



A NEW PROGRAM BY THE CITY ON THE MOVE INSTITUTE

Public hearings of AMERICAN EXPERTS by EUROPEAN SPECIALISTS

“Climate change, urban mobility and *Cleantech*”

FOR A NEW KIND OF CONTRIBUTION TO THE DEBATE on mobility issues and energy in the context of climate change,
AT A TIME WHEN ASSESSMENTS ATTRIBUTE ONE THIRD OF GREENHOUSE GAS EMISSIONS TO TRANSPORTATION.

Climate plans, an instrument for local authorities?

Minutes of the third hearing, October 28, 2009

Introductory Remarks

Taoufik Souami, Lecturer, Institute of Urban Planning

This series of meetings was launched under the initiative of François Ascher with a view to encouraging debate among experts and, hopefully, the wider public. We decided to focus on the United States for a number of reasons. The United States can serve as a wonderful example for issues that are of interest to us. For example, are mobility and climate change an issue for local governments or national governments? Should a policy of energy substitution be developed? Will technological innovation help us resolve these issues? Will clean technologies become a tool for fostering new types of behaviour? Can the same approaches and solutions be applied in all types of urban environments?

The first two sessions focused on the emergence of new markets and on the Californian paradox, and they both led to extremely interesting and lively discussions. Two further sessions will be held after today's session, one in December focusing on the potential contribution of ITC, and one in January focusing on assessment issues: how are addressed the question of evaluation for political choices and alternatives proposed by the business world. Further details about past and future sessions can be found on the website (www.ville-en-mouvement.com/cleantech).

Pierre Radanne, Former Chair, Environment and Energy Management Agency (ADEME), France

This is not a UN negotiation session, and with much humility we can admit that we are all facing enormous challenges on all these issues. Climate change is the first issue in human history that requires global solidarity if we are to find a solution. In the past, the concept of *national* sovereignty held sway. Today, the issues we face are worldwide ones, with worldwide causes, leading to a need for *international* governance. The Kyoto Protocol introduced a limit on the volume of greenhouse gases that can be emitted into the environment. In Copenhagen, the issue on the table will be what kind of climate we want to have here on planet earth.

These political decisions and actions have enormous consequences for all humanity. We are now asking nations to shoulder the responsibility for these issues. In France, the Grenelle Law 2 requires all regional governments to develop their own Climate Change plans. These plans are being rolled out very progressively as no one – on either side of the Atlantic – yet knows how to do this.

We also face tremendous psychological difficulties in this area. People are aware that climate change is occurring but this is not necessarily leading them to change their behaviour. Transport, for example, accounts for half of the world's greenhouse gas emissions, and the impact of individual behaviour and mindsets is considerable in the area of Transport.

I would ask the speakers to address two specific questions. First of all, we must consider the question of vision or imagination. We cannot hope to change people's behaviour without having a vision of what a successful 21st century will look like. Second, we must consider our relationship to time. Improving our countries' transport systems requires both short-term and long-term solutions.

The issue of climate change and Transport is an extremely difficult question to resolve. I hope that these few comments will help launch the discussion on what is a very difficult – but also very inspiring – question.

An Overview of Climate Change Plans in the US

Stephen Wheeler

Associate Professor of Landscape Architecture

Department of Environmental Design, University of California at Davis

I will be focusing on local climate change planning in the United States. As the Federal government has not taken much action in this area, until recently, there has been considerable movement on this front at the local level, some movement at the metropolitan and regional level, quite a bit of movement at the state level, and some movement at the multi-state level. My presentation is based on the results of a study published in the *American Planning Association Journal* last year.

I. Origins and Nature of US Climate Plans

Since the mid-1990s, 29 states have adopted plans, and over 170 cities are in the planning process. We also have three main regional groupings of states involved in this issue.

1. Rationale

The main motivation for the plans is usually *not* fear of catastrophes, fear of dependence on foreign oil, or the desire to stimulate green industry. The motivation is primarily that of being civic minded. Elected leaders and citizens have a genuine desire to address the global problem. Plans also arise due to the political kudos that comes with setting greenhouse gases goals or initiating plans.

Most plans are usually city or state wide, although some plans only consider government operations. The plans usually set goals for 2012, 2020 or 2050.

Popular state actions include sections on the need for green government buildings, the use of alternative fuels for public fleets, the requirement that electric utilities use renewable sources, the setting of targets for reduced CO₂ emissions from vehicles, the provision of incentives for the use of renewable energies, and taking part in regional cap and trade alliances.

2. Examples

One of the best climate change plans was adopted by Boulder, Colorado in 2007 (and updated in 2008). It considers workplace energy use, residential energy use, revised building codes, alternative energy use, alternative modes of transportation, and waste reduction.

New York City also adopted a very good plan in 2007. It is a plan for the city overall, but climate cuts across all of the matters dealt with. The aim is to house more people in the existing urban area, and to increase the efficiency of existing buildings. With respect to transport, all of New York's 14,000 taxi cabs are required to become hybrid vehicles.

The State of California adopted a plan to reduce emissions to 1990 levels by 2020. In particular, vehicle emissions are to be reduced, building energy efficiency is to be increased, and utilities are to boost their use of renewable energies.

II. Transportation and Mobility

Transportation accounts for 27% of emissions in the US overall. It accounts for 40% of emissions in California, and less than 50% in some Californian cities and towns. The number of kilometres travelled per capita has been going up for as long as we can remember. It dropped slightly during the recession but can be expected to start growing again once the recession is over. Mobility is therefore a key component of many plans. One of the most effective measures introduced has been charging for parking. Other road infrastructure projects include high-occupancy vehicle lanes, traffic flow improvements, alternative fuels and new light rail transport. However, a number of matters are not being addressed. There is very little talk about pricing, gas taxes are off the agenda for political reasons, as are congestion charges. Similarly, resources are not available for investment into high speed rail systems.

One of the biggest challenges in the US is the reform of land use. This is part of the long-term strategy that is required in the climate policy arena. It will have a major impact on our ability to meet our 2050 goals.

III. Conclusion

There are a number of future challenges regarding mobility in US climate change planning. We need to change land use configuration in order to reduce the need for travel. We need to change lifestyles so that people live more locally. We need to change the economic incentives for driving and driving alone, and improve alternative modes of transport. We need new mobility options: car sharing, station cars, on demand van services, etc. We also need to improve motor vehicle efficiency. In that context, I believe that plug in hybrids are the wave of the future.

Finally, in all of these matters the concept of vision is very important, and US plans are probably not visionary enough. We need a different vision of life in the US – one that is more local. Many non-profit organisations are taking the lead here. Time is also very important, and I do not know if we will be able to provide the right responses in a timely manner. It may be that heavily rising oil prices will “fuel” the transition to a non-carbon economy. We need leadership and we need to think about a greater public sector role vis-à-vis capital. That is what has been lacking to date.

I will conclude by commending the City on the Move Institute for encouraging such wide ranging debate on these very important matters.

IV. Discussion

Pierre Radanne

When dealing with transport issues today, we can take note of two very different visions. The 20st century dream, as embodied by the United States, saw transport as the possibility of travelling as far as possible, whenever and wherever we wanted. Travelling was seen as more important than possessing. The 21st century turned that dream into a reality – but only for one-fifth of humanity. The limits of nature and the planet mean that that dream cannot become possible for the rest of humanity. The second vision is one of traffic clogged streets, the reality of climate change, and the issue of access by emerging countries to a similar system.

Today, one-tenth of the planet has a very high level of mobility. However, three billion people are aware of that reality but have no hope of achieving it. By 2050, one billion more people will have that same dream and will want to attain that same standard of living.

I would like to draw your attention to this clash of civilisations that is occurring on both sides of the Atlantic. We have still not been able to find a viable alternative between speed and mobility for all on the one hand and a completely clogged society on the other. Incremental improvements in vehicles could help us here but we also need to build new visions – step by step – during this century. We have set a certain number of goals for 2020 but we now need to go further and look towards 2050. The local climate plans that have been set up in France have not reached that stage yet. They are still based on providing marginal improvements to the situation.

Michael Micheau

Climate plans are becoming more and more widespread at the local level. However, they never make any mention of the vision that has been raised by the speakers. Instead, they focus on targets for greenhouse gases emission, transport, food, or the tertiary sector. When it comes to urban planning, the tendency is to address the “easier” issues such as improved energy efficiency for buildings. However, the bigger issue of whether or not we can develop a plan that would make consumption more sustainable is never addressed.

Cycle based plans are more and more widespread and there is a wider awareness of public transport. Urban planners must address the issue of transport and yet they have no influence on the energy efficiency of vehicles. Some cities have started producing plans; others have not at all. In this area, cities should not be our main focus. Instead we should focus on metropolises.

We should also note that, while we are in the process of developing these climate plans, we are not at all close to actually implementing them yet. The public is definitely in favour of these plans; it is now up to the public authorities to become involved in them. Much work has been done in raising awareness of climate change issues among the youth, with a plethora of programmes available in schools. However, I am not able to say whether or not this will in fact be turned into concrete measures.

Jean-Pierre Orfeuil

It is necessary to consider how these climate plans are being developed. It is striking that most plans focus on congestion or pollution, and we see the same ideas being put forward over and over.

Regarding the point on vision, I suspect that there has been a shift in vision in France. In the period from the 1960s to the 1990s, people were quite happy to move from one place to another at will in their cars. Today's vision is slightly different. People feel guilty; people feel cheated. A concept of collective responsibility has emerged that did not exist in the past.

I will conclude with a question to our US speaker. When it comes to the fuel efficiency of cars sold on the market, is this an area of state or federal responsibility?

Nicolas Chaudron

I work with businesses on the innovation side. My view point is therefore slightly different from the ones that have been presented. There are major differences occurring between the developed and developing world. Some decades ago, everyone in China was using bicycles, eating local food, etc. Today, they are all dreaming about owning fast cars, and eating non-traditional (and carbon heavy) foods. If we in the West change our behaviour, we will only have a 30% impact on the environment. The rest is the result of behaviour in the emerging world. We are perhaps not going fast enough in the right direction; they are going in the wrong direction altogether. This needs to be kept in mind in any of our discussions about vision.

In my work, there is much talk of the electric car. However, this is far from being a reality in Europe. Only one project has been launched by the Norwegians, and this has been largely funded by US investors. Japan has mastered the lithium battery, and even China has also been catching up in the area. The Chinese company, BYD, should be launching the first electric car by 2010. Bolloré has just announced that its electric car will be delayed to 2012. I would also add that the issue of biofuels has not been raised today. Biofuels could be a way forward.

I will conclude by saying that, beyond the planning process, there are many concrete things that can be done. France has been a pioneer in this area, introducing many concrete measures in the short-term. These are also a necessary part of any solution.

Stephen Wheeler

Regarding the clash of civilisations, we are of course looking for a balance. Today, that balance is very much towards a high speed, high consumption civilisation. The US, for example, is seeing the emergence of a new phenomenon of extreme commuting: people travelling over 100 miles each way to work. We are also seeing “rural sprawl” as people move to the mountains, countryside or sea shore, far from their work places. This is just not sustainable in the long-term.

One way of making an alternative society attractive to people is to make it green. We have to work out how we can bring a more green and quiet environment to our urban areas. Is it possible to plan to make consumption more sustainable? This is obviously very difficult to achieve. Nevertheless, governments have a wide range of tools at their disposal to take our societies into that direction: education, information, marketing, pricing.

I agree that we need to focus on metropolises. No local government is strong enough to bring about the necessary changes, and we need to develop a framework that includes that regional dimension. I also believe that climate change will be a generational change – it may indeed take several generations to achieve. We are already seeing some change. The current generation of transportation engineers think about very different things than transportation engineers thought about 50 years ago. In the past they thought about building roads for greater speed; today they think about green roads.

To some extent, climate plans are not new, and they do indeed repackage existing ideas. However, they also contain many measures that are new. For example, the requirement that utilities obtain their power from different sources.

We need to get the idea of collective responsibility into our culture. We all feel that we have been cheated, and the only way of addressing that is through a new leadership and a new vision.

Regarding the legal framework, emissions in the US are primarily a federal responsibility. Nevertheless, California has been able to set its own standards since the 1970s when local air pollution became a major problem.

The idea of biofuels was very popular a few years ago. However, we are now coming to realise the significant food impact of a recourse to biofuels. In addition, there is no consensus as to their potential energy savings.

Finally, regarding the question of vision, it is clear that we need a new image of the good life, worldwide. Many developing countries are taking the US vision of what the city should look like. Many major issues are not even on the table when it comes to climate change. For example, the planet cannot support a population of seven billion people, but no one ever talks about this. Nor do we talk about reducing consumption, because our very economies are based on it. We do not talk about a different vision of mobility based on equality. These are four major themes that form

the background for all that we are talking about and yet they are not even on the agenda in the US.

Rémy Dormois, Directeur du pôle stratégie et territoire, Besançon

How are private companies involved in climate plans? Is there more involvement by SMEs or by large corporations?

Stephen Wheeler

There are many different types of involvement by business. Business is not, however, the focus of these plans and remains a peripheral aspect only.

Alexis Robert, Policy Analyst, OECD

It would appear that the climate plans discussed are stand alone plans at the city level. How do they connect with the existing long-term plans that all cities are required to develop?

Stephen Wheeler

The first wave of climate plans were set up as stand-alone plans. In the second wave, we will of course have to integrate these concepts into everything they do.

Marie-Pierre Establie, Déléguée général, Alliance Villes Emploi

Together with the French Environment and Energy Management Agency (the ADEME) we are focusing on the employment issues related to climate change and climate plans. It is obvious that all of this will have an impact on employment. Are there any studies that have been carried out on those impacts?

Stephen Wheeler

Since the advent of the Obama Administration, we can imagine many more green jobs and an expanded green industry. I believe that there is fairly good evidence that there will be more jobs as a result of the green pact.

Nicolas Chaudron

I have seen that there will be 600,000 new jobs created in the next 10 years.

Joël Madec, Chargé de missions PCET, ADEME IDF

A study on the employment impact of climate change will be published very soon in France, focusing on the regional and macroeconomic aspects. There have in fact been many studies on the impact on employment.

Pierre Radanne

Today, we can speak of three different generations of climate plans. During the first generation, we collectively become aware of the issues at stake. The democratic aspects of climate plans were very important in this first generation, and all stakeholders were involved in determining what should be done at the local level. This enabled a certain number of actions to be identified. However, at this stage, the emphasis was on qualitative and not quantitative measures.

In a second stage, it is possible to set priorities and time frames, and then calculate the resources that will be necessary to reach those objectives. The impact on employment can be considered at this stage.

In the third generation of plans, we can match that know-how with the objectives that have been set by scientists. Those objectives may have to be resized, and the necessary actions deepened.

Taoufik Souami

I would like to thank you all for your input into this discussion.

San Francisco's Climate Protection Strategy

Johanna Partin

Direct or Climate Protection Initiatives

Office of Mayor Gavin Newsom

I will be presenting San Francisco's attempt to address climate change, an issue that was not addressed at the federal level during the past eight years. We are very interested in learning from other cities in the world, sharing both our successes and failures. It is therefore a pleasure to be in Paris, a city that is doing so many things right in this field.

I. Climate Action Plan

The San Francisco Climate Action Plan (2004) was developed by our Environment Department, with input from the Planning Department, the Department of Building Inspection, local utilities and a number of other agencies. The aim was to have a genuine environmental vision in creating our plan. The plan set a goal of 20% reduction in carbon emission below 1990 levels by 2012. We wanted to be twice as strong as the Kyoto Protocol, given that the Federal government at that time did not have any such objective. We also have some very aggressive longer term objectives.

An analysis of San Francisco's carbon footprint shows that about 50% of emissions come from the transportation sector. We are also considering the impact of trash on climate change. A recent study showed that about 20% of emissions come from landfill. If we consider forecast sea level rise, we expect that most of the San Francisco coastal area – including our international airport and much of the Bay area – will be under water. We therefore see climate plans as an imperative.

We were the first in the United States to certify our CO₂ emissions through a third party, the California Climate Registry. Each city department is required to develop its own climate action plan on an annual basis. We recently launched a carbon fund that collects a 13% fee on all municipal travel and funds local carbon reduction projects such as a tree planting initiative. We are also exploring a carbon tax. However, anything related to the "T-word" is a challenging issue everywhere, including in San Francisco.

II. Climate Strategy Basics

The main action identified to have an impact on the carbon footprint was to encourage people to get out of their cars and into other forms of transportation: transit, biking, walking etc. We need to orient new growth near transit and jobs, and incentivise the use of less polluting cars. We need to replace the energy that we do use with renewable forms. We need to send less trash to landfills and build greener buildings.

Everyone knows that we need to do something about climate change. However, how can we cascade this information down to the public? We have developed an online EcoMap that allows people to enter their zip codes and learn how much that zip code emits in greenhouse gases. It also shows them how changes in their behaviour can reduce that carbon consumption.

III. Clean Transportation

We have a long-term goal of a completely carbon neutral transportation system in place by 2030. We know that 58% of people drive to work today, followed by 18% who transit, 18% of walk, and 6% who bike. We are trying to reverse those numbers. To that end, we want to improve public transport, use congestion pricing on parking meters, expand the city's bicycle network, and green our cars (the city fleet, rental cars and taxis). We are also part of the Bay Area Electric Vehicle Corridor, which is involved in creating an infrastructure of electric charging stations.

In terms of our successes, 100% of our public transit is either electric or based on B20 biodiesel (generated through waste). We have the largest municipal electric fleet in the country. We have the largest municipal biodiesel fleet in the country. We have seen a 43% increase in biking since 2007, although the latter was not achieved through any particular measures taken by the city; it resulted quite simply from increased environmental awareness on the part of our citizens.

IV. Energy Efficiency and Renewable Energy

Our goal is to reduce 400,000 tons of CO₂ emitted per year through energy efficiency measures, and to have 50 MW of city electricity generated by renewables by 2012. Our zero energy homes programme informs people of what they can do to reduce energy consumption to zero. With respect to renewable energy, we have a large hydro facility that is carbon neutral. Under the GoSolar SF programme, the city offers financial incentives for people who install solar panels in their homes. We are also looking at emerging technologies such as ocean or wave power. Finally we are looking at ways to finance renewable energy in people's homes, for example, through micro wind turbines as well as solar.

Given our proximity to Silicon Valley, we love ICTs and we love new and emerging technologies. The San Francisco Solar Map has mapped the solar potential of every single building in San Francisco: roof size, the amount of electricity that could be produced, and the estimated electricity and carbon savings that could be made through solar power. This brings these concepts down to the local level.

We have a goal of reaching 75% waste diversion by 2010, and are proud to say that 72% of our waste is already being diverted from landfill. We have banned plastic bags in the city, Styrofoam, and bottled water in city departments. Just last week we implemented mandatory recycling and composting for all businesses, households and municipal facility. We have the toughest green

building standards in the country. We set a goal of planting and maintaining 25,000 new trees by 2012, and are proud to say that we met that goal in 2009.

V. Discussion

Jean-Pierre Orfeuil

I have three questions. We know the importance of having early adopters for new technologies who will act as pioneers for adoption of those technologies with a wider public. Is anything being done to encourage such early adopters in order to change behaviour? Second, have any of the municipal policies been concerned with changing dietary habits towards less carbon intensive foods? Finally, I did not see any mention of electric bicycles. Given the high Chinese student population in San Francisco, I would have thought this would be an obvious option.

Johanna Partin

I absolutely agree with your point on the early adoption of technologies, and that was in fact the motivation behind our Solar Map. San Francisco has been involved in trying to change people's thinking about the food they eat, with an emphasis on slow food versus fast food and the withdrawal of soda drinks from school canteens. Each neighbourhood must have a weekly farmers market that offers a certain amount of organic food. This is particularly important in low income neighbourhoods that do not always have access to good food. We have not focused on electric bikes; to date, our efforts have been focused on getting people to use bikes rather than cars. Given that San Francisco is such a hilly city, electric bikes would of course make much sense.

Thomas Lagier

I would like to make a few comments. In order to make the new climate vision attractive, we have to avoid making people feel guilty. We need a system that is based on the attractive and incentives based approach, as well as the stick. When looking at the gap between the vision of the world we would like to see and the world as it is today, we can see that there are endless lists of potential solutions. How can we prioritise them? We know that no one single solution is possible and that we will need to use a range of solutions, but each one has pros and cons. For example, if we provide people with free bikes, that means that there will be less money available for public transport. We need to take all of this into account. We also need to bring as many stakeholders together around the table as possible – business, scientists, governments, the public. Only in that way can we hope to develop a viable and acceptable solution.

Nicolas Chaudron

I was asked to focus on the link between ICT and cleantech, a combination in which San Francisco and Silicon Valley excel. Before implementing action plans, we have to be able to measure emissions and keep track of them over time – through software, reporting tools etc. Science can clearly play a valuable role here.

Sylvain Allemand, Journalist

It was very interesting to see how San Francisco city dwellers are being made more responsible, not only consuming energy but also *producing* energy. This could be a vision for us for the future.

Johanna Partin

There are regulatory hurdles to doing this in San Francisco. In Germany, for example, people can install as many solar panels as they wish on their properties, earning money from the excess energy they produce. That is not possible in San Francisco, but we are working on making it so. The vision is however key in encouraging people to think about their lifestyles in a different way. For example, we always feel guilty or cheated when we have to make a compromise. And yet we make compromises every day for the common good, for example, by driving within lanes or stopping at red lights. We need to make that concept of compromise a part of our vision.

Nicole Rousier, Chargé de mission, MEEDDM (written question)

What is the interface between San Francisco's climate plan and the Californian state's plans? We cannot imagine people in San Francisco suddenly abandoning their cars. What is the message you try to send to them?

Johanna Partin

We still do not know how we will implement the very ambitious California Climate Plan on a state wide level. At the city level, certain cities have taken action; at the state level, this is a much more complex task. Regarding your question on how we encourage people to get out of their cars, that is our main problem in the United States. Enjoying the freedom of driving when and where you want is a leftover of the pioneering, independent, gold rush spirit. We are now trying to use that spirit to encourage people to take on new mobility technologies.

Stephen Wheeler

Regarding the relationship between state and local governments in California, we are slowly putting in place different pieces of a puzzle. A recent state law requires the setting up of regional transportation and land use plans, with a target for emission reductions in each region. We also have increasing requirements that local governments meet state environmental law.

From the floor

There are many obstacles to extending electric cars beyond a niche market. Will you maintain the number of parking spaces and parking rates for electric cars? Second, modern societies are based on individual ownership and consumption. How can the public sector contribute to building more sharing and collaborative solutions?

Johanna Partin

Our approach has been to make parking and charging of electric vehicles free for, at least in the short-term. Infrastructure will, however, be the main obstacle to the development of electric vehicles – you can only go so far before needing to check into a quick charge station. Building up that infrastructure will take many years, and will require a state- or nation-wide approach. Business has been a major partner in San Francisco in promoting all of these alternatives. While initially fearful of tackling new challenges, business has come on board and is playing a key role in this.

Regarding ownership versus consumption, 70% of people live in apartment blocks, that is, shared buildings. People are therefore quite used to dealing with shared living space; they are less familiar with shared mobility systems. The idea of sharing is of course key to success in this area.

Hubert Penicaud, Architect

It is very difficult to achieve residential mobility. Most people would like to live closer to their jobs but they may not be able to afford to do so. Have you considered ways of helping them do this?

Mireille Apel-Muller, City on the Move Institute

How has the San Francisco climate plan been developed? Did you work with urban planning services? We have a very diverse panel of experts here today. Do you work with such a wide range of people?

Johanna Partin

In San Francisco, everyone loves speaking their mind. We have many task forces and planning constituencies, and take an extremely participatory approach to everything we do with very high levels of public participation and many public meetings. Fortunately, San Francisco's planning department is quite progressive, and has been leading the charge for sustainability in many ways.

Stephen Wheeler

The issue of affordability is a very complicated one. In California, each local government is supposed to provide its fair share of affordable housing for its workforce. However, much more work is required before this becomes a reality. The plans themselves have become increasingly participatory with time, and more and more stakeholders have become involved over the years. The San Francisco plan is a second generation climate plan, and represents a much more integrated and comprehensive effort.

Michael Micheau

The effects of climate change will become increasingly obvious as we begin to see the effects of rising temperatures and rising sea levels. How will San Francisco tackle rising sea levels? Second, there has been a major controversy in France with respect to the introduction of a carbon tax, especially its impact on low income earners. How do you rate the impact of the measures you are rolling out?

Johanna Partin

We are currently developing a sea level rise plan, and I should be able to provide you with further information by this time next year. Regarding the affordability issue, the government tries to defray some of the costs for our lower income residents where possible. Many of our low income residents use public transport, and we are looking at ways of increasing transportation routes to those neighbourhoods specifically. We will ultimately reach a situation where we are able to internalise the costs of environmental impact, but this will be quite expensive at the initial stage.

Pierre Radanne

Does the US public see the link between climate change and the major difficulties faced by your car manufacturers? The fact that oil is taxed so heavily in Europe means that car manufacturers have been involved in improving car efficiency for some time now.

Stephen Wheeler

That is a difficult question. US people tend not to make the link between climate change and their behaviour, notably with respect to driving cars. Younger people are beginning to understand this and are, for example, turning away from SUVs. We have, however, succeeded in decoupling the two in most people's minds and it will be difficult to encourage people to make the link in the future.

Johanna Partin

The best thing we could do to promote climate action in the US would be to double the cost of gas, even for a limited period. During the recent crisis, people did stop using their cars. Europe has that advantage over the US in the fight against climate change.

Anne Querrien, Annales de la recherche urbaine

People tend to deal with climate change only when they face a genuine personal threat. Norway, for example, realised the threat they faced with rising sea levels very early on. Today, we face the threat of growing global activism and public unrest, and we are running out of efficient measures to avert this. Using fear tactics will not work and we need a much more sophisticated response.

Johanna Partin

I agree that it is difficult to encourage people to take action without making it personal. That is why we developed the online map showing the consequences for our city of rising sea levels. I wish I had an answer for combining negative fear tactics with the positive message that if we change now, we can avert disaster. The truth is that we have already caused the damage and it will happen. We are therefore trying to educate people on what they can do to avoid an even worse situation.

Stephen Wheeler

We like to say that "Denial is not just a river in Egypt". There are many psychological reasons for why people are able to disassociate their behaviour from its consequences. I believe that we need to talk both about the negative aspects – the gloom and doom – and the positive aspects. This is the most important task that we will take on this century, and we need to ensure that everyone is involved in it.

Pierre Radanne

This has been an extremely rich discussion. Climate change is occurring at the global level, and making us realise that we all belong to one whole. At the same time, our response must be rooted in local measures and plans. Both sides of the Atlantic hold important keys to resolving these issues. However, we must not delude ourselves; we are still only scratching the surface of these problems today. If we want to cut our emissions by four or five, we will need to deploy much more in-depth measures.

We saw a high level of agreement in what we are doing in the US and Europe in terms of technical solutions and changes in urban planning, transport modes, or mobility. There are many issues on which neither side is focusing. There were also some differences, which I believe are more cultural than ideological ones. There are certain actions that we are not able to take due to our histories and cultures. International negotiation is in fact stuck on these types of symbolic issues.

In philosophical terms, the limits we face in terms of resources may quickly lead to a doom and gloom vision of the future, the end of human development as we know it. However, our culture and imagination are infinite. We need to find a substitute for consumption that has a high impact on the environment, and we can do this through culture based approaches. Communication techniques can play an important role here. As we move beyond the first generation of local climate plans, we need to advance towards genuine transition scenarios.

I would like to thank you all for taking active part in this extremely interesting discussion.

Taoufik Souami

I would like to thank all our speakers, and the EDF Foundation for hosting our meeting this evening.