22> 00:56:25:  | It's why we're really excited to be part of sea              |
| 00:56:25> 00:56:28:  | Change with ULI. I'm partnering with you guys on it.         |
| 00:56:28> 00:56:30:  | I think there needs to be even a consensus you               |
| 00:56:31> 00:56:33:  | know it. It's still to hear Jeremy say people don't          |
| 00:56:34> 00:56:37:  | believe and it's still they don't want to tell. It's         |
| 00:56:37> 00:56:39:  | regulation. I think by the time it comes in to               |
| 00:56:39> 00:56:43:  | regulation, it's those funds or people that have an adopted  |
| 00:56:43> 00:56:46:  | that that will be left extremely far behind from a           |
| 00:56:46> 00:56:47:  | stranding transitional risk.                                 |
| 00:56:48> 00:56:51:  | If you look over the next couple of years in                 |
| 00:56:51> 00:56:54:  | terms of legislation coming down the line, what's the        |
|                      | reputation   |
| 00:56:55> 00:56:58:  | for a business risk by not embracing or even admitting       |
| 00:56:58> 00:57:00:  | you know that there is this issue out here, tenant           |
| 00:57:00> 00:57:04:  | risk, void risk, income risk and ultimately if you're a      |
| 00:57:04> 00:57:07:  | real estate owner, the value risk to yourself, your          |
| 00.57.07 > 00.57.40. | shareholders   |
| 00:57:07> 00:57:10:  | or the fund, but by not adopting this. So I                  |
| 00:57:10> 00:57:13:  | think that's why we're really excited to be part of          |
| 00:57:13> 00:57:14:  | sea change and I think.                                      |
| 00:57:14> 00:57:17:  | For the next even 12 or 18 months, it would                  |
| 00:57:17> 00:57:19:  | just to be get people to be educated and understand          |
| 00:57:19> 00:57:22:  | that something is coming down the line. I think we           |
| 00:57:22> 00:57:25:  | have to think probably in smaller stacks. I'd love to        |
| 00:57:25> 00:57:27:  | say that we all had a consensus that we agreed               |
| 00:57:27> 00:57:29:  | on in terms of pricing, I don't think so, but                |
|                      |  |

| 00:57:29> 00:57:32: | I think just for people to acknowledge that it needs               |
|---------------------|--|
| 00:57:32> 00:57:34: | to be a consideration in real estate there.                        |
| 00:57:35> 00:57:40: | Thank you, Jeremy. Please answer please.                           |
| 00:57:41> 00:57:43: | Sure. I'll be quick. So I would say.                               |
| 00:57:44> 00:57:46: | The the question I'll respond to is on how do                      |
| 00:57:46> 00:57:49: | we work as far as signals that are coming in                       |
| 00:57:49> 00:57:52: | from policymakers and what this has looked like in other           |
| 00:57:52> 00:57:55: | industries. So let's just take the example of the power            |
| 00:57:55> 00:57:58: | sector and what the UK Green Bank was able to                      |
| 00:57:58> 00:58:00: | do as far as offshore wind. So all of the                          |
| 00:58:00> 00:58:04: | investment community was like, yeah, renewable energy is fine, but |
| 00:58:04> 00:58:07: | we don't necessarily want to participate and it took a.            |
| 00:58:07> 00:58:10: | A public sector entity to come in and say we                       |
| 00:58:10> 00:58:13: | will provide that capital, make it something that everybody else   |
| 00:58:13> 00:58:16: | felt comfortable with and saw that there were efficient returns    |
| 00:58:16> 00:58:19: | coming in and then we're able to effectively make this             |
| 00:58:19> 00:58:22: | something which is far more mainstream. So the public sector       |
| 00:58:22> 00:58:24: | was able to step out on this and I feel                            |
| 00:58:24> 00:58:26: | like we can find corollaries that might be able to                 |
| 00:58:27> 00:58:29: | be applicable in the built environment. As far as what             |
| 00:58:29> 00:58:31: | I would like to see if I could wave a                              |
| 00:58:31> 00:58:34: | magic wand and make everything work, I think that there            |
| 00:58:34> 00:58:36: | would be honestly two things first.                                |
| 00:58:37> 00:58:39: | I think that we need to have a universal price                     |
| 00:58:39> 00:58:42: | on carbon. I think that everybody needs to accept what             |
| 00:58:42> 00:58:44: | that is and we just factor that in on all                          |
| 00:58:44> 00:58:47: | decisions rather than have this be some waffly number that         |
| 00:58:48> 00:58:51: | different people can apply in different ways. 2nd and this         |
| 00:58:51> 00:58:53: | has come up in a lot of the conversations I've                     |
| 00:58:53> 00:58:56: | had, the embodied carbon is really where I feel like               |
| 00:58:56> 00:58:59: | there's far more of an opportunity to make things change.          |
| 00:58:59> 00:59:02: | I think that operational carbon is going to resolve itself         |
| 00:59:02> 00:59:03: | in the next five years.  |
| 00:59:04> 00:59:06: | It's not the easiest thing to do, but I think                      |
| 00:59:06> 00:59:09: | that it will nonetheless happen. And I also feel like              |
| 00:59:09> 00:59:12: | if operational carbon is largely a function of where energy        |
| 00:59:12> 00:59:14: | comes from and if we see again the power sector                    |
| 00:59:14> 00:59:17: | moving towards renewables, we we will see that that drop           |
| 00:59:17> 00:59:20: | happens almost by default even if everybody in the built           |

| 00:59:20> 00:59:23: | environment continues business as usual. So I'd love to see               |
|---------------------|---|
| 00:59:23> 00:59:26: | a universal price and embody carbon be the thing that                     |
| 00:59:26> 00:59:29: | we we tackle far more significantly. But I know there's                   |
| 00:59:29> 00:59:31: | differences of opinion. I will hand over I guess to                       |
| 00:59:31> 00:59:33: | Emily. Thank you though.  |
| 00:59:34> 00:59:37: | Thanks Jeremy. I'll take the one on real estate and                       |
| 00:59:37> 00:59:41: | EUETSI think it's an absolute must regulation government, we are          |
| 00:59:41> 00:59:45: | so far behind as Simon's presentation showed the other sectors            |
| 00:59:45> 00:59:48: | and we talk about emerging trends, This is not an                         |
| 00:59:49> 00:59:52: | emerging trend, we are just late. So I think the                          |
| 00:59:52> 00:59:55: | quicker we can get regulation built in and something like                 |
| 00:59:55> 00:59:59: | equivalent of the EUETS for real estate, I think we'll                    |
| 00:59:59> 01:00:01: | see faster market change much quicker.                                    |
| 01:00:02> 01:00:05: | And I think that's the reason why we've got involved                      |
| 01:00:05> 01:00:07: | with sea Change as sabo as I am, because real                             |
| 01:00:07> 01:00:11: | estate is such a collaborative industry and yet we're really              |
| 01:00:11> 01:00:14: | struggling to get past these issues new from confidentiality to           |
| 01:00:14> 01:00:17: | all sorts of things. And so therefore, I think there's                    |
| 01:00:17> 01:00:20: | a real opportunity for Sea Change to help bring us                        |
| 01:00:20> 01:00:23: | all together to look at how do we tackle things                           |
| 01:00:23> 01:00:25: | like carbon price, how do we set some sort of                             |
| 01:00:26> 01:00:29: | guidance because there isn't clear guidance on what is a                  |
| 01:00:29> 01:00:31: | global carbon price that we should have.                                  |
| 01:00:32> 01:00:34: | And how do we move forward as a sector together?                          |
| 01:00:35> 01:00:40: | Thank you so much. Apologies for overrunning, but there's so              |
| 01:00:40> 01:00:44: | much to say about this. We could have continued to                        |
| 01:00:44> 01:00:47: | live longer. I would like to ask everyone to We                           |
| 01:00:48> 01:00:51: | have a survey popping up with only a few questions.                       |
| 01:00:51> 01:00:55: | If you could just quickly, quickly click on the the.                      |
| 01:00:57> 01:01:00: | Your preferences and what you thought about this webinar, it              |
| 01:01:00> 01:01:03: | would be really helpful because that way we can always                    |
| 01:01:03> 01:01:06: | improve what we what we're doing. And the other thing                     |
| 01:01:06> 01:01:09: | I would like to say, if you're interested in this                         |
| 01:01:09> 01:01:12: | topic, we will address more of this and other topics                      |
| 01:01:12> 01:01:17: | related to decarbonization and broader sustainability at the upcoming Sea |
| 01:01:17> 01:01:20: | Change Summit that will take place in Copenhagen on the                   |
| 01:01:20> 01:01:21: | 11th of October and now.  |
| 01:01:22> 01:01:25: | I would like to close. Thank you all for joining.                         |
| 01:01:25> 01:01:28: | At this hour of the day in Europe, it's still                             |
|                     |   |

| 01:01:28> 01:01:32: | quite early and also from Asia Pacific. And also the          |
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| 01:01:32> 01:01:36: | panelists, Jeremy, Zahra and Emily. Thank you so much, Simon. |
| 01:01:36> 01:01:40: | Thanks for the presentation and I hope to see all             |
| 01:01:40> 01:01:43: | of you soon again and have a nice summer. Thanks              |
| 01:01:43> 01:01:45: | everyone. Have a great day.                                   |

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