



Energy Workshop Report

Session 1 – How to succeed the city energy transition?

Mr. Matt Appelbaum – Mayor of Boulder, Colorado

- Mayor Appelbaum provided a description of Boulder. He noted that it has it easier than other cities in that its citizens largely agree with sustainability policies.
- Mayor Appelbaum commented that Boulder thinks of the energy issue as being multi-faceted. He noted that Boulder is trying to purchase the energy assets from a privately-owned utility.
- Mayor Appelbaum noted that Boulder completed an emissions an inventory, which gave the city an idea of where greenhouse gases come from.
 - He observed that the commercial industrial sector is the largest source of greenhouse gases.
 - He remarked that the city still needs to address all fronts, such as the residential sector.
 - He stated that electrical energy is a major consideration for Boulder because most of it comes from coal.
- Mayor Appelbaum explained that land use is a major consideration too, although it's not always focused on. He noted that Boulder surrounded itself with open space, allowing for a compact city. He stated that this is mostly a positive thing and that most Western U.S. cities aren't configured this way.
 - He said steps with transportation have been taken as well, and that the first bus rapid-transit system connecting Denver and Boulder had been put in place.
 - He noted that the Boulder had also built systems of biking and pedestrian transit routes.
 - He stated that all of a city's sustainability measures must come together.
- Mayor Appelbaum commented that Boulder has been way ahead of the curve on building codes. He explained that Boulder has two successful programs focused on getting people to modernize their structures. He added that there have been problems and that Boulder is trying to get existing commercial buildings to upgrade as well.
- Mayor Appelbaum noted that Boulder might be the only city in the U.S. or world that has established an energy code for rental housing, a program called "Smart Regs."
- Mayor Appelbaum stated that Boulder is trying to municipalize the local energy utility and trying to diversify sources of energy. He noted that the energy utility is not very progressive and that it uses a lot of coal. He observed that Boulder has encountered regulatory and legal hurdles in this effort.
- Mayor Appelbaum said that in spite of how much conservation is done, the only way to achieve carbon neutral status is to address the source of emissions. He added that overall things are still not very progressive in Colorado.
- Mayor Appelbaum discussed the importance of the Climate-Energy Nexus, and he noted that utility energy policy must be reformed.



- Mayor Appelbaum addressed how Boulder is confronted with three choices in regards to its sources of energy:
 - He said Boulder could remain with the existing energy utility. However, he noted that it wasn't interested in their sustainability proposals.
 - He stated Boulder could form a partnership.
 - He said Boulder could form a local electric utility.
- Mayor Appelbaum noted that energy utilities are aware the current model will not last. He added that this doesn't mean utilities won't fight this and try to control the future.
 - He explained there are many pressures on the existing utility model.
- Mayor Appelbaum discussed the problems with the current energy utility business model. He noted that these utilities accept no risk for unsustainable, inefficient practices and still reap full profits.
- Mayor Appelbaum concluded that Boulder is interested in the energy utility of the future. He noted that this is a major factor in reducing greenhouse gases.

Mr. Dominique Gros - Mayor of Metz

- Mr. Gros provided a description of Metz.
- Mr. Gros noted that in 2009, Metz and other European cities undertook a commitment to reduce greenhouse gas emissions by 20%.
- Mr. Gros stated that over 20% of Metz' energy comes from renewable sources.
 - He explained that UEM (L'Usine d'Electricite de Metz) – Metz' energy utility – is a key tool in Metz' sustainability policies. He noted that this is an old city system, and it has been an important part of Metz' accomplishments.
 - He stated that by 2050 Metz wants 50% of its energy to come from renewable sources.
 - He commented that 50% of UEM is owned by an investment company and the other 50% is owned by the city.
- Mr. Gros noted that Metz has a software program that records the amount of energy used. He added that this program has been sold to other users in France and that it is also being used outside of France.
- Mr. Gros stated that Metz has constructed units that centralize production, including sources of urban heating. He explained that Metz has an incineration factory, a biomass unit that burns the residue of wood. He commented that this is not the exploitable part of wood a consumer users. He added that this process provides jobs.
- Mr. Gros noted that Metz has some wind power too, but he added that it's expensive.
- Mr. Gros said that Metz has a magnetic field that takes advantage of the sun in the south.
- Mr. Gros commented that the incineration factory is used to heat urban buildings and that it heats 30,000 homes.
- Mr. Gros noted that Metz doesn't produce all of the electricity it uses. He explained that much of the energy used in Metz is nuclear energy. He added that 75% of energy is nuclear In France.
 - He noted that some energy is sourced from coal and green alternatives. He stated that some of Metz' green energy sources include wind, water, and burning trash.



- Mr. Gros stated that the heating system in Metz involves about 100 kilometers of piping. He noted that these networks require much investment.
 - He said a positive of all of this is that all of the work on the pipelines is completed by regionally based workers. He added that since the workers make and spend money in the area a circular economy forms. He explained that it's important to have local entities that are willing to make investments in public economies and that long-term investments help to prepare for the environment of the future.
- Mr. Gros noted that decisions regarding sustainability are oftentimes difficult to make for elected officials.
- Mr. Gros stated that energy issues can't be managed from just a financial perspective. He added that we cannot build buildings they can't use green energy. He explained that the typical drivers, in terms of profitability, are looked at differently in terms of climatic change. He warned that negative results would follow if appropriate action isn't taken.
- Mr. Gros said it's very important to have strong political will and that we must force ourselves to achieve objectives.
- Mr. Gros concluded that sufficient sums of money need to be dedicated to the issue now rather than dealing with issues in the long-term.

Ms. Anne Walryck – Vice President of Greater Bordeaux

- Ms. Walryck provided a description of Bordeaux.
- Ms. Walryck said there is a strong desire in Bordeaux to have a successful energy transition.
- Ms. Walryck noted that Bordeaux is very affected by climate change.
 - She explained that there have been impacts on Bordeaux's coastal regions and that some buildings along the coast have collapsed.
 - She noted that Bordeaux has large forests and that these have been impacted as well. She explained that large storms have destroyed significant parts of the forest.
 - She commented that climate change has affected Bordeaux's wine-making methods too.
- Ms. Walryck stated that Bordeaux has goals and that among these is a desire to reduce greenhouse gases. She remarked that policies have been put in place to this end.
- Ms. Walryck said she wanted to emphasize the actions being taken by the local populations.
 - She explained that these include alternative forms of housing and transportation and the consumption of local foods. She added that citizens understand the importance of these measures and that politicians have become involved.
- Ms. Walryck noted that Bordeaux is trying to pursue all of the tools available.
 - She clarified that Bordeaux is part of a European label called City Energie and that it had signed a pact with other European cities.
- Ms. Walryck commented that Bordeaux is lucky in that it has a very high geothermal potential.
 - She noted that Bordeaux also has wind power and that it has the largest potential wind basin outside of Paris.



- She commented that these sources of energy would feed into Bordeaux's heat grids. She added that Bordeaux has started a new heat grid that will also be a cooling grid.
- Ms. Walryck noted that an energy study carried out by Bordeaux was very effective in helping to promote better understanding of the issues. She explained that from this Bordeaux decided to start a district heating program that will rely on geothermal heating. She commented that this would change the economic model in that it would make it possible for private entities to make investments, too.
- Ms. Walryck observed that there are excellent groups involved in these projects. She added that these groups also include local groups, who want to participate.
- Ms. Walryck stated that Bordeaux also looks to biomass and that it has ways to extract heat from mud and water.
- Ms. Walryck said Bordeaux formed eco-districts, and she noted that 19 areas has been given the eco-city labels. She remarked that they run on renewable energy.
 - She noted that these labels were important aspects of the programs.
- Ms. Walryck stated that Bordeaux has succeeded in getting everyone onboard.
- Ms. Walryck said the initial step entails thinking about reducing energy use.
 - She commented Bordeaux has unique mechanisms for raising awareness among its citizens. She noted that behaviors have changed among citizens and that Bordeaux has made a difference.
 - She described a program involving 200 families, some of whom reduced their energy usage by as much as 40%.
- Ms. Walryck discussed an eco-citizen house, which Bordeaux began thanks to support from various organizations. She added that this led to savings in electricity and water.
- Ms. Walryck noted that a second area to focus on is to revamp buildings to make them green.
 - She commented that Bordeaux has focused mostly on public buildings. She stated that Bordeaux is building a lot of new areas as the city expands. She remarked that the city is becoming more dense people are allowed to move in.
- Ms. Walryck stated that Bordeaux also uses solar energy.
 - She explained that Bordeaux built the largest solar plant in France – it covered an entire parking lot.
 - She said that by the end of this year Bordeaux wants to have turbines in its river. She added that this proposal has received assistance and involvement from various public and private entities. She stated that several other companies have become interested in the project. She described how Bordeaux hopes to have a series of hydro turbines in the future and that these will be expanded into the river estuary.
- Ms. Walryck noted that the slogan of Bordeaux, which emerged during an energy conference, is that we all need to work together. This will be part of our new policy, it will affect the entire metro area of Bordeaux.
 - She described how in 2008 Bordeaux trained its employees, who then became ambassadors.
 - She stated that Bordeaux has a club for businesses, which used to be for local businesses but has now since expanded. She explained that these companies are interested in encouraging sustainability practices in the region.



- She commented that Bordeaux also conducts outreach to its children, particularly via the schools. She explained that children are taught how to be good eco-citizens.
- She said that Bordeaux is receiving more and more delegations from other cities.

Ms. Jessica Boehland – Program Officer for Environment, Kresge Foundation

- Ms. Boehland provided a background of the Kresge Foundation.
- Ms. Boehland noted that America’s buildings use more energy than any country in the world, besides China and the U.S.
- Ms. Boehland observed that the solution involves making information about energy use public so that it can be part of solutions.
- Ms. Boehland stated that the Kresge Foundation is working to increase the efficiency of buildings in conjunction with other foundations.
- Ms. Boehland discussed the City Energy Project. She noted that it helps cities so that they don’t carry financial burdens all by themselves. Ms. Boehland added that it put contacts in cities in touch with one another so that they can share information and best practices.
- Ms. Boehland commented on the Carbon Neutral Cities Alliance, which she stated is a collaboration between different organization and funders. She noted that the idea behind this project is that professionals in cities can be more effective if they have peers they can talk to, who have similar challenges.
 - She elaborated that this project entails a collaboration of global cities who have committed to reducing emissions. She noted that cities who have committed to this goal will have a higher likelihood of success.
 - She noted that partners in the project will be able to see how the strategies play out in other cities.
 - She stated that a press release should be coming out in a couple weeks.

Mr. Jean-Francois Le Grand – President of the General Council of La Manche

- Mr. Le Grand provided an overview of La Manche, noting that it is a peninsula west of Caen. He added that La Manche is neither urban nor rural but that it had components of both.
- Mr. Le Grand stated that La Manche’s approach is unique and relies upon three principles.
- Mr. Le Grand explained there needs to be a change of paradigm to decrease energy production. He stated that energy suppliers will need to become more decentralized and focused on localities.
 - He added that the local communities will be the ones that will diversify local energy sources.
- Mr. Le Grand said La Manche has a great deal of biodiversity.
 - He noted that this is a major concern in that the regional council owns about a third of the coastline. He noted that there are some major conservation efforts underway but that more outreach needed to be done with citizens.



- He added that La Manche doesn't want to experience any more species extinctions.
- Mr. Le Grand said that La Manche had changed the behaviors of its citizens, who did little things to save energy.
 - He observed that no matter a town's size, there are many things it can do.
- Mr. Le Grand noted that nuclear is a major source of energy but that La Manche has been able to start using renewable sources, such as wind and tidal.
 - He added that La Manche is using household waste at a biomass plant.
 - He noted that strong currents allowed for the production of 3 gigawatts of energy. He observed that adding all of these renewable resources amount to much non-carbon dioxide production.
- Mr. Le Grand addressed the issue of energy storage.
- Mr. Le Grand explained that La Manche had decided to use hydrogen as an energy source and that it had started working with American companies, such as GE, on this project.
 - He noted that La Manche had started a pilot project about the role of hydrogen in the energy system.
 - He noted that the Germans are much farther along in terms of using hydrogen. He commented that looking at their example, hydrogen can replace gas relatively cheaply.
- Mr. Le Grand stated that La Manche also has smart grids.
 - He noted that La Manche had developed a fiber optic system to manage the system.
- Mr. Le Grand said La Manche has a fleet of 40 cars whose battery lives are longer because they are powered by hydrogen. He added that the technology comes from Japan and that La Manche had worked with Toyota to develop these cars.
 - He noted that La Manche also has smart trucks, a fleet of smaller trucks that run on hydrogen. Autos for shorter trips.
 - He explained that La Manche has a hydrogen route with refueling stations along the way. He commented that these stations involved the same type of systems as regular fueling stations.
- Mr. Le Grand noted that La Manche also has buses and other forms of public transportation that link the community.
- Mr. Le Grand stated that La Manche has had to compete with larger communities for funding.
- Mr. Le Grand noted that La Manche is looking at places where they are peaks and lows of energy in an effort to store energy during the lower use periods.
- Mr. Le Grand stated that involving citizens, and especially the children, was particularly important.



Session 2 – Smart & Micro Grids

Mr. Didier Duc, City of Metz Energy Director (The Smart Metering Experience in Metz)

- Mr. Duc explained that the Water System in Metz is quite old. He stated that the lake is the source of the town's drinking water now supplies 16 million liters every year.
- Mr. Duc discussed Metz' Smart Water Metering Project, and he noted that Metz had needed to obtain batteries that would last ten years.
 - He stated that the producers of the meters were able to make these devices with batteries already in them.
- Mr. Duc noted that Metz is the first city in France with a full smart water metering system.
- Mr. Duc explained that all of the data from the meters is sent through various systems.
- Mr. Duc stated that this system has many advantages for customers.
 - He noted that employees don't have to take water meter readings in person anymore.
 - He stated that information on water usages can be sent to customers on their smart phones.
 - He commented that the meters can also detect abnormal use. He noted that while sometimes this is minor, it allows the utility to get involved earlier to prevent potentially major problems.
 - He noted that this system allows for billing on actual rather than estimated use.
 - He stated that the meters also provide water quality information. We have a project to reduce energy production.
- Mr. Duc explained that Metz originally used the meters located in the gyms. He noted that by being able to see how water was being used, stakeholders were able to take action to reduce usage.
 - He commented that by in general when companies see their usage, they take action to reduce it.
- Mr. Duc noted that these monitors can also be used to monitor and reduce energy usage.
- Mr. Duc stated that a company in Metz is working on setting up these smart networks.
 - He observed that there's a lot of potential that can be applied to other projects.
 - He noted that it's unfortunate that everything tends to be centralized as Paris has decided on a different system for monitoring energy usage.
- Mr. Duc noted that new smart system software had been developed by a company in Metz. He expressed hope that it would be sold throughout France.

Mr. Eric Hellstern – Vice President EDF Group Citelum U.S.

- Mr. Hellstern described a story about the implementation of urban lighting in a small Virginia town.
 - He said the town had been a thriving community at one time and had relied upon a cotton mill for its economy. He noted that all of those businesses associated with this industry closed in the last 15 to 20 years.



- Mr. Hellstern stated that the city entered into a redevelopment plan whereby old mills were converted into condos and offices.
 - He said that in the process the town became very attractive and a business district was created.
 - He noted that the town asked for help to develop a sense of place in the river district. He commented that the town wanted to use light and tie it into its river district.
- Mr. Hellstern explained that a master lighting plan was implemented.
- Mr. Hellstern said there were some initial issues because the city doesn't have a lot of money and that it therefore had to decide among some options.
- Mr. Hellstern commented that the city opted for street lighting with LEDs as well as artistic lighting throughout the city.
- Mr. Hellstern noted the impacts the new lighting had had in all aspects of sustainability. He explained the move had an economic impact in that it helped create a better business environment, a social impact in that it created a place where people could come together, and an environmental impact in terms of the more efficient lighting.
- Mr. Hellstern replied to an attendee's question that the city in question is Danville, which has a population of about 100,000 people.
- Mr. Hellstern observed that if such a project can be done in Danville it can be done elsewhere. He stated that cities need to figure out how they can impact people's lives with the measures that can be implemented.

Ms. Sandra Baer – Senior Director for Alliances, Smart Cities Council

- Ms. Baer noted that 10% of the world's economic activities is based on energy. She stated that energy affects all aspects of our lives.
- Ms. Baer commented that it is important for cities to make themselves attractive to residents in order that they would look to these places to live and work. She noted that energy is part of what makes cities attractive.
- Ms. Baer noted that the Council of Energy Facilitators focuses on the workability aspect of energy policy.
- Ms. Baer provided four examples of cities that are doing innovative things in terms of energy.
- Ms. Baer explained that New Bedford, Massachusetts claims to be the Saudi Arabia of wind.
 - She noted that the town received money through a number of innovative financing mechanisms.
 - She commented that cities should figure out how to use public-private partnerships to help implement their projects.
- Ms. Baer described daylighting projects being undertaken in Yonkers, New York.
 - She noted that daylighting involves tearing up the concrete that had once covered rivers to make parks.
 - She observed that mayors are focusing on ways to make a city attractive and, in the process, are transforming the appearances of cities.



- Ms. Baer described a program in Carson City, Nevada as an example of thinking about all of the projects that a city provides.
 - She explained that the city looked at its vehicle fleets and its energy power system, among others, in examining ways to improve operating efficiency.
 - She observed that smart cities realize one must look across the spectrum of options.
- Ms. Baer noted that Austin, Texas has the first solar district in the world.

Question and Answer Period

- An attendee asked Mr. Duc to discuss the implications of centralized (e.g., energy) and decentralized (e.g., water) services on cities. You talk about water and the issue between Paris and your city with the meters. Talk about how you'll handle the dynamics. (Didier)
 - Mr. Duc responded that electricity and gas are centralized and that the providers have monopolies across the country. He explained that all decisions for these utilities are made at the national level. He noted that is different in terms of water as this isn't a nationalized system and therefore its own water service. He explained that in terms of the installing the meters one must have the technical knowledge, which Metz looked for in its partnership with Veolia. He noted that the meters are now being installed throughout Ile-de-France. He commented that a national system had been imposed for energy and gas.
 - Mr. Duc also noted that everyone will have their own meters for water and that these smart devices are based on software. He added that these allow people to increase efficiency. He commented that such devices and technology could perhaps be expanded to gas and electric as they are very effective and efficient.
- An attendee asked Mr. Hellstern to discuss the lighting master plan.
 - Mr. Hellstern responded that a lighting master plan is very important when looking at a city's infrastructure. He noted that oftentimes cities don't know what type of equipment they have as the utilities manage this. He noted that his organization has a very thorough process that can involve conducting a photometric survey to determine things related to lighting. He explained that there is a system that allows for leakages to be identified in the lighting network simply by driving around. He observed that it's important to understand where the leakages are.
 - Mr. Hellstern explained that if information pertaining to lighting is laid on top of other data, such as points of interest, accident statistics, and human interactions, a master plan can be created that allows for greater synergy and costs savings.
- An attendee asked Mr. Tommy Wells to discuss Washington, DC's lighting plan.
 - Mr. Wells said this issue had just gone onto his agenda.
- The former mayor of Cambridge, Massachusetts, Henrietta Davis said that she encouraged cities to buy their own light poles. She noted that Cambridge did this and, from that point forward, it was able to manage its light poles. She added that the city had received help from the Clinton Foundation.
 - An attendee asked about the process for buying the lamp posts.



- The former mayor said it had been difficult and that the utility had wanted the city us to pay for everything they had ever spent on the poles. She said the city knew it had the capacity to maintain the light poles so that they wouldn't go dark.
- A representative of Arlington County [need name] remarked that the county owns some of its light poles, and she noted that they're being converted to LED. She stated that the energy utility charges the country per pole.
- An attendee commented that "Street Lights 101" is a website that has data on street lights.
- An attendee asked if considerations had been made regarding traffic lights, noting that a lot of energy is wasted when these devices aren't synchronized.
 - Another attendee responded that traffic lighting is critical as the amount of energy wasted by vehicles idling at lights is significant.
 - Another attendee remarked that certain aspects of traffic patterns could be measured. He noted that there is capability that allows for cars to be tracked in relation to one another. He stated that this information would help with smart transit design.
- An attendee commented that parking in the city is also significant issue. The attendee noted that a new system will tell drivers where spots are available.
- An attendee asked Mr. Duc about the service levels he discussed in his presentation as well as the process of developing holistic plans around smart systems.
 - Mr. Duc responded that the smart meter system removed the necessity for sending out employees to take readings, which has economic benefits and makes the company more competitive. He noted that Metz is beginning to build off of this successful model and is looking for ways it can be implemented in other sectors. He said it could have impacts for the gas and heating sectors, although it will be difficult to implement. He remarked that contracts for services can be developed between cities, which would improve distribution and free up money for other projects. He noted that Metz isn't able to make large investments. He explained how Metz built dams for a long time, which it's now benefiting from.
- Mr. Wells described how Washington is now requiring every building to report an energy score. He stated that the buildings that don't do this are fined. He commented that Washington is also looking at the possibilities of a carbon exchange program.
- Mr. Wells stated that other new requirements mandate that new buildings, or retrofitted ones, capture a certain amount of stormwater. He noted that if a building is capturing more than the required amount of stormwater, it could sell it back in an exchange system. He stated that this program would have to be neutral and not a way for the government to make money.
- The former Mayor of Cambridge noted that her city has an aggressive approach for reducing greenhouse emissions. She stated there had been a year-long process for reducing emissions from the building sector. She commented that there were also new standards for construction, incentives for implementing LEED standards, and strategies for increasing the use of renewable energy. She said it was necessary to have a very robust approach with benchmarks along the way. She noted that one effective approach involves an examination of a city's building stock in order that its emissions be reduced. She concluded that the systems approach is the only way to go, and she added that one must find a goal and move towards its.



- A representative of EDF [Ms. Stephanie...] noted that there had been much criticism about centralized systems but that it was important to keep in mind how a large grid can effectively coordinate supply and demand. She said that in light of the technical challenges a grid is still needed.
- A representative of Arlington County, Virginia noted that the County had adopted a community energy plan and is looking at ways to reduce greenhouse gas emissions. She stated that energy efficiency within buildings is a major consideration. She commented that enacting sustainability policies and measures entails a significant mindset change in the U.S. She remarked that convincing elected officials of the need for these changes would also be challenging. She said it hasn't been easy to install renewable energy solutions in Virginia. She noted it was complicated the change the demands people have of resources. She concluded that holistic solutions would need to be looked at as well.



Session 3 – Energy efficiency in buildings

Ms. Anne Walryck – Vice President of Greater Bordeaux

- Ms. Walryck noted that she would discuss what is being done in Bordeaux and how the energy efficiency of buildings is being improved.
- Ms. Walryck stated that Bordeaux has very ambitious goals and that it has reduced emissions.
- Ms. Walryck remarked that Bordeaux worked to change behaviors and that it has a program called junior development.
 - She noted that under this program there is an academy and that ambassadors who graduate from the program go into other buildings and spread awareness.
- Ms. Walryck stated that Bordeaux promoted a law that came out of the Grenoble roundtables that reduced building greenhouse emissions.
- Ms. Walryck said buildings must be energy positive.
 - She commented Bordeaux has gone beyond the standards.
 - She noted that these issues need to be addressed by city hall.
 - She stated that Bordeaux started an initiative using a mix of energy sources.
 - She remarked that Bordeaux constructed a smart building that runs on a district heat grid.
 - She stated that Bordeaux has a system that runs on solar.
 - She noted that Bordeaux has systems for recovering stormwater, which helps to cool buildings.
 - She discussed the many smart technologies Bordeaux is using. Many of these buildings have users inside of them,
 - She observed that communities can create eco-neighborhoods.
 - She remarked that sometimes Bordeaux sees buildings that have been completed renovated, but they aren't as successful in conservation efforts because the inhabitants rely on the buildings to do the conserving for them.
- Ms. Walryck said she had visited St. Petersburg, Russia and that the buildings are very hot inside and the occupants will open the window to cool things down (she noted this as a case of energy waste). She noted that Bordeaux has tried to address this issue in its buildings. She explained that people don't always pay attention to how much energy they use. She stated that Bordeaux was part of an initiative that involved customers signing energy reduction pacts with the utility.
- Ms. Walryck stated Bordeaux is testing an energy management system in hundreds of buildings.
 - She said Bordeaux will have district heating and cooling.
 - She commented that thousands of buildings would be renovated.
 - She added that emissions would also be reduced through the use of renewable energy. She noted that to accomplish its goals, Bordeaux would need to renovate 3,000 buildings per year.
 - She explained that Bordeaux needed to have a better overview of all the different types of buildings it has. She stated that Bordeaux has one of the largest eco-neighborhoods in Europe. She added that because Bordeaux is a UNESCO heritage site, it has limitations on what it can do, such as installing solar panels.



- Ms. Walryck noted that there had been a proposal for a center that will support homes that want to become more energy efficient.
- Ms. Walryck stated Bordeaux wants to use innovative financing tools as its communities need financing mechanisms.
 - She commented Bordeaux has been part of a European program of innovative financing mechanisms.
 - She emphasized that Bordeaux is trying to offer affordable mechanisms.
- Ms. Walryck acknowledged that all communities face some of the same challenges. She noted that it's sometimes difficult budgets may be lower than they should be.
 - She concluded that Bordeaux is primarily trying to work smarter to use tools and find solutions.

Mr. Jean-Michael Marchand – Mayor of Saumur

- Mayor Marchand noted Saumur has major challenges.
 - He explained that like Bordeaux, Saumur has many historic buildings. He noted that in spite of this Saumur is still able to experiment.
- Mayor Marchand stated that at the heart of the area in which Saumur is located is a large natural park.
 - He noted that Saumur has many horses, too.
- Mayor Marchand noted that Saumur has focused on social matters.
- Mayor Marchand remarked that in 2003 Saumur had started experimenting with electric cars.
- Mayor Marchand said Saumur had updated its street lighting.
 - He added that Saumur has the second largest street lighting project after Lille. He noted that Saumur had to get enough funding from its banks for this project.
- Mayor Marchand commented that Saumur decided to turn off some of its lights at night. He added that this was done just enough so that crime still is kept down.
- Mayor Marchand said Saumur had also developed an urban renewal program. He stated that even a small city can have such a program.
- Mayor Marchand noted that Saumur had received criticism because it has used a lot of wood constructing our buildings.
- Mayor Marchand explained that 25% of the buildings in Saumur are public housing. He noted that Saumur is a relatively poor city.
 - He stated that Saumur wants to improve the insulation of these buildings.
 - He discussed how Saumur had worked with dynamic, young business leaders to realize renewable energy solutions.
 - He commented that insulation is a significant issues for buildings to prevent them from losing too much energy.
 - He concluded that by the partnerships it created, Saumur was able to improve the efficiency of homes.
- Mayor Marchand said Saumur has encouraged families to use less energy at night.
 - He commented that Saumur has used training events as part of this program.



- Mayor Marchand noted that Saumur has installed solar panels.
- Mayor Marchand discussed the measures Saumur had taken to encourage better home efficiency practices.
 - He explained that model buildings had been constructed. He noted that these structures were built of locally sourced and natural components.
 - He stated that these projects demonstrated the quality of the buildings and the skills of the architects.
- Mayor Marchand discussed the case of a building in Saumur called “Royal Abbey.”
 - He noted that there were many limitations for working on this historic building but that Saumur was still able to renovate parts of it.
 - He commented that the building incorporates wood burning boilers and solar panels.
 - He explained that many of France’s largest historic buildings had been preserved because they had been used at times as prisons.
- Mayor Marchand described a program in which children take part in day for energy awareness and conservation. She noted that one element of this program involves children visiting construction sites.
- Mayor Marchand concluded that it’s oftentimes difficult to implement these changes. He noted that these things can be done if the political will is there.

Mr. Nick Sherman – U.S. Department of Energy

- Mr. Sherman discussed the U.S. Department of Energy’s efforts involving sustainable energy practices. He noted these included the following projects:
 - Climate Action Plan (he provided the following website: <https://betterbuildingschallenge>)
 - Accelerate Energy Productivity 2030
 - Clean Energy Solutions Center
 - FlexiLab at Lawrence Berkeley National Lab

Mr. Matt Appelbaum – Mayor of Boulder, Colorado

- Mayor Appelbaum noted that a huge percentage of Boulder’s success in energy usage has been in the buildings sector.
- Mayor Appelbaum said Boulder has transportation issues too.
- Mayor Appelbaum remarked that much of what makes buildings energy intensive involves process energy (e.g., computers plugged in).
- Mayor Appelbaum discussed how Boulder raised money through a carbon tax, which was approved by Boulder’s voters.
 - He noted that this was probably the first such tax in the U.S.
 - He added that he hoped the tax would be approved by Boulder’s citizens again.
 - An attendee asked Mayor Appelbaum how much the carbon tax amounted to.



- He responded that it's a tiny amount added onto electric bills.
- Mayor Appelbaum explained how Boulder has the unique authority to change its building codes.
 - He noted that most areas don't have this ability.
 - He commented that Boulder has aggressive building codes. He explained that buildings must meet an energy rating and as houses get bigger, the rules become more stringent.
- Mayor Appelbaum stated that on the commercial side, Boulder adopted the International Energy Code (IEC).
- Mayor Appelbaum remarked that Boulder wants to stay 3 to 5 years ahead of its peers in terms of construction standards.
- Mayor Appelbaum noted that an audit program has been put in place for existing buildings.
 - He explained that even in Boulder, very few people follow up on the results of an energy audit. He said that to resolve this issue Boulder created an energy concierge service. He noted that this involves assigning an energy advisor to each case.
 - He discussed how this service entails a reviews of the audit's results with you, help with finding contractors, and financing. He stated that this program involves holding the hands of partners through the process. He concluded that this project is called the Energy Smart Program.
- Mayor Appelbaum addressed a second success Boulder had experienced with its rental properties.
 - He noted that half of Boulder's properties are rentals. He explained that the problem with these is that there's the "splitting centers" problem, whereby landowners don't upgrade because they won't be there and renters don't because it's not their property or because they're clueless about this.
 - He said that to make this project work, Boulder came up with a regulatory approach called "Smart Regs." He explained that this program required all rental units to meet a baseline standard of efficiency within 6 years. He noted that Boulder We developed prescriptive measurements and that someone comes in afterwards and conducts an audit. He stated that the program began with rebates for upgrading properties.
 - He noted that Boulder has found that in many cases the owners have met the standards and even done more. He stated that they've realized the incremental costs of doing a bit more.
- Mayor Appelbaum discussed how on the commercial side one can explain the cost savings that come with making buildings more efficient.
 - He acknowledged the splitting centers problem is present here too. He explained that energy costs are not a very high percentage of their operating costs.

Mr. Dominique Gros – Mayor of Metz

- Mayor Gros commented that it's easier for Metz us to act on the buildings it owns versus the buildings it doesn't.
- Mayor Gros noted that Metz has properties where energy is not counted by the customer but collectively.



- He explained that in these cases there are no incentives for families because the efficiencies apply to all. He noted that each household must pay for its own energy consumption.
- Mayor Gros stated it took Metz 20 years to ensure private housing was retrofitted.
 - He noted it's important to consider how older buildings should be retrofitted.
- Mayor Gros said Metz conducted a study of energy efficient buildings. He noted that Metz took steps to shift to more energy efficient buildings.
- Mayor Gros stated that companies that enacted energy efficiency changes had to agree to ensure their projects succeeded in reducing energy consumption.
- Mayor Gros said Metz created new green buildings.
- Mayor Gros discussed the development of a centralized district heating network in Metz, and he provided a graphical depiction of this system.
- Mayor Gros noted that new eco-districts were constructed.
 - He discussed how these had smart metering, low energy homes, and sustainable transport.
- Mayor Gros concluded that what was easy in the past has created the issues of today. He noted that little by little citizens must be aware of these issues.

Mr. Jeremy Sigmon – Director of Technical Policy at the U.S. Green Building Council

- Mr. Sigmon described programs for individuals to invest in green building. He noted that his organization helps to define what sustainability means and helps to institute it and celebrate the successes.
- Mr. Sigmon commented that the average LEED-certified building does 30% better than other buildings.
- Mr. Sigmon noted that the design of new buildings is not enough.
 - He remarked that his organization had designed an app for real-time tracking of how buildings are doing.
- Mr. Sigmon stated that his organization had found three applications of LEED:
 - He noted that commitments by cities or states has been remarkable effective. He explained that there is a doubling effect when cities invest in LEED.
 - He said his organization is working to incentivize sustainability practices (e.g., tax credits for example). He noted that his organization has worked with the C40 Initiative and Bloomberg Foundation to do this.
 - He commented that on the regulatory side, the types of minimum expectations can be implemented across the board need to be looked at. He explained that these are the ways for the entire community to get involved and up to par.



Ms. Julie Hughes – Director of Building Energy Performance Policy at the Institute for Market Transformation

- Ms. Hughes said her organization is looking for ways to make buildings more efficient. She added that this involves finding market mechanisms to do so.
- Ms. Hughes commented that information is what moves markets forward.
- Ms. Hughes discussed energy code considerations.
 - She commented on some of the major categories, such as information and disclosure.
 - She noted that many times there are tools that local governments can use, and she stated that her organization tries to bring these forward.
 - She said that her organization advocates for raising baselines where it's politically feasible.
 - She discussed the City Energy project, which she noted works to improve the energy efficiency of cities. She added that this project is funded through three organizations and works with cities in a number of ways.
 - She noted that her organization is involved in a very collaborative process with the cities it works with.
 - She concluded that green leasing is an area her organization is engaged in. She explained that this involves training for brokers and appraisers.
- Mr. Sherman stated that the U.S. Department of Energy is doing good work on financing.

Mr. Bruno Mesureur – Standardization, Marketing, and International Affairs Director at CSTB

- Mr. Mesureur discussed the importance of having a strategy to get low energy buildings.
- Mr. Mesureur noted that it's very important to have effective architecture designs.
- Mr. Mesureur commented on a certification scheme that has developed in France, which is based on performance indicators.
 - He noted that this scheme is also developing worldwide
- Mr. Mesureur discussed the Life Cycle Analysis Tool.
- Mr. Mesureur addressed Solar Versailles, an energy efficient buildings competition in Europe.
 - He discussed the Le Cite de Soleil project, which examined the energy performance of a series or prototype buildings over the course of 15 days.

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