Power Choice

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Greg Dalton: Welcome to Climate One at the Commonwealth Club, a conversation about America's energy, economy, and environment. To understand any of them, you have to understand them all. I'm Greg Dalton.

Californians have had many choices as consumers, but they don't have a choice of where they buy their electricity. Electric monopolies owned by investors or in some cases local government deliver the juice to our homes and offices. Most people don't think about it except when they get their bill or when the power goes out. Climate disruption is changing that. Concern about carbon pollution is causing people to pay a lot more attention to what powers their smart phones and flat screen TVs.

One aspect of that awareness is a move to open up retail electricity markets to give competition and give consumers options for the first time. Marin County has the state's first power choice program up and running. It costs more than PG&E. Supporters say it's cleaner; detractors question that claim. San Francisco is close to going down that road and Sonoma, Monterey, and Santa Cruz counties are also sniffing around the idea. Over the next hour, we'll discuss the promise and the reality of clean and/or local power with our live audience here at the Commonwealth Club in San Francisco.

We're pleased to have with us four people who are deeply involved in this area of the energy sector that is formally called Community Choice Aggregation. Kim Malcolm is Director of CleanPowerSF, San Francisco's effort to offer an alternative to PG&E. Shawn Marshall is a member of the Mill Valley Council and Executive Director of the Local Energy Aggregation Network, and advocacy group. Marcie Milner is Senior Regulatory Manager at Shell Energy North America, which is providing power to Marin and negotiating a deal with San Francisco. And Hunter Stern is Business Manager with the Brotherhood of Electrical Workers, a main union in the electric industry. Please welcome them to Climate One.

[Applause]

Greg Dalton: Thank you all for coming. Shawn, let's begin with you. And can you please give us the context of local power moving away, providing some competition, some choice for electric utilities monopolies around the country, and then we'll get into California and the Bay Area.

Shawn Marshall: Great. So Community Choice Aggregation, or CCA as it is commonly called in California, is one opportunity for local jurisdictions to take over their electricity supply on the generation side while continuing to partner with the incumbent utility. In this area, that happens to be Pacific Gas and Electric. Down south, that's Southern Cal Edison and also San Diego Gas and Electric.

So we are seeing a tremendous increase in the adoption of Community Choice Aggregation across the country with now thousands of communities aggregated under various supply contracts and also moving toward a greener supply through CCA across the country.

Greg Dalton: And are these small towns or they're big cities? Who's doing this?

Shawn Marshall: It's everything. That's what's so exciting, I think, about the opportunity of Community Choice Aggregation. You see towns as small as 3000 to 5000 in Massachusetts aggregating and cities as large as the city of Chicago that recently signed an aggregation contract in February of this year. And that's a no-coal contract, so we see everything from the smallest town to the largest U.S. cities.

Greg Dalton: Kim Malcolm, why does San Francisco want to do this? And why are you supporting it?

Kim Malcolm: Well, the city and county of San Francisco has always had strong environmental policies. Its board of supervisors voted to create the CCA in order to provide residence and businesses of the option to have 100 percent renewable power product and to have a product that would be free of greenhouse gases.

In the case of the city and county of San Francisco, there's also a policy to build out local resources specifically solar, wind, and energy efficiency products for residents and businesses.

Greg Dalton: So this really is the government getting in the energy business. Is that fair to say?

Kim Malcolm: Yes. In the case of San Francisco, the government is already in the energy business. It produces about between 200 and 300 megawatts of power from its Hetch Hetchy Hydroelectric project in Yosemite.

Greg Dalton: And that power is MUNI, a lot of the city and wants to go, go further?

Kim Malcolm: Yes. Most of power is to provide energy to the municipal properties in the city.

Greg Dalton: Hunter Stern, are you pro-choice?

Hunter Stern: Absolutely.

[Laughter]

Hunter Stern: Absolutely.

Greg Dalton: So from your —

Hunter Stern: Oh, wait a minute. You're talking about energy?

Greg Dalton: Yes.

Hunter Stern: Yes. We're pro-choice to that, too.

Greg Dalton: In terms of the job aspect of this, union members — is this a threat to jobs? Is this more jobs? How does that take up?

Hunter Stern: I think the short answer is we'll see, but the way that the Marin example has gone forward, it is not — the opportunities for jobs and the opportunity for local build out and the things that create those jobs locally and throughout the state hasn’t occurred. And we're concerned with those aspects, but we're also — we've adopted here in San Francisco, a resolution from the labor council supporting CCA and supporting CleanPowerSF but not supporting the current contract

structure.

Greg Dalton: And not supporting Shell in particular. Right?

Hunter Stern: Correct.

Greg Dalton: And why are you opposed to Shell being involved in the energy business in San Francisco or anywhere in California?

Hunter Stern: Well, part of it has to do with the contract itself. There's language in the contract that says that no new local facilities need to be built. And that obviously is a job threatening kind of language. It doesn't mean — I guess it can't be, but that's been the result in Marin at least to date, which is three plus years. And I think we also have a strong support and direction toward California based generation and local based generation. And Shell is a purchaser of electricity from a variety of sources in and out of state.

Greg Dalton: So what it sounds like so far is the union and the city of San Francisco want to generate electricity locally in San Francisco and perhaps other places.

Marcie Milner, let's get you in on this. How does Shell come into this? I think of Shell largely as oil and gas company, and a lot of people don't know why that Shell's in the electricity business.

Marcie Milner: Well, Shell Energy North America actually markets natural gas power and environmental products. And so really this is another customer for us to serve. We're very pro-choice. We like the ability for customers to be able to choose. We're an energy service provider in the state. And as Hunter mentioned, our contract may say that it doesn't have provisions for local, but what the contract actually does is it creates a bridge to renewable energy independence for the CCA down the road. So it helps them get on their feet in the interim and then it's up to the CCA to build those resources.

But, for example, in Marin we serve Marin Energy Authority, but we're one of more than 12 providers that actually supplies them energy. So it's competition, I think, is the good thing that brings prices down for everyone.

Greg Dalton: Okay. So Marin is the first in the state to kind of go down this path. Let's talk a little bit about that as you clarify that we invited people from Marin multiple times to participate in this panel, and they declined. So we'll — but some people up here are involved.

Shawn Marshall, tell us what's happening in Marin. Is it going well? Are people paying a lot more? How many people have opted out or stayed with the Marin Clean Energy Program.

Shawn Marshall: So what — first, as a disclaimer just so everyone is aware, I was a founding board member of the Marin Energy Authority. I'm no longer serving on that board, left that board to do the work nationally related to Community Choice Aggregation. However, I remained — I track what's happening in Marin, and what I can say for sure — and I also want to introduce Justin Kudo, who's here from the MEA who can answer questions later.

What I can say is that now, with the addition of the city of Richmond, Marin is serving a customer base of about a hundred thousand customers. Some of the — most of the residential customer base is actually right now less expensive than PG&E's power. And I think — I believe that much of the commercial is also under the price of PG&E's power. So the statement that MEA is cost more is

generally an untrue statement. That can be true depending on the time of the year, because PG&E moves its rates up and down several times a year; Marin Energy Authority sets its rates annually. But for now, Marin Energy Authority is less expensive than PG&E's offerings. I believe they also continue to be at least double the renewable content of what is offered by PG&E.

Greg Dalton: Because I've heard people in Marin opting out, because they think it costs more. I mean — Hunter, do you know about the price in Marin?

Hunter Stern: I think that Marin has to answer that, honestly, the people who are putting that in the bill. I don't — we don't know for sure. I think that people have expressed that concern in the past, and I think there have been times when Marin has been higher priced, but they do change their rates as PG&E changes rates.

Greg Dalton: Marcie Milner is — from Shell's perspective is the Marin — really it's a pilot. Is that a success? How is it working from your perspective?

Marcie Milner: Yes. It's a success, and really, I think, the key point here, Greg, is that it provides the customers choice. And so for Marin, for example, the customers can choose whether or not they want to light green product or a dark green product, and then they pay according to that. And then Marin goes out and procures that energy just like PG&E does. I mean PG&E also procures energy on a wholesale basis.

Greg Dalton: So if you want to be really green, you're going to pay more. When you want to be kind of green, then you pay a little less. Is that the way it works?

Marcie Milner: Correct. Uh-hm.

Greg Dalton: Okay. Shawn?

Shawn Marshall: Actually, I would say everyone in the Marine Energy Authority customer base is twice as green as what they can get from the incumbent utility as a baseline light green product. And then if you want to pay a little more — I pay $5 a month more at my home to enroll in a deep green 100 renewable product. So that's where the differential comes in in Marin.

Greg Dalton: And Hunter Stern, there's biomass — is one of the possibilities that's burning things — there's many different types of things. In some parts of the country it's called — probably not in Marin — is it? Let's get your response on that.

Hunter Stern: Well, I think the answer of how green is really the source of the electricity, so biomass, as a source, is highly polluting and pollutes—

Greg Dalton: It depends on what you're burning. Right?

Hunter Stern: It depends on what you're burning, but it can be up to higher greenhouse gas emissions than coal, depending on what you're burning. So I think the difficulty that Marin has to date is that they haven’t done a review or a study of exactly how green their energy is. So I don’t think anybody really knows how green and there's an assumption in this discussion, at least at the moment, which is if you have renewable energy, it's therefore clean energy or greenhouse gas emissions free. And that is not an accurate assumption. That's not the way — there is emissions — certain — wind and solar— absolutely a hundred percent greenhouse gas emissions free. Other sources, biomass, there's other gases — they come from landfills, high in emissions.

Greg Dalton: Shawn Marshall, do you how many people have opted out or stayed with the clean energy program in Marin versus gone back to PG&E?

Shawn Marshall: I don't have the current numbers, but I'm estimating that it's been about a 20 percent opt out rate, maybe slightly less.
I'm not sure what the current enrolment is in Richmond.

Greg Dalton: And the way the law is written is that people are automatically steered into this new clean community energy, and they have to then actually actively go back to the monopoly. Is that right?

Shawn Marshall: Correct. And that is common — the opt out provision is common across the country with all statutes across the country for CCA.

Greg Dalton: Kim Malcolm, you're sitting here in San Francisco watching this experiment up in Marin. What did you learn? What is San Francisco going to do differently or the same looking at Marin kind have broken the ice on this?

Kim Malcolm: San Francisco's plan's a little bit different from Marin's because our board of supervisors has directed us to provide a hundred percent renewable product. That's number one. Our product —

Greg Dalton: And San Francisco's going to be cleaner the Marin. Okay. We got that. Okay.

Kim Malcolm: Right. Our product, for that reason — partly for that reason, our product is more expensive than Marin's up to about 30 percent is our estimate right now. It's hard to tell until we get going. And our product, it is also a little bit more expensive, because we're trying to layer in some reserves, so that we have funds to build solar and wind projects locally as well as undertake some major energy efficiency projects.

Greg Dalton: And where does the process stand now in San Francisco? If people had been around a long time, this has been talked about for many, many years in San Francisco then on again, off again, up, down.

Kim Malcolm: Yes.

Greg Dalton: So where does the saga stand to —

Kim Malcolm: It's a twinkle in the eye of the board of supervisors. In 2004, when the California Public Utilities Commission was developing its rules, since then there's been a lot of planning going on, and it's a political process. Right now, I've been before the San Francisco Public Utilities Commission with a couple of options for rate levels and resource mixes options. And I'm going back on July 9th.

Greg Dalton: Okay. So it's inching forward. Is this a done deal or no?

Kim Malcolm: It's a done deal as far as the board of supervisors goes, yes. They adopted this program. They approved an outline of a contract with Shell Energy North America. And as far as I know, it's a done deal.

Greg Dalton: We invited David Campos, a supervisor, who's one of the champions of this to participate in this program. He declined. Some people infer that some of the supervisors might be getting cold feet and less enthusiastic than they were when they voted for this seven or eight months ago. Anything to say about that?

Kim Malcolm: I don't know personally about the changing views of the elected officials. What we're trying to do as staff is to provide them with answer to their questions about rates, resource mix, build up, plans, and —

Greg Dalton: When you say, "build out" that means — what does that mean?

Kim Malcolm: Build out means we take funds that we get from the program, or we might get funds from bonding and build local resources that would provide energy to the CCA that would be sold to local residents and businesses.

Greg Dalton: And what's this going to cost people who want to be clean and green in San Francisco? How much more are they going to pay?

Kim Malcolm: Right now, PG&E's basic energy rate is about eight cents. We're expecting that our program would cost about 11 cents, a little more.

Greg Dalton: Okay. So 40 percent more or something like that. And there was a survey in February of 2013 where about — found that about half — 47 percent of the people would be willing to do that. Is that still the goal?

Kim Malcolm: Yeah. About half, and we're going to target neighborhoods where we found the most openness to the green product and paying a little extra. For tier 1 customers, who are the smaller users, the bill impact would be about $6.50.

Greg Dalton: Marcie Milner, you — Shell is negotiating with the city. I'd like to get your take on where the process stands and where you think it'll go.

Marcie Milner: Well, as Kim said, I think the supervisors have already approved it. And keep in mind when she indicated that the price might be a little bit higher, it is a hundred percent renewable energy as opposed to PG&E, who is currently in a buying state mandated 20 percent renewable energy mix.

Greg Dalton: Okay.

Marcie Milner: That's a big difference.

Greg Dalton: And so what's the timeframe for when this might actually be up and running in San Francisco?

Kim Malcolm: From the date we get approval for rates from the commission, the San Francisco Public Utilities Commission, we need six to eight months to launch, because we have to do a lot of customer notification. We have to give customers three chances to opt out, and they can do that in a variety of ways. And we have a public education campaign that we're going to conduct as well that the Mayor has asked us to conduct.

Greg Dalton: Hunter Stern, your union has a lot of workers, what, ten thousand workers or so at

PG&E. PG&E spent $50 million on a statewide initiative trying to kill this kind of thing. That failed quite noticeably.

Hunter Stern: Right.

Greg Dalton: What's their position on these kinds of things? They're really quite small.

Hunter Stern: Well, yeah. Where again like I don't want to speak for Marin Energy, I don’t want to speak for PG&E. Our view is that PG&E has overreacted to these kinds of developments or ideas, the idea of a CCA and that proposition was the biggest example of overreaction. We advised them not to do it. But at the same time, I think that one issue that is important for people to understand is that the CCA law gives the decision making to local elected officials. Very few of them actually have any experience in the energy industry, and so it becomes incumbent on a very complicated process being taught to them through consultants that are hired by counties and cities, some of whom who are in the business of doing that work. So it's a tough decision and one that I don’t think very many of the electeds fully understand.

Greg Dalton: Hunter Stern is Business Manager with the Brotherhood of Electrical —

Hunter Stern: I have to correct you, because my boss will fire me if you call me a business manager again.

Greg Dalton: Okay.

Hunter Stern: I'm a business representative.

[Laughter]

Greg Dalton: Business representative. Okay.

Hunter Stern: And my boss is the Business Manager

Greg Dalton: Just trying to give you a little promotion here.

Hunter Stern: Yeah. Well, it might backfire. Thank you.

Greg Dalton: We won't like that to happen.

[Laughter]

Greg Dalton: Hunter Stern is a Business Cons —

Hunter Stern: Representative.

Greg Dalton: — Representative with the Brotherhood of Electrical Workers. We are talking about local and clean energy at Climate One. Our other guests today are Marcie Milner, Senior Regulatory Manager with Shell Energy North America; Shawn Marshall, Executive Director of the Local Energy Aggregation Network; and Kim Malcolm, Director of CleanPowerSF. Hunter Stern was just talking about some of the elected officials not being in the energy business. This is very complicated. It's not what they do. A person who works in San Francisco City Government said to me about this project, "Do you really want the people who run Muni to run your electricity?" And the slam on Muni, but I

mean, really think about it. This is — what's the government doing getting in the energy business?

Kim Malcolm: No. You want the people who've been running Hetch Hetchy for the last hundred years doing this work. The people of San Francisco have been served by city government in the form of the San Francisco Public Utilities Commission for a hundred years with power not to residents and businesses, but to municipal properties and also to some large business customers like the port and the San Francisco airport.

Greg Dalton: But the idea that the elected officials — are the taxpayers going to have any financial liability for this? If the city's going to get in the energy business, is there going to be some kind of 'whoops' where like, "Oh, we built this, and that was a white elephant"?

Kim Malcolm: No. The program has been designed according to the board of supervisors so that it's a stand-alone. It has — it will have its own books of account. It's been given some upfront funding just to get it going, but otherwise — and in fact, those funds come from the Hetch Hetchy project revenues, not from taxpayers. So —

Greg Dalton: Why is — where is the opposition coming from? Why is this taking so long?

Kim Malcolm: Well, there's been historic opposition from PG&E over at the State Public Utilities Commission, and I suspect behind the scenes there is some opposition right now from —

Greg Dalton: We should clarify. We invited PG&E to be part of this program as well, and PG&E declined also.

Kim Malcolm: Mr. Stern's organization has been keeping us on our toes in terms of its concerns about the Shell contract. I think —

Greg Dalton: Do people — are people concerned about Shell? It's a big bad oil company. Like buying clean energy from Shell seems like not quite the right thing, is that?

Kim Malcolm: Well, many have that opinion. The Shell contract is designed to be a transitional product. We're actually looking right now at ways we can do a lot of these purchases and scheduling of power in-house with the Shell contract so that we can build out the program a little bit more quickly than we'd originally planned. I mean the idea is to get ourselves off of a Shell contract and more independent.

Greg Dalton: Marcie Milner, you're from Shell.

Marcie Milner: Yeah, let me.

Greg Dalton: I think you can respond to that.

Marcie Milner: I would like to actually. Because, really, we were one of many competitors that went in to this RFP process and successfully won the bid to serve the city. And I would just ask that if you've also focused on all of the good things that we do, we have taken a lot of efforts on global warming. We were one of the only energy companies in California to support the Climate Change Legislation. And we've been very active in renewable procurement on behalf of the states. So there's a lot of really good things that we're doing here.

Greg Dalton: And they know how to do big projects like this whereas the city of San Francisco.

Well, needless to say some people say they don't. Okay.

Kim Malcolm: I would also add that Shell's been good about helping us find the resources that meet some of the concerns that we've heard in state resources, unionized resources. We're still in discussions with them about that.

Greg Dalton: You're still negotiating a price with Shell.

Kim Malcolm: A price and a product.

Greg Dalton: And if that negotiation doesn't happen then does this thing fall through, or do you get someone else? Where does it go?

Marcie Milner: I'm really confident that it's going to go forward.

[Laughter]

Kim Malcolm: Yeah.

Marcie Milner: Because as Kim mentioned we've been very — we've worked very well together in trying to be responsive to whatever it is that they need.

Greg Dalton: Shawn Marshall, did the people in Marin have any issue with Shell being a provider? I guess there's lots of other providers of clean energy.

Shawn Marshall: Not anymore. Not anymore. Of course, unfortunately, Shell gets trapped with the historical logo that represents gas and oil. And you all are very well familiar with that, but I have to say, when we went through this, there was some PR pushback primarily. But I would say that in Marin's case, the partnership has worked out quite well with Shell. I do think it's really important to reiterate what Marcie had to say which is in Marin's case; Shell has a five-year contract to get us started. And then Marin has since entered into 14 more power purchase agreements for brand new renewable resources in state, in the state of California. So I think that's important to really understand that it's a mixed procurement approach, and we espouse that for all CCAs in the state and across the country.

Greg Dalton: So let's talk about that, because this could be clean energy, but it could be from another state, from somewhere else. This is not — it's not necessarily going to be local. Is that right?

Marcie Milner: Well, I think —

Greg Dalton: Marcie Milner?

Marcie Milner: I mean that — again, that's dictated by state policy. What current statute allows is for load serving entities and obligated entities to procure energy from in-state and out-of-state resources. And the statute actually tapers out-of-state resources over time with more emphasis on in state.

Greg Dalton: Hunter Stern, I imagine you want it to be in state?

Hunter Stern: Well, yeah. In fact, that's been the gist or the push that IBEW and other unions and environmentalists have made for years here in California. There's a policy that the state has

pursued. We want more in-state renewables. We want our members doing that work. I don't think anybody's disagreeing with that. I think it's how we get to 2020 and beyond when the state is going to rely on much more energy produced here in California. But I — and Shawn mentioned a couple of things about Marin. They have — and since Shawn's left the board, but they have extended their agreement with Shell on three different occasions, so it's now going to run into 2017. And I think that's — those are — it's not — in Marin, they're not producing those local jobs and those local projects. And that's fundamentally our interest. They had one project, I think, thus far.

Greg Dalton: But how — locals sometimes can cost more. And there are some people —

Hunter Stern: Right.

Greg Dalton: — who'd say, for example, "If we can build solar in the Nevada Desert, and it can be cheaper, why should California be parochial and concerned and mandate that it happens in-state? We're really concerned about something like global warming. It's a global issue, and the atmosphere doesn't know whether those energies made it in Nevada or in California."

Hunter Stern: Well, yeah. Yeah. Excuse me. Just to — and to answer the concern in us a very — that's a very important aspect. And in fact, if you look at state law and a resource board carb work, everything that goes up in the air is considered the same. So we're looking to reduce greenhouse gas emissions from all sources. The advantage of electricity happens of generating it locally and even on a larger scale within the state has to do with the characteristics of electricity. So electricity moves, and it's more efficient for us to use it closer to where it's generated. So pushing it down lines from Nevada, and Idaho, and Washington is essentially a waste. You lose: through drag, you lose electricity. That's the goal.

Greg Dalton: So where are the electric utilities in all these? Where there's going to be more choice, more competition, and their customers are becoming their competitors, and suppliers putting rooftop solar, and Wal-Mart putting rooftop on their roofs. Where are the electric utilities? What's their role in this emerging model? Marcie Milner?

Marcie Milner: I guess my view is that the utilities' primary business model is to make money on their assets, which is the transmission and distribution system. And so they get a guaranteed rate of return on the power lines. And that's really what their business model is. So any kind of power procurement they should be indifferent to, because with the CCA model, for example, it's just another wholesale power transaction. It's someone else buying the power.

Greg Dalton: If that's true, why have they fought this so hard? Kim Malcolm?

Kim Malcolm: Well, first, just to put this in perspective, Phase 1 of the San Francisco program would provide about 30 megawatts to local residents and businesses. PG&E provides, at peak every year, 20,000 megawatts of power, not with all of with its own facilities but it either purchases power on the market or produces that power for its customers. So —

Greg Dalton: This is the drop in the bucket.

Kim Malcolm: Right now, it is. And I think Marin's serving about 140 megawatts of load. So between this, it would be under 200 of 20,000 megawatts. I would say, based on my work with the state PUC, I'd say the utilities are very protective of their monopolies and their market share, and I think they're representing the shareholders that way.

Greg Dalton: Which is their job. Yes, Shawn Marshall?

Shawn Marshall: And I would say that it's very worth noting that in every other place in the United States where CCA exists, you don't have the utility opposition at all to this model. And it is for the reason that Marcie stated in that they've already restructured, so the utilities are doing what the utilities, in my view, should be doing which is upgrading the system, focusing on the grid, transmission and distribution, and leaving the generation side of the business to the open market. The results of that across the country, traditionally, have meant significantly lower rates for customers. So Community Choice Aggregation can take advantage of that group buying power. And then our job or that's where LEAN comes from, is really teaching then how do you layer on, how do you layer in the green and local distributed generation component to all of these. So we see competition as a good thing, and we think that utilities, hopefully over time, will begin to separate their functions such that you've got the generation that's an open market function, and that utilities really focus on the nuts and bolts in underlying pole and wire infrastructure.

Greg Dalton: So there's people who kind of make the electricity and other people who move it around and distribute it —

Shawn Marshall: Deliver it.

Greg Dalton: — deliver it. Shawn Marshall is a member of the Mill Valley Council. Tell us what's happening in Sonoma, Santa Cruz, Monterey, and other areas in the Bay Area that are looking at this.

Shawn Marshall: There are a number of other communities up and down the state that are in various places in terms of their investigation of CCA. Excuse me. Let's see, Santa Cruz, Monterey, and possibly San Benito are coming together to look at forming a more regional approach to their CCA that's led right now by the city and county of Santa Cruz. They are in the midst of raising money to get their first technical study done which really looks at, not only how can we integrate local renewables, but can we be cost competitive, because no matter what, it's mostly important from an elected's point of view and also from a constituent's point of view to not pay a whole lot more even if it's green power. So price competition really matters. They're looking at it up in the Arcada/Humboldt area, the city of San Diego. And the city and county of San Diego is moving ahead. They've got, I think, some really promising discussions underway with the IBEW and a solar developer down there who is looking to integrate, not only the CCA component, but solar build out on their municipal and school buildings while using union labor. So what we see is every time a CCA is coming on line, they seem to be improving and learning from one another and continuing to set standards, I think, that are replicable across the country.

Greg Dalton: Hunter Stern?

Hunter Stern: Well, I think, all good ideas and especially the work in San Diego, Shawn rightly points out, that the discussions in San Diego with the Mayor's office and the IBEW local there — really promising. The concerns that we've had, fundamentally speaking, IBEW doesn't see electricity as a product. It's an essential service that people need. We just — the way we live our lives today, we have to have electricity. And there is great concern and probably well founded for large utilities providing those services. On the other hand, there's also a great deal of oversight. There's workers who are trained to do that work. And whether it's generation or the delivery but all of those aspects are important. Price issues, their way that Marin and other areas are — or in this case, Marin — is making the prices, they're relying heavily on renewable energy certificates of RECs. And those are — they — it's not electricity as much as they are financial instrument; there are benefits or attributes

that are considered environmental and positive, but they don't put people to work. So we, both the IBEW and unions in general in the states as well as environmentalists, and that's why we have the policy we have here in California, where we're real work, steel in the ground projects here in-state and locally and trying to limit the amount of RECs that are used. So if you're comparing CCAs from other states, it's probably not a good comparison especially in view of the fact that the state of California has a 33 percent RPS renewable portfolio standard requirement, which other states don't have for the most part. And CCAs may or may not be a good result — long-term maybe, but short-term we're not seeing it, at least in the jobsite.

Greg Dalton: So is that a big factor here? How big a factor is California has this 33 percent goal, which is quite an ambitious goal.

Hunter Stern: It's a mandate. Everybody has to do it. So I mean that's what's driving a lot of this innovation and production of renewable energy. And I think everybody in California agrees. Again, as I said earlier in the discussion, it's how do we get there. And there is this balance of cost, because, regrettably, right now, renewables cost more to produce and especially renewables when we're going to have to build new generation facilities, so that's additional cost. So how do you balance that out? And the programs utilizing high amount of RECs in the San Francisco —

Greg Dalton: RECs, again, these are basically financial derivatives, sort of, fudgible electrons.

Hunter Stern: Yeah. Well they're —

Marcie Milner: They're certificates.

Hunter Stern: It's — they're certificates. They're created when renewable energy is generated. The problem is they're history. Some of them come right out. You can buy them bundled with the electricity that's produced that gave rise to the REC, and those are probably the best, because it's evidence that something, a positive environmental attribute was created. There are other RECs that are floating around that were created when renewables were generated five years ago, seven years ago.

Greg Dalton: Marcie Milner, you're in the trading business. Let's get you out on the price of renewables and also anything [crosstalk]

Marcie Milner: Well, yes. I just wanted to add that, again, state law dictates how much has to come from bundled generation versus a REC only product. Over time, that decreases, I think, to about 15 percent or 10 percent by the end of 2020. Currently, at the maximum amount of REC-only that you can use for the renewable portfolio standard is 25 percent through the end of this year. And then that amount decreases. So I think really the intent of the policy is to make sure that there is renewable energy generated that's either brought in to the state or generated in the state.

Hunter Stern: Right. And Marcie's absolutely right. I think that the concern that we have is again RECs don't necessarily produce jobs. And in a state where there's a mandate to get to a certain amount of renewable energy, those projects are going to be built anyways. But the other side is — and San Francisco's current policy is going to rely heavily on RECs, which for years and years and years, the city wasn't doing. They were actually — had a different path and a different — something that was probably we could support more readily.

Greg Dalton: Hunter Stern is business —

Hunter Stern: Representative.

Greg Dalton: — representative —

Hunter Stern: Thank you.

Greg Dalton: — with the IBEW. Kim Malcolm, you want to get on this in terms of whether this is real energy or not really clean energy?

Kim Malcolm: Yeah. First, I'd like to clarify that the San Francisco Board of Supervisors approved of a CCA with the explicit commitment to the local community and the build out of local resources and the jobs that come with the construction of solar projects and energy efficiency improvements. Mr. Stern's correct that RECs — you can argue that RECs aren't as green in some ways as some other products. First of all, the city hasn't made a commitment to any level of RECs, high or low. We're trying to give our commission a number of options. But second of all, all of the energy products that are being bought and sold on the market right now are part of financial markets and contracts, and it's a rather nuanced distinction for most of us. The state of California and the federal EPA have approved of RECs as renewable energy products, and that's why we can call them — to the extent the city does buy them — our product that we will be selling to local residents will be a hundred percent green.

Hunter Stern: Although, just — Kim is —

Greg Dalton: Hunter Stern. We're going to get off RECs because my head starts hurting.

[Laughter]

Hunter Stern: No. That's fine. I was just going to say that Kim is relatively new, so with regard to local build out and jobs, as late as March 25th of this year, the SFPUC acknowledged through discussions with the commission and the staff acknowledged, there was no plan for local build out. And so they're presenting those kinds of plans currently. But as of March 25th, there was no plan and that's why we have concerns about the program today.

Greg Dalton: This is a bit of a tangent, but I want to ask about San Onofre. Big part of the state's electricity program is going to go offline. Is that going to — that's big news in the state electricity? It may not directly relate to community state, but Hunter Stern, that's a big jobs issue.

Hunter Stern: Right.

Greg Dalton: And it also raises the question about where that supply is going to come from.

Hunter Stern: Right. Well, two, I think there's two aspects. It is absolutely a big jobs issue. There are IBEW members from a different local and also members of the Utility Workers of America who work at that plant, and they will all lose their job. And I don't know, off the top of my head, how many jobs there are, but there are — some will stay longer to help decommission the plant and maintain that site. But they're going to lose their work.

Greg Dalton: Order of magnitude, it's about a thousand people who work there.

Hunter Stern: Yeah. Well, there's over 900 union represented workers there. I just don't know how many go which to which. In terms of supply, the state — and this is again the state ISO (Independent

System Operator) would be the best source of the answer to this question. They had a temporary plan to provide power last summer and last year to the state, Southern California. They made it through pretty well without much trouble. I think they think that they're going to be able to do the same thing. But — it actually, it creates an opportunity for the creation of new renewables. The people in Southern California actually behind, no sly intended, but there's more renewable generation and higher use percentage of renewable energy in Northern California than Southern California. And in fact, a number of the utilities down south in the public sector use a fair amount of coal power from Utah. So it's an opportunity —

Greg Dalton: That's being phased out, but yes.

Hunter Stern: Yeah. But that's — those are these opportunities to make that occur faster.

Greg Dalton: Right. Shawn Marshall?

Shawn Marshall: So I want to pick up on something you just said, because I think one of the things that we haven't really discussed here and really where the true power, pardoning the pun, the true power comes from community choice is really how a community chooses to structure its request for proposal or RFP. And what that really means is that depending on the policy set by the local governments, whatever — whether it's a policy to meet or beat PG&E's price, have a greater renewable resources, have local build out over time, have enough excess funding to do electric vehicle charging states. We see jobs creation right now with training folks for solar and energy efficiency upgrades in Marin County. All of that can be enabled through the CCA, but the key driver here is the RFP. And so that — taking that RFP out of just the big rubric of a large monopoly utility and being able to customize it and say very clearly, "What is it that our community wants to buy through CCA?" That's where the power really comes in. And then you can layer on how much of that should come from union resources. So I think it's really important to understand all of the multiplier effect, if you will, or optimizers that can be realized through CCA to achieve all the various goals we've been talking about today.

Greg Dalton: That's the pay off. The obstacle is it's hard work, it's complicated, and it takes some money upfront, and it's hard for politicians to figure out the electricity market, which was —

Shawn Marshall: But some of us do.

Greg Dalton: — some — okay.

[Laughter]

Greg Dalton: In Mill Valley, they're smart, yes. Shawn Marshall's a member of the Mill Valley Council. Our other guests today are Marcie Milner, Senior Regulatory Manager at Shell Energy North America; Hunter Stern, a business representative with the Brotherhood of Electrical Workers; and Kim Malcolm, Director of CleanPowerSF. If you're just joining us, you can get a podcast of this and other Climate One programs in the iTunes store and follow us on Twitter with our handle @ClimateOne.

We're going to invite your participation and put a microphone that's over there. I'd like to have you come join us with one one-part question or comment. And we welcome your comments. You don't have to disguise your question as a comment if you think we've missed something here. We do ask you to keep it brief, and this is often the most lively part, so we encourage your participation here for either of our guests. And if you're on this side, yeah, please go through that door, so you don't

cross these cameras. Let's go to our audience questions. Welcome to Climate One. Yes?

Male Participant: Hi, Brendon Steele with Future500. I was wondering if you could quickly compare and contrast California's initiatives with those of other states.

Shawn Marshall: Sure.

Greg Dalton: Shawn Marshall?

Shawn Marshall: California leads the way. California sets the bar for the rest of the country, and this is not really so much a Community Choice Aggregation or it's often called Municipal Aggregation Issue. It's really driven by influencing legislation. Let's just go right to the— the renewable portfolio standard. In other states, RECs, not that we need to go back there, but RECs count as 100 percent green energy, and so really we need to be looking at how we adjust the RPS so that the aggregation contracts can follow suit.

Greg Dalton: RECs being renewable energy certificates.

Shawn Marshall: Renewable energy credits.

Greg Dalton: Or credits. Let's have our next audience question. Thank you for that question. Welcome.

Female Participant: Thank you. You can hardly walk around the city without noticing that we are constructing enormously. Could any of you address what all these new construction is doing for electricity? Are any of these buildings getting solar panels or other built-in electricity savers so that they won't create a huge new drain?

Greg Dalton: Hunter or Kim Malcolm [crosstalk].

Hunter Stern: Either one.

Greg Dalton: Your guys will be installing this, so —

Hunter Stern: Yes. Well, installation, but the best and most easily attainable goals in terms of energy renewable or more renewable energy and energy efficiency are these new building codes and building standards that San Francisco's long since adopt. The IBEW has a lighting system certified by the state, lighting system plans and information and of course IBEW's signatory contractors did install those systems. But it's the only system that's currently state-certified as lead qualifying. So there are absolutely literally hundreds of different steps that a new builder, a new developer can implement, not just in buildings downtown, but in the new homes, especially new homes. They can make those buildings and homes more energy efficient and therefore reduce the rate at which we need to increase generation of electricity. So in both sides of the equation, reducing — not so much reducing demand, but limiting the increase in demand through energy efficiency and then meeting more of that demand through renewable sources. All of that's important, and the IBEW supports that a hundred percent. It's worked for our members.

Greg Dalton: Kim Malcolm, anything to add?

Kim Malcolm: I would just add that PG&E, shout out to PG&E, also has some really good programs for new construction in residential and commercial buildings and industrial buildings also. And

things have evolved and continue to evolve where technologies are less expensive and more is known about how to build buildings in greener ways and that use less energy. So it's becoming part of the fabric of the architect community and the engineering community.

Greg Dalton: And one footnote to that is that if to the extent that those people who are not living in the suburbs, people who live in urban areas have a much smaller carbon footprint than people who live in car-based communities where they drive around a lot and have larger footprint.

Let's have our next audience question. Welcome.

Male Participant: Hi, John Easterday of San Francisco. I'm going to start with a comment, then I'll ask my question. If all those new rooftops have an option to build, shouldn't it be a requirement that they put solar on instead of just a choice? That's my comment. Here's my question. Two years ago, I put in solar. My power bill is zero. It's incredibly local, no drag from my rooftop to my house. I'm thankful that PG&E is there as a big battery to give me power when I'm not making it. It will pay off. My capital asset pays off in five years or less, then it's $3000 a year forever. Two big surprises when I put in that solar. Number 1, how affordable it was. Number 2, how poorly that affordability was communicated throughout all of the solar literature. In your local things, I'm not quite sure how local your local is, will there be an option for people to buy power from their roofs, either through helping them understand what the options are and/or helping them finance it? Thank you.

Greg Dalton: Who'd — thank you for that question. Who'd like to tackle that? Kim Malcolm?

Kim Malcolm: Any of us.

Greg Dalton: Yeah.

Kim Malcolm: Well, first, yes, congratulations on having solar. A big part of CleanPowerSF's strategy is to develop solar resources in the city, and that would include rooftop solar. That's what they call "behind the meter", which is what you have so you can avoid transmission and distribution costs on your bill. One thing we're looking at right now is how to design a tariff or contract so that we can buy your extra power for — at a price that's economical for our customers and also very attractive to you. Does that answer your question?

Male Participant: No.

Kim Malcolm: No. Sorry.

Greg Dalton: Either one — the idea of anyone else here on this — like to get to that, Shawn Marshall?

Shawn Marshall: Marin County is already doing that. It's net energy metering, so people with rooftop solar absolutely can use the credits for themselves, sell their excess back into the pool, and then Marin Energy Authority will buy that excess. But the Marin's net energy metering project product is actually less expensive. It's a better deal for customers than PG&E. It actually pays out better. There's no $4 charge and all of that, so it's highly encouraged. And I believe the number of net energy metering customers in Marin is —

Male Participant: About 2400.

Shawn Marshall: — about 2,400 now and on the rise. So yes, it's very much enabled.

Greg Dalton: Hunter Stern?

Hunter Stern: No, obviously, for people who are installing solar, we hope you use a union contractor. But beyond that, we're interested in what affect that has. Because Kim mentioned that currently the way net metering works and almost all utilities in the state provide it, is it bypasses cost that the rest of the rate payers who don't have solar on the roof have to pay in terms of transmission and generation cost.

Greg Dalton: So is that — does the raise an equity issue that — I have rooftop solar, for example, that it'd —

Greg Dalton: If a lot of people do that, then there's other people who are paying for [crosstalk]

Hunter Stern: It's actually — it's not so much our issue, but there are people who raise that issue and filing with the PUC, yes.

Shawn Marshall: And certainly, it's something to consider in planning, in utility infrastructure planning.

Greg Dalton: People should pay for it. As the gentleman said in the question, PG&E is a big battery. There ought to be a fair price for using that battery if you net out zero at the end of the year, as my house does. That's not a free battery and shouldn't be. There ought to be a way that someone pays for that and they get paid for that. Marcie Milner?

Marcie Milner: Well, and the utilities are currently working on that through various proceedings at the Public Utilities Commission to ensure that if — even if you're going to spin your meter back and deliver power to the system, you are still using the grid. And so there needs to be some way to get some equity out of that.

Greg Dalton: But as I understand, these days, people can't be a net producer. If a household produces more energy over the course of a year than it generates, the utility pockets that difference. Is that correct?

Kim Malcolm: It gives you a credit on your bill.

Shawn Marshall: Right now in Marin, you can actually have a pay out of that excess credit, and that's what's different. For example, with PG&E, they will not pay that out, it's just a credit on the bill, and it gets pretty convoluted between electricity and gas and hard to frankly trace. In Marin County, that's tracked and then paid out at the end of the year.

Greg Dalton: And the people who are generating this electricity, they sell it during the day when their — at a wholesale price, and they buy it back in the night at a retail price. So they might sell it for five cents and buy it back at night for ten cents.

Hunter Stern: Right. That's essentially how it works. That's right. And it's — like everything else it seems to be, it's pretty complicated, but it's — the idea is good and that's why we're encouraging it.

Greg Dalton: Let's have our next audience question. Welcome.

Female Participant: Yes. A few parts and I couldn't understand everything, because of the

abbreviations. But Shell is an oil company, so I don't understand what kind of energy that they have also available that's green. And I saw the film "Pandora's Promise," which is for nuclear power. I still think it's too dangerous, so I'm not for it. And I don't know — you didn't speak much about that. And I may need to get gas and electricity soon, so if I don't want to go with PG&E, which probably uses more oil and is not very green, what — who can I call?

Greg Dalton: That's — so a couple of questions there. Is there alternative on natural gas? But first off, let's go to Marcie Milner and Shell, which actually has sold off a lot a fair number of its clean energy assets. Marvin Odum was here recently, the president, so there's — while it's going to gas, there's less renewables in Shell as a company today than it was a few years ago, but —

Marcie Milner: Right. Well, we are definitely known as an oil company globally, but in 2012, our natural gas production actually surpassed our oil production. And while we may not own the assets for renewable energy, we do have access to all sorts of renewables including wind and solar. We do still have Shell Wind as an organization. And really one of the benefits of doing business with Shell is that we have the ability to go to developers that need financing for their projects, and we agree to buy that power and take it to market. And when we do that, then they can get their project financed and built.

Greg Dalton: Anyone else want to comment on that? The nuclear, obviously, would not count as renewable. I don't think that any one construct, Hunter Stern?

Hunter Stern: Right. Yeah. Well, on the nuclear — I think the reason the movie was made is because nuclear use greenhouse gas emissions free, and there's just a much greater premium just beyond interest. It's almost an urgent need for more sources of energy, electricity that don't produce greenhouse gases. I think the politics in California preclude any kind of a large-scale nuclear building, and so we're not pushing for anything like that although —

Greg Dalton: It's against state law.

Hunter Stern: It's against state law, so they have to change the law, and that was an initiative, and I don't see a lot of people running around saying, "Nukes now."

Greg Dalton: There was a pilot in Merced. Riva was trying to get something going in there.

Hunter Stern: Right. It didn't go very far.

Greg Dalton: Okay.

Hunter Stern: It didn't go very far. I have to say that internationally, the IBEW as a union across the country is supportive of those approaches, but we don't see that happening here in California. And to answer your question, PG&E is a provider here. PG&E is relatively clean in terms of its sources, because it does have a nuclear plant. It also has a large hydro system. These are not greenhouse gas emissions. They're — I'm sorry. They're not considered renewable at all, but they are greenhouse gas emissions free.

Greg Dalton: And PG&E is one of the greenest utilities in the country. Right?

Hunter Stern: Yeah, for a variety of reasons, I'd love to say that they planned it that way, but that's not the case. But they are, in fact, very green. The energy that they provide emits relatively low greenhouse gas emissions compared to other large utilities throughout the country. In fact, they're

the greenest that way.

Greg Dalton: One other piece of that question was will people have a choice on where their natural gas comes from. We've been talking about electricity. Is that in the offing anywhere?

Hunter Stern: For what we know, no, because — well, no and yes. No, because it's totally deregulated in the sense that the natural gas is transmitted via the source and into the state, and people can get natural gas from other providers. But it's not really a very developed market place. I guess that's the nicest way to put it. Right now, people literally knock on your door and say, "Would you like natural gas from XYZ provider?" So it's not — it doesn't seem very reliable to the customers.

Greg Dalton: And there's no real greenhouse gas benefit. Right? I mean, you can understand if you kept buying cleaner power that's addressing climate concerns, then you might pay some more. But that there's a reason for that choice, but natural gas from company A versus natural gas from company B. Am I missing something? It doesn't seem to — Marcie Milner?

Marcie Milner: No. Commodity. Right. No. It's the same carbon value, but I would say that natural gas is extremely clean when compared to coal and other technologies. And so the state is going to need more natural gas facilities in order to be able to firm up some of these intermittent renewable resources like wind and solar. So when the wind isn't blowing and the sun isn't shining, you have natural gas to back that up.

Greg Dalton: Natural gas versus coal depends on the methane that's released during production, and so it can be cleaner and there's really quite — we've had lively debates here about gas versus coal depending on how that's measured. But Marcie Milner, how much of a potential does Shell see in this electricity business? Do you see this as a growth area in California with these other counties? Pretty big company, you have to see a pretty significant market to want to get into this.

Marcie Milner: Well, again, I think — we've been very supportive of competition in general, and so it's more customers to sell to, but the load itself doesn't change. So in other words, we're not really seeing an increase in customers; we're seeing a change. So it would be wholesale power transaction, renewable energy to the CCA as opposed to a wholesale renewable energy transaction to the utility. But we like more buyers and sellers in the market, because that creates lower prices for everyone, so we'd love to see new customers and new entities develop.

Greg Dalton: Let's talk about during the electricity crisis a few years ago, people remember the brownouts, etcetera. If people go to the community choice route, are they going to be more vulnerable, in a better position if we have that kind of brownout situation? A lot of people said last time that the Munis, the cities who actually owned their assets, Palo Alto, Sacramento, etcetera, they came out better in the electricity crisis than some of the investor-owned utilities. Is that true?

Kim Malcolm: Yeah. I believe so. I'm having some measure —

Greg Dalton: Kim Malcolm, yeah.

Kim Malcolm: — of energy independence especially for San Francisco which is a little bit of transmission island. Being able to rely on its own resources would protect it from market price shocks and perhaps reliability although it's a very complicated engineering question as to how a reliability problem in the bigger system might affect San Francisco.

Greg Dalton: Anyone else on that? Well, we're coming to the end here. We have a few minutes left.

Let's just — look into the crystal ball. Where is this going to go? Is it going to be — is this something that's going to spread across the state? Is it going to be sort of isolated — liberal urban areas are going to do this and the rural areas are not going to do this? Where is this going both within the Bay Area and statewide? Kim Malcolm.

Kim Malcolm: Well, we're certainly seeing a lot of interest in a lot of communities now in California, and a lot has changed since Marin got going. Marin sort of did a lot of bushwhacking for the rest of us in terms of how things operate and what kinds of products local communities want and how to serve them. I would expect —

Greg Dalton: But some people are looking and saying, "Well, that's San Francisco. We're not doing that. They're crazy anyway," right?

Kim Malcolm: Well, it's San Francisco, it's Marin, it's San Diego, it's Santa Cruz, it's Monterey. It looks like it could be Napa. It's been the San Jose or San Joaquin, the irrigation district.

Greg Dalton: Okay. They're not crazy. Okay.

[Laughter]

Kim Malcolm: I think elected officials are going to look for opportunities to be responsive to their communities' interest in low cost green power and local jobs and this is one way to do it. It's not for every community.

Greg Dalton: But, Shawn Marshall, low cost green power — that's often a contradiction. Oftentimes, green power does cost more.

Shawn Marshall: Yes. And so that's why we talk about the need to have a balanced portfolio. And so that is the mixing of actual physical renewable power, the bundled power that you referenced. It's using some combination of that RECs to some degree within —

Greg Dalton: Renewable Energy Certificates.

Shawn Marshall: Credits, excuse me.

Greg Dalton: Credits.

Shawn Marshall: Also using system quote "system power" which is what runs up and down our transmission line and then over time, really localizing that power. But it's really a balancing strategy that helps you be competitive but also green up your supply at the local level.

Greg Dalton: And Marcie Milner, you talked about this a little bit. You meet more customers in the market place. Do you see more attraction on this? I don't know if your area is outside California, but California versus some other areas in the Western U.S. or otherwise.

Marcie Milner: Well, the demand is driven by regulation and so there are a number of states that have RPS standards now, Renewable Portfolio Standards, where they have minimum requirements that you procure a certain percentage of your energy from renewable resources. And then I think that's really spreading across the country, so — and that's a good thing.

Greg Dalton: So Hunter Stern, where do you see this going? And is IBEW going to support this or

try to slow them down or sit on the sidelines?

Hunter Stern: Well, we'll support anything that produces jobs for our members clearly and to the extent that we can engage. And as Shawn mentioned, San Diego is taking approach to actively engaging with the IBEW there. In fact, there's good chance we'll go down and talk to them a little bit to make sure that that engagement's full. The labor council — the discussions we've had within our own labor world is if these ideas and these projects of CCAs support working people and provide jobs then we'll support them. That's the simple part. I think the more difficult part is how green are these, because, again, no one has done a full review of how green Marin sources are, how green San Francisco sources will be, a hundred percent renewable qualified using — because as Marcie said, RECs, Renewable Energy Certificates, less and less are going to be able to be used in the future which should be good. It should mean that more jobs and more real renewables, as I call them, will be built here in the state. But by using them now, it makes it harder and harder, we believe, to leave that price structure, that price point and then move into a renewable source, a hundred percent source.

Kim Malcolm: And Hunter, I would ask that you check with the Marine Energy Authority on the claim that they are not able to really track the sources of their power, because I think actually that's untrue. There's all kinds of third party accounting. I'm not going to speak too, because I'm off the board now, but I think it's worth checking with the gentlemen in the audience, because I know that they have that information right down to the electron.

Hunter Stern: Which is good.

Kim Malcolm: Or the kilowatt-hour.

Hunter Stern: But I think that the concern has been that they haven’t provided that in the form of how much greenhouse gas emissions are those sources versus how renewables are.

Kim Malcolm: You should check with them, because I think they do know. Thank you.

Hunter Stern: Okay.

Greg Dalton: So are — you're saying that people can think they're buying clean power, it's not as green as people think it is.

Hunter Stern: Especially with the use of RECs.

Marcie Milner: Well,

Greg Dalton: Marcie Milner.

Marcie Milner: Well, except that I would say that any time a renewable energy credit is generated, that means that one-megawatt of renewable energy was generated. So you can't create the REC without having renewable energy behind that. And so as the states continue to increase their renewable portfolio standards, what that does is it lessens the use of fossil fuel generation, which is what the overall goal in California is through both its climate change legislation as well as its RPS.

Greg Dalton: So Marcie Milner, can you envision a day when electricity, clean electricity is a bigger part of Shell than it is today?

Marcie Milner: Oh, yes. I think that's definitely the goal. As I said, we're one of the only energy companies that supported the climate change regulations, and we're doing things all over North America. We have a carbon capture-in-storage project in Canada that comes online in 2015 that will take a million tons of CO2 out of the atmosphere.

Greg Dalton: Yeah. That's also at the tar sands which is a big carbon bomb, but that's for another day. We'll have to leave it there, and our thanks to Kim Malcolm, Director of CleanPowerSF; Shawn Marshall, member of the Mill Valley Council and Executive Director of the Local Energy Aggregation Network; Marcie Milner, Senior Regulatory Manager at Shell Energy North America; and Hunter Stern, a business representative for the Brotherhood of Electrical Workers. I'm Greg Dalton. You can listen to a podcast of this and other Climate One programs in the iTunes store. Thank you for coming and listening to Climate One today.

[Applause]

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