Transcript of On The Way episode featuring Xavier Gaucher

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INTRODUCTORY MUSIC

BNP Paribas Personal Finance invites you to discover On the Way, the podcast that explores the paths to responsible consumption. Entrepreneurs, people from the world of business and researchers, On The Way gives a floor to those who, day after day, are helping to develop a more sustainable consumption. Welcome, and I hope you enjoy listening!

Hello On the Way, I'm Xavier Gaucher, initiator of the Renovation Fresk. I studied refrigeration and air conditioning at school. I worked in this sector for around ten years, both in France and abroad. I then went back to school to do a business course and in 1999, together with a friend, I launched an Internet hotel reservation start-up. We went on to develop this project together for about fifteen years.

At the end of 2014, I had the opportunity to exit and recover some money. I wanted to do something else. It had been fifteen years, we had almost 100 people working for us. As chance would have it, I took a training course on passive houses and saw the light. I realised that, when I was doing my studies 20 years before, I was told that heating and air conditioning were what made a building comfortable. What I now understood was that before all that, it was the building envelope that was more important.

After that, I moved to the United States. My wife is from there and we wanted a change of scenery. I like to put what I learn to good use, so we renovated a house to passive house standards, and it was the first passive house in Los Angeles. It was a really rewarding experience to do this and then to live in this house and see, every day, how comfortable it was, beyond the impact on energy bills.

I wanted to share all this. That is what I did for nearly six years in the United States. We promoted the house, we put out a video. Over 3,000 people visited the house, both professionals and private individuals, public service representatives, energy suppliers and students.

During Covid, I discovered the Climate Fresk. I used to give a lot of presentations on passive houses and the teaching method caught my attention, in terms of collective intelligence and involvement. Right away, I had the idea of doing a Fresk on the energy renovation of buildings, which is a key factor in the environmental and energy transition and in how we adapt to climate change.

So I contacted Cédric Ringenbach, the co-founder of the Climate Fresk. I realised that there were a number of other Fresks led by people a bit like me, who had done the Climate Fresk and then thought "What are we going to do?". So I was put in touch with people who were doing a Construction Fresk that's still on today and doing very well, actually.

It wasn't quite what I had in mind, but it gave me some clarity. I didn't necessarily want to reinvent the wheel, so I joined a CEE programme aimed at encouraging building owners and management boards to take on energy renovations. That's when I came back to France too. All this was based on a board game, so it was all about collective intelligence.

What I discovered, to keep the board game reference, was that there were 200 questions, we tackled about twenty or thirty, but we didn't really learn anything. The Fresk is really an opportunity to get an overview of a topic and exchange ideas. The end of the programme coincided with the war in Ukraine and the energy supply concerns that came to the forefront, as well as France and Europe's energy sovereignty.

And I said to myself "We have to go for it". I went back to the notes I had made, which took me a year. We proceeded by iteration, I met a lot of people from France Rénove, which is a French public service that helps with renovations, from consulting firms and people who took part in the Climate Fresk, among others. And so the Renovation Fresk was launched in March 2023 at the Passibat' Trade Fair, which is organised by the Maison du Passif, an organisation that promotes the passive house standard, which is mainly used for new builds.

That is another reason why it was important for me to launch at this fair, because it brings together a lot of talent, there are some fantastic people out there who are really committed to everything to do with high-performance buildings, but who focus on new builds and not that much on renovation. It was also important for the Fresk to participate and be recognised at this fair and also an opportunity to bring some of these people on board.

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A passive house is one that consumes very little energy. The general standard is around ten watts per square metre. This broadly means that a hairdryer should be able to heat a 100-square metre house or flat. We need five factors to achieve this performance: continuous insulation, limited thermal bridges, meaning gaps in the insulation, airtightness, high-performance windows and doors and continuous mechanical ventilation.

What we need to keep in mind is that the built environment currently accounts for 35% of CO2 emissions in Europe, 25% in France and, above all, it accounts for 45% of energy consumption, ahead of the transport sector. In order to limit our reliance on fossil fuels and eventually phase them out entirely, we need to increase our energy sovereignty and ensure that our buildings are energy efficient. What we have to realise is that 80% of the

buildings we will have in 2050 are already here and we have no choice but to renovate them.

There's another aspect to renovation too, which is adapting to climate change. We can't tear everything down and rebuild everything again. Sometimes we think that may be an option, but generally, we don't have enough resources, we would emit even more CO2 and it would cost a lot more. So we have no choice but to renovate what we currently have.

To renovate the current building stock, we need to carry out 700,000 to 900,000 renovations per year and reach an A or B energy performance level. Today, A and B buildings account for 5%. This is a major challenge, but an even bigger challenge is carrying out high-performance renovations, not just simple renovations. That's where the Fresk has a role to play, because it's not just a matter of handing out grants and getting on with it. Before carrying out the renovations, we have to ensure that the recorded figures for energy consumption correspond to the theoretical forecasts. This is a very significant issue, and today we still see significant discrepancies. When I was working with building owners and management boards, I realised that energy renovation was often considered a punishment. People just saw it as an opportunity to get grants, which is why they went for it. The purpose of a renovation, however, was often misunderstood. People tended to carry out minimal renovation work. The aim of the Fresk was to help people understand the benefits of renovation, how to carry out a high-performance renovation and why it should be a thorough renovation.

You really have to think of it as "It's not a punishment, it's an opportunity, a necessity and an investment". We then also realised that there were a number of gaps when it came to professionals. For example, plumbers were not necessarily aware of what energy performance was, or electricians, or the people who took care of the heating, ventilation or air conditioning systems were somewhat unaware of the building envelope. It was very interesting to provide professionals, not only in the building industry but also in the real estate and education sectors, with a general overview of energy efficiency.

So wa have two and a half hours to provide them with a comprehensive overview of the issues, stages and benefits of energy renovation. The goal of the Fresk is to serve as a common educational tool that provides information to all stakeholders, whether they are project developers or involved in renovation projects.

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The first advantage that people spontaneously think of when they think of energy renovation is lower energy bills.

And yes, if the energy renovation is carried out properly, because that is always a challenge, there can be a significant reduction in energy bills. The second advantage, and I’m giving them to you in the order in which we explore them at the workshop, is good indoor air quality.

Indoor air is eight times more polluted than outdoor air. It's a real public health issue and today we don't realise it because it's not tangible. If I can give you one piece of advice, it's to invest some money in a CO2 sensor. Put it on your bedside table. Keep in mind that at more than 1,000 ppm of CO2, you get headaches, drowsiness, lack of concentration and a whole host of health problems, and that's really very important.

There is a second advantage: when we look at the building envelope, and especially airtightness and when we change the windows, we insulate against external noise, especially when it comes to detached houses. In shared housing, this can have a double effect: if it's harder to hear the cars, it's also harder to hear your neighbours… But overall, this is about insulation from outside noise. Of course, there's the comfort aspect too, and the bills we have to pay every two months. It's also very important how comfortable we are in winter but also in summer - we can be comfortable every day, all year long. When we talk about comfort, particularly in winter, it's not just the room temperature that's important but also the temperature of the walls and the absence of draughts. What's also interesting to see is that you're more comfortable in a home that's been efficiently renovated at 19 degrees than in a thermal sieve at 22 degrees, because the walls radiate and make you feel colder, or there are droughts. It is the building envelope that provides comfort: comfort in winter, but also, and increasingly, comfort in summer. Another very important aspect is providing shade for all windows exposed to the sun. The aim is to have external protection: this can be deciduous trees, blinds, balconies when the building is south-facing, because they cast a shadow. But what you need to know is that indoor shading offers four times fewer benefits than outdoor sun protection. Our objective as a society and the benefit to our society is to reduce CO2 emissions, meaning reduce individual CO2 emissions.

And the last thing that's really important, and that we don't always think about, is the price of the renovated property. We are seeing this more and more: French notaries have launched a green value index, which measured that the difference in selling price between homes graded A and B and those graded F and G is an average of 25% nationally.

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To start a renovation project, you first need a property. Either you already own the property, or you are looking for a property. It's important to bear in mind that renovating a property can be pretty complicated. So when you're looking for a property, there are a number of things to look out for. Once you have found a property you want to renovate, the first thing to do is to set targets, because energy renovation is not just about energy efficiency. It's an opportunity to prepare a property to be used over the next 10, 20 or 30 years. Once you've done that, the first step is to carry out an energy audit. What is an energy audit? It's an energy performance audit, obviously, but also an architectural audit and an audit of electrical systems, because we're not going to insulate a building that's going to collapse, if you know what I mean. Bearing in mind that the goal is, as far as possible, to achieve a class A or B energy ranking. This audit is often covered by grants, at least in part, so you need a certified professional (RGE-certified in France) in order to access them. What I would really recommend is that you ask for references from the people who carry out the audit, because as we've seen, the objective is an A or B rating. If you see that the energy

auditor has only carried out renovation projects that resulted in a C, D or E rating, it may not be the right choice. So find people who know how to do high-performance renovations, who have worked on high-performance renovation projects. Even if it's not possible to reach that level for your property, at least they know how to do it if it is possible.

Once the audit has been carried out, you will need to look at the details. The first thing you need to look at closely in an energy renovation is the envelope. What is the building envelope? The envelope, of course, refers to insulation, minimising thermal bridges, i.e. gaps in the insulation. What you need is for the roof insulation to touch the wall insulation to touch the floor insulation.

When there's a gap in this insulation, it's called a thermal bridge. This is perhaps one of the most complicated aspects of renovation: minimising thermal bridges, which may be negligible before renovation, but can represent a major part of heat loss afterwards. So it's going to be important to tackle them. The third part will be airtightness and, of course, good windows and doors. All these aspects are inter-related and there has to be a continuity between the insulation, the windows and the airtightness.

When we talk about the building envelope, that's what we talk about. The advantage of looking at the envelope before looking at the heating system is that it allows you to reduce the size of the heating system. This decreases the price, cuts consumption and reduces pollution.

There's one thing that's really important to understand, and that is that even if some systems are greener than others, there's no such thing as a perfect heat production system. They all have their drawbacks. The most important goal is to minimise the size of these systems in order to reduce the nuisance, the cost, and so on.

When we talk about systems, we talk about heating systems, water heating systems, ventilation systems and, if we can't do without, air conditioning systems. All this while recognising that, most of the time, especially if you're in the north of France, an efficient envelope will mean that you don't need air conditioning, at least not for your entire home and not all year round.

Once you've done that, you will be able to draw up specifications that will allow you to consult different companies based on the same criteria. That's why it's so important to draw up specifications for the envelope and the systems beforehand with your energy auditor, because usually, a plumber can install a boiler or a heat pump, but he won't be able to advise you on the size because he knows nothing about the envelope. The aim is to consult all the companies on the same criteria, so that you can compare. Once you've consulted various companies, you have to make a choice. So be careful of fraud, it does happen.

Look at online reviews, ask around, get references, again, see what kind of renovations they've done before. Have they done any high-performance renovations? Are their customers satisfied? Then there's the whole construction and project management

aspect, which is also an important part of the process, and one that can cause a lot of anxiety and where most people feel better if they have some help.

In France, the Mon Accompagnateur Rénov' scheme offers optional services to help you monitor your renovation project. If you do everything right, there's no reason why you can't have a high-performance renovation. Except that there are still two things to do, and that is to adjust the systems: often we realise that a large proportion of the ventilation systems, in particular, are not working properly because the flow rates have not been measured, because no effort was made when they were installed to ensure that everything was working properly.

And then there's the day-to-day use and maintenance of the system, which are really important.

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The problem with high-performance renovation is that the devil is in the detail, and there are two things that are overlooked and that get red cards at the Fresk: often the building envelope is cut down to window insulation. If you look at airtightness and thermal bridges, these two points, which may seem technical and anecdotal, can account for most of the heat loss in a renovated home.

So obviously it's not up to the project manager to know these things in detail, they simply need to ensure that these two points are taken into account. And there's another point about the envelope that's really important, and that is that the right insulation needs to be used in the right place. If this doesn’t happen we see, particularly when renovating old buildings, that there are issues further down the line, we have insulation that degrades over time, or a building that degrades over time, because if, for example, you put polystyrene against a stone wall, condensation will build up between the insulation and the wall on the inside, especially if there are beams embedded in the walls. I've seen beams rotting and floors collapsing, even though people thought they were doing everything right.

So yes, talk about the envelope. It may seem a bit daunting to talk about anything more than insulation and windows, but it's just as important to talk about airtightness and thermal points, even if it is a relatively abstract concept, to make sure that it's something that's taken into account. Today, we know that there is a significant gap between measured performance and calculated performance, and that these "details" that include thermal bridges and air tightness are, in my opinion, a major part of the discrepancy between the two.

And often, we tend to blame users and say "Yeah, but that's because people don't turn down the thermostat enough, it's the rebound effect." I have just one argument in relation to this, and that is that we have the passive house standard that was developed at the end of the 80s, the first standard for energy-efficient buildings.

They're all over the world. All studies of passive buildings show that there is less than a 5% difference between calculated and measured performance. These two points, thermal bridging and airtightness, are checked, and there is even an on-site inspection with a blower door test.

And there's no gap. In France, for the construction of passive buildings, there was the RT 2005 standard, then we moved on to the RT 2012, and now we've got the RE 2020, and so. We are gradually approaching passive standards. I'm inclined to say that if we're lucky, the passive standard will correspond to RE 2035. But today, if you don't build a passive building, you're building something you know is going to be obsolete, and furthermore, the price difference is relatively small. The first aim of the Fresk really is to motivate people to carry out energy renovations. And to think “I’m carrying out an energy renovation not only because I’m getting a grant, but because it’s good for me”.

Going further, this will only be good for you if the renovation is a high-performance renovation. And that's what the Fresk is all about, providing project managers with as many tools and watchpoints as possible, so that throughout the process, they can ensure that the projects they take on tick all the boxes on the checklist they got from the Renovation Fresk. After that, you must take precautions, and that's why, whoever you're dealing with, whether it's the energy auditor, the companies that are going to carry out the work, the architect or the person who's going to do the follow-up, you need to ask around, talk to former clients, ask for lists of references, go around, look at online reviews and always, once again, keep your checklist in mind and make sure that all aspects are covered.

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There are two topics I like to conclude the Fresk with and they are the lock-in effect and phased renovation. I'll explain what the lock-in effect is. The lock-in effect means that, generally, when you renovate, you get a chance to do things properly. If you've forgotten ten centimetres of insulation, you're stuck with it for 20 years. If you choose the wrong windows, you're stuck with them for 20 years.

The important thing is to carry out an efficient renovation. Ideally you do it all at once, but if you can’t, you can do it in two or three steps. What's really important, though, is that if you commit to a phased renovation, you need to have an overall vision of all the work involved from the outset.

When you make the building airtight, you are forced to provide ventilation. When you change your windows, you need to know what type of insulation you're going to use: internal or external? From the moment you commit to a renovation, it's important to have a clear roadmap. I always warn people of another aspect of renovation, which is that we know that, as you go on, the grants used as a carrot diminish, while the constraints used as a stick increase. But it is still very important to renovate.

It's important at a societal level, as we've discussed, in relation to climate change and energy sovereignty, which is something that perhaps speaks more to the people who

come to the Fresk. Incidentally, three quarters of the people who come to the Renovation Fresk don't know about and haven't done the Climate Fresk and often come to the Renovation Fresk for reasons other than environmental ones. I see this as a victory.

I contribute to the Climate Fresk and sometimes I feel that we're preaching to the converted. At the Renovation Fresk, we have people who own several properties, who see the constraints and wonder how they're going to manage. And so we open a window on the overall impact of the building and they realise that it's important for them, it's important for the price of their property, but it's also very important in terms of our society and energy sovereignty. This is really a great source of satisfaction, because we get to reach people. I think that one of the key goals should be to get as many people as possible to understand that we need to change the paradigm, and I think, in all modesty, that the Renovation Fresk is helping widen the circle of people who are aware of this.

Our objectives do not only apply to France. Today the issue of energy renovation is a global one, especially so for countries that have the highest emissions. And that's why the Fresk will be translated into English and German.

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Renovating shared housing is even more complicated. At the end of the Fresk, we have a special module on shared housing and one of the first points we make is that a successful renovation begins with a neighbours' party. Fundamentally, this is about social cohesion, it's about reaching agreement on a common objective. And that's why the Renovation Fresk works so well for shared housing, because it allows everyone to understand the issues, the stages and the benefits of energy renovation and to agree on a common objective. Once you've defined this common objective, you're halfway there.

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