00:00:00.000 --> 00:00:13.920  
Stephanie Nichols  
Homeownership has long been viewed as the American dream. Homeownership is a foundation for building families, communities and retirement security. It conveys prosperity, financial security and Albert mobility.

00:00:14.500 --> 00:00:17.770  
Stephanie Nichols  
Let's take a look at homeownership in rural America.

00:00:18.770 --> 00:00:27.410  
Stephanie Nichols  
Many households in rural areas own their homes. In 2018, there were 16.5 million homeowners in rural areas.

00:00:28.080 --> 00:00:37.400  
Stephanie Nichols  
This map indicates US counties based on the percentage of households that own their homes. Areas in dark red have over 92% home ownership.

00:00:39.210 --> 00:00:51.400  
Stephanie Nichols  
According to the most recent data, the percentage of homeowners is lower in 2018 than it was in 2010, but there are indications that the decline has leveled off an begun to improve after 2016.

00:00:53.270 --> 00:01:08.680  
Stephanie Nichols  
Additionally, rural America has the highest rate of true homeownership. Nearly half of rural and small town homeowners own their properties with no mortgage debt compared to about 37% of all US homeowners.

00:01:09.940 --> 00:01:24.500  
Stephanie Nichols  
Rates of homeownership in rural areas are generally higher than in urban areas, but still face many challenges. The rate of homeownership declined in nearly 3/4 of US counties between 2009 and 2018.

00:01:26.020 --> 00:01:35.850  
Stephanie Nichols  
Home values are lower in rural America. An estimated 38% of rural and small town homes are valued at less than $100,000.

00:01:38.320 --> 00:01:59.180  
Stephanie Nichols  
Homeownership is also a question of equity, rural and small town minorities are less likely to own their homes than white households. Nearly 75% of rural and small town white households own their homes, while only 55% of minority households own their homes. A 20 percentage point gap.

00:01:59.830 --> 00:02:06.550  
Stephanie Nichols  
Thank you for listening. You can learn more about the Housing Assistance Council by going to ruralhome.org.

00:05:28.490 --> 00:05:34.120  
Stephanie Nichols  
The Housing Assistance Council is a national nonprofit that supports affordable housing efforts throughout roll America.

00:05:35.250 --> 00:05:41.530  
Stephanie Nichols  
Since 1971, HAC is provided below market financing for affordable housing and community development.

00:05:42.430 --> 00:05:50.930  
Stephanie Nichols  
Technical assistance and training services. Research and information products and policy formulation to enable solutions for rural communities.

00:05:53.990 --> 00:05:59.390  
Stephanie Nichols  
Thank you for joining us for today's webinar strategies for achieving energy efficient, affordable housing.

00:06:00.570 --> 00:06:08.430  
Stephanie Nichols  
Energy efficiency is a key aspect in achieving affordable housing. We're building homes that are both energy efficient. An affordable can be challenging.

00:06:09.460 --> 00:06:16.050  
Stephanie Nichols  
This webinar will explain the importance of energy efficiency and affordable housing in strategies for achieving it cost effectively.

00:06:18.310 --> 00:06:21.550  
Stephanie Nichols  
Today's webinar is sponsored by USDA Rural Development.

00:06:24.030 --> 00:06:26.990  
Stephanie Nichols  
Please join me in welcoming today's speaker Ryan Meres.

00:06:27.550 --> 00:06:37.140  
Stephanie Nichols  
Ryan has 15 years of experience in energy and water efficiency, energy policy and building energy codes, and it's worked at the federal, state and local level.

00:06:38.470 --> 00:06:53.610  
Stephanie Nichols  
As the program director for Resnet, Ryan currently leads numerous programs including implementation of Resonance, hers, H2O, Whole House Water Efficiency Rating, as well as initiatives to get energy and water efficiency valued in the real estate transaction process.

00:06:54.640 --> 00:07:04.700  
Stephanie Nichols  
Ryan got started in the energy efficiency industry as an Earthcraft House technical advisor, working with builders in the Atlanta Metro area to make their homes more energy efficient.

00:07:05.600 --> 00:07:12.970  
Stephanie Nichols  
Reinhold bachelors degree in architecture from Savannah College of Art and Design and Lives in app State, New York. With his wife and their three children.

00:07:16.160 --> 00:07:31.490  
Ryan Meres  
Hey everyone, welcome to today's webinar. As a reminder, if you have any questions, please please use the comments tab to enter them as we go and I hope to answer as many questions as possible when we get to the end of the webinar today.

00:07:34.120 --> 00:07:46.460  
Ryan Meres  
So let's go ahead and get started. Have a lot of content to cover so I will be moving fairly quickly through it, but definitely encourage questions. So please please take a take a minute as we're going to enter those in as we go.

00:07:49.870 --> 00:08:20.030  
Ryan Meres  
So on today's agenda, for those of you that are not familiar with rising, that I'll give a very quick overview. And same with the HERS index. If you're not familiar with what the HERS index score is, I will provide a brief overview of that as well. Then talk a little bit about energy burdens and what that means for housing affordability as well as the links between energy efficiency and health. Then we'll touch on financing of energy efficiency both for new construction and also retrofits.

00:08:21.040 --> 00:08:34.120  
Ryan Meres  
And then I'll spend more time on the role that hers raters can play in in improving energy efficiency. But also in doing it in a cost effective manner. And then I'll spend some time on.

00:08:34.170 --> 00:09:03.300  
Ryan Meres  
Uhm, had it how to budget. How to do energy efficient construction on a budget. All give a number of examples of where there's opportunities to cut costs, but also still save energy in your homes. And then I'll wrap up the presentation talking about. Net zero construction. It's a big trend right now. Lot of activity around net zero energy homes, so I'll wrap up with some data on that from the rez. Net registry.

00:09:07.280 --> 00:09:36.760  
Ryan Meres  
So Res net is a national nonprofit founded in 1995. We develop both energy and water efficiency standards. We have a number of standards that address both of those issues. We also created the Home Energy rating system known as the HERS Index, back in 1995, and we also set the standards for certification of home energy raters, an rating field inspectors, as well as the standards for quality assurance oversight.

00:09:36.980 --> 00:09:38.840  
Ryan Meres  
I'm all hers ratings.

00:09:41.520 --> 00:10:13.000  
Ryan Meres  
The hers index. So if you're not familiar with it, it's a. It's a especially a single number that provides a method to easily compare the entered. The relative energy efficiency across homes. Generally, homes are going to score between a zero and a 100. However, for older homes it's very possible that they will score well above 100 on the index scale of 100 represents construction practices typical of around the 2006 time frame.

00:10:13.300 --> 00:10:21.130  
Ryan Meres  
Anna Zero on the index scale would be a home that produces as much energy as it uses on an annual basis.

00:10:23.350 --> 00:10:24.970  
Stephanie Nichols  
Brian, can I interpret quick?

00:10:25.120 --> 00:10:26.180  
Ryan Meres  
Yep, go ahead.

00:10:25.560 --> 00:10:30.540  
Stephanie Nichols  
Did you advance the slides? I don't know if you took control 'cause we're still on the 1st slide.

00:10:30.810 --> 00:10:33.440  
Ryan Meres  
Oh well, that's you're not seeing what I'm seeing.

00:10:34.230 --> 00:10:35.800  
Stephanie Nichols  
We go sorry to interrupt.

00:10:36.530 --> 00:10:53.970  
Ryan Meres  
It's alright, it's rather rather you did that then go through the whole presentation without anyone seeing anything but the first slide. So this is where we just were. What is the hers index? You know, a scale generally zero to 100 allows for comparison of energy efficiency across homes.

00:10:55.630 --> 00:10:57.010  
Ryan Meres  
You're seeing my slides now.

00:11:00.150 --> 00:11:01.110  
Stephanie Nichols  
Yes, I am, thank you.

00:11:00.500 --> 00:11:01.250  
Daniel Stern  
Yes.

00:11:01.210 --> 00:11:17.480  
Ryan Meres  
Alright, OK great. So the HERS index is used in a number of different ways. There's there's currently over 3,000,000 homes that have received a hers rating since 1995 last year we came in just shy of 300,000 hers ratings.

00:11:18.060 --> 00:11:26.990  
Ryan Meres  
And that represents anywhere between one fifth and one quarter of all new homes that are built in the US each year, and it varies by year.

00:11:27.720 --> 00:11:32.110  
Ryan Meres  
A hers index is part of the Energy Star for homes program.

00:11:32.690 --> 00:12:02.820  
Ryan Meres  
Ah, there it can be done on both new homes and also existing homes. There are a number of utility incentive programs that that that are offered for achieving specific hers index targets. And there are a number of rural electric co-ops that offer those types of incentives, so if you're not familiar with those incentives, you might want to check with your local utility providers to see if there's any incentives for doing hers ratings on new construction or existing homes.

00:12:03.010 --> 00:12:22.660  
Ryan Meres  
There's also a number of national, regional and local green building programs that incorporate the HERS index as one of the energy efficiency provisions within their green building programs, and then more more recently, the HERS index has been getting used for energy code compliance as part of the Energy Rating index compliance path.

00:12:26.270 --> 00:12:40.040  
Ryan Meres  
Energy burden, so hopefully you have some familiarity with what energy burden is, but I'll touch on it here and give some statistics on on its impact so energy burden is is the percent of household income that is spent on energy bills.

00:12:41.040 --> 00:12:58.190  
Ryan Meres  
For non low income households, the average energy burden in the US is around 3%. For low income households, the average energy burden is anywhere between 9:00 and 15% and in some cases can be as high as 30%. For low income households.

00:12:59.350 --> 00:13:03.550  
Ryan Meres  
Here's another way to look at that. So this is this is a more recent.

00:13:03.880 --> 00:13:19.360  
Ryan Meres  
Uhm statistics from 2019. This is looking at the average expenditures as a percent of net income for 80 million households that are earning less than $70,000 a year and that you can see the chart on the left. Those average energy costs.

00:13:19.720 --> 00:13:44.770  
Ryan Meres  
Come seven point 1% is the average in this for this particular household. These 80 million households. And then it comes in a higher than property taxes and insurance. And what's interesting there is that property taxes and insurance are both accounted for as part of the mortgage underwriting process and energy costs are not even though they come in at a higher percentage of of income.

00:13:45.630 --> 00:14:04.370  
Ryan Meres  
The graph on the right is showing a breakdown at different income brackets and you can see as you move from right to left the income level gets less and less and the energy burden the energy costs for those households increases as a percentage of their total income.

00:14:07.980 --> 00:14:14.420  
Ryan Meres  
Manufactured housing is often seen as the as it often is. One of the most.

00:14:16.230 --> 00:14:24.410  
Ryan Meres  
Economical an affordable housing options especially in rural America, and it is actually a very common.

00:14:25.080 --> 00:14:29.650  
Ryan Meres  
Option where I am in New York but.

00:14:30.230 --> 00:14:34.440  
Ryan Meres  
You know, uh, although overall energy usage is lower.

00:14:34.490 --> 00:14:49.880  
Ryan Meres  
For the occupants actually spend 70% more per square foot compared to a conventional single family home. An manufactured households are among the highest energy burdened households in the country.

00:14:53.190 --> 00:15:00.390  
Ryan Meres  
What this what this leads to is this vicious cycle where you have households that have high energy burdens.

00:15:01.690 --> 00:15:24.170  
Ryan Meres  
And those high energy burdens are often counteracted with keeping indoor temperatures lower in the in the winter. So you're under heating, and then these households that do that become more susceptible to indoor air quality issues with dampness and mold, which can lead to respiratory illnesses and asthma.

00:15:25.580 --> 00:15:34.330  
Ryan Meres  
Obviously the young children and elderly are more susceptible to the negative impacts of these homes among the elderly.

00:15:34.380 --> 00:15:58.000  
Ryan Meres  
We, uh, colder homes, especially can lead to a higher risk of stroke and circulatory and respiratory issues. All of this leads to less healthy occupants. More time spent going to the doctor, more medical bills, time missed from work and lost wages, which just kind of perpetuates this cycle.

00:15:59.070 --> 00:16:13.840  
Ryan Meres  
Where energy costs are leading to many other societal problems, an energy efficient homes can mean healthier homes and healthier occupants, and I'll touch on that. How that how exactly that relates?

00:16:15.190 --> 00:16:39.780  
Ryan Meres  
So this is a study from back in 2016. This is about the health benefits of home performance, an essentially looked at all of the studies that have been done up to that time and what kind of evidence there was to indicate that better home performance attributed to improved health conditions and so.

00:16:41.060 --> 00:17:10.920  
Ryan Meres  
One of the tables within this report is. It looks at the different energy efficiency measures all the way on the left column and then the expected health outcomes. If those measures are are improved for the occupants and you can see insulation and air sealing, improved heating systems, cooking systems as well, and improve ventilation, and you know one of the common expected health outcomes is reduced symptoms of respiratory.

00:17:11.080 --> 00:17:13.140  
Ryan Meres  
Disease that is one of the more common.

00:17:13.370 --> 00:17:14.040  
Ryan Meres  
Uh.

00:17:14.760 --> 00:17:25.360  
Ryan Meres  
Health outcomes improved health outcomes, but other other things related to cardiovascular disease, risk of cancer, arthritis, depression.

00:17:26.190 --> 00:17:37.960  
Ryan Meres  
By improving the energy efficiency of the home, you are also in turn improving the indoor air quality. An ultimately the health of the occupants of that home.

00:17:40.340 --> 00:18:12.330  
Ryan Meres  
So how do we go about financing this? There are energy efficient mortgages. They allow a buyer of a new home to to include an additional cost for a home that is energy efficient. They allow owners of existing homes to borrow more money to make efficiency improvements. These types of loans are offered through the FHA, the VA, as well as conventional mortgages through conventional banks. The general concept for this is that.

00:18:12.560 --> 00:18:14.790  
Ryan Meres  
The energy efficiency.

00:18:15.440 --> 00:18:47.020  
Ryan Meres  
Uh, it's going to cost a little bit more. So it let's let's use a new home example. The energy efficiency to make that home more energy efficient. Going to cost a little bit more, you're going to have a slightly higher mortgage, but the idea is that the increases in efficiency will reduce your energy costs such that it will account for the increase in your mortgage cost. Now, you may think you know I don't see a lot of these energy efficient mortgages. You know, the banks are not are not really offering them or advertising them.

00:18:47.070 --> 00:19:13.810  
Ryan Meres  
And you'd be right in that some banks do avoid it because it's it's a little bit of extra work on their part, and they're really not getting anything additional for doing this type of mortgage, so they would prefer to go with a conventional mortgage unless A unless the less someone comes to them and says I, I wanted energy efficient mortgage in This is why I want it. Unfortunately they don't get used as as often as they should be.

00:19:15.550 --> 00:19:45.600  
Ryan Meres  
Resident has an appraiser portal. This portals available for free to all licensed appraisers. You can licensed appraisers can search roughly 2,000,000 hers rated homes that are on this portal, and they can use it to find can parables in the appraisal process, which is really important in terms of taking into account the energy efficiency of the home, and I'm going to get into a little bit more detail on some of the challenges though with appraisals and being able to actually get better return.

00:19:45.880 --> 00:19:51.350  
Ryan Meres  
As far as the builders concern a return on their investment for making home more energy efficient.

00:19:53.820 --> 00:20:26.820  
Ryan Meres  
Back in 2019, Resnet shared hers rating data with Freddie Mac and they didn't. Analysis of that data. One of the things that they found was that hers rated homes sold on average for about 2 1/2% more than unrated homes and homes that scored really well on the hers index scale sold for anywhere between 3 and 5% more than unrated homes. One of the other interesting facts that they they looked at demographics of people who were buying hers rated homes. As part of this study.

00:20:27.150 --> 00:20:49.670  
Ryan Meres  
And they found that 18% of buyers make of hers rated homes made less than 50% of the area median income in that was actually more than double the general mortgage origination market, where it was. It was somewhere around 8% of buyers in the in the entire mortgage market that made less than 50% of the area median income.

00:20:50.740 --> 00:21:10.190  
Ryan Meres  
The age is 48% of hers rated. Home buyers were between the ages of 36 and 54. They also looked at delinquency and found that occurs. Rated homes had a lower delinquency rate than unrated homes even when borrowers had very high debt to income ratios of a 45% or more.

00:21:13.680 --> 00:21:18.530  
Ryan Meres  
Another common question that we get is how to her scores relate to the Energy Code.

00:21:19.970 --> 00:21:37.530  
Ryan Meres  
And this is this is a study that was done by the Florida Solar Energy Center. It was actually done several years ago, but it's still relevant in terms of what the code that we're looking at now, which was recently published, which is the 2021 International Energy Conservation Code, or IECC.

00:21:38.530 --> 00:21:43.320  
Ryan Meres  
So 2006, as I mentioned earlier, is the reference home for a hers rating.

00:21:44.460 --> 00:21:58.690  
Ryan Meres  
All of their homes are compared to that reference, which roughly represents construction practices in 2006, and you can see the 2009 and 2012 codes on here scoring in the 70s and in some cases the 80s depending on the climate zone.

00:21:59.640 --> 00:22:15.240  
Ryan Meres  
All the way to the very right is that roughly where the 2021 IECC is expected to all, and this is based on the prescriptive requirements of the code. Where would it come in? And the EQ stands for equipment.

00:22:15.810 --> 00:22:35.270  
Ryan Meres  
And in the case of the EQ cusp, that is, equipment that was on the cusp of why market wide adoption back in 2013. So most of the equipment that was assumed back then is has been on the market for several years now and is very commonly used.

00:22:35.890 --> 00:22:42.840  
Ryan Meres  
The EQ cost plus 10 the the farthest column on the right, that is that represents homes that are.

00:22:43.530 --> 00:22:56.070  
Ryan Meres  
That have been built to the 2012 code that then use that equipment that was on the cusp of widespread market adoption and then used equipment that was 10% more efficient than that.

00:22:56.820 --> 00:23:04.450  
Ryan Meres  
To get to basically the low to mid 50s in terms of hers index scores depending on your climate zone.

00:23:07.620 --> 00:23:08.760  
Ryan Meres  
Now there's a lot of.

00:23:09.950 --> 00:23:39.870  
Ryan Meres  
More unique challenges to doing energy efficiency in rural areas, and I'm going to touch on some of those and why? Why they are struggles in rural areas that others may not see. Less energy. Code enforcement is one of those, so the energy Code really establishes your baseline energy efficiency for a particular state or or even a county or municipality. And when the energy codes not being enforced often builders.

00:23:39.920 --> 00:23:45.050  
Ryan Meres  
Will will feel free to cut corners on energy efficiency, whether it's.

00:23:46.150 --> 00:24:15.910  
Ryan Meres  
Less efficient windows, less efficient building envelope. You know, insulation and air sealing levels an that that overall kind of lowers the threshold for the expected energy efficiency for an area less builder, competition is another one that when there's when there's fewer builders competing. Oftentimes one builder may undercut others and cut corners, especially related to energy efficiency, because there's not an inspection that's being done.

00:24:15.970 --> 00:24:27.790  
Ryan Meres  
And that that hurts other builders they feel like in order to, you know, compete price wise they need to. They need to lower some of their energy efficiency levels.

00:24:28.530 --> 00:24:59.460  
Ryan Meres  
Not getting higher appraised value for energy efficient features. This is this is both a rural problem in an urban problem on. It really depends on the area, lack of compare cibles is really what makes this a more common rural problem in that if there's if the appraiser doesn't have come parables in the area of other energy efficient homes, they don't really have a basis for justifying it. Potentially more value can make it more difficult, and then generally lack of appraiser knowledge on energy efficient.

00:24:59.510 --> 00:25:19.110  
Ryan Meres  
Features and this is this is a fairly large problem, but if an appraiser doesn't understand the energy efficient features of a home, there most likely not going to take it into consideration when appraising the house and then builders not marketing energy efficient features. If a home is going to be listed on, say, the MLS.

00:25:20.470 --> 00:25:31.240  
Ryan Meres  
It's really important to advertise the energy efficient features because appraisers look to those listings to find, compare cibles and if there's nothing about energy efficiency, they're not going to take it into account.

00:25:31.890 --> 00:26:02.750  
Ryan Meres  
Uh, in general there's just fewer hers raters in rural areas, so it is a little bit more difficult to engage a hers rater. An assist you with making a more efficient home and then in general lower volume of building leads to a few issues. One of his product availability. Again, if the energy codes not being enforced in builders aren't regularly using, let's say, high efficient equipment, or a certain type of insulation, it may not be available in that market.

00:26:02.800 --> 00:26:13.690  
Ryan Meres  
Which can lead to price premiums for doing special orders, and then finally fewer trades with knowledge of energy efficient practices if you don't have installation subcontractors and.

00:26:14.270 --> 00:26:36.570  
Ryan Meres  
Excuse me, mechanical subcontractors available that know how to do energy efficient construction, energy efficient, good in installations of installation, and good installations of HVAC equipment. They may charge more if you're if you're. If you're speccing that for your home because there's a learning curve there. Not sure exactly how to do it or how long it may take them.

00:26:37.540 --> 00:26:48.740  
Ryan Meres  
And then finally lower consumer demand if there's. If there's not a lot of demand for energy efficient homes, it makes them. It makes it more difficult to be it to build them.

00:26:51.490 --> 00:27:01.250  
Ryan Meres  
So hers raters and rating field inspectors can both do many of the inspections and testing that are required for a hers rating.

00:27:01.640 --> 00:27:20.440  
Ryan Meres  
Uh, so hers raters. First of all, they can do everything they can, do all of your testing year inspections in. Also, your energy modeling. I'll talk more about energy modeling and the importance of that in just a minute. Rating field inspectors can only do the inspections and the testing. They don't. They're not certified to do the energy modeling.

00:27:22.000 --> 00:27:28.070  
Ryan Meres  
In RF, eye has to work under the supervision of a hers rater when doing their work.

00:27:31.560 --> 00:27:46.270  
Ryan Meres  
Yeah, across the US there's more than 2500 active and certified Kurz, Raiders and rating field inspectors. So in even in many rural locations, you can find a hers rater or an RFI within a reasonable distance.

00:27:47.440 --> 00:27:53.330  
Ryan Meres  
And you can. You can go to Resnet dot US if you want more information about finding hers raters.

00:27:56.050 --> 00:28:25.380  
Ryan Meres  
So what can a hers rater really do to help both each achieve eficiency levels, but also assist the builder with keeping costs down? First of all, it's really best when are hers raters involved early in the project during the design or pre construction phase of the project and the energy model is your friend? And what do I really mean by that? So Raiders can Raiders use energy modeling software on a regular basis 2.

00:28:25.540 --> 00:28:47.100  
Ryan Meres  
You hers ratings and they're going to model those options. They will take your plans and specifications an input, everything into their energy modeling software, and they can come up with different options. They can model different scenarios for you and that can be related to HVAC and hot water equipment, different different options there.

00:28:47.890 --> 00:29:18.580  
Ryan Meres  
Uh, installation options, whether it's a specific type of insulation or it's a specific R value or thickness of insulation, you can look at different options as well as. Same thing for Windows. You know, different types, different specs for Windows, they can model them, let you know how much energy you will save with specific window types, and then finally lighting and appliances do play into the hers rating as well as the the locations for your ductwork, so if you can bring your ductwork.

00:29:18.910 --> 00:29:24.630  
Ryan Meres  
Inside the building envelope you can save significantly more energy than, say, putting it in the attic.

00:29:26.090 --> 00:29:33.250  
Ryan Meres  
So the hers rater can is really integral in helping in all these situations and understanding your options for building energy efficiency.

00:29:35.280 --> 00:30:07.170  
Ryan Meres  
Next couple slides. I'm just going to do a comparison of homes to give you an idea of some of the specifications that are different in achieving different scores, and these are the homes that I'm showing you are Habitat for Humanity homes. In this first example there in a warm climate. In this case, both homes are in Florida. You can see that there are 12 to 1400 square feet in terms of energy cost there the House number one is expected to save about $20 a month compared to house too.

00:30:07.220 --> 00:30:10.810  
Ryan Meres  
The her score for house one is a 42 and for House 2 is a 58.

00:30:12.420 --> 00:30:20.360  
Ryan Meres  
So what really stands out here in terms of what I think is driving the hers score for house one down to a 42?

00:30:21.180 --> 00:30:50.880  
Ryan Meres  
First of all, the wall R value is a 21 for house one and only in our 10 for house to the ceiling. R value is a 55 in house one and only a 32 in House 2. And then when you go down to the bottom of this screen you can see that House 1 installed all Energy Star appliances in house two only. Only installed Energy Star refrigerator and then the envelope tightness is a bit better on house one at 3.1 air changes versus 4.3 or changes for House 2.

00:30:51.400 --> 00:31:07.550  
Ryan Meres  
And then one of the really important aspects is that house one chose to put 100% of their ductwork inside the condition space in house to put zero percent, meaning the entire air handler an all the duck work were most likely in the attic.

00:31:09.080 --> 00:31:17.450  
Ryan Meres  
Let's take a look at a cold climate example. Again, these are Habitat for Humanity homes. In this case, House one is in Michigan and House two is in Pennsylvania.

00:31:18.470 --> 00:31:34.660  
Ryan Meres  
House one score score of 44 on the HERS index in House 2 scored a 61 again. The lower the number, the better the HERS index, the lower the energy costs and in this case house one is expected to save about $34 a month in energy costs.

00:31:35.270 --> 00:31:41.810  
Ryan Meres  
And here's a few things that kind of stand out. Wall R value in house one is a 34 versus a 26.

00:31:42.670 --> 00:32:11.910  
Ryan Meres  
Ceiling R value was actually pretty similar. 53 versus A48 window SHGC for house one came into .28 compared to a .4 window. U values were just about the same as you can see, uh, the heating equipment and cooling equipment were roughly on par in terms of efficiency. The big the big thing here is the water heater. You can see that House number one used to heat pump water heater with a 3.5 energy factor.

00:32:12.430 --> 00:32:27.380  
Ryan Meres  
How's two chose a gas tankless water heater with a .92 energy factor, basically meaning that the water heater in house one is about four times more efficient that compared to the one in house too.

00:32:28.290 --> 00:32:35.190  
Ryan Meres  
Uh, and then down at the bottom envelope tightness 1.4 versus more than double that for house two at 2.9.

00:32:35.940 --> 00:32:44.070  
Ryan Meres  
House one went with a ductless system and how Stu did put 100% of their ductwork in conditioned space?

00:32:46.800 --> 00:32:58.040  
Ryan Meres  
Alright, so the next few slides here are going to look at options what what, what kind of options are there when considering energy efficiency? And these are some of the more common.

00:32:58.870 --> 00:33:09.270  
Ryan Meres  
Uh, examples as so the the house that's that's being used as this example, is roughly a 2000 square foot ranch home.

00:33:10.570 --> 00:33:31.580  
Ryan Meres  
Over a basement, so I'm going to walk through some of these examples of giving an idea of the cost increases that make com or how you can save money. So for framing a 2 by 4 at 16 inches on center or a 2 by 6 wall at 24 inches on center, that's going to cost you roughly the same amount in lumber.

00:33:32.290 --> 00:33:49.120  
Ryan Meres  
However, the two by 6 walls going to give you better performance. Obviously it's thicker. You can put in R19 insulation versus in our 16 installation you also have your studs spaced at 24 inches on center which allowed, which means there's less lumber and less thermal bridging.

00:33:50.330 --> 00:34:19.530  
Ryan Meres  
At all of this stud locations, another option would be to do a 2 by 4 at 24 inches on center, but a staggered double wall so a staggered stud double wall. It basically means there is no thermal bridging through that wall and that allows you up to an R-26 above grade wall insulation, but it does come with about a 10% increase in cost in. For this particular example, that would be about 5 to $6000 in additional material.

00:34:22.760 --> 00:34:39.250  
Ryan Meres  
So wall insulation. Let's assume that on the based on the last slide we went with within our 90 or with a with a 2 by 6 wall as opposed to a 2 by 4 wall. And if we wanted to put R19 insulation in, there will say that's the baseline.

00:34:39.850 --> 00:35:09.930  
Ryan Meres  
Are 21 would R 21 fiberglass batts would increase our costs 50 to 60% if we decided to go with say it like a sprayed in cellulose, that's going to almost double the cost over the R 19 fiberglass 90 to 100% increase. And what about if you wanted to do a spray foam say in our 19 open cell spray foam insulation? That's going to increase your cost about 100 and 52175% and again this is obviously very dependent on markets.

00:35:10.060 --> 00:35:13.240  
Ryan Meres  
This is this particular market where this was done in the Midwest.

00:35:14.680 --> 00:35:30.440  
Ryan Meres  
But the R 19 spray foam does come with some air sealing benefits, so the next slide is going to cover air sealing, so you can kind of draw some comparisons of using this spray foam versus the cost of. You know, maybe some traditional air sealing methods and what those differences are.

00:35:31.020 --> 00:35:43.300  
Ryan Meres  
The rough cost of going from the R 19 fiberglass batts as your baseline to spray foam is going to be about 2025 hundred dollar increase for this 2000 square foot ranch home.

00:35:45.110 --> 00:35:58.530  
Ryan Meres  
What about air sling? So air sealing is very important not only for not only for energy efficiency but also for indoor air quality. So we're going to use five air changes per hour as the baseline.

00:35:59.290 --> 00:36:29.450  
Ryan Meres  
And let's say you wanted to get down to a three year changes and there are there are depending on what what code is adopted in your jurisdictions, that may be a requirement already that's going to. That's going to add about 100 percent 120%, so that cost if you wanted to get down to one air change per hour, it's going to be about a 250% increase over the five AC H as a point of reference, Passivhaus requires a 0.6 air changes to be part of their program.

00:36:30.540 --> 00:36:59.990  
Ryan Meres  
So the rough cost difference from the baseline of five ACH down to the one ACH is about 1000 to $1500. So you can see that even that spray foam was going to cost about 2020 five $100 more. You could get additional air sealing benefits based on this example, but it's only going to cost you about half of what the spray foam was, and you can use this in conjunction with the fiberglass insulation.

00:37:00.290 --> 00:37:07.630  
Ryan Meres  
Again, there's energy savings, but there's also air quality benefits because you don't have uncontrolled air coming going through your building envelope.

00:37:10.230 --> 00:37:40.620  
Ryan Meres  
Let's look at HVAC and water heating, so let's start with the mini split heat pump as our baseline, and if you let's say instead of a mini split you wanted to go to a ducted heat pump instead. That's going to add about 90% to your cost, and the rough difference there is going to be 9 to $10,000. Now there are certain situations where you're not going to want to use a mini split because you know many splits. The non ducted mini splits at least don't have quite as good airflow.

00:37:40.660 --> 00:37:54.720  
Ryan Meres  
As a ducted system, depending on the layout and design, the home, a non ducted mini split may not make sense and the ducted option does also allow for easier introduction of outdoor air for ventilation.

00:37:55.580 --> 00:38:26.520  
Ryan Meres  
So let's look at water. Here's a conventional electric storage water heater or even a gas tankless water heater. Roughly the same cost that serves as our baseline. But as you saw earlier, that heat pump water here was a lot more efficient than the gas tankless. So let's say we wanted to go with a heat pump water heater because it was going to bring pretty significant reduction in energy costs. It's going to add about 70% compared to the cost of the conventional electric storage or gas tankless.

00:38:26.760 --> 00:38:43.660  
Ryan Meres  
But that that cost difference is only about 6 to $700.00. To go with a heat pump over the conventional option. So first relatively smaller investment, you get significant energy savings with the heat pump water heater.

00:38:46.020 --> 00:38:58.680  
Ryan Meres  
And then finally I want to touch on right size plumbing over the years there's been a lot of improvements in the water efficiency of fixtures and appliances, and that means that they have lower flow rates.

00:38:59.620 --> 00:39:13.000  
Ryan Meres  
Because of that, it introduces an opportunity to reduce the size of your piping, and there's many studies that have been done that show that this works. So not only does reducing the sizing of your piping.

00:39:13.610 --> 00:39:42.950  
Ryan Meres  
Uhm, reduce your material costs. You have another option where when if you optimize the layout of the home where you reduce the distances between your water heater an your hot water fixtures. You can also reduce your material costs there, but you can also reduce your labor costs as well. And the estimated cost savings for this is about 1000 to $2000 per home. And not only does it improve energy efficiency, that will also improve the water efficiency of their homes well.

00:39:45.260 --> 00:40:11.830  
Ryan Meres  
And then finally a few other tips for achieving energy efficiency on a budget. One of the more generic tips is to build up and not out homes that homes that have a smaller footprint. You can save money on both your foundation and your roofing costs, but you can also homes that are that are two stories tend to have less building envelope area, which means inherently you're going to have better energy efficiency just based on the design.

00:40:12.530 --> 00:40:29.010  
Ryan Meres  
Uh, and then add add extra insulation where it's easiest. It's often easiest if you're doing blown insulation in your attic. One of the easiest things you can do is have your installation contractor blowing. Some extra insulation is one of the easiest places you can gain efficiency for minimal cost.

00:40:29.990 --> 00:40:58.540  
Ryan Meres  
And then properly sizing your HVAC equipment. If you're doing really well air sealing. If you're putting in good levels of insulation in your home, make sure your mechanical contractor knows those specifications in knows how to size the equipment for the type of home that you're building. Oftentimes, there the instinct is to oversize the equipment, and obviously bigger equipment means a higher cost.

00:40:59.180 --> 00:41:30.310  
Ryan Meres  
So one way you can save money is to make sure that your HVAC contractor is properly sizing the equipment. That's going into your home, so you're not paying extra. In addition to that, oversized equipment oversized equipment will also can also lead to indoor air quality problems. Oversized air conditioner can can short cycle cause higher levels of humidity because it's not running long enough to ring that moisture out of the air, so the home can still feel like it's warm even.

00:41:30.360 --> 00:41:34.670  
Ryan Meres  
Even though we're uncomfortable, even though the temperature is low because of the humidity is high.

00:41:37.120 --> 00:42:07.180  
Ryan Meres  
And then the last section is achieving net zero, so I'm going to walk through some some slides and some much of what you're going to see here is data that's from the resonant registry, where we stall resonate has has stored all hers ratings in a central database since 2013, and that's some of the data that I'm going to show you here in terms of how do we get to net zero. So there are energy codes that are heading in this direction. The 2021 i.e. CC has an optional appendix.

00:42:07.420 --> 00:42:22.210  
Ryan Meres  
For achieving. Net 0, California is sensually made the step already Tord net Zero NET 0 is not possible without solar or some other type of renewable energy. You can't get to 0 with Eficiency alone and I'll show some examples of that.

00:42:23.740 --> 00:42:39.380  
Ryan Meres  
You can use hers ratings, however, to demonstrate how low you can get in. In that you can achieve net zero. You can demonstrate that through hers ratings, but getting to net zero definitely does require a little bit of additional planning in a little bit more attention to detail.

00:42:40.690 --> 00:42:53.400  
Ryan Meres  
So some of the bigger trends in hers ratings since 2013. The average hers index score across all home types is gone down five points from a 63 to a 58 last year.

00:42:54.870 --> 00:43:27.370  
Ryan Meres  
But when we look at these trends for the most efficient homes, her scores between the 26 and a 50 you can see from 2013 to 2020. We've gone from about 6000 homes in this bracket to about 33,000 homes that filled that fall into this category, and you may be thinking you know from 2013 to 2020, we've had increases in her scores each year, so naturally it's going to increase. But when I do this, when I put up the same graph based on percentages.

00:43:27.640 --> 00:43:34.360  
Ryan Meres  
The trend stays the same, so that the percentage of homes that are achieving lower scores is increasing as well as the number.

00:43:36.650 --> 00:44:07.250  
Ryan Meres  
So the next few slides there is is the analysis I just mentioned. It's all based on 2020 hers data and it's all for single family homes. There's three different categories you'll see in a few of the slides. The first category is what we called model to achieve net zero. These are homes that have achieved a an index score of 0 or less. In some cases, homes can achieve a negative score if the if there. Actually they have more solar.

00:44:07.300 --> 00:44:23.870  
Ryan Meres  
On the roof of your they're producing more energy than they are using on an annual basis. The next category is homes that score between the 30 and 45, and these are homes that we consider to be net zero ready, but that that 30 to 45 score is without any impact from solar.

00:44:24.540 --> 00:44:32.600  
Ryan Meres  
And then the national average last year, which was a 58. The the largest number of homes in this category. Homes that scored a 58 or higher.

00:44:33.730 --> 00:44:34.750  
Ryan Meres  
Hers index.

00:44:36.970 --> 00:45:07.270  
Ryan Meres  
So here's a a chart looking at insulation R values across these three different categories of her scores. What you would generally expect to see is the blue, the blue bar, which is the net zero or lower homes having the highest levels, and for most categories that that does play out. And then you would expect the Gray bar, which is the homes that scored 58 or higher to have lower levels of insulation and in most cases that's what happens.

00:45:08.140 --> 00:45:36.160  
Ryan Meres  
What I have circled there in red is above grade wall continuous insulation and this one in particular stands out because those homes that are achieving a net zero have continuous insulation. R value on average of an arc 10 whereas homes that are that are cheating 58 or higher or using almost no continuous insulation and I'm going to have another slide later. Looking looking at this a little bit more.

00:45:37.970 --> 00:46:02.060  
Ryan Meres  
So window U factors. Probably what you would expect that the slightly more efficient homes have lower window U values. I didn't look at this thing, I didn't look at. I don't have a graphic for solar heat gain coefficient or SHGC because it's generally it was actually about the same. There was almost no change in in SHGC across the three types.

00:46:04.930 --> 00:46:21.790  
Ryan Meres  
Next up is envelope leakage rates, so again, you would expect the more efficient homes which are on the left to have lower air changes, and again that comes in at an average of less than two versus an average around 3.5 for all homes that scored a 58 or higher.

00:46:22.460 --> 00:46:23.770  
Ryan Meres  
Uh, last year.

00:46:25.180 --> 00:46:55.990  
Ryan Meres  
Gas furnace efficiency. Again, similar trend homes that are that are scoring lower are using more efficient gas furnace is. I also did look at this for heat pump efficiencies an for heat pump efficiencies that actually the trend wasn't quite the same. It was much more consistent across the three categories, meaning that their heat pumps there being used on the market right now or for hers rated homes at least are fairly fairly consistent and even in terms of efficiency levels.

00:46:57.800 --> 00:47:11.320  
Ryan Meres  
Air conditioner efficiencies. Again, you know average of average cerave over 17 close to 18 for your net zero homes, 15 for your 30 to 45 and then down to 14 for your 58 in higher homes.

00:47:14.110 --> 00:47:44.070  
Ryan Meres  
Energy factors, so, as I mentioned, heat pump water heaters earlier, this is this is really driving energy efficiency higher and you can see for those net zero homes the energy average energy factor came in at a 2.6 versus less than one for homes that are that are in the 58 plus categories. In yes, heat pump water heaters play a significant role in getting achieving those levels.

00:47:44.150 --> 00:47:54.730  
Ryan Meres  
Essentially, until heat pump water heaters came on the market there was there was nothing that was going to be much higher than a 0.9 energy factor.

00:47:57.510 --> 00:48:27.620  
Ryan Meres  
So this slide looks at some key differences on specific components, and the reason that I showed this is that these four these four items here really stand out when you're comparing the differences between homes that achieve net zero and homes that don't, so continuous insulation as I mentioned earlier, 32% of all the homes that achieve. Net zero, we're using continuous insulation and for all single family hers ratings last year it was less than half that.

00:48:28.110 --> 00:48:57.550  
Ryan Meres  
Number and then has a heat pump. A meaning heat pump at all. Almost a third of the net. Zero homes were using a heat pump indicating that they're going Tord. All electric, and I have a couple slides on that as well coming up and then a heat pump water heaters you can see almost 2/3 of the homes that are achieving net zero or using a heat pump water heater. The rest of the market is is only at about 3% and then balance, then elation. Another really important factor when it comes to achieving net 0.

00:48:58.610 --> 00:49:07.850  
Ryan Meres  
Half of homes or using balanced ventilation that are achieving net zero versus lesson 3% when it comes to all other single family hers ratings last year.

00:49:10.240 --> 00:49:40.320  
Ryan Meres  
So fuel type, single family homes by fuel type, 80% of all hers rated homes last year use natural gas in only 14% used all electric and that was for all ratings in 2020. But what if we narrow it down by homes that achieve net zero. So in 2020 sixty 7% of homes that achieve net zero were all electric homes and only 21% use natural gas and roughly 10% were on propane.

00:49:40.490 --> 00:49:49.870  
Ryan Meres  
So you can see that as the as this trend toward net zero happens, homes are increasingly going all electric as part of that strategy.

00:49:50.760 --> 00:49:56.390  
Ryan Meres  
Input both heat pumps and heat pump. Water heaters are very important in that in that strategy.

00:49:58.010 --> 00:50:28.340  
Ryan Meres  
We often get this question as well. How low can you go? So how how low can you get in terms of hers? Index scores without solar in in 2020, the lowest her score without solar was a 27, and it was actually a retrofit project in Vermont. The lowest per score for new construction actually came in at a 28 and that was a custom home in New Hampshire. Now this is those are both in cold climates. It's a little bit easier to achieve those lower numbers in cold climates.

00:50:28.390 --> 00:50:32.970  
Ryan Meres  
Then there's in warmer climates in warmer climates, on efficiency alone.

00:50:33.930 --> 00:50:45.670  
Ryan Meres  
You're the best you're going to see is likely mid 30s. More likely upper 30s to low 40s in terms of maximizing efficiency before you start to use renewables to get your score down.

00:50:48.390 --> 00:51:18.000  
Ryan Meres  
So with that, here's a a few closing remarks. I would encourage you to get your questions in. Now I'm just about finished up. I will show my email in the next slide, so if you have follow up questions that didn't get answered or that you'd like to follow up with me, please feel free to shoot me an email. So obviously low income households face higher energy burdens compared to non low income households. Energy efficiency can not only help with the energy burden, but it can also improve the health of the occupants.

00:51:18.360 --> 00:51:19.690  
Ryan Meres  
Of those homes.

00:51:20.430 --> 00:51:51.880  
Ryan Meres  
Rural areas face some unique challenges when it comes to achieving cost effective energy efficient homes I think did I. I showed you a number of those issues that come up in terms of challenges in rural areas. First graders can assist with determining cost effective options. Obviously some of those examples I showed you or just just really just scratching the surface of the options that hers raters have at their fingertips and being able to help to guide a project to one that is both energy efficient.

00:51:51.930 --> 00:51:52.780  
Ryan Meres  
And affordable.

00:51:53.710 --> 00:52:08.300  
Ryan Meres  
And then finally, you know net zero is achievable, but it has to be something that's thought of early in the design phase in order to maximize all of those different components that play a role in getting down to net zero construction.

00:52:10.870 --> 00:52:20.280  
Ryan Meres  
And here's my email address. Thank you for attending today. If you have any questions that don't get answered here, please feel free to shoot me an email and I'll be happy to help.

00:52:24.870 --> 00:52:49.690  
Stephanie Nichols  
Hi everybody, this is Stephanie. I think a couple of people might have issues with the chat so if you are having if you have questions and you can't get them in the chat please you know try and raise your hand. There's a little :) emoji with a hand up so if you would like to raise your hand we can call on you. Vickey is also going to read out the questions that do come in in the chat. If you can't raise your hand then you can just kind of I think.

00:52:50.430 --> 00:52:52.660  
Stephanie Nichols  
Interrupt when there's an appropriate moment.

00:53:00.320 --> 00:53:02.700  
Vickey Stratton  
This is vickey, so go ahead Ryan.

00:53:00.330 --> 00:53:01.320  
Ryan Meres  
I'll just say wow.

00:53:02.050 --> 00:53:05.210  
Ryan Meres  
Did we get? Yeah did did some questions come through?

00:53:05.800 --> 00:53:20.360  
Vickey Stratton  
So I think one of the questions is how do organizations educate the appraisers? So how would 'cause you mentioned before that before that they appraisers are not maybe up to date on some of those code, so how would we educate go? How would they go about educating those?

00:53:20.990 --> 00:53:30.910  
Ryan Meres  
Yeah I would. I would highly recommend working through your local chapter local appraiser. The Appraisal Institute has many local chapters.

00:53:32.060 --> 00:53:54.720  
Ryan Meres  
Working through them to provide an education session for appraisers would be excellent on the resonant website. We do have a recorded presentation that was done that I participated in along with two other appraisers and they really lay out how to use the HERS index an the appraiser portal 2.

00:53:54.770 --> 00:54:19.760  
Ryan Meres  
Who to to consider the value of energy efficiency so that that's maybe a your best starting place on the rez net dot US, we have an appraiser section of our website and there's a number of resources that can be used for appraisers on there, but other than that, if you want to take a more local approach, I'd recommend working through local appraiser associations or through the Appraisal Institute chapters.

00:54:20.170 --> 00:54:20.360  
Vickey Stratton  
Right?

00:54:20.410 --> 00:54:35.920  
Vickey Stratton  
And so Ed pretty much had was going in the same direction, so he was wanting to know as far as building to the high 40s low 50s on the her scale. How do we get the banking in the real estate industry's to value what we're doing?

00:54:36.910 --> 00:54:47.760  
Ryan Meres  
Yeah, and so there's a. There's a few a few different options. It's a I'll just. I didn't mention this when talking about how Resnet got started, but resident was actually.

00:54:48.540 --> 00:54:59.410  
Ryan Meres  
The original, the origins of resonate as an as an organization started out, came out of the the mortgage industry actually, and so that's kind of been.

00:55:00.150 --> 00:55:11.560  
Ryan Meres  
Although it is also been the toughest nut to crack in terms of getting traction, and so there's a few different ways you can go about getting.

00:55:13.160 --> 00:55:28.930  
Ryan Meres  
Appraisers and banks and the real estate industry in general to start valuing high efficiency. One of those ways is requesting appraisers that have knowledge of the property that you're doing so.

00:55:30.280 --> 00:55:58.390  
Ryan Meres  
Sandy Adam Mathis, who's an appraiser that I've worked with a lot, she will. She will tell you that you have the right to request an appraiser that is trained in the type of appraisal that they're doing. If there are, there are appraising a high efficient home. You can request an appraiser that has knowledge in that area. You may want to request one that has the green designation. There's a green designation for producers that allows that basically means they specifically.

00:55:59.480 --> 00:56:29.470  
Ryan Meres  
Taking continuing education to learn about green and energy efficient features of homes and know how to appraise them. So that's that's one area you can work through. The other is if you're if you're building homes for sale. Not not, not custom homes, but but homes that you're gonna you're building on spec and you and you're selling. You've got to when you list the home you have to include. Energy efficient features. Include your hers index score, a clued some of the other energy efficient features of the home because.

00:56:29.630 --> 00:56:38.070  
Ryan Meres  
Rachel is as well as your Realtors are going to see that and when they start to see it they will take they and their their their clients asking about it.

00:56:38.810 --> 00:56:54.500  
Ryan Meres  
It will have to take the time to learn it, and so you've got to advertise that another thing that that phrases that are familiar with this will tell you is that if it's if you're not advertising energy efficiency, it's very difficult to get that. To get that, start to get value.

00:56:57.420 --> 00:57:05.840  
Vickey Stratton  
That's a very important tip as well. Reina, Sino is to put out there front and center what you're doing, so maybe they can. They can take that into account.

00:57:06.890 --> 00:57:22.860  
Ryan Meres  
Yeah, yeah, definitely you want it, especially if you're selling homes on the building homes on spec. You want to be able to advertise those homes and the energy efficient features of them so that they can get included within the within the appraisal. Yep.

00:57:23.570 --> 00:57:27.310  
Ryan Meres  
There are a number of other encouraging things that are happening.

00:57:27.370 --> 00:57:28.330  
Kemberly McDaniel  
I'll leave this part here.

00:57:27.590 --> 00:57:32.600  
Ryan Meres  
Uh, behind the scenes. Right now that I think, will also help this that.

00:57:32.530 --> 00:57:33.180  
Kemberly McDaniel  
I don't know what to do.

00:57:34.540 --> 00:57:35.670  
Ryan Meres  
Can't necessarily.

00:57:36.870 --> 00:57:44.790  
Ryan Meres  
Talk about all of them yet, but I think later this year there will be some encouraging news on this. On the on the front of of.

00:57:45.410 --> 00:57:48.900  
Ryan Meres  
Of banking in mortgages as it relates to energy efficiency.

00:57:53.430 --> 00:58:14.920  
Vickey Stratton  
That is good information. I do know that USDA is one of the lenders that does take into account the Energy Star and then there is an increase on that, so hopefully the other lenders will get on board and allow make some allowances for that. Because this is definitely something that homeowners can. It does help them.

00:58:15.720 --> 00:58:16.180  
Ryan Meres  
Yeah.

00:58:17.180 --> 00:58:18.070  
Ryan Meres  
Sure does.

00:58:19.230 --> 00:58:32.580  
Vickey Stratton  
And if it without Ryans email address on it on the screen. So if you definitely want to email Ryan, he is available and so are, so is your team from HAC said we have any more questions?

00:58:31.300 --> 00:58:31.780  
Ryan Meres  
Yeah.

00:58:34.580 --> 00:58:34.770  
Jason Tickle  
Yeah.

00:58:35.060 --> 00:59:06.230  
Jason Tickle  
Hey, this is Jason from Caroline Habitat in Virginia an we're really trying to do this Energy Star thing everything but I'm getting so much pushback. I got very experienced construction staff and everything and they keep telling me that here in Virginia because of our climate. You know bringing that fresh air in causes just so many problems with the humidity and they even the HVAC guy. I mean they're just trying to talk me out of it. They're saying you put the system in and you go with Energy Star sizing.

00:59:06.290 --> 00:59:25.520  
Jason Tickle  
It doesn't pull out the humidity properly. 'cause you know we can be negative 5 or 105 with 90 humidity. Where I am and so I'm just wondering what would you say to those guys and I'm trying to bring this in because it does allow us to get our clients through the USDA larger loans and stuff.

00:59:26.460 --> 00:59:33.170  
Jason Tickle  
And everything, but I mean, do you think there's a let it is that? Or you know what? What is your argument against that?

00:59:33.930 --> 00:59:58.400  
Ryan Meres  
Come listen the the climate that you speak of and in general the kind of southeast a minute lantic humidity offer offers up a really difficult situation and but humidity is also one of the most important things to address in the whole. Yes, bringing in outdoor air directly to your.

00:59:59.660 --> 01:00:04.670  
Ryan Meres  
Air handler can introduce more humidity into the home, but I wouldn't.

01:00:05.350 --> 01:00:13.870  
Ryan Meres  
There there are other ways to to address that, and maybe that's D humidification, there's you know.

01:00:14.750 --> 01:00:17.880  
Ryan Meres  
Energy recovery ventilators is well, that can that can help too.

01:00:17.930 --> 01:00:48.010  
Ryan Meres  
Blum to improve your efficiency when you're bringing that outdoor air in. So there, there may. I wouldn't say there's no validity to what you said, but I think that there are definitely solutions, and I would continue to search for those in your area in terms of in terms of others that may be able to provide you with a solution to the problem that you're facing. Yeah, I think there's there's many Energy Star homes.

01:00:48.080 --> 01:00:55.230  
Ryan Meres  
In that region that are that are achieving it and in doing so without the issues that you mentioned.

01:00:58.940 --> 01:00:59.570  
Jason Tickle  
Thank you.

01:01:03.710 --> 01:01:17.520  
Vickey Stratton  
Why would you have? Another question is for Marissa. Have you seen agencies that operate a weatherization program that are doing these measures? Developing a sliding scale for profit to assist with the nonprofit mission?

01:01:18.540 --> 01:01:21.970  
Vickey Stratton  
She says, I see this is wanted by higher income households.

01:01:26.280 --> 01:01:28.990  
Ryan Meres  
I can't say I know any right off hand.

01:01:29.200 --> 01:01:32.830  
Ryan Meres  
Uhm, I I do know of a few.

01:01:34.090 --> 01:01:35.630  
Ryan Meres  
Options that.

01:01:36.380 --> 01:01:39.170  
Ryan Meres  
Are available to higher income households.

01:01:39.450 --> 01:02:04.430  
Ryan Meres  
Uhm, I can't give it to you right off hand. But yeah, if if Marissa shoots me an email I can look that up for her there are there are options that are weatherization type options for higher income households that are that are for profit companies that do offer really good and easy financing options for their upgrades, yeah?

01:02:05.710 --> 01:02:12.980  
Vickey Stratton  
OK, but this is so. If Ryan's email is Ryan at Res net Resnet dot US.

01:02:15.250 --> 01:02:15.970  
Ryan Meres  
Yep.

01:02:16.410 --> 01:02:18.660  
Vickey Stratton  
Right, I think that's all of our questions at this time.

01:02:18.580 --> 01:02:19.960  
Ryan Meres  
OK, great.

01:02:21.710 --> 01:02:26.530  
Vickey Stratton  
We got lots of thumbs up so a lot of people love the presentation and lots of collapse here.

01:02:26.970 --> 01:02:28.120  
Ryan Meres  
Alright good.

01:02:28.750 --> 01:02:32.970  
Vickey Stratton  
I think it was a great information for the organizations.

01:02:33.370 --> 01:02:40.480  
Ryan Meres  
Great yeah please reach out if there's anything that we can help with it at Resnet and thanks for attending.

01:02:41.370 --> 01:02:43.590  
Vickey Stratton  
Thank you bye everyone. Have a good day.

01:02:43.150 --> 01:02:43.660  
Ryan Meres  
Bye.