



SMART ENERGY DECISIONS

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2019



ACCELERATE PHILLY

Insights



December 9-10, 2019 / Logan Hotel, Philadelphia, PA

Accelerate Philly: Powering our future— A Clean Energy Vision for Philadelphia

"Powering our Future: A Clean Energy Vision for Philadelphia" is a bold roadmap that establishes a green path for the region and is recognized as a model for other major cities to follow. Smart Energy Decisions developed Accelerate Philly as a landmark event in association with the Philadelphia Energy Authority to showcase best practices, illuminate opportunities to drive down project costs, and deliver the business connections necessary to make the vision a reality.

The event, presented on December 9–10, 2019 at the Logan Hotel in Philadelphia, brought SED's proven formula to large electric power users in the region. Attendees participated in exclusive pre-conference study tours, general sessions featuring energy management executives sharing their renewable energy and energy efficiency experiences, and one-to-one meetings between customers and suppliers, along with the opportunity for high-quality networking in an intimate environment.

This *Insights* report, part of our continuing series, offers excerpts from each general session to give you a taste of the thought-provoking content, as well as the spirit of collaboration in evidence throughout the event.

We're extremely grateful for the ongoing support of the Accelerate Philly Steering Committee and the supplier sponsors who form a central element of the content at all SED events. Our event schedule for the remainder of 2020 includes:

- **RESF Spring**, June 15–17 at the Ponte Vedra Inn & Club in Ponte Vedra Beach, Florida
- SED will return to Philadelphia, as Accelerate Philly becomes part of the **Distributed Energy Forum**, September 21–23
- **RESF Winter**, December 7–9 at the Hyatt Regency Huntington Beach Resort and Spa in Huntington Beach, California

The *RE Sourcing Forum* presents a focused series of educational sessions, one-to-one meetings with suppliers and networking opportunities with peers to accelerate adoption and facilitate best practices in renewable energy sourcing.

Click here for more information on these events. We hope you'll join the Smart Energy Decisions community.



Cordially,

John Failla
Founder & editorial director
john@smartenergydecisions.com



December 2019

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Greetings from the Governor of Pennsylvania



COMMONWEALTH OF PENNSYLVANIA
OFFICE OF THE GOVERNOR
HARRISBURG

THE GOVERNOR

GREETINGS:

It is my privilege to join with the Philadelphia Energy Authority (PEA) to welcome everyone gathered for “Accelerate Philly.”

Pennsylvania has a robust and diverse energy sector that is vital to our economic growth. “Accelerate Philly” offers a platform for large power users to explore new technologies, supply options, and innovative strategies for promoting sustainable energy consumption. The victories celebrated and information shared at this event resonate with people across the commonwealth and provide new options for an affordable, renewable energy supply. I am proud to serve as the Honorary Chair of the “Accelerate Philly” Host Committee as my administration is deeply committed to advancing sustainability in the energy sector. It is my hope that the work done at this event will continue to influence change and inform all individuals about energy solutions.

As Governor, and on behalf of all the citizens of the Commonwealth of Pennsylvania, I am pleased to welcome all those in attendance for “Accelerate Philly.” Please accept my best wishes for an enjoyable and memorable event.



TOM WOLF
Governor
December 9-10, 2019

Snapshots from 2019 Accelerate Philly



Welcome to Philadelphia



DEREK S. GREEN

Philadelphia City Council Member At-Large

I'm proud of the work that we have done here in the City of Philadelphia. We've tried to move the needle on issues regarding energy. I chair the Philadelphia Gas Commission, the largest municipally owned utility in the nation, and we're doing things in a much more creative and diversified way. For example, we're trying to diversify PGW with a broader range of energy sources to combat climate change. In City Council, we've worked with the Philadelphia Energy Authority on the Solarize Philly initiative and with legislation for CPACE. We want to lead the nation in terms of what can be done from a municipal perspective regarding energy opportunities. We want to work in a way that's going to be cost effective and create great opportunities for economic development for the City of Philadelphia.



DARRELL L. CLARKE

Philadelphia City Council President

The City of Philadelphia is deep in history but we've understood the need to change. About 10 years ago there was a charter initiative to create the Philadelphia Energy Authority and in that time it has created significant opportunities for the city. The Authority is in the forefront of getting people on board with the need for clean energy and for creating career opportunities. Today, at this conference, I hope you'll come to the conclusion that in the City of Philadelphia we are open for business, we are excited, and we are interested in participating with you in a meaningful way to grow your opportunities and your companies.

Powering our future: A clean energy vision for Philadelphia



Christine Knapp,
director, office of
sustainability, City
of Philadelphia



Emily Schapira,
executive director,
Philadelphia Energy
Authority

Powering our future: A clean energy vision for Philadelphia

KNAPP: Philadelphia's Office of Sustainability is a city department that is just over 10 years old. Within our sustainability plan, Greenworks Philadelphia, we're looking at sustainability comprehensively, covering food access, air quality, energy, climate change, natural resources, transportation, waste, stewardship, economic opportunity, and business and job creation. All of these must work together to create a better city for all of our residents.

We have a commitment to making sure that the work that we do benefits all Philadelphians, particularly those who have been marginalized. Obviously, there is a huge health component to sustainability work and, particularly, to the climate work that we're doing to reduce air pollution and create healthier communities. Economically, cities that do sustainability work well are thriving with strong business and job creation, and people wanting to live there as well.

Our mayor has stepped up to the table on climate action by committing Philadelphia to the goals of the Paris Climate Agreement, even if the federal government is no longer moving towards those goals. Philadelphia is one of 25 cities participating in the Bloomberg American Cities Climate Challenge, created by Bloomberg Philanthropies as a way to support cities like ours whose mayors want to stay in the Paris Climate Agreement. The philanthropic arm provides an organizational structure to help cities reduce carbon emissions in the buildings and transportation sectors through the end of 2020. Buildings and transportation are the two largest sources of carbon footprint in the United States and almost 80% of Philadelphia's local carbon footprint comes from buildings, which often shocks people.

We want to reduce our carbon footprint by 25% by 2025, and at least 80% by 2050. We've also made a commitment to move to 100% clean

energy. We're going to achieve both these goals by using less and cleaner energy. We'll use less energy with the help of energy performance contracts and investing in smart technologies and LED lighting in our public facilities. We'll use cleaner energy starting with our 20-year contract with Community Energy for the construction of a 70-MW solar facility to provide the municipal government with about 22% of our electricity.

On the non-municipal side, we have requirements for buildings with more than 50,000 square feet to annually disclose their energy and water use. These large commercial-use buildings are also required to obtain a high-performance building certification or perform a tune-up. We have a solar rebate program for residential and commercial users and are working with our municipally owned utility PGW (Philadelphia Gas Works) to identify pathways for the utility to thrive in a low- or no-carbon future.

Finally, our Climate Collaborative of Greater Philadelphia is an opportunity for large businesses and institutions to join in and learn from each other to scale up sustainability impact and growth.

SCHAPIRA: People often refer to Philadelphia as the poorest big city in America. About 25% of our residents live below the poverty line, including one in three children. While we're having a real estate boom now—our inner-ring downtown neighborhoods are thriving and our unemployment rate is below 4.6%—that unemployment rate is double among low income and minority communities.

Residents below the median income in Philadelphia spend on average 23% of their income on utilities. More than half of all African-American households at any income level faced energy insecurity at least once last year. This affects more than 40% of renters as well. Even corner stores in Philadelphia pay more for utilities on average than they do for rent, so we know it's a huge driver of their ability to stay in business. Climate change is

Powering our future: A clean energy vision for Philadelphia

also causing challenges for Philadelphia that have the hardest effect on our lowest-income communities.

The Philadelphia Energy Authority is an independent municipal authority, essentially a special district, so we have special powers that allow us to hold long-term contracts on behalf of the city and engage in public-private partnerships differently than the city administration can do. This has allowed us to launch a couple of big initiatives.

In 2016, we launched the Philadelphia Energy Campaign, a \$1-billion investment over ten years in energy efficiency and clean energy work to create 10,000 jobs. Our focus is mostly on city buildings, schools, affordable housing, and small businesses. In the first two years of the campaign, we helped launch over \$100 million in projects and created almost 1,000 jobs. We also work closely with the school district, which is wrapping up its first energy performance pilot on three high schools. That was a \$23-million project and we were able to use the money from saving 38% on energy costs to subsidize other critically needed infrastructure investments.

Additionally, our Commercial Property Assessed Clean Energy Financing (CPACE) is a fantastic tool that allows you to finance energy

efficiency, water conservation, or renewable energy projects via a special assessment that acts like a property tax. This provides cheap money compared to other available real estate money. Typically, interest rates are from 5% to 8% and the term can be the life of the equipment. Solar in Philadelphia tends to have anywhere from an 8- to 15-year payback, depending on what kind of project you're doing. Therefore, if you're the owner of a building and you only plan to hold the building for seven years, you probably aren't going to put solar on the roof, but you can get a 20- or 25-year CPACE loan that stays with the building. You only pay for the part that you use and then the next owner will pay for the rest.

Finally, our Solarize Philly group-buying program, available to residential and commercial users, is now the largest solarized program in the United States. Likewise, our city solar rebate provides a 10-cents-per-watt rebate for any commercial project and a 20-cents-per-watt rebate for any residential project. There's a cap of \$100,000 per project, but that's something to think about if you're looking at solar projects in Philadelphia. 🌍



“We want to reduce our carbon footprint 25% by 2025, and at least 80% by 2050. We’ve also made a commitment to move to 100% clean energy. We’re going to achieve both these goals by using less and cleaner energy.”

—Christine Knapp, director, office of sustainability, City of Philadelphia

Panel: Customer success stories from the Philadelphia region



Rebecca Collins,
director of sustainability,
Temple University



Phil Laws,
senior VP, arena
operations, Wells
Fargo Center,
Comcast
Spectacor



Blair Sturm,
process
sustainability
and energy
manager,
Saint-Gobain



Debra Chanil,
research and
content director,
Smart Energy
Decisions
(moderator)

Panel: Customer success stories from the Philadelphia region

CHANIL: Each of our speakers is going to highlight one of their most successful programs in the Philadelphia area, as well as the drivers and obstacles of that program.

COLLINS: One program that has been successfully implemented at Temple University is our Climate Action Plan. When you start a program, and you're looking at energy efficiency and thinking about carbon reductions, you may dip your toe in the water and do something like an LED retrofit. Eventually, there comes a point in time when you've maxed out on that low-hanging fruit and you need to take your program to the next level. Developing a strong plan will enable you to take your program to the next level. Whether it's efficiency or carbon reduction, this means making sure that you are talking to a diverse group of stakeholders in order to develop a strategy.

At Temple, we have a climate action plan that was released this past April in which we are looking at carbon neutrality by 2050. Money is a driver, but so are the students. Young people today really look at sustainability; it's something they consider when choosing a university. That drives a lot of our programming. As for the obstacles, when you have a lot of folks with a lot of different opinions and motivations, it can be challenging to get everyone on the same page. But in the end including multiple voices creates a better final project. If you don't do this, change managements will become much more difficult. When you are trying to implement a program, you need partners who are doing this work day in and day out to buy into a strategic vision.

LAWS: At the Wells Fargo Center, we have focused on how we're using our energy as well as where we're getting that energy. Right now, we are going through a very large renovation of the arena; it's 22 years old so there is a

lot of potential to improve. Retrofitting all of the LED sports lights is a big part of it and so is an upgrade of the mechanical systems. An arena like ours has a big volume of space and many different climate demands. For example, creating a hockey rink requires bringing a large volume of air down to 58 or 60 degrees and holding it there at low humidity.

On the supply front, it's been an evolving strategy. When we first went to a deregulated market years ago, everyone was afraid of what that process was going to be like. For several years, we had a very conservative, fixed-price, full-requirements agreement. Over time, as we became more comfortable with the process, we looked at how to get to a sustainable, clean energy product. We focused our strategy on the supply side and off-site renewables. For example, with a 15-year commitment, we were able to push the size of a wind project being built on the PJM grid toward being a little bit larger and move back into a full-requirements contract that is 100% wind-generated. We retired those renewable energy credits (RECs) and received the additional acclaim of adding that sustainable source onto the grid.

The Wells Fargo Center is part of the Comcast family, which has sustainability goals that are important to shareholders, so that's certainly a driver for us. We're also a very public-facing part of the company so our sustainability goals speak to both our ticket buyers and client. It's part of our marketing campaign and has become a story we like to tell. These projects also make a lot of financial sense so they're also a smart business decision.

On the challenge front, the biggest barrier for us is the power purchase agreements. It's a very complicated process, so understanding the deals and being able to communicate their benefits to finance and public relations

Panel: Customer success stories from the Philadelphia region

was difficult. There are a series of interconnected concepts that have to be communicated to get these deals done, and that's honestly one of the more difficult things that we've faced. But there are a lot of partners to work with and these resources are absolutely key to success here in Philadelphia.

STURM: I want to speak about our as-a-service program. Many people call it energy-as-a-service or efficiency-as-a-service. At Saint-Gobain, as a large manufacturer with more than 130 sites all over North America, we're always competing for capital against regular manufacturing investments. Our company's payback period requirements are pretty short, so a lot of those great energy projects that have a longer-term payback don't always get the capital investment. Using the as-a-service model, we're able to use a third-party to finance those investments and share the savings. They'll get a portion of that savings, but effectively it's easy energy savings without any upfront capital. It's been a great asset to our sites, one that we're looking to build out.

One of our major drivers is that Saint-Gobain is headquartered in Paris, so we're also keeping in line with the climate accords. However, energy is relatively cheap so we are falling behind compared to other parts of the world where energy is more expensive. We had to find different ways to get

project investments. A challenge we had was that the way you get savings is a different structure than our financial team was used to. These are off-balance-sheet investments. We had to work with our finance team to help them understand how a service-based energy project works.

As far as working in the city, Philadelphia is honestly a city that has great opportunities in lots of ways and everyone is working towards those opportunities together. 🌐



“Philadelphia is honestly a city that has great opportunities in lots of ways and everyone is working towards those opportunities together.”

—Blair Sturm, process sustainability and energy manager, Saint-Gobain

Keynote: Inspiring diversity in energy



Carolyn L. Green,
managing principal,
Casa Verde Energy
Services



Darlene Phillips,
senior director,
operations
engineering
support, PJM

Keynote: Inspiring diversity in energy

GREEN: When I left corporate America, I wanted to make sure that people of color were better represented in the environmental and energy industries, so I started a company to buy or invest in small, middle-market environmental and energy companies. I'm also on the board of the Alliance to Save Energy and, interestingly, at our last conference, we also had a conversation about diversity in the efficiency and clean energy space. Kudos to this group for having the same conversation.

PHILLIPS: I certainly have had an opportunity to deal with a lot of different personalities in the energy space. I can attest to why it's important to have a diverse workforce, especially considering the diversity among the very people that you work with across the energy industry, both on the policy side as well as on the operations side.

GREEN: When we look at industries like energy efficiency and clean energy, they are more entrepreneurial and not necessarily governed, like utilities are, by a public utilities commission. There is less external encouragement for diversity to happen, so it's got to be more organic. Unfortunately, in this industry, we have done an even worse job than the utilities have in terms of diversity, both in staffing and leadership.

We have a lot of ground to make up. I think we can do it, particularly because when the industry was first developing it was seen as an opportunity to do it right. It's an industry that technically is not as capital intensive as the traditional utility space, so there should be a lower barrier to entry. For some reason, that has not happened. It winds up being an intellectual or emotional barrier, and that's what we need to talk about.

PHILLIPS: It is difficult to describe the complexity of what we do. To really be effective, especially when you're talking dollars, operations, or policy,

there's a level of depth that is needed to be successful. Given the historical makeup of the energy industry, bringing people on who are willing to learn, participate and grow can be difficult.

It's critical to make people aware of how their biases impact their decisions. Just being upfront about those things—and not in a way that is demeaning or accusatory, but just making people aware—is so important. It speaks to how you hire, who you promote, and why you picked that person. Why do you think you're most comfortable with that person? Is it really because they're best-suited for a position or is it because you have a lot of commonalities outside of the office? Those are the conversations that are important and that we must have if we're really going to change the makeup of our organizations.

GREEN: It's also interesting that people assume that if you are a woman or a person of color you don't have common interests outside the workplace. That's not necessarily true. For example, I'm from Iowa and every time I mention that, people—whether of color or not—are shocked. Throughout my career, it's been interesting because as soon as, in particular, older white men found out that I was from Iowa, it became, 'Oh, she could be my daughter,' and it changed their attitudes and the conversation. Don't automatically assume that you have nothing in common with someone who doesn't look like you.

Likewise, don't always assume that you need an engineer or a geologist or someone with an advanced degree for every single job in your organization. There are a lot of people with a lot of experience who can do those jobs and bring a different perspective to problem-solving. Diversity means diversity of thought as well as diversity of color or gender or sexual orientation.

Keynote: Inspiring diversity in energy

PHILLIPS: When you're talking about very aggressive clean energy standards and policies, they come with a cost. Representing those who will be affected in the group of people who are making the decisions is very important. For example, with my background in community development, I try to get to those legislators who are deciding on energy policies that are going to cost a lot of money. I have the benefit of understanding these issues from where I sit at PJM dealing with big energy policies. I try to help folks understand the significance of the percentage of costs with respect to low-income families versus the impact on everyone else. They may say, "It was just this dollar amount per household, what's another \$2 or \$3 a month?" Well, if you are looking at spending more than 20% of your income on just utilities, even another few dollars a month is significant. That shows one example where not being represented in the room where policies are made can be a disadvantage.

GREEN: I think one of the best things to do is look for partners to grow a relationship with because we work with people we know and we trust. For example, over the last decade, the American Association of Blacks in Energy (AABE) has awarded about \$250,000 in scholarships to young students of color last year and almost \$2 million over the past decade. Here's a selfish plug: several of my energy AABE colleagues and I wrote a book. We're five African-American women who achieved the C-suite in the energy industry and we tell our story. All of the proceeds go to scholarships for young African-American women pursuing STEM degrees. We're trying to give back to the next generation of energy executives, but the book also tells the story of how we don't all come here through the same doors. We have very different stories, but we all end up in the same place doing many of the same things. Diversity is really a good thing and makes us all stronger. 🌐



“It’s critical to make people aware of how their biases impact their decisions. Just being upfront about those things—and not in a way that is demeaning or accusatory, but just making people aware—is so important.”

—Darlene Phillips, senior director, operations engineering support, PJM

Keynote: A vision for renewable energy sourcing partnerships



Sayun Sukduang,
President & CEO of
ENGIE Resources
and head of energy
management, ENGIE
North America

Keynote: A vision for renewable energy sourcing partnerships

The energy industry has changed dramatically over the past five years to where the former dual bureaucracy of Utilities and Public Utility Commissions is waning, and an atomized approach to how we power ourselves is being developed.

We can frame the impending change with four truths on the horizon for energy: linear to circular, mass electrification, 5G, and design matters most.

I don't know a business model, energy or otherwise, that isn't facing the challenge of going from linear to circular. Linear is take-make-use-lose. Think about packaging: we take natural resources, turn them into plastic containers, use them to transport any number of goods and then we lose them in the form of litter. This business model cannot survive. We must look at ways to go from that model to one of circularity.

We see it happening all around us in both small but also economically prolific ways. A small way is the farmer's market—where you can source food locally, minimizing transportation and containers, and you know its origins—where agriculture and sustenance are brought to you in a more circular way. In larger, more economically prolific ways, consider ride- and home-sharing. Those models have created elements of circularity by sharing large amounts of capital assets in a more efficient way. Ridesharing can be viewed as infrastructure optimization. Existing vehicles, the need for employment, and the need for transportation are all connected digitally without the need for incremental capital investment in new cars. It's extending to offices, and hotel rooms, to jets and scooters. These models are bringing forward elements of circularity by reusing existing infrastructure in more efficient ways and creating market values well beyond what we could have dreamed of five or ten years ago.

Energy is going through a similar linear to circular transition. Take fossil fuel: we make it into an electron, use it to power our lives, and lose it in the form of emissions that make our habitat less sustainable. Our transition to renewable energy is the first of many steps toward circularity. As you look at your business, like we do ours, you'll create value too by adopting a circularity mentality.

Mass electrification is another step towards circularity. In the United States, only 35% of our final energy use is in electrical form, the majority consumed in more raw fossil fuel form. Consuming more energy in electrical form allows us to achieve a new frontier in efficiency because of the ability to increasingly network our energy, bringing massive benefit to society.

For example, think about a parking garage with hundreds of vehicles. You can't network their gasoline tanks, but you can network an electric car. As we increase the penetration of electricity consumption and leverage the benefits of networking our infrastructure to balance the grid in a much more atomized way, we will achieve an ability to create efficiencies to which, economically, society can't turn a blind eye.

A difficult part of sustainable energy generation is that it's not dispatchable. With mass electrification, we can change the equation of the grid, reversing our approach to the system as generation of electricity becomes increasingly less dispatchable and usage is becoming increasingly more dispatchable. The more electrification we have, the more value we can bring to society by atomizing grid balancing. Taking that existing infrastructure—such as the vehicles you're going to buy, your air conditioning unit, and your lighting—and using those systems that we've already invested in as a society to help do more than simply get you from

Keynote: A vision for renewable energy sourcing partnerships

point A to point B will help us bring more sustainable electrons to the grid.

I know 5G gets a lot of hype these days. The thread that's important is that energy has yet to be significantly impacted by technology that is mobile. While 1G impacted all of us and our ability to communicate via voice, 2G impacted all of us in our ability to disseminate knowledge and touched media and business practices. 3G touched commerce and changed social networking and 4G has impacted transportation and entertainment. Has any of them impacted your business models? They haven't impacted energy. But 5G will impact the energy business model in a way more significant, in my view, than the way 4G has impacted some of the largest business to date. When 5G comes along, the industry can start connecting you with what you ultimately want, which is three simple things: light, climate control, and device functionality. If you're a business, you want business functionality. Right now, we as an industry deal with electrons and force you to deal with them too. Helping you to achieve what you

want will drive a much better outcome for all of us and with 5G we will be able to do so.

Design is the next frontier in energy that will bring convergence of the elements I've just mentioned in a way that delivers much better outcomes: lower cost, more sustainable, and better experiences with energy. Without proper design, customers and providers will never engage in a way that is more sustainable and less costly than the environment we live in today.

We're trying to get there. We've transitioned from linear to the first step of circularity with how we generate energy. We've invested heavily in customer-facing businesses so that we can start the dialogue, not only of how we generate energy but also how we should be connected to energy consumption. We have an energy supply business that helps with that last half-mile using financial markets to help you achieve those sustainable goals. Our bet is that these four truths will come together in a meaningful way and as you engage with us in the future we will have the ability to design for the desired outcome. 🌐



“Design is the next frontier in energy that will bring convergence of the elements I’ve just mentioned in a way that delivers much better outcomes: lower cost, more sustainable, and better experiences with energy.”

—Sayun Sukduang, President & CEO of ENGIE Resources and head of energy management, ENGIE North America

2019 Accelerate Philly Awards

Christopher Lewis, chair of the Philadelphia Energy Authority, joined John Failla, founder and editorial director of Smart Energy Decisions to present the following Leadership awards.

Accelerate Philly Leadership Award



Babara Moore, sustainability coordinator, Philadelphia Housing Authority, attended a Smart Energy Decisions event in 2017 and began lobbying for a Philadelphia-specific event. Her energy and leadership were a key element in the creation of Accelerate Philly. Moore leads the PHA's internal efforts to promote sustainability by developing strategies, standards, and best practices.

Clean Energy Champion Award



Rose McKinney James is a long-term advocate of clean energy. She is a former president and CEO of the Corporation for Solar Technology and Renewable Resource and she has served on the Nevada Public Service Commission, leading the state's effort to adopt the renewable portfolio standard. McKinney James is the former board chair of American Association of Blacks in Energy (AABE).

Accelerate Philly Leadership Award



Emily Schapira, executive director, Philadelphia Energy Authority, leads the city's efforts to support and develop energy-related initiatives that promote equity, efficiency, and sustainability for the City of Philadelphia. She has worked tirelessly with Smart Energy Decisions to make Accelerate Philly a meaningful event for the region.

2019 Accelerate Philly Awards (cont.)

Christopher Lewis, chair of the Philadelphia Energy Authority, joined John Failla, founder and editorial director of Smart Energy Decisions to present the following Leadership awards.

Accelerate Philly Leadership Award



Ken Cowan, vice president, solutions sales & marketing, ENGIE North America, exhibited support and vision in helping to bring Accelerate Philly to this city. In his role at ENGIE, Cowan provides overall thought and commercial leadership and leads a high performing sales team in the advancement of energy services to new and existing clients throughout North America.

Clean Energy Champion Award



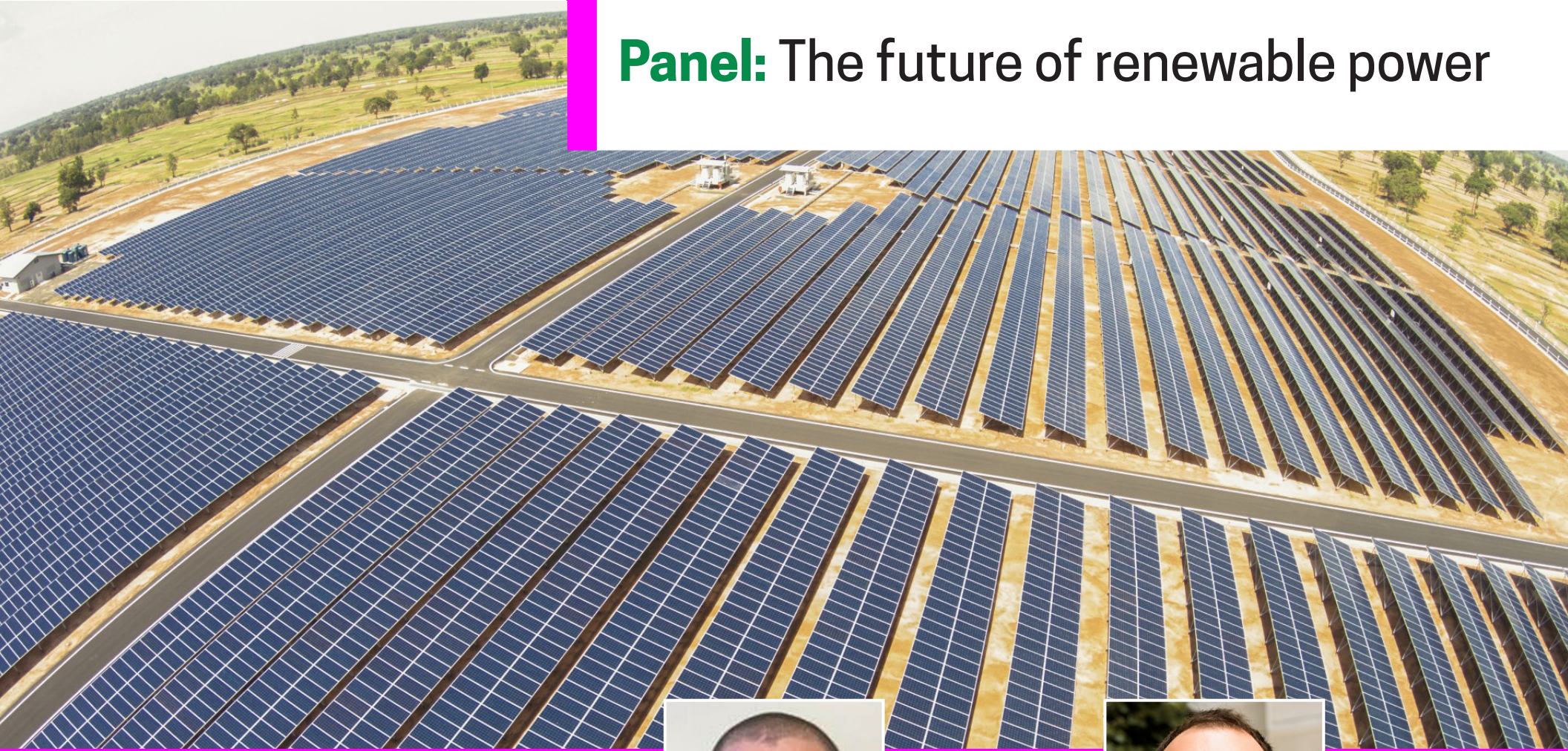
Councilwoman Blondell Reynolds Brown embodies vision and leadership in the City of Philadelphia. Finishing her 5th term on the City Council, she serves as Majority Whip and is the only woman serving in Council leadership. As Chair of the City Council's Committee on the environment she has led program after program to innovate the clean energy economy in Philadelphia.

ABBE Scholarship Donation



Fabian Robinson, president of the Philadelphia Chapter of American Association of Blacks in Energy (ABBE), accepted a donation from Smart Energy Decisions. The donation will be added to a fund that has issued more than 72 scholarships to high school graduates over the last 12 years.

Panel: The future of renewable power



Jay Carlis,
executive vice
president, origination,
Community Energy



Adam Agalloco,
energy manager,
City of Philadelphia

Panel: The future of renewable power

CARLIS: We've been developing solar power projects around the country for the past ten years. About a year ago, we announced our partnership with the City of Philadelphia on a 70-MW solar farm in Pennsylvania. I had the great pleasure of working with Adam and the Philadelphia Energy Authority on a power purchase agreement.

AGALLOCO: My role is mostly focused on municipal operations and trying to ensure that the city is meeting the goals it set for its assets and buildings. The City of Philadelphia is one of the largest purchasers of electricity in the area, along with the University of Pennsylvania. It puts us in a leadership position in addition to the leadership positions that we have just by being a municipal government.

This project is really about two main things: climate and economic opportunity. Climate is near the top of the mayor's list and the economic opportunity renewable energy projects create is a win for the city, spurring new development and local jobs.

I wanted to ask you, Jay, Community Energy has a longer history in this space, so how do you think about the future of renewable power and where do you see the PJM market in the Philadelphia region going?

CARLIS: Solar's got an incredible future. There's so much land available as well as rooftops, backyards, and other open available spaces. As the cost of solar technology gradually improves, it has a tremendous future.

Offshore wind is a big deal right now. Everybody's talking about wind offshore New Jersey, Maryland, and Virginia. I do believe that, eventually, we'll figure it out. It's extremely expensive. I'm not really sure why we want to focus on offshore energy that's maybe three times more expensive than onshore solar, but I'll leave that to the policymakers that know that better than I do.

PJM is the most sophisticated grid in the world. Right now, we have policy uncertainty with the federal energy regulatory commission taking a very pro-coal and gas standpoint. It's a dramatic shift from where it's been over the past 20 years. That may change. The other thing that has really impacted PJM is the nuclear subsidies that were instituted in Illinois and New Jersey and are on the table in Pennsylvania. I think a lot of the natural gas generators who are a big part of PJM are concerned about artificial price support for nuclear.

We're at a really transitional time. There are great opportunities for renewables. With battery costs coming way down, we're going to see a lot of renewable penetration. There's a lot of policy involved, and policy is really about political will, so it's a tough market to play in right now.

AGALLOCO: When we talked to our stakeholders as we moved forward with this project, they wanted to know why we're not doing 100% renewable energy with one purchase. It's because we know that the technology is going to change.

There is also the hope that in another couple of years solar costs will come down. Even though there may be a lack of federal incentives, we're taking a chunk of renewable electricity now and saying, "We're in for 22%." In a couple of years we can put another chunk on top of that, so we're still getting to get our 2030 goal. We feel that's the safest way for us as an institution to insulate ourselves from market risk in a different perspective. If solar gets too cheap too quick, we're locked in at a slightly higher rate. I don't think that's going to happen because the pricing we got is pretty good, but I also like the idea of making a safe bet and then hedging a little bit with our purchases.

Panel: The future of renewable power

We're still agnostic as to what type our next renewable purchase will be. We know that we're going to need to make another one here pretty soon to reach our 2030 goals. There's a lot of interest in doing that locally on our own assets, but there are a lot of challenges with that. Thinking of it in those chunks is really helpful for us and hopefully helpful for other organizations that are thinking about making renewable purchases.

Our governor just announced that Pennsylvania will be joining the Regional Greenhouse Gas Initiative (REGGI), which requires larger carbon-emitting power plants to buy credits that are sold on a market. Nearly every other Mid-Atlantic and New England state is in the initiative at this point. Jay, how you think that might affect either PJM or Pennsylvania?

CARLIS: I don't think that REGGI so far has been a real big driver of change. From New England and New York, they've created a carbon market to get that structure in place. It's a chance to test it out, but, in terms of the carbon price, I think it's been fairly low. Yes, some funds have

been created that can be used to do things like promote clean energy and other kinds of carbon-reduction technologies, but so far REGGI hasn't been a game-changer for New England or New York. If PA joins, that could increase carbon prices and create a bigger impact leading to real material carbon reductions.

Looking at federal policy right now, it's going to be these regional markets that really make a difference. California has its own market. We all know how big California is compared to the rest of the world and the Mid-Atlantic, New York, and New England. There's a lot of economic power there, so I think that's ultimately probably how it'll play out.

AGALLOCO: I think that's one of the reasons I was really surprised to see the governor put Pennsylvania on this road because it's a long way to get there. I think it's still two years away before the state officially joins these markets. But, by doing that now, hopefully, it sets the stage for five or ten years from now where we'll have a very different market mechanism. 🌐



“Looking at federal policy right now, it’s going to be these regional markets that really make a difference.”

—Jay Carlis, executive vice president, origination, Community Energy

Keynote: How to thrive in a changing legislative environment



Thomas P. Szarawarski, Jr.,
vice president,
Edison Energy



John Failla,
founder and
editorial director,
Smart Energy
Decisions

Keynote: How to thrive in a changing legislative environment

FAILLA: Looking at sustainability commitments and renewable energy procurement commitments, what do you see taking place in the city sector? How are you responding to their requirements and requests for your help to achieve their goals?

SZARAWARSKI: Let's examine something that happened in another city that could provide lessons for Philadelphia. Local Law 87 was put into place in New York City for energy auditing and retro-commissioning. From a company or facility perspective, I saw two very distinct outcomes from this. First, I saw buildings and customers look at it as a check-the-box requirement and so they pushed it down in the organization as low as possible. People who ended up having the responsibility of completing those requirements usually don't even have a budget; they were given one here and it was as though they were told, "Just get this done."

Second—and the lesson we should focus on—there were more sophisticated customers who saw an opportunity to leverage the law to build a larger strategy and enrollment. For example, the Memorial Sloan-Kettering Cancer Institute in New York City decided to fulfill the requirements from a retro-commissioning standpoint, optimizing its existing facilities with monitoring-based commissioning. At the root level, monitoring-based commissioning is taking intelligence from analytics and driving continuous improvement. They actually won an award for the program, which was good external recognition for them as well.

FAILLA: Are there any unique challenges or unique approaches that you've seen applied to deal with this issue of aging infrastructure within these city environments?

SZARAWARSKI: With regards to what aging infrastructure requires, there are certainly some nuances to the strategic layout of what to accomplish. For example, the Lincoln Center for the Performing Arts in New York is

globally known for its performing arts. It's really interesting to go to a place where the stage needs to be maintained in heating mode because you have a ballet going on, yet you have people in formal wear just 10 feet away who need air conditioning. The curtain can't move, so pressurization is important. You have these systems that are both intricate and aging—some are 55 or 60 years old. How do you go about doing that? You can't take a prescriptive approach. Staying consistent with what they looked to do with the legislation, if you have energy auditing, which is capital-based, and you have retro-commissioning, which is more operational based, you need to find the right blend when you approach these projects. Also, it's not always best to replace an entire piece of equipment. You need to look at out-of-the-box approaches to find out how you can do something best and still address the requirements.

FAILLA: Philadelphia has passed its building tune-up legislation to further climate goals. Where do you think legislation like that leads the city?

SZARAWARSKI: We should consider the importance of influencing that legislation. We were fortunate enough to help the mayor's team in New York City with crafting that Local Law 87. Now, there is an opportunity here for all of us in Philadelphia to go and help by giving input for this new legislation.

Something I want to touch on is the intent of the legislation, which is to maximize the value of the savings and help to move these processes forward. I can't tell you how many customers have taken the check-the-box approach where they simply look at the bills and say, "Wow, I saved 7.5%." Sometimes it takes people a little while to get it, but, at the end of the day, there are more important reasons to make these changes.

One of the challenges with doing legislation like this is that there are a lot of different vertical markets that need to be included. You need it to be aggressive enough so there is an impact, but you can't make it so

Keynote: How to thrive in a changing legislative environment

cumbersome that you're dissuading people from being able to do it well. That's a fine line and that's where your voices need to be heard and shared with regard to where the bill is going.

FAILLA: Back to what cities are doing, it seems that adding renewables and pursuing clean power is attractive but energy efficiency does not have as high a profile. What are your thoughts on cities trying to create more of a focus on energy efficiency?

SZARAWARSKI: In an ideal world, it's great if we can reduce our energy consumption and then, next, handle energy and thermal needs more efficiently. After that, do what can be done with renewable power.

That's pretty easy and clear, but, unfortunately, there is different timing, barriers to entry and challenges in infrastructure, so that's not necessarily the order in which it goes. A lot of customers have looked at renewables in a panacea-type of approach where they try to address everything at once. There needs to be more due diligence in the market. Even though energy efficiency isn't necessarily the sexy piece right now, I do think that there's been momentum building with regard to how we optimize what we're using right now while we're looking at renewables as well. It's a customized approach in which you integrate all three pieces so the values of each are greater than what they would be standing alone. That's really the goal. 🌐



"You need it to be aggressive enough so there is an impact, but you can't make it so cumbersome that you're dissuading people from being able to do it well. That's a fine line and that's where your voices need to be heard."

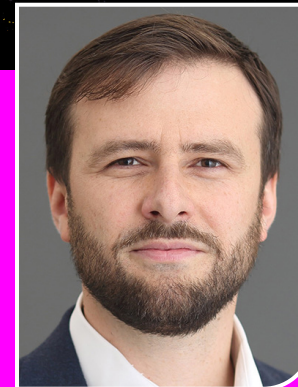
—Thomas P. Szarawarski, Jr., vice president, Edison Energy

Renewable Energy Sourcing Forum

Ponte Vedra Inn & Club
Ponte Vedra Beach, FL
June 15–17, 2020



Keynote: An update from PJM



Andrew Levitt,
senior business
solution architect,
applied innovation,
PJM

Keynote: An update from PJM

I'm a Philadelphia native and, in my opinion, PJM is one of the shining stars to come out of the energy industry in Philadelphia in the last century. We're a 90-some-year-old small, non-profit in the suburbs of Philadelphia with about 700 employees and a \$300-million operating budget. But, we are also the global leader in competitive power markets, running the largest power market for electricity in the United States—about \$40 billion a year in transactions and about 65 million people in the PJM footprint. Our peak load is 165,000 MW and we go from Chicago to North Carolina, and up into New Jersey and Pennsylvania.

Our chief role is to reliably operate the transmission system in that footprint. We are balancing supply and demand by dispatching demand response. Every minute we must have the supply of electricity balanced exactly to the demand for electricity; that's a tricky task. If we do it wrong, it could cause a big blackout.

We also run a commodity market for electricity. There's the electric energy itself and then we have a capacity market and some other ancillary markets. We plan the high-voltage transmission lines that all of this is resting on.

I like to think of PJM as greasing the wheels of power commerce. We are dedicated to making sure that there is a free flow of electricity across the entire PJM region. This is important to folks who are procuring supply from competitive providers because PJM is the platform that makes that work. We provide several functions to help make that happen. The first is transparent value, making sure that the value of a megawatt-hour at a particular spot in the grid is absolutely clear to everybody and is properly calculated so that it's aligned with operational conditions. That helps

suppliers know whether it's a good idea to produce or not, while buyers know how much they could pay at the spot market level versus how much they could buy from a competitor.

Second, we want to see liquid transactions and completely free movement of power. If you're in the North Carolina part of PJM and you want to buy from a supplier in the Indiana part of PJM, you can do that seamlessly. You don't have to know anything about the transmission lines in between; it's one big power pool. There are certainly financial implications, but the physical implications are pretty much invisible to the market participants, and that's the way we like it.

Third, new suppliers, which for the most part are power plants, need to physically connect to the transmission system. If you're connecting a 100-MW power plant, you need to go find some power lines and physically connect them. You're going to be negotiating with the utility, which may be your competitor, so it's nice to have an independent agency that stands in between those two parties and makes sure it's done fairly, quickly, efficiently, and in a way that transparently recognizes the costs. We have hundreds of new suppliers coming into our interconnection queue in each six-month window. We're really moving quite a lot of volume.

PJM likes to say that we work behind the scenes to coordinate the flow of power, but, lately, we've been working in the headlines. There's quite a lot of PJM activity going on that is making the news. One example is resource adequacy, which is the framework that utilities use to make sure there's enough supply to meet demand in pretty much every hour of the year. The mechanism we use for that is called the capacity market. We look forward three years and think we're going to need X megawatts of supply during the tightest conditions. Then, we procure that in an open auction,

Keynote: An update from PJM

which has been designed so that everybody can compete fairly and participants are getting a capacity price that reflects the value of actually being there in three years.

The capacity market tops up the revenues required for generators to stick around, as well as revenues for new power plants that have not yet been built and need some extra revenue outside the energy market to make their business case. In that sense, the capacity market is basically mediating the entry of new power plants and the exit of old power plants. It is the final extra revenue that dictates whether your financial case is going to work, either for an old power plant that's considering retiring or a new power plant that's considering building.

Lately, there's been a lot of activity, especially at the state level, basically mandating that certain power plants don't retire. It's a barrier to exit and is within the state's purview. However, a power plant that is definitely not going to retire will actually influence the market clearing price. This is especially true if you have a significant chunk of supply that would

normally not clear and actually drives the price down. This affects all those market participants looking to build or stick around by virtue of the revenue they're getting in the capacity market. This also creates tension between competition and customer choice on one side, and mandates in central planning on the other.

The elephant in the room is climate change policy, which has been heading in the direction of central planning with mandates for quite some time. That builds tension with the competing priority of competitive choice and competition in these deregulated markets.

You've got solar and natural gas in the money in the competitive markets, and then state policies that are potentially driving down that price. We think we should have an adjuster so that the capacity price goes back up to what it would have been. On the other hand, you've got some solar developers benefiting from those clearing prices, hence, tension in the industry. 🌐



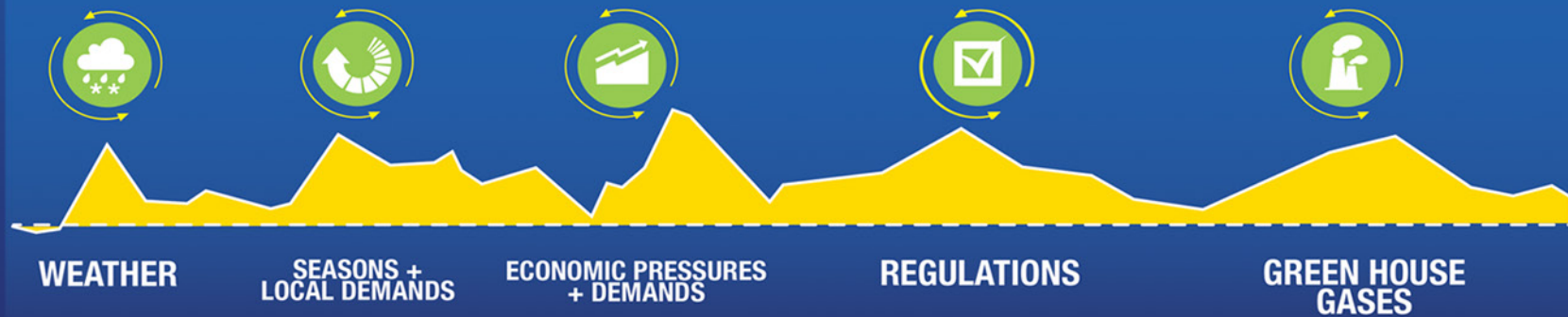
“The elephant in the room is climate change policy, which has been heading in the direction of central planning with mandates for quite some time. That builds tension with the competing priority of competitive choice and competition in these deregulated markets.”

—Andrew Levitt, senior business solution architect, applied innovation, PJM

Executive interview: Strategies to simplify energy management



VARIABLES



Clint Zediak,
vice president of
sales and marketing,
WGL Energy



Samir Das,
director of
marketing and
analytics at
WGL Energy



John Failla,
founder and
editorial director,
Smart Energy
Decisions

Executive interview: Strategies to simplify energy management

FAILLA: Given your experience working with customers, what do you see as the main challenges they are dealing with around their energy management plans and strategies?

ZEDIAK: I think the hardest part is that people just don't know where to start. It's a very fragmented industry. If you think just about the commodity itself you have energy suppliers, advisors, and brokers. One of the things that we want to do is provide a simple model to enable buyers to begin the process.

DAS: Customers might not have a sophisticated energy management team, so they're not familiar with some of the energy products that are available. How do you choose between a fixed-price product versus a variable or block-and-index option? What does that all mean? That's why we have so many players in the market—consultants, suppliers, energy service providers—and energy buyers have to deal with all of them. They're always knocking on your door.

FAILLA: What do you see customers wrestling with related to products or technology options?

ZEDIAK: People want to reduce their carbon footprint by investing in renewable energy but there's still a vast swath of energy buyers that don't have a strategy. They see it as a line item on their budget and so they simply back into the lowest cost. Frankly, they're not moving their business forward. We like to say that you can turn your energy spend into an asset.

DAS: We're at a great point in the energy industry with an influx of new technologies, data analytics, and all this wealth of smart meters that

provide information from our energy use. We can unlock potential value in your energy spend by looking at the data and figuring out how you use energy and how you can save on cost-capacity charges. There are many, many solution providers with top-of-the-line technologies that can help you with everyday energy management and use reduction. It can get a little overwhelming at times—even for me when I go to trade shows and look at all the technology available for slicing and dicing your billing, energy use, and building envelope—but, it's exciting.

FAILLA: How do you see customers currently dealing with these challenges?

ZEDIAK: There are three areas of questions that we think all energy buyers need to answer. First, what are your energy usage requirements? Can you live with an outage? When Superstorm Sandy hit the East Coast a lot of businesses and homeowners lost power for the first time—not for one or two hours but for weeks. Can your business sustain that or not?

Second, what are your sustainability goals? Do you have them? Are you looking to reduce your carbon footprint? Do you want behind-the-meter renewable generation? What could you do with that sustainability goal? Quite often, these renewable energy products do cost a little more money but companies can use that to differentiate themselves in the market and make more revenue. It can also help attract new employees that have similar interests.

Third, what kind of budget uncertainty can your company withstand? Obviously, no one likes uncertainty, but it's a part of life. If you are more risk-averse, you may not only want to control your energy price but also your energy volume. That's where a lot of these behind-the-meter generation technologies and energy-efficiency projects come into play.

Executive interview: Strategies to simplify energy management

Some customers, like the City of Philadelphia, are looking at what greenhouse gas emissions will be like in five or ten years. That's one end of the spectrum. Maybe you're a small business owner who doesn't care if your power goes out for a day; you're just looking for a cheap price and you buy a fixed-price energy contract year after year. Then there's basically everything in between.

DAS: Looking at what is important to you and your organization will definitely inform your energy strategy. Traditionally, it has been energy managers that just want the lowest cost of energy but, more and more, the sustainability arms of universities, hospitals, and large organizations are entering that conversation with sustainability goals that go all the way up to the C-suite.

With these climate-related events, there's a lot of talk about resiliency and what happens if the grid goes down. These once-in-a-lifetime natural disaster events now seem like they're happening every five years. And we

haven't even talked about regulations and regulatory risks and when we see a price on carbon coming. It's a question of when, in my mind, not if. What do you do if that happens? If we break it down in terms of a time horizon, it might make it a little simpler. Think about what you can do today or next year and what you have to think about in the next three to five years and even longer-term.

ZEDIK: It's a very fragmented, complex industry. There isn't a perfect model out there yet that we've seen. But, as you look out over time from tomorrow's weather to whatever the next administration is going to do and apply it against usage, sustainability, and budgetary needs, that will at least give you a framework to start coming up with questions. You can then take those through your own internal approval processes and develop a strategy that will enable you to call your favorite energy advisers, broker, and supplier, and set out on a path to come up with a really good energy strategy. 🌐



“There are three questions that we think all energy buyers need to answer: What are your energy usage requirements? What are your sustainability goals? What kind of budget certainty can your company withstand?”

—Clint Zediak, vice president of sales and marketing, WGL Energy

Snapshots from 2019 Accelerate Philly



2020 Renewable Energy Sourcing Forums



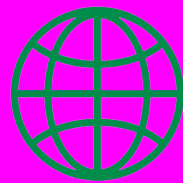
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