Friday Forum: Turning Wildfire Intelligence Into Homeowner and Community Action

Friday Forum: July 10, 2026
1h 33m 33s

Keith Porter 00:01:09
Welcome everybody. We'll let people we'll let people settle for a sec. Welcome, welcome to Friday Forum number 240-three Today is july 10, 2026 The series is hosted by the Institute for Catastrophic Loss Reduction. We are Canada's leading source for disaster resilience knowledge. We work to make Canada more resilient to natural disasters. Each month, we present recent research related to that mission. I'm your host, ICLR Chief Engineer Dr. Keith Porter. I am speaking to you from London, Ontario, traditional lands of the Anishinaabek, Haudenosaunee, Lenapewa, and Atawandan nations. Two weeks ago, Dan Sandink presented the amazing work of the Resilient Homes Task Force. Their Good/Better/Best, checklists and demonstration projects are showing Canada that it is practical to build better than code. You can find the video slides and transcripts at iclr.org/workshops. Next month, on august 14, 2020-six Rob Moore will present an uninsurable country. That is a cautionary tale from the United States, and I suggest it's required watching for Canadian insurers who want their company to still have a market in 2040. Today we're talking about wildfire. Our speakers are Jason Brooks, Dave Winnacker, and Ralph Bloemers. They're going to tell us how models, maps, and field assessments can help prioritize wildfire risk reduction actions. Here's why I think that matters. We have spoken many times about Fire Smart on on Friday Forum. Fire Smart has a wonderful free downloadable self assessment checklist. It can tell you 22 different things you can reduce to you can do to reduce your fire risk. The problem is that 22 things is a lot of things. My honey do list, the part that I can remember anyway, has about five things on it, and there's stuff on there from like four months ago, and some stuff that might take me only an hour. So if I had 22 things, I would need to prioritize them because some of them are just not going to happen. Now our speakers are not going to tell us how to prioritize a Fire Smart checklist per se, but something similar to that at the community level. A little bit about our speakers. You have their bio sketches. Here's a little bit more. Jason was trained as an accountant, has an MBA, and he runs Fire Aside. Fire Aside is based in San Anselmo, California, which is about 10 kilometers from where I grew up. Dave Winnacker is a retired fire chief. Chief Winnacker lives in Albany, California, on the shores of San Francisco Bay. Ralph Bloemers is a filmmaker, a fire safety expert, and an attorney. That old chestnut. He lives in Portland, Oregon. Ralph, I'm visiting next week, so let's go get a beer. Before our speakers begin, here's our agenda. Our webinar will last 90 minutes. Dan will present for. I'm sorry, our speakers will present for about half that time. Then I'm going to moderate Q&A for the second half. Please feel free to chat your questions into the Q and A box, I'll try to pose your questions in the order they appear in the Q and A box. So if we have a lot of questions, I may only pose your first question. Then I'll move on to others. Then I'll circle back to your additional questions. Our webinar is recorded. ICLR will post

the speakers' slides and a link to the video in the next day or so. So if you have colleagues who couldn't attend, let them know. You can find those materials at www.iclr.org/workshops. And with that, I will hand it over to our speakers. Chief, are you here,

Jason Brooks 00:05:01
Chief Winnacker, he's having a little technical trouble still, so I'm going to jump in and get started, Keith. Okay, go ahead. All right, all right. Let me just do the share the screen and usual screen. Someone give me a thumbs up. They can see the screen. Things are good. Yep. Thanks, Ralph. All right. So good, good morning, good afternoon. Thank you so much for for having us here today. I'm Jason Brooks, kind of CEO, co-founder of Fire Aside, and what I'm really going to talk, start us off, and talk about a little bit is some of the collaborative work we do with XyloPlan, Chief Winnacker, who'll be presenting here in just a few minutes, and Ralph around some of the storytelling. And really, what we're going to try to share is some of the lessons learned, some that's worked, some that hasn't here in the United States, as we've been helping communities and really like neighborhoods and entire neighborhoods and entire communities move towards being more resilient. And to the comment about insurance, also proving that resilience because that's like a an overwhelming theme in in the state where I live in California, which is a lot of residents are starting to do the work and and doing the work, but now proving it to their insurance carrier and proving it to their you know to to to to be their access insurance again or to to stabilize their policies is proving to be challenging, and we'll share some lessons learned around that. So with that, the first thing I'm really going to start off and talk about, and again, Chief Winnacker will really do a good job of explaining how this is calculated. The what we're what we're doing together in these communities is actually not just thinking about an individual home or thinking about an entire city, but almost breaking it down block by block. And so this is an example from from one community in California where we operate. And what these colors start to show you is where the the risk modeling and the the fire pathways has identified different relative vulnerabilities and priorities to those homes. The most likely path of fire into that. Again, Dave can speak to that more and more more eloquently than than we can. Fireside just simply receives that data, but what we do is we make it actionable for the local policy leaders. So the examples being here, these purple homes, these dark purple homes. These are the ones where you need to do regular assessments. You need to get to every single home. You can't wait for these residents to just call you, hope hope that one or two will request an assessment. You actually have to go door to door because that particular block is so critical. And some of the incentives to drive action, you might need to offer them grants or even offer them direct assistance because it's so critical. But but you're not talking about the entire town. You're talking about a certain block. We also can identify the Conflagration blocks. So this is where you have to literally get every single one of these homes because if you don't get all six in this little block, the truth is one of them goes up. They take out the other five. But by being able to identify that, you can prioritize resources. And again, I'll talk through a couple of examples around that. And then, last but not least, there are parts of

the community that do have some risk to Ember or to other exposure. But but the reality is they're they're lower priority, or I'd say lower risk relative to to some of these other homes. And so, by giving our policymakers some of these tools and giving these communities these tools, they can actually now almost build a prescription or a treatment plan block by block, house by house. And again, I'll just talk through some of those examples here. Here, so so what's the challenge? You know that Keith kind of mentioned this whole idea of like 22 things and like you know how do you prioritize all that kind of stuff? You know the the challenge, the way that we think about it a lot and the way we the things that we've been really working on is that this whole idea is that you've got to you've got to bring the the right resources to the right place which is what I was just talking about from a mapping standpoint and in a perfect world you know we an assessment would happen some of the resident would like look at the list to do they would just go do all the work and knock it down, but the reality is that doesn't happen, and so we have to constantly be thinking about how do we help the residents sort of meet them where they are and help them sort of work through again house by house, but scaling that up to a community by community level in there, and so a couple of the things that that we see being really really impactful, and again Ralph will sort of talk about a lot of this as well. Is that there's there's this funnel, this resident journey that that every single resident and every single you know neighborhoods and community blocks have to make, and and the way it works is we see and we see this in the data is you know what's the awareness and the education. So whether it's TV or billboards or other types of out of home types of things. That's where you can reach a lot of residents. Then, when you start to get below the line, or in marketing terms, sort of below the line, how do you drive action and how do you drive engagement? And there's a lot of different channels. And and this is this is essentially the same way that we receive marketing from any other any other type of brand or any other type of thing that's trying to get us to take action. There's this top level about awareness and education, the engagement and action. And the only reason I show this is it will just kind of set up some of the examples I'm going to show you in the next next couple of slides. So the other the other key thing, and again I stress this, and you know Ralph or Keith really acknowledged this as well. Is every every resident that has achieved resilience in these communities, and again, you know, think of how we assemble these homes together. Every single one of them has taken multiple years, and it's been a multi-step journey. Very, very few people just simply do all one thing at once. And so, if we're moving communities to resilience, you really have to think about the easier things to start with. Okay, what's the shrubs? How do you get vents? How do you get gutter guards and non combustible? But you have to do this in a systematic way so that you get the resilience benefit. If one home does this little bit of work, we'll say or not little bit, but this home does this set of work, but the neighbors don't do anything, you essentially don't get that resilience, and because because the homes will will ignite each other. And so so the reason I'm kind of showing this is I'm just sort of like trying to build up to a understanding of how on a on a you know individual home you have to track the action and move the resident kind of step by step, but then you have to publicize that and make each of

the neighbors aware of that to essentially then prioritize where to do resources. And as I was mentioning earlier, like using that kind of like different ways to think about the community, you can then say, "Hey, there are homes that maybe all they really need to do is do shrub maintenance. I just need to focus on getting them to do shrub work because they're they're just in an ember they're just in an area that might receive some embers. They're not on the front line of a fire line in there. Whereas homes that are are those darker purple homes or much more vulnerable homes, you got to do everything. We got to get all the fences changed. We've got to get all those things to happen in there. So, how how does this all kind of come together and try to like to have this every not so like every parcel, every resident, every single issue on the parcel is different. And the reason that that this matters is like you know people are like, how do I start? What are my neighbors doing? How's my block doing? What happens if if I do this and my neighbor doesn't do it? All of those questions are pretty common and kind of come up in there. And and what what we do for the policy leaders and what we try to really help them do is if you think about that risk map or that area of like where are the priority homes, I can also then think about each individual homeowner, each parcel, and sort of put them on a two by two like this. And so we we have this access where we really help our our policymakers think about where the where their homes are distributed in their community, where their residents are distributed, and we use this this two by two of like, are they able to do it? Do they have the financial means, the physical mobility means? Is this an area? Is this a is this a mobile home park where where there may be a lot of like elderly residents that don't have the the physical ability to do some of these changes, and then are they or the financial means or and are they willing? There are residents who maybe have the financial means and the physical the physical ability to make some of these changes. They just don't they just don't believe in it. They just it's not a priority for them, so they're less willing to do that. And the reason, the reason again, we we kind of build this map of the communities around willingness and ability is it really then lets us ultimately design the the messaging for those different clusters of homes and different sets of residents. And so the examples here that you start to see are things like if somebody is very able but they're less willing. Well, now we've got to really use education and Nudges. We've got to like because they have the means to do it. You just got to get them over the line on it. Or somebody who might be in this right area who's very willing to do the work. They really want to become fire adapted, but maybe they don't have the financial means. Now you've got to bring all those financial resources in there, and so the assembly here is this idea of like if I understand where communities are and home by home, but then scale that up to like neighborhood blocks on willingness and ability, I can then also intersect that with the the risk modeling and the work that that Chief Winnacker will talk about from XyloPlan to then ultimately create a set of like prioritized prioritized recommendations, and and some examples of these that that I'll show are you know you can see very targeted messaging. So these are people who have dead trees on their property where they're coming in and no the only way you're going to move the people that that don't have the financial means is you're going to have to offer them some sort of financial incentives,

and so this just being one example of very targeted messaging, knowing where those clusters of homes are, and only offering this to a the people that have those dead trees, and b where the risk really matters. You don't need to take out every dead tree in the community. You've got to take out the ones in those cluster blocks that haven't done, and potentially activate the homes that haven't already take action, i.e. that the the one home that hasn't done their doesn't taken out their dead trees in a block might actually be the most important home to activate. So, how do you target those kinds of resources and support there? Similarly, there's some residents and there's some areas of blocks where there has to just be ak there has to be consequences. the The stick does work in some cases, and so some of the examples that are that you know that are very effective here are things like you know in the case of of the Cal Fire programs, like violations must be corrected within certain dates. Literally creating a deadline, creating a fact that creating the fact that there's enforcement. That is how you move and done again a different block or different cluster of homes along the line, as well as sometimes very clear, very vivid photographs as to like what you know what the threat could look like, including being the ability to cycle in based on the resident's home or the housing stock in their neighborhood. So less less about a generic photo and much more about like oh this looks like my house, this looks like my neighborhood, become creates a lot of a creative action there, and then finally, this third group of homes, or sorry, of messaging is really around those education and Nudges. There's a group of people that are willing, or sorry, they're able. They they're they're able. They might not be willing yet, and so how do you bring them along with different types of tooling to help bring those clusters along in there? And so, ultimately, the reason I just bring all this up and I'll tie this off before I hand it off is there was a lot of work that was done by the University of Colorado that was just sort of looking at like what causes residents to take action. And again, this idea of we've got to move clusters of homes together. One home by itself doesn't make the difference. We have to get we have to get the blocks to move to get the community to move, and what what was really found in her research was that every time that there was an engagement touch point, it doubles the odds of the resident taking action. And so the the reason that's so important is to really think back and think that one one shot one hit doesn't make a difference, right? What doesn't? Sorry, it doesn't have as much impact on um on what the action rate will be, but really when you can start saying I've got a systematic way to touch and engage with that resident 1234578 10 times, what you can actually start to see is you can start to see really far impact of the of the residents taking taking action as well as direct response by some of these residents, so the main message again being here is how do you how do you think about a neighborhood and a community? And again, Ralph will kind of pick up on some of these themes that you've got to have multiple touch points throughout there. So last but not least, before I turn it over to to Dave Winnacker, is you know I'll just leave you with kind of the the parting thoughts that we think a lot about, which is on this one side you need very quality and consistent data inputs. So that was like some of the risk modeling and the fire pathways from XyloPlan that I showed you with to start. Like where where do where do I start? How do I prioritize my community? Then you really need those

models to think about which homes, which dead trees really matter, which areas do we really focus on those on on certain messaging or certain areas to move blocks along, and then we have to get the community to take action. What you know, the singular home that does something is helpful, but it's not the right unit there. We have to get the entire block to do that. And so with that, I'm going to stop here, and I will turn it over to Dave Winnacker. right.

Dave Winnacker 00:17:44
Thanks, Jason. I appreciate it. Good to meet everybody. Dave Winnacker. I spent 21 years in the fire service. Last seven is the fire chief of a suburban fire protection district in the San Francisco Bay Area. And as I think Jason did an excellent job of framing up, getting folks to do work at the community scale is really hard, and and therefore, what we've been endeavoring to do is to understand how to build out prioritization tools so that we can quantify what this work is going to get us. and And one of the challenges I think we have all had is that many, not all, of our legacy approaches were intended for isolated rural homes in a forested landscape, and when we lift those approaches wholesale and we drop them into dense urban and suburban environments where most of the structure losses have occurred over the last 20 years, they don't do well because they fail to account for the network effect of fire spread from structure to structure. And just an immutable truth here is that a home can be prepared from wildland ground component fire, and a home can be prepared to receive embers and still burn if the adjacent structure is the source of ignition. So, what as Jason was alluding to is it takes all this work to get people to do something. Well, the question is, what needs to be done at each parcel? So, how do we match our mitigations to the mechanisms of ignition, so the parcel-specific work is appropriate to the threat that it is exposed to. Thing one, and thing two: how do we aggregate that together to understand the network effect of the work that's being done, or lack of effect if we fail to achieve the appropriate density of mitigation work yet? And and without that, without understanding where those step functions are, I think we're often going to come up short. So, as shown here on the screen, this is a graph representation of where we begin to achieve the threshold where structure protection at scale has been achieved. And so, the dashed line moving from bottom left to mid right, that is the number of parcels that have completed work. The vertical line is the point at which we have achieved threshold or QT, where enough homes have done the appropriate mitigation that not only are those homes protected both from wildfire and from their neighbors, but we start to see a significant downwind shadow where there are homes that have done nothing, but are now protected as a result of the aggregate of the upstream mitigation, and so we can then start to understand where this by by viewing it from a neighborhood perspective and looking at the network effects, we can start to understand how all these things come together, and furthermore, understanding where the QT is, we can then start to understand what the dead weight loss is between the private marginal benefit and the social marginal benefit because this is a collective action problem to be clear and the question of everyone benefits but who pays once we start to understand the correlation of risk and the exposure that a home has to not only wildfire but

to generating additional downstream urban fire, we can then start to calculate positive and negative externalities and assign value to those. So stepping through how we do that. So what we do is we take a look at the fire history, or so the fire weather history. So we want to understand what are those 96 percentile wind events that are capable of generating a fast-moving wind-driven fire that'll escape initial containment, we look across the bottom here for distribution over time, and then on the left we look here from the characteristics. So for the neighborhood we're going to look at, this is predominantly a phone or a Santa Ana northeast dry wind event. Now there's there's a little bit in recent years, we've seen a change in the weather regime, and you start to to see some onshore. But for the rest of this, we're going to take a look at the distribution of fire weather and the frequency, so we can come up with probabilities. So what that looks like on the ground. Here we are in the Simi Valley area in Southern California. We can take a look at how the the weather shaped by topography, how that will expose the community to loss. We can also take a look at the fire history in the area to understand what fires have done in the past to do some correlation. From that, we can generate the fire pathways that Jason was alluding to. That is where the alignment of topography, fuel, and weather that will bring fire into the community, we can then start to understand where the entry points where wildfire can transition into the community, where homes have sufficient density and sufficient quantity of downwind continuity to generate urban fire. We also take a look at where are the ember deposition areas. So where do we see sufficient ember load to cause structural ignition, and and just one of the things you often hear is that embers fly miles in advance in the main body of fire. Embers ignite homes, and homes ignite other homes. And in dense urban settings, each one of those statements is true in their own right, but they're not true when you put them together. We just don't see large-scale structural ignitions far distant from the main body of fire, because an ember traveling miles is not the same as that ember igniting at home. It takes a quantity of embers to cause structural ignition, and so from that we can start to run a simulation of using both vegetation and structures as fuel to see where fire is going to transition across the landscape and where that transition is going to be consequential. So, on the animation here, green is veg to veg, blue is ember, orange is vegetation to structures, and red is subsequent structure to structure fire spread. So we can start to understand where the exposures are, and in this particular case, there's a heel of the community right here, where dense urban structures have exposure to vegetation, and there's no buffering element there. There's no fuel mod, there's no fuel break, there's no defensible space, and this heel of homes that doesn't benefit from the perimeter road and some of the other features that the rest of the community has, this heel of homes that are prepared for neither ground component nor embers represents an exposure that could initiate urban fire. So from that, we take a look at holding features where there are things that compartmentalize the landscape: the golf course, a big road, a school, a park, things that break up correlated risk of loss. So we can start to understand the basins of urban fire spread and how risk reduction in activity in one area, what how that can be attributed to downwind risk reduction, and from that we generate a community mitigation plan. And this is really the

heart of what Jason was alluding to. The homes in red have exposure to ground component fire to ember. Those homes need the full meal deal. They need defensible space and they need ember-resistant retrofits on and around the structures themselves. The homes behind them in blue don't have exposure to ground component fire because they're not vegetative edge. And there's a harder line in this example. These homes simply need ember resistance. They need a Class A roof covering or assembly. They need covered gutters. They need ember-resistant vent mesh, 1/8 inch or finer, and they need a home ignition zone or zone zero up to five feet, 1.8 meters, with no wildfire, with no combustible elements that are susceptible to ember ignition. And then the homes in purple; those are those downwind beneficiaries whose risk reduction activity needs to occur upstream. Because if a home in this dense urban setting carries out wildfire-specific mitigation activity, there will be no reduction in risk, because the risk of fire at this point is not a Wildland fire; it is an urban fire, and so we look at then at a holistic network view to say if work is done here and here, all of these folks now start to ride for free. As in, the activity occurring up here is generating a positive externality for these downwind folks. We can then further start to understand what are the basins for the correlated risk of loss, and so we look at here. If fire were to enter the community in this area, this is the node edge combinations that represent the downwind distribution. And on the top left there, you see the TIV and the the probabilities in a way that homes within this basin have no correlated risk with homes in this basin because fire is not going to tack its way upwind and across a golf course, but homes in this basin have the potential to generate ember load into this basin. However, the mitigation because there is a decoupling component with the golf course here, homes in this area are only producing ember load, meaning that we don't change the fundamental view, which is it is ember resistance that is needed down here, and then lastly, looking at this same neighborhood, we can take a look at what is the probability in the top right here. We see burn probability of given the frequency of occurrence, and if we were to mitigate a particular area, say in here, if this area is brought into a state of mitigations, so some vegetation management work, some embers resistance, and some defensible space within 80% efficacy, which is close to the top end of what's reasonable to presume is possible within a community. We can see both the shadow of where there is downwind benefit being generated, and we can also see the the return on investment, so we can then start to take a look where we hit both not only private marginal benefit but social marginal benefit and the point of marginal diminishing returns. So we can understand how activity will reduce the risk, and then how that activity can be aggregated to meaningfully reduce the risk within a community. Top right, you see the delta in the probability of loss mitigations, and on the left side, you see an ROI calculator suggesting this relatively small area of work at under a million dollars of investment, both private and public, would rate about a 25x return with regard to average annual loss avoided, or AALA, I will hold there just to say that this stuff is hard, and we don't need to make it harder than it already is by going in with a really blunt instrument of saying everyone needs to do everything everywhere. That's just not the world we live in, and so it's critically important that we can prioritize and that we can quantify when we are going to hit the point of diminishing

marginal returns, so we can shift our assets to other domains or to other approaches, rather than just hoping for a deterministic outcome that because we did stuff that we deserve a participation trophy. The last is my editorializing, but I think we see a lot of that in this space where the idea that if you did stuff or if you spent money, therefore you must have reduced risk. And often our CWPPs or CWRPs they come about the process, not the outcome. And we think we can shift to an outcome-based system where we have a prioritized plan, we have an understanding of what mitigation activity will get us, and then through fireside and others, we have a verification mechanism. So we're not just taking people's word for it for what has been accomplished. Help, Paul Darren, Ralph. Thank you, and others. Thank you for the opportunity. Well, thank you, Dave.

Ralph Bloemers 00:29:10
Thank you, Jason. I'm get my share screen going, and. I
think there we are. Dave, you see that? Give me a thumbs up. All right. Well, I think the simple proposition that we're we're talking about today is you know we've invested billions of dollars. The insurance industry has invested a lot of money, and so so have governments in helping us understand wildfire hazard, mapping wildfire hazard, and those kinds of things. But we've invested comparatively little in helping homeowners actually reduce it, and so I see myself, along with Dave and Jason and others, at the forefront of trying to build systems that help governments, fire services, and millions of homeowners complete the relatively small number of mitigations that actually reduce home ignition, and you know for a long time we've defined the problem as the wildfire, and you know we're starting to realize that that's like trying to define rain as the problem, and that the real problem here is the unadopted community in a fire-prone landscape. There's many paradoxes in fire, and I would just ask you all to lean into the inevitability of fire. Yes, it's frustrating when a person starts a fire in the wrong time, wrong place. It enters a community. It's awful. It's highly destructive when it starts to burn homes. We want to try to chase those ignitions and and hunt them down. We want to rely on suppression. We think we can alter these outcomes. Society does at least through land management. But what Dave and and Jason are doing is focusing us on the built environment and even moving from the you know the ocean of vegetation that you all have in Canada to the built environment, the built environment is still quite massive, and how do we narrow that down? And I'm and I'm really encouraged by models that help us move from every everything everywhere all at once to here's where we prioritize where Fire's going to enter. What are the dominoes that are going to be created? And so, I really appreciate what both Dave and his team and Jason and his team are developing, which is you know how do we activate homeowners? How do we prioritize where we're going to focus first in what is still a very massive part of land and and many homes, right? And where do we even begin there? My thing is how do we tell stories, both to the fire services, to the insurance industry, and get all the insurance industry on the same page? And I've come to Canada twice and presented at CatIQ to share my perspective, which mostly comes from this guy, Jack Cohen, and his

contemporary Alan Westhaber up in Canada, and Jack spent four decades studying Conflagration, and he basically found that the things local to the structure determine whether it ignites. So, does it have bark mulch? Does it have vegetation? And will that sustain combustion to generate enough flame contact with the structure, and so the collective game is modifying the built environment so that none of those buildings or very few of them catch fire. And it's fast fires that matter, right? It's not all fires; it's the ones that are wind driven. I call them wind events with fire in them. Dave referred to downslope winds or fern winds, but they're basically these fast fires that create all the destruction. Same in Canada. Lytton was wind driven fire. Definitely, the the fire weather was very low RH, but these are you know tail events, very small percentage of fires that cause most of the losses, and if you look at the the losses in your in Canada, they've been in these fast fires, and we're dealing with blizzards of embers. We're dealing with so many embers just per six seconds. This is from L.A. with 6280-seven embers from just a few plants in in the the fire in Altadena and Eaton fire, and this is what it looks like inside of it. There's trash cans that are flipping open, so there's a variety of different vulnerabilities. Right, of course, some of these trash cans ignited, then ignited structures because it was trash day, and I think this is really important. This is a this is a facility that does testing, Insurance Institute for Business and Home Safety. Maybe some of you have seen their videos, but this generates a key part for for people, which is they can see the mechanisms of ignition, which leads to what I call mechanism revelation, and therefore it leads to self-persuasion. So, if a person thinks, "Okay, I just need to rely on the fire department or aerial resources to put the fire out, they don't see themselves in it. So, the insurance industry and everyone else that's in this space plays a role in communicating to them that, "Hey, your connected fence matters because that connected fence can ignite even after the flame front is gone from smoldering combustion, and then ignite your structure. And they have these tests and experiments they've done. They show a we film this for elemental one side of the building hardened one side of the building not hardened, and you can see how it ignites, and then there's all these reports, right? My job has been how do we bring this to life through story, so the average person sees themselves in it, and they see that what they do matters to interrupt that disaster loss sequence, that ember becoming flame, that ember becoming igniting the hot tub and then igniting the building or the trash cans, and this is from Jason. I'd love to get an updated one from you, Jason. Now he's done over, I think Jason, what he maybe at a at a half a million home evaluations. I think last time I asked you was over 300,000 but when he made this for me, it was over 100,000 These are very small steps that are the top five specific actions. So when you look at some of the research that's been done by IBHS, the Insurance Institute for Business and Home Safety, did a deep dive. They created a digital twin of a California homeowner around wildfire mitigation. CSAA Insurance did a deep dive. They interviewed 4,000 people across the Western U.S. and you know, surprisingly, information is not the thing that's going to change people. There's plenty of information. There's, as mentioned at the outset, there's very long checklists, and what we need to do is narrow it down because people's barriers are I don't know where to start, and there's so much information out there coming

from different people, where did we just need to get them started on their journey? They're removing vegetation in the first five feet is a tough one for people because they're pretty attached to that stuff. But you know, it's been interesting doing story around that where people are like, "I got my windows back from moving the plants away, or they changed, you know, brought in rock and moved the plants five feet out. They didn't get rid of the plants. Replacing vents to prevent embers entry, simple one. Remove the attached fence, limb, or cut back Overhanging trees. You don't necessarily need to get rid of your trees. Very few homes are ignited by a tree on fire. The radiant heat from a tree on fire is not enough. Thank you, Jack, and Alan Westhaver for showing us that. I'm not saying there might not be a situation where a tree doesn't need to be removed. Sometimes they do, particularly if they're smaller in the understory of another tree. So it's the other thing that really helps people is seeing the winds. So I'm always on the hunt for winds. I'm expecting there's going to be several winds, many winds in these Colorado fires because there was a lot of work done in some of those communities that were impacted. Certainly, there was home loss, but when people see that a home can survive a wind-driven firestorm, they're like, "Oh my gosh, I need to do that. So, as much as we can show that, so my whole thing is inspiring fire-safe people and thinking about it in the context of the social science research, and so I've been doing a series on this, and a YouTube channel has been launched, which you all can all subscribe to and watch some of them. And I've been talking to folks in Fire Smart in Canada about some of the awesome storytelling they're doing. I really love the new video that they have with the guy putting on the glasses, which are like ember glasses, and he look after he gets the Fire Smart brochure, and then he puts on his glasses, and he can see all the vulnerabilities on his house, and he hears the sirens, and his house is starting to burn, and he takes off the glasses, and then he puts them back on, and you know, much of this is just social science. How do we make doing the things part of the identity of living in Kalana, of living in in Lytton? Well, in those communities that burned, it's gonna probably be much easier to make it part of their identity. The harder part is how do we make it part of the identity in the communities where it's not in the lived history, and so I think a lot of it is bringing curiosity to people. What are you doing before the next fire comes? Asking them the question, framing it in terms of keeping your insurance for sure, helping firefighters before fire comes, right? Helping them get their sleep back, helping them be more practically effective and not get overwhelmed when it does come, because less houses will be on fire. And there's a lot of investments we can make, and I'm going to circulate for all of you all three memos I wrote. One is the top 10 ways to inspire homeowners, and I think you know the insurance industry is great at telling story to market their products, and if they could, they could also get involved in supporting the storytelling to sell this idea that there's just a few steps you can take that are very normal. They're not for weird preppers, and make them very local. So you're going to need them for every single province. You're going to need them for probably unique stories for each parts of your province, because local stories outperform national narratives. Even in California, it's a big state, but Northern California sees itself as distinctly different from Southern California. So what I've been doing is entering into

multiple counties in California and finding local people that are telling that are living, you know, this change in let's adapt our community. And this is Susie Cummings. She lives in a senior living community, and she's got her own Firewise workshop. And she lives and breathes stuff, and she delivers mesh to her neighbors, and figures out how to talk to them. What's great about her is she's a retired school teacher, so she just brings curiosity and joy to the work, and it's really effective. And her story is is up on Fire Safe People TV. You know, we just want people to see people instead of officials, and if they see people instead of officials, you know they can see themselves. They can be like I'm like Alice. They they people act through identity, not through more information. So we have to make this part of a normal part. So one thing you could do in Canada certainly is the love of hockey. You could get a hockey player to talk about screenplays and and and running running defense and preparation before fire comes and use that as a metaphor. You know these these are folks from Northern California. They built a fire ready dream home. I think we need to move away from complex language and hazard maps to just simple language, fire ready, fire safe, fire smart. I think is great what you all use in Canada, but the polling and the social science research says you know don't use technical language, don't use fire proof, of course, but fire ready is definitely a winner. Think like an embers. You know that's really what we're asking people to do is put on their ember glasses, like that Fire Smart video. I love that. And Iris Harrell is really next level. There's a 18 minute video with her about everything she did to retrofit her home and get off the backup insurance plan in California and get back on an admitted carrier. And I think a lot of people can see themselves in a person like her. You know, just breaking it down to its simplest level of showing what works and why is a big deal. So bark mulch is deadly. These this a couple. She's a an ear, nose, and throat doctor, and he's a NASA scientist, and their house survived the Eaton fire, he came back 14 hours after the fire burned through, and he put 100 buckets, 105 gallon buckets of water in his bark mulch and saved his house, and he is definitely going to be removing the bark mulch before the next fire comes. You know, just featuring people also that you know have a profile. John MILL'S Watch Duty is pretty well known, and we went to his house, and we didn't do John Mills, the founder of Watch Duty. You know the the alert app. We just did John Mills, dude living in Fire Country, used to not know very much, and now knows a little bit more, and you know just normalizing that there's a lot of different things from preparing your home to working with fire on your land, doing burn piles, and you know just bringing in interesting people. The other thing is you know bringing in humor. These two people have the moral authority to do this one. They lost their home in the Thomas Fire. They started doing presentations about how to prepare your home, and they realized it was boring, and people were turning tuning out. They remembered that the only thing that survived the fire was pictures of their home that had burned, and so they changed their presentation on "Look at what we had before, and this is how you burn your house down. Don't do what we did. A bit of dark humor, a bit of gallows humor, but it works for them, and I think more humor for for hazards. I'm just going to pause here and just say, you know, the the the thing that we really need collectively is a homeowner activation ecosystem, and Jason and and Dave, what

they're building and other folks are building are core elements of that. But we need a trusted front door where people can go and learn from this guy, learn from these other people, right? And we need to translate the science number two into just a few actions. We need to build trusted networks because a lot of people don't have the time. They just want to hire somebody. They don't want to hire four people. They want to hire one person. So, to the extent that we can foster and manifest an entity or company that says, "I'll do all the essential things for $4,000, and the homeowner can rely on that one person to do those essential things, and then certify it that they can provide that to their insurance company. That's going to get us a lot further than one con, you know, four contractors or a contractor list that they have to navigate. We have to make the insurance incentives obvious. As as Jason said, we need to finance some of the mitigation for those that can't afford it, and we need to make that preparedness visible. So if people in Canada have done the things, they should put a lawn sign up, because the social science research shows that people will recognize that their neighbors have done it, and then be like, "Oh, I'm falling behind, and it will create social pressure. And I talked to Glenn about this, Glenn McGillivray with ICLR, and he said there was a thing done around stormwater, and that they made that very visible. They made that very attractive, and people were much more interested in it because it was attractive that they'd get a rain garden, and they would improve the visibility of their home to their neighbors than that they were doing something about stormwater, so very much an effort number eight on the list for me in the memo is organizing neighborhoods, not just parcels. The other thing is having this message come from the fire services, and of course, the fire services wants to support the firefighters, have more resources, but if you can get your fire services to talk about the limits of their capability, their vulnerabilities, the limits of suppression, it sends a very powerful message and counteracts that belief that a lot of folks have that there can be a firefighter or a fire truck in every driveway, and I think Dave RET, talk to this number 10. Is you know measure outcomes instead of activities. We need to you know really listen to folks like Bobby Garcia, who's really trying to activate the community. There's only so much this guy can do managing 2 million acres, and he's like, it doesn't matter how many acres I do; it matters where they are, right, and what outcomes that will produce. And so, you know, in Canada, you know, you're looking at many, many millions, 10s of millions, hundreds of millions of hectares of land. It's not measuring much to say you modified some of your forest in terms of what it's going to do for community Conflagration. What you need to figure out to do is how do you get Canadians to prepare, and so I think you know there's a lot on on what I will share in in the memos, and I would love their their works in progress, but I would love folks' feedback and ideas on how we can improve that. But I think of story within this homeowner activation ecosystem, within what Jason is trying to do with assessments that go straight to homeowners. He embeds videos in those, and we just need to make this very much normal, like mowing your lawn, and that's what I have.

Keith Porter 00:47:31
Awesome, thank you, gentlemen. Let's see. Before I get to the to our attendees' questions, I

want to ask you one or two of my own. First of all, thanks. This was a very information-rich presentation, which you know can be a real double-edged sword. A lot of information can be overwhelming, and just a minute or two before Ralph, before you use the word words front door, I was typing out what's the front door for all this information. Is that your is that your top 10 list that we are going to be emailing out, or or where does where do our our attendees who might feel overwhelmed by this presentation where do they start to you know take the material away and try to figure out if they can use it in their business lives.

Ralph Bloemers 00:48:27
Well, I actually think we're pretty early on in one. So if if I was a homeowner and I wanted to plug in my address and get an assessment of my where the wind is going to be coming from the fire history, and who can help me? It's it's mixed, and it's in the U.S. it's state by state, and I think in Canada it's province by province. Right? It's under development. There are people who call me and talk to me and show me what they're developing that are in the thick of trying to develop that. I think for what Jason has developed, go to Fireside, and you can see you can see reports on what they've done in several communities in Marin, in the Tahoe Basin, in multiple states, if you wanted to learn about how that tool is being used and the impacts that it's having, and then Dave's is XyloPlan if you wanted to learn more about that. But I think in terms of one location that you can go to, part of the challenge that is creating barriers for homeowners is we have Fire Safety Research Institute, Insurance Institute for Business and Home Safety, National Fire Protection Association with its firewise. I go around and interview people throughout the Western U.S. who had a fire and and had a moment in their lives where, like, should I stay or should I go? Should I try to figure this out? And they go on the internet and they try to figure out who to join to give them guidance. And many of them join Firewise, which mostly is a plaque to begin with. And then they figure out how to define what that is. So part of the challenge, Keith, is that there isn't really one universal front door. I think either in Canada or the U.S. or a particular state, each state seems to be different. And you know, it's interesting now in Utah, and Jason can speak to this. And I'm researching it. Utah now has a whole new system that no other state has tried. That they're going to be assessing every property, and it kind of reflects the culture and the politics of your province or your state in the U.S. where you go, and I and I think this is this is one of the problems we need to solve. Actually, what is the one front door on multiple levels?

Keith Porter 00:51:00
Let me turn that question to Dave and and Jason. Let me sort of rephrase a little bit. Most of the people in attendance here are insurance professionals, and we have fire professionals as well. We're not. You're not speaking today to homeowners who are going to be, you know, dealing with their people on the on the call today are going to be you know they'll be thinking about what to do about their own home, but there are also insurance professionals who might want to help their policy holders to help persuade their policy holders to do stuff, right? So

how does an insurance professional start with the you know you address take away from the your presentations today, like some initial actions that they could do to you know begin to spread instructions and persuasion to policy holders. Let me let me ask Jason or Dave, do you have a thought about answering that question?

Dave Winnacker 00:52:05
Yeah, I have a first one. Jason has got a lot more experience on the nuts and bolts of of insurability and so forth. But I would say for the insurance industry, first do no harm. And there have been plenty of instances where a portfolio was being rebalanced, and a bunch of folks got non-renewed, but they didn't get non-renewed by a carrier saying we're we're reshuffling our portfolio. We think we have too much risk in this area, and you've essentially been randomly selected. They've been the non-renewal comes in the form of a boilerplate templated letter that says you have the following risk factors, and and if it if you're in a Mediterranean county on the west coast and someone mentions tree canopy separation, that has nothing to do with the risk factors on and around that home, and then that confuses the situation, confuses the circumstances because the resident is now getting very direct price signaling in the form of this communication from a trusted source. To be clear, you know people might not like their insurer, but they trust that they're good at their job when it comes to assessing risk. And so, if this is a collective action problem and these are network effects that are burning homes and communities down, I think it's very important that the risk transfer industry is starting their assessment, and and to the degree that it's non-proprietary, transparently sharing what are the factors that cause risk to be assessed at whatever level, and what can be done to mitigate it, even if that means actions that are off parcel have to occur, because it just what what happens over and over again is the true believer, early adopter in any particular neighborhood does everything. They do the the full suite of mitigations. Really magnificent, beautiful work. And then through a random rebalancing, they get non-renewed. And all of their neighbors say no, thank you. They spent money. They disrupted the the landscaping around their house, and that was the outcome. There's nothing to be done. I'm just going to give up and wait for the fire.

Keith Porter 00:54:03
Jason, you have thoughts about my question?

Jason Brooks 00:54:05
Yeah, no, I'll build off a little bit off of what Dave said, and I think for insurance professionals, I think there's two things that we see happening more and more, which is number, and again, one one is advanced. The modeling is moving a lot faster, and so some of the legacy models or some legacy ways. Again, in the United States, we use zip codes or broad brush these broad brush things, and so, so I guess the first statement I would make to the industry is that as the science has moved very quickly, I think the adoption of much more targeted models. You

know, Dave showed with XyloPlan how you can understand these specific homes. If I understand the composition of those homes that he had in red there, that actually has a massive implication to the risk pool of probably what was I don't know $50 billion worth of homes in that entire community in Simi Valley, right? So now, if you're an insurance professional, if you've rethought and said, "Wait a minute, if I understand the composition of let's just say for discussion purposes 200 homes, that impacts impacts $50 billion Whether or not I insure that red dot, I actually am carrying the risk of that red.so to speak. Now, once you understand that, so that's step one is rethinking the rethinking those terms a little bit. Now, the step that's the step two that we see is now from an insurance industry, you might not insure any of those homes in the red dot, but you're carrying the risk. Therefore, you need to work with government because government is really the only entity. The local fire department is the only entity that really has the remit to go to all of those RET homes and deliver resources to essentially reduce the risk. So try to summarize that all up. It's like step one: re almost redefine or rethinking about the problem, knowing there's new ways to understand the risk that you did not have before. And then number two: recognize you need to collaborate with your local government because they have the the authority, if you will, to be able to actually change change those outcomes.

Keith Porter 00:55:46
Okay, and and you know, and that sort of takes me to sorry for attendees. I want to follow up on this this question because that takes me to a big challenge that ICLR has when we present commercial or proprietary models that you know a lot of work goes into making XyloPlan and you know and somebody has to pay for that and whatnot. But there's a lot of communities on the order of 5000 municipalities in in Canada. 95% plus of them lack the resources to hire a consultant to do stuff, and you know there's an awful lot of insurance companies who are members of ICLR that also kind of lack the resources to hire a consultant to do a big fancy risk analysis for them. So if where do they go to prioritize, you know the the neighborhoods or the assessing you know risk factors if they can't you know afford to hire a consultant to run some fancy software.

Dave Winnacker 00:56:56
I mean I would argue it's not particularly fancy. I mean it's their immutable laws of heat transfer and the math is is pretty basic. The application of it requires some nuance and subtlety. I think the biggest thing there is is recognizing wildfire inevitable loss from wildfire is not, and that there is there's a risk associated with a wildfire loss, and and presumably everyone who's writing policies that have a peril is doing something to calculate the policy, the the peril, and to price them appropriately. Well, that same mechanism can be used to price the value of mitigation activity when aggregated, and so I would argue it doesn't necessarily need to be a new standalone thing. It ought to be incorporated into the base models that's pricing the peril and is also pricing the aggregate action of the mitigations, and that that perhaps Keith, to your

point, is not necessarily something new. It's a rethinking of our existing systems so that they perform dual function. They price risk, but they also they price baseline risk, but they also price the change from baseline with when when thoughtful mitigations are applied.

Keith Porter 00:58:02
Let me turn to thank you. I'm going to turn to our attendees. Steve Reed says one of our largest challenges is around tenants and rental properties. These are often inhabited by our least aware and most financially challenged residents. How can we tackle the perceived lack of agency from those who do not own their homes. Simple remediations are fine for homeowners, but renters present a real challenge.

Dave Winnacker 00:58:33
in some ways, I think there's from a social perspective, renters I think in many ways represent an opportunity because there is not the same emotional attachment. This is the vegetation and the natural state that you see with a long-term homeowner, and then there is also a third party, the owner, who has a vested financial interest in the survival of the structure, and that structure is viewed as an asset, not not as the home. And so I think yes, there all those things he alluded to. Those those are challenges to be overcome, but there's also an opportunity, and that some of the best traction I've seen with regard to community uptake and adoption are in in rental properties and commercial properties because it's it's viewed as an asset, not not as a you know not not as your home where there's an emotional attachment to the the status quo.

Jason Brooks 00:59:25
Yeah, I'd echo what Dave said. I think we see that as well, and you can. And then I think even can parse the rental space into. We have communities where, where if it's a short-term rental, i.e. an Airbnb, you treat it very differently than a long-term rental, right? I mean, you can start to even take your rental stock, and then again, I'll I'd say parse it differently in one area we operate. I mean, they think about short-term rentals differently than long-term rentals. They think about multifamily rentals differently than even like public housing type of rental situations. So, so the only reason I do that is once you break it into different units, then how you approach them is very is potentially very different than or inside those rental spaces. But ultimately, again, like kind of like what Dave said, the the most successful programs we've seen operating around there, at the end of the day, they bring back teaching the the renter how to almost how to talk to their landlord, how to bridge those conversations, and it's a little bit of like the fence conversation. You can get one person on one side of the fence to be all in, but most people share a fence with their neighbor, and one of the most successful programs there has actually been like, just because I sold Ralph on changing his fence, I actually have to teach Ralph how to sell his neighbor to change his fence, right? And and I bring that analogy into the rental space. Okay, I can get you on board. A lot of the proper messaging and the tooling is actually how to talk to your landlord, and then when you go a level deeper, what you hear from

people is they're afraid they might get evicted. They their rent might go up. The concerns the concerns they have, the reasons that they're afraid to take action. Ultimately, when you go again, you get that level deeper. Is being like actually you won't get evicted when you talk to your landlord about this. You your rates won't go up by 50% when you talk to them. So so I share that. It's it's very targeted messaging. But but once you break the rental population down, then you can deliver that right message to them.

Ralph Bloemers 01:01:05
And I would say, Steve, that at least at least in Oregon, and I think in a lot of other states, regulators seem quite willing to put regulations on landlords. This could be an easy nother layer of things you do. The other piece is, you know, the mitigations that matter for the home. The primary ones are some of them are one-time. The venting it's done. They also reduce long-term maintenance. You know, and you know if you simplify the landscaping, I mean, I think in a lot of properties it's an afterthought. It was planted when it was built, and it's just kind of kept. But it's it's kind of yes, there's some maintenance, but it's a one-time change that then makes it easier. So I think there's ways to sell it to landlords, and I think that you could get policymakers more likely, more willing, to force them to do a thing, and like Jason said, think of them in categories of what space they operate and what kind of property they're going to get. I mean, if they have a commercial, large commercial development with many apartments, they control the whole thing. They can do the whole thing all at once, kind of like a homeowners association, so they also have more ability. I mean, if it's a standalone single house, it's a little bit different, right? But I think you know, looking at it at categories and tackling each one as a category or an archetype probably would help as well.

Keith Porter 01:02:38
So, any of the are any of the documents you're having to circulate-do they speak to to the you know the agent who's selling rental renters insurance to help them persuade their their their their landlord to do stuff?

Ralph Bloemers 01:02:54
I haven't gone deep into that. Maybe Jason, you have stuff on that, but I haven't gone into that space on the talking to your landlord about this.

Jason Brooks 01:03:03
Yeah, going back to how you got to parse it. Like I said, I mean, we we we position the messaging differently again. Whether it's multifamily housing, mobile homes, manufactured housing has a different sort of a consideration, and so it's not perfect, but we do try to to to segment based on rental housing type, single family, multifamily, mobile home, etc. as we talked about, and then and then arming again, arming people with how to talk to either their agent or or them. Most of the time, at least from Fireside's perspective, we are empowering the

end renters, typically who we're we're enabling or acting there, versus like a broker or a leasing agent. But it's not to say it couldn't be done.

Keith Porter 01:03:41
So would would a would a an agent or a broker selling rental insurance would they find useful material at Fireside's webpage or where do they go looking for you know sort of targeted material?

Jason Brooks 01:03:53
I wouldn't say not from Fireside's Fireside specifically because we our our customers are like the state of Utah, Cal Fire, these other government entities were, but but going a layer deep in. Let me try to maybe do an illustrative example. Right, is in certain communities where where I think the the the awareness of fire and living with fire and all these other things that have that have evolved. Some you are seeing immediately when a a say a real estate agent or a leasing agent is looking at a property for a client. The first thing they're doing is they knowing to go to the fire department and pulling essentially the fire aside report, so that they can understand what is going on with the property and educate their buyer, educate their renter accordingly. But it's usually in a one-to-one type of situation in our experience.

Keith Porter 01:04:39
Okay, let's go on. We have another question from a doctoral student, Yousef Ali. He says, "Thank you all for the presentation. I'm a PhD student at Western University, working on wildfire management from an operations management perspective. I'm particularly interested in Dave's discussion of positive externalities and the comparison between private and social benefits. Dave, could you please elaborate on the comparison plot and how it should be interpreted? I'm working on a similar project. More specifically, how can this framework help determine which parcels should be prioritized for treatment? For example, if limited funding is available, which landowners or parcels should receive support and how much. And since we don't have any other questions, I'm going to ask as follow-on. As follow-up, how would Dave mathematically calculate the loss or avoided loss associated with treatment decisions?

Dave Winnacker 01:05:40
Yeah, great, fantastic question. Really, we're trying to drive at so the distribution, both the prescription and the distribution of the of mitigation activity, and I think it's important to recognize that these are thresholds both at the individual parcel level and for the aggregate in a neighborhood, and that there there really isn't a state in which a parcel is partially mitigated. It is either mitigated or is unmitigated. Fire is opportunistic; it'll find the gaps. And so, the the model I was walking through before, so a fire spread model, gives us the prescription and the distribution, where the the plot is useful, particularly around generating the dead weight loss, is what is the benefit the the private marginal benefit. So, what is the benefit of carrying out this

work that accrues to the resident? Because there's benefit to that. If my house is less likely to burn, I benefit from that clearly. But there's also potentially, depending on the position, location, and the continuity to other downwind structures, there's also the potential for a negative externality and the dead weight loss between the private marginal benefit and the social marginal benefit-that's the part within a Pigouvian tax and subsidy system that should be subsidized, and that should be subsidized probably by the downwind. Arthur Pagu. He he wrote an excellent paper in 1920 that I highly recommend to everybody, but it's the idea of Pigouvian tax and subsidies is that you tax those who create a negative externality, and you subsidize those who create a positive externality. And in this case, if we have residents at the edge whose mitigation activity creates a positive externality, there's a downwind pool of beneficiaries who will definitely benefit from that work and ought to pay to subsidize it. So, in a canonical example in Southern California with dense homes, there's about 850 homes at the edge that represent the transition area. If those homes are not prepared for wildfire, when the fire occurs, it'll move off the vegetative landscape into structures and initiate an urban fire that's unstoppable. That's a fire that'll burn till the wind stops. But if those 850 homes carry out all of the mitigation activities recommended, they create a shadow of about 10,000 homes that are now removed from the wildfire threat. If those folks within the shadow were taxed at $155 a year for five years. That could generate a one to $2,000 subsidy per year to those folks at the edge to incent them to carry out this activity. And the dead weight loss is how we calculate the delta between the benefit of the cruise to them and the benefit that accrues to others, so we can start to come up with sustainable tax subsidy schemes to incentivize people to create positive externalities.

Keith Porter 01:08:28
And has that been done? Has anybody actually implemented such a million tax and incentive scheme?

Dave Winnacker 01:08:36
So I've I've created the I mean I didn't create Pagu's work obviously, but understanding that if we go to Coase, whose 1960 paper was excellent, there's a transaction cost or friction to these things, and so we've created a model that allows the calculation of the beneficiary versus the those who are doing the work, the distribution, and there are at different scales several HOAs and at least one municipality that are undertaking the early stages of that, and we have meeting with two state level insurance commissioners in the coming weeks who are interested in the United States, interested in exploring a similar structure. Because as I said, collective action-it's a very real problem of if everyone benefits, but who shall pay? And that, to your point before about the modeling, it would be better if everyone had sophisticated, nuanced modeling available to them, but somebody's got to pick up the cost of that, and and it becomes sort of this inverse of the tragedy of the commons, where because everyone benefits, it's unclear who should pay, and that that certainly occurs within the insurance industry, where

appropriately there's a competitive market, and no one carrier is willing to take all of the coverage in one area, and so it does become a really thorny problem. I would argue it is only thorny in the absolute. It looks much less thorny when you compare it to the relative problem with relative difficulty to rebuilding a community after

Keith Porter 01:10:00
it is burned. Sure, sure. Yeah,

Ralph Bloemers 01:10:01
and let me let me just share a little bit of perspective on ways that these things are being funded. I mean, there there are bond measures being passed through the fire department to support some of these systems, these homeowner activation systems, as I call them. That's one thing that's happening in several communities in California, people are looking at doing it in in Oregon. That's one possible funding mechanism that's out there. I think you know, coming back to your original question, Dave said, "Do no harm. So the insurance industry, in my experience, in going to several conferences in the United States and Canada is not all singing from the same sheet of music as to what matters, and in this models, there's a lot of different models out there, right, that are doing different things, and so we need to look at what those models actually help us do, and I think what you heard earlier is, are they just by zip code or where you live? Are they land use geographic models telling us fire return intervals? And that's where the insurance industry largely was before a 2017, 2018 Camp Fire and other fires that you know crushed them. They were looking generally across the landscape, and now they're having to look specifically at the house, at the neighborhood scale, at the community scale, and there's two types of risks, and this is going to feed into Alan's question. There's two types of houses. There's houses that are so low in the forest, where the owner or on a landscape, grassland or shrub land separated from other houses by more than 60, 100 feet. Those people can modify their structure, and it can be the gnarliest fire, and they can survive, right? Because they they control their own destiny. It's the ones where there's contagion risk of the neighboring structure burning what was heretofore inert petrochemicals and batteries that are suddenly volatilizing and burning at two and a half 1000 degrees, and it doesn't matter if you have hardy siding or a stucco assembly because the heat flux from that sucker is going to be so great that it's going to overcome your windows or whatever else on your structure, and you're too close, and that's where everyone has to collectively do the things. Or, in Dave's slides, certain numbers of people, enough of them, to not have too many houses burning at once. But it is very clear to Alan's question that if people do the mitigations that matter, they prevent embers from becoming flame, and they prevent their house from igniting. It works. It doesn't matter how intense the fire is; it can prevent the house from igniting, right? And I just want to speak. I just read his question, which is, you know, in a hotter, drier world, are we going to have more and more people just throwing up their hands and saying it doesn't matter. We currently have 20% of the population that is uninformed and disengaged, according to CSA's insurance

research, and we have 80% of the population, plus or minus maybe a few percent, that can be activated. We can get super caught up around the axle on the 20% that is frustrating and is disengaged, which I see a lot from people on the front lines trying to get this changed. They're like, "Why is this person so difficult? I'm like, "Focus on the 80% of the people that are ready to go, that are have done one step, you need to get another, are ready to take the first step, where cost is an issue, where you know where do I start is an issue. Activate the 70, 60, 75, 80 percent of the population that are prepared to make this a normal part of their lives, and don't get to spend too much time on the people that are fatalist or just don't want to do the things and want to take their chances and and say ridiculous things like I'll just get some sticks and bricks and rebuild. We know it's not about getting sticks and bricks and rebuilt. The costs, you all have seen it, but like in in California and in Oregon and other Western states, Colorado and and Hawaii. I mean, most these communities that burn to the ground, they're 30% rebuilt 567, years later. The social fabric is hugely impacted, and you know it's a very small cost. And what we need to do is make it not about new siding and new windows. We need to make it about a much simpler first set of steps that stop the bleeding, stop the triage situation we're in, and therefore we need the insurance industry. And I've been talking with Marsh McLennan and others. Can you guys? You know, I've been saying to them, why don't you publish a thing and say, here's what matters first in this situation, so they don't. So they send a signal to all the insurers and reinsurers. Here's what, in our estimation, matters the most that we do first, right? And I think that it it does feel a bit overwhelming, but there is this switch that I've seen with burned up communities, where like in Paradise, I was just there and did four days of filming, and they still got a lot of work to do. But most of the homes that they've rebuilt are compliant. They're still making some. Some people are still making some decisions about where they put their plants that are not the greatest. But admitted carriers are coming back into that community, and the community there is not saying it's a question of if fire is going to come, it's a question of when. Their attitude has changed around it. Their culture has changed around it. They have a lot of code to make it happen. I think the hardest place is going to be the communities that haven't experienced the losses. How do we get them to get real, right? And I think the insurance industry is the key player in getting them to get real. That is, and why it's so important for you all to sing from a common sheet of music, on how you collectively do that, so that you have not just visibility into your insured, but visibility into the neighborhood and everyone that's done the if they've done the things.

Keith Porter 01:16:21
So, so let's let's follow up on that thread before we go to some other questions. So, the you're advocating for the insurance industry from to sing from a common she music, and no argument for me there. You were also sort of you alluded more than once to the notion that we don't make that rational arguments do not sway people. That people make decisions emotionally, and I have heard that they then use reason to post hoc rationalize their emotional decisions. And you alluded to identity and used that term, and you used social proof, although

you didn't use that term. But you know, you talked about some of the emotional level levers of persuasion. So, are you advocating for the the the insurance industry to use these emotional levers and you know, sort of back them up with the financial arguments as kind of a you know a post hoc rationalization, or or what are you asking the you know our attendees to do here when you say sing from the same sheet of music? I think

Ralph Bloemers 01:17:35
all of those things. I mean, I think one of the things that you know, Dave, I really appreciate about Dave and and Jack and is we need to interrogate the language of the past and determine whether that language is serving us into the future. We use a term in the United States called home hardening. Home hardening. What does that suggest to the to the homeowner? I got to hire some contractors. I got new siding, new windows. Way too effing expensive. I'd rather do redo my kitchen and my bathroom. That's going to bring me a lot more joy. Zone zero. That's what they use in California for the first five feet. My view is that term doesn't make any sense to anybody and sounds like you're telling them to put a prison yard around their house. I think maybe it works for a few, and I don't want to over fetishize language, but I think part of it is what's the collective language we're using. I think that what's really interesting, and some people that just showed me a tool that they're building, Dave's been working on it, but it's not public, is they nowhere use the word risk in communicating with the the the homeowner or hazard risk. I don't want to touch it. I'm scared, right? Wildfire ready. It has to be an empowerment message. It is absolutely a culture change, social science exercise, and therefore the language matters that we collectively use and how we communicate that, 100 percent, and and everything is on the table in terms of is this working for us? It's not whether those people who developed that language were well intentioned. That's not the issue. The question is, do we bring a willingness to be to to question that and change to the for the better, and really think about it from the perspective of the homeowner? I think that my view is, sure, new windows can help if they're single pane. New roof can help if you got a wood wood shake roof. But most people have a Class A roof. We don't need to be spending a bunch of time on roofs and talking about roofs. That's the outlier, right? Most of it is pretty small stuff. Weekend project for some people, Keith probably 30% of the population, maybe even less. They really want to work on their garden. They really care about their plants. They're super attached to their plants. We got to show them, right? We got to break down the population into archetypes and show those people that really care about their plants that you can be wildfire prepared and stylish, that it's got curb appeal. Some people just fine. I'll put in some rock, and then I don't need to deal with it. They don't care, right? So I think that we need to move away from this. People need to be scared. People need to be guilt tripped. People don't appreciate the risk. These other notions that are not actually real, and go next level with our communications collectively. At the higher level narratives, and I talked about these at CADIQ. I think the insurance industry, you know, can play a really good role in saying, okay, yeah, we think suppression is an important part of the mix, but it's got its limits. We think we do things

in forest because we want timber, or maybe because we've we've got some values we want to protect, but that stuff is really unrelated to bending down the risk curve for us. What really matters for bending down the risk curve is what Alan Westaver and Jack Cohen, and Dave Winnacker and Jason Brooks tell us what we need to do, right? And and and say this is what matters to keeping communities from burning down, but you know you have narratives in your society in different parts of of the provinces in Canada that it's a forest management problem, right? And so we need the insurance industry to say no, it's not. Collectively, okay, the odds that we could thin a patch of forest and that'll burn differently, and a community won't burn, right? But you need to basically-it's not that you're wading into politics, but by defining the problem and defining the solution very crisply, you put yourself in a position to signal to policyholders and society what you care about. Because if people think it's someone else's problem, the forest management or the suppression-they're not going to do the things, and it's all an integrated culture shift and messaging exercise, as far as I'm concerned.

Keith Porter 01:21:50
Yeah, and and you you drop several threads that I would love to pick up and and and follow along with. But if I don't ask our attendees questions, I'm not going to be very popular. So let me turn back to the attendee's questions. Brian Crosby asks, "Sorry, I missed much the presentation, but I wanted to ask a question about the data you use in your product. In your experience, and I think he's talking to Dave. In your experience, have you successfully convinced governments or agencies to release the granular hazard and exposure data needed for your data-driven wildfire risk management. In my jurisdiction, there is a strong risk aversion to sharing detailed hazard information, particularly at the parcel level, due to concerns about viability, public perception, misuse. What strategies or examples have you found effective in overcoming those barriers?

Dave Winnacker 01:22:46
Understanding that a hazard map and a risk map are two fundamentally different things, and and if your government has detailed risk maps, then you're doing way better than my government because that just doesn't exist as a government product. So, fire is a function of topography, fuel, and weather. As I showed with that that first slide showing the weather distribution, that can give us a very good sense of frequency of the events that are capable of generating the fast-moving wind-driven fires that eat homes, and also can give us the characteristics. We can align that with ignition history to start to figure out probability. But as Ralph mentioned, which I think is foundational here, that's just the wildfire, and there's nothing about that. And that wildfire is inevitable and probably beneficial more often than not in a fire-dependent landscape. But the wildfire, which is inevitable, is not the same as community loss, which is not inevitable. And an old-school gap model that is just looking at the frequency with which fires encounter a community and then calculating a loss is not wrong if nothing's being done, but it leaves untouched, unexploited the agency and an entity, neighborhood level or

larger, has to to change their susceptibility to a wildfire-initiated urban fire, and and that's that's where the action is. So with regard to the data work for the the demo you saw there, that was using land fire at 30 meter. You could also use fine-scale fuel mapping down to five meter data, although the models generally run better on a coarser landscape view, and then at the parcel level, this is where Jason and his team come in. It 30 meters does not cut it when you're into the into the built environment because there's so much variability, not only parcel to parcel but season to season, and there you need sub meter, centimeter ground based collection with a human component to do things like quantify the vent size that simply cannot be done with remote sensing, no matter what you're using, and so it's that combination of of macro fuel data. We know the weather, we know the topography, the fuel is variable, but we can account for that to include drought periods, and then the parcel level stuff with, and then I would argue with a twice a year refresh, because you have a mitigation season. Think of that as the winter, the wet months, where you can prepare a community for wildfire for that year. But some of those preparation activities are highly transitory, such as actions to reduce annual grass and weeds. Cut it in year one, you get no benefit in year two. So you need to assess what was done each year in mitigation season, but then at the end of fire season, so the onset of seasonal rains or snows, you should snap the line and reassess because anything that burned that year, and in many of the areas we're talking about, there will be quite a bit of activity. That's a fuel mod. That that is no different than if you went out and you masticated it, you prescribe fired it. You thinned it, and that changes the landscape. And now that the landscape has changed and those pixels have a disturbance on them, there are new fire realities are exposed, and you should account for that. So a twice a year update, and with regard to the data source, notwithstanding the data source that the Jason team does with the stuff on the parcel, but for the landscape, that's a fuel layer that's readily available, and I'm not aware of any entity that's withholding the fuel air. Now, the analysis that comes out of that, if they've done it, maybe they're withholding it. But if they've done it, I would argue it's a haz a static hazard map, not a not a dynamic risk map I'm going to run..

Keith Porter 01:26:18
All right, I get it.

Ralph Bloemers 01:26:21
You can call me about what happened in Oregon, but there, there was a real problem with what was conveyed around the hazard map, and it caused a big backlash. And people, you know, regardless of what the truth was, there there was the whisper campaign online that the insurers were using it, and that's why people were getting dropped. And navigating that is really challenging, but Dave is absolutely right that hazard maps are generally a wildfire is the problem definition, and what we need is the unadapted community is the problem, and we need models that help us get from unadapted to adapted in a prioritized way and systems to get us there. So these hazard maps, frankly, have fairly limited utility. And I'll just give you the

example of Oregon. We've got low, medium, and high. And in Labor Day 2020, medium and low burned, and people lost homes. Low doesn't mean you're not going to have a fire. It just means low return interval, and perhaps lower risk, but the hazard is still there, and so they these maps that they come up with. I think my perspective is governments do it to give politicians a sense that they have a handle on the problem when they don't really have a handle on the problem. They give us this modicum of feeling that we we've got some understanding and we're doing a geographic land use exercise for a risk that is stochastic. In other words, where it will manifest on the landscape. I got

Keith Porter 01:27:54
to stop you because we got three minutes left, and there was an unasked question that I don't think was Cheryl. I'm sorry, I'm not going to get to your question. I want to give you each like 45 seconds. Seriously, Ralph, I'm looking at you. 45 seconds. Final remark. Something. If people take away one idea from your portion of the talk, what should that one idea be? Ralph, why don't you go ahead? And I am going to stop you in 40-five seconds.

Ralph Bloemers 01:28:25
Well, I think that you know insurance is pricing risk and paying claims, but if we can make insurance be part of getting people to own the risk and bending down the risk curve, then there's a better future, and I see that as you know just so interrelated with the survival of the housing market and the insurance industry, and that's that to me is the mission is seeing that we have this common interest.

Keith Porter 01:28:58
Awesome, great, Jason. Yeah, I would.

Jason Brooks 01:29:02
I'll keep it fast. So I think I think the the key things I would really ask everyone to take away is is how how you're essentially doing two things: a using the risk risk models, advanced risk models, to essentially prioritize where to do things. We can't get everyone to do everything, and they're not going to do it all at once. So what's like the number one most important thing this particular house can do, and then what's the right way to engage with that home if they're a renter? So a long-term resident who's lived in the house for 50 years, I could go on an immigrant. I mean, you could you could imagine all these demographics. At the end of the day, the message is you really have to think about what is the right action at that particular home, and then what's the right way to engage that particular property owner to take action, and then measure it all, so you can prove the change you're making. Dave,

Keith Porter 01:29:47
Dave, two thoughts.

Dave Winnacker 01:29:49
One is that we have agency, and wildfire is inevitable. Community loss is not, and community very much can have the power to change the the risk with the conditions on and around their parcels. This isn't a forest. This isn't someone else's problem. Thing one, thing two. Wildfire is abstract. Insurance is annual, and the price signaling power of your industry will either move the needle or will prevent things from gaining traction if price signaling is not matching conditions on the ground.

Keith Porter 01:30:22
Awesome. Thank you, gentlemen. Great presentation. Thanks again to Jason Brooks, Dave Winnacker, and Ralph Bloemers. Remember, attendees, you're going to find video, audio, and transcript, and the speakers' decks by Monday at www.icl.org/workshops. Join us next month to hear about what did I say is happening next month. Rob Moira is going to present an uninsurable country, a cautionary tale from the United States, but meaningful for Canada in the coming 15 years. Thanks, everybody. Have a terrific weekend, and see you next time. Bye bye.