

Smart Grid Quadrilogue - PART 1

Transcript of Smart Grid Quadrilogue - Part 1 - with Timothy Schoechle, PhD., Author of “Getting Smarter About the Smart Grid”, Camilla Rees, MBA, Duncan Campbell, Esq. and James S. Turner, Esq. (Audio at www.GettingSmarterAbouttheSmartGrid.org)

DUNCAN: We’re here today to talk about a rebellion that’s happening at the grassroots level related to utility technologies and in particular “smart” meters that are being placed on homes around the country and being underwritten by our federal government to the tune of billions of dollars. Your host for this two-part Quadrilogue is Camilla Rees together in dialogue with myself—Duncan Campbell—Dr. Tim Schoechle, and Jim Turner. Welcome.

CAMILLA: I’m your host, Camilla Rees. And with me today are: Jim Turner, who is the Chairman of Citizens For Health in Washington, and also the Chairman of the National Institute for Science, Law, and Public Policy; Dr. Tim Schoechle, who is the author of the new report called *Getting Smarter About the Smart Grid*, published through the National Institute for Science, Law, and Public Policy; as well as Duncan Campbell, who is the host of *Living Dialogues* and a widely acknowledged visionary in consciousness evolution and on the new energy economy. Duncan, is the fight over “smart” meters a symbol for something deeper that needs to happen related to the political economy of energy?

DUNCAN: Yes, it is. In fact, I think what we have to start with is our electricity grid and its history altogether. We have highly-centralized utility grids that are based on bringing energy—often from coal—from a distant location over transmission lines sometimes going hundreds and hundreds of miles to the site of the use where it actually gets into your house or it gets into a building; and this is the source of our electricity. And the system was set up *originally* to encourage the capital investment necessary to have the widest possible access to electricity—including rural electrification, which was meant to replace the wind-generated electricity oftentimes in remote locations, things like that. So basically, to incentivize that, we here in America created a system of quasi-monopolies where centralized utilities companies would not have to compete with one another because of the high level of capital investment necessary to get this whole electricity grid off the ground. But the key point here is: to *further* incentivize it with investment, they guarantee a flat-rate of return of anywhere between 10 and 13 per cent based on the utility’s capital investment. And that is why utilities were so popular as a conservative investment, for many years, because you could count on getting your dividends from this guaranteed rate of return—which was a very non-competitive situation but designed to make sure we had the grid widespread.

We’re *now* at a mature situation where this centralized monopoly model with the guaranteed return on capital investment is actually very dysfunctional at this point. And it will become increasingly so as we go forward. The only way that we can make a secure and efficient grid—and one that can actually absorb the maximum amount of *renewable* energy from wind, solar, and geothermal—is to move to the opposite model: one of “distributed generation.” That is what will be a truly intelligent grid. Now, as to how the “smart” meter fits into that, we can ask Tim.

Smart Grid Quadrilogue - PART 1

CAMILLA: Tim, could you tell us: *what* are people upset about with regard to these meters? We've heard about the financial issues; the technical inadequacies of the meters to actually lead us toward sustainability; we've heard that they don't allow for distributed power generation or integration of renewables; there are questions about privacy, security, safety, Homeland Security, solar flares, even nuclear risk. But the bigger issue is the economic one: *why* is the federal government spending \$4 billion on these "smart" meters?

TIM: I think that... well, three or four years ago when this "smart" grid entered the public dialogue and a lot of federal spending was put around it and a lot of investment, there were a lot of high hopes about how it would bring more efficiency and bring a lot of good things—renewable energy integration into the grid, and cleaner and possibly cheaper supply of electricity. Well, that hasn't happened. And we're starting to see a lot of pushback. Consumers are even demonstrating in the streets in certain places in front of public utilities commissions. State commissioners, public utilities commissioners are beginning to resist at state legislatures. And governors are starting to resist. So why is all that? Because, I think, the bottom line is that the promise hasn't been delivered on. And it has been extremely costly: a huge amount of money has gone into it but it hasn't really produced any results. What they perceive are invasions of privacy, unnecessary health risks, the potential for surveillance and abuse of these systems, and the costs... huge costs. Where are the benefits?

CAMILLA: Jim, we live in a democracy where the values of the people are supposed to shape the society in which we live. What do you read into this growing rebellion at the grassroots over the meter issue?

JIM: Well, the democracy that we live in is constrained by the structures that we have to live *through*. So that people have a lot of pent-up energy about the way they have to live their lives. And most people in today's world, particularly after the economic downturn, they have had to really put most of their time into survival, most of their time into struggling for making it on an everyday basis. All of a sudden, people around the country are finding that somebody has come into their yard, gone into their house, taken off the meter, and put on another meter. And the promise is that their electricity price is going to go down; it doesn't; maybe it actually goes up. Some of the people have *fires* coming out of those meters. Other people have a sense of intrusion. And they also have, at the same time as they're feeling oppressed and abused, access to a whole new communication tool—the internet—in which they can talk about these things. So now, somebody's meter catches on fire in Vermont, and the people in California know about it, and it's out on the 'net. And so all of a sudden, people are experiencing, "Well, wait a minute, I had dah-dah-dah." And that whole ethos of people saying "We want *our* communities to be in control of *our* lives. We don't want to have it coming from outside" takes hold and starts pushing on an issue. And this is one of those that it's happening with.

CAMILLA: Yes. Now, Tim, Amory Lovins says that we're going to need to upgrade the grid, trillions of dollars need to go into upgrading our grid in this country, and it's a matter of which

Smart Grid Quadrilogue - PART 1

technologies are used that will determine our economic competitiveness globally going forward. Can you address that?

TIM: Yes. I think that part of the impetus behind the “smart” grid several years ago was to address the grid’s reliability. It’s a very creaky old system, nationwide. And what Amory is referring to is the amount of investment that’s going to have to be made to improve the delivery of electric power in our society. And what he’s basically saying in his new book, *Reinventing Fire*, is that, that same amount of investment may be required regardless of what kind of a system we end up with. So why not install a system that brings renewable energy instead of more carbon-based energy and that could be done for basically the same price?

CAMILLA: Yes. So, let’s talk about the barriers to the integration of renewable technologies. The U.S. seems so far behind other countries like Germany and even in the Middle East; tremendous investment is going into renewable energies. Is the guaranteed rate of return that utilities get part of the problem? And much how does the baseload generation model—where utilities need to run coal plants at close to capacity—influence or create the resistance as well?

TIM: The traditional system is built around burning coal, going back into the 1800s. And it hasn’t changed a whole lot since then. And that means there’s an economy of scale in that type of generation, and they have to run it, basically, full out all the time to be efficient. Well, that’s not true of renewable energy. Renewable energy—the wind and the Sun—are distributed, inherently distributed. The wind blows everywhere; the Sun shines everywhere. You don’t have the same kind of economy of scale there. It’s just as efficient on a small scale as it is on a large scale, so why not distribute it? But that wouldn’t fit the economic model of a centralized baseload generation system. Now, the problem in putting the two together—and that’s the problem we face today—is that the utility is trying to add renewable energies—wind and Sun generation—which are unpredictable; it doesn’t fit very well with their baseload. So they have to end up when they’re, say, producing *too* much electricity—when the wind’s blowing real hard at night, or the Sun is shining in the daytime, when the load on the grid may not be very high—they have to curtail the wind and curtail the Sun, in other words throw that energy away. Even though we’re paying for it, they have to just not use it, so that they can burn more coal. That’s the problem. And the only way to really deal with that is to get off of the baseload dependency and employ the technologies that are what *we* call the *real* “smart” grid—or whatever we end up calling it—that will actually enable that load to be balanced on a distributed localized basis.

DUNCAN: And here’s where distributed generation comes in, because you can see the importance then of distributed generation where, for instance, the rooftop revolution that we talk about with solar energy—a person who puts solar panels on their house, first of all does not have to pay to rent the space for that, he’s already got the house, and so there’s no cost of acquisition there of the space, and on top of that the electricity is produced on the rooftop and used in the same structure—and that means there’s no need for all these transmission lines. So from this point of view, onsite generation is actually far more efficient than the centralized generation, which comes from a major coal plant that could be hundreds of miles away and

Smart Grid Quadrilogue - PART 1

relies on the transmission lines where there's a big fall-off of 10 per cent or more of energy just going through the transmission lines. And so the other aspect about onsite generation is that if you have it distributed through, let's say, 30,000 homes in a city then even with the intermittent quality of the Sun shining, with the advances that are taking place in battery storage, you actually can take whatever excess electricity you're producing during the day and store it. It could be ultimately used for an electric car.

And this has already been achieved on a widespread basis in Germany by the leadership of Hermann Scheer—who died in 2010, and was called the “father of feed-in tariffs”. What he did was to create a distributed energy system that was implemented through federal legislation in Germany that economically *incentivized* homeowners to actually install solar panels on their roof and gave them a guaranteed high return for excess energy that they sold back to the grid. And this was how, as he put it, they achieved being the number one installed base of solar installations in the world even though Germany is the cloudiest country in Europe. As Scheer said, it's because this distributed generation approach is both the fastest and the most efficient way to get high saturation of renewables. And this is a model which is literally 180 degrees different than the established money interests of the old paradigm—now “dinosaur”—American utilities which are based on the monopoly model and actually take most of their power from dirty sources like coal from far away.

CAMILLA: Jim, can you talk to us a little bit about your book, *Voice of the People*, and your matrix—Left, Right, Order, Freedom—in terms of giving the citizen much more power in generating their own electricity and taking that power *away* from the centralized utilities? Is this a *good* thing?

JIM: Well, let me pick up from what Duncan was just saying, as a way of leading into the answer to that question. The notion of distributed power starting at, let's just call it, the individual household as a generator of energy is the technical expression of the democratic revolution that we're seeing taking place. I mean, a person who is upset because people are trespassing onto their land to put something on their house that breaks into flames and causes them to get ill, is looking around for some kind of an alternative. And the alternative that emerges is, “Let's put something on the top of the house that we control that will help us create something that we feed back into the whole energy framework.” Okay, so keep that framework there,. Because now, when Amory Lovins analyzed the entire structure of the energy system, he said if you re-analyze it from the end-user point of view *back*, you actually get a five-to-one ratio of dollar savings per unit of energy used compared to new centralized generation of power. It's an enormously economically efficient way of going about things.

Now, what's the big barrier to that? The really big barrier is that the people who will be in control of the resources of society *after* that revolution are different people than are in control of it now. And so the people who are in control of it *now* are going to tend to be people who will use all the resources they have to hold back that revolution. How do we think about that? Well, first of all, one of the tactics of the people in charge currently—in control of the power currently—is to create false political debates: left-right, conservative-liberal. And in order to

Smart Grid Quadrilogue - PART 1

maintain control, they must have a debate going on which bleeds all the energy out of the social structure so that they can sit there not being in fact affected by what's going on.

The analysis in the book I have co-authored entitled *Voice of the People* is written by two of us from a transpartisan perspective--my partner author in this is very "conservative", whereas I'm considered to be a "liberal". And we're both in the position of arguing that there are *not* actually people who are divided up as conservatives-or-liberals. Those categories don't actually exist; they're made-up constructs, largely to keep this debate going so the people in power can stay in power. And what we're saying is that people actually are much more dimensional than that. So as described in our book, we exist in reality in a matrix rather than a spectrum. So you have a Left-Right division bar in the matrix horizontally, and vertically we call it Freedom-Order duality. And what happens is people from all over the political spectrum actually array on that matrix quite differently, politically. And what we're seeing on many, many issues—and energy is one of them—we're seeing people aligning themselves around Order-Left and Order-Right on *one* side of the debate; so you have conservatives and liberals for big power, centralized power; and you have a group of people who are Freedom-Left and Freedom-Right. So that you'll find in the people who would like to, say, go off the grid, you'll find radical *leftwingers* who are sort of anarchistic in that direction, and you'll find radical *rightwingers* who are survivalists. That particular freedom community is saying, "I want out of the centralized system," and actually is providing a thrust at the system that cannot be identified as either coming from the left or the right. *That* is one of the things that makes the current power structure *unstable* as the tool to maintain control.

And by the way, I believe you can see this around the world on all kinds of issues. People are in the streets. And when you look at who is in the streets, you find left and right people in the streets together. And you look at the people *suppressing* the people in the streets, and you find left and right people suppressing them. And it's really an order-freedom structure that's... structural fight that's going on. And it's *very* important for the people in power that they maintain it as a left-right debate. Because if they can keep it a left-right, they remain in power. If it shifts to something else, then the power becomes much less stable. And I believe that's happening not only in the "smart" grid world of energy—and it's more than just the opposition to "smart" meters, it's a whole way of thinking. That breakdown of authority is happening in the energy world and it's happening across the board in every one of the major, centralized, corporate structure frameworks that we use to govern our current society.

DUNCAN: And I love what you're saying there, Jim, because this metaphor just came up spontaneously in what you said—from a political and social point of view. That the power becomes much less stable when the control people are no longer in control. That they want to keep this artificial polarity happening so that they can stay in control but it's actually repressing and *suppressing* the energy of the customers and the consumers who are being passive recipients of energy—the price of which is something that they have no control over. And what we're talking about—both politically and in terms of the utility revolution—is actually creating a democratization of the grid. So that people in their own homes and building-owners become *producers* of electricity rather than passive consumers. And you have a balance between a

Smart Grid Quadrilogue - PART 1

centralized grid which can *receive* the excess power that you produce locally, and then at the same time create a kind of balance between centralization and distribution. But if it's all centralized, it's highly unstable, and from a military point of view very insecure.

JIM: Very, very important point on the military point of view. This idea in general is first talked about by Alvin Toffler in his series of books—starting with *Future Shock*, and then he had *Third Wave*, and then *Power Shift*, over three decades... actually, two decades '70 to '90—where he wrote this analysis and created the concept, internally in the analysis, of what he called the “*prosumer*.” The argument was that the split between producer and consumer was an extremely artificial split—just like the left and right, so-called liberal and conservative split—because everybody has a production and a consumption role that they play. And when we split them, the economy loses energy. When you combine them and the prosumer creates something, and then uses something, and then creates something, and then uses something, you actually have set up a *natural* cycle that creates not only social energy but actually to run things like refrigerators, for example.

CAMILLA: Yes.

DUNCAN: And not only that, it gives off a lot of light rather than simply heat. Like the heat of debate... you know, when you have polarized debate, we're often looking at the channels on our cable tv and saying, “Gee, you know, this whole polarization gives off a lot of heat but not very much useful light.”

CAMILLA: I'd like to now go back to potential financial consequences for the investor-owned utility industry. Tim, in the report *Getting Smarter About the Smart Grid*, you suggest that at some point there may be a need for a federal government bailout of this industry. And I'm wondering if you can talk about this. And how large of a bailout are we looking at potentially?

TIM: Well, yes. We may even be seeing a little bit of that here right now in Colorado. We've recently built the billion-dollar “Comanche” coal plant, which we don't need. And now the utility company that built it has acknowledged that they don't need the 900 megawatts that it's producing. They've downgraded their projections into the future. Now what has happened is that the system of guaranteed rate of return and sale of kilowatt-hours has been perpetuated by the Colorado Public Utility Commission and by public utilities commissions across the country with their tendency to give the utility companies whatever rate increases they ask for. Well, at some point it reaches a breaking point, and I think that's kind of what we're seeing here. And what I meant by a bailout was that at some point we're going to have to de-commission those coal plants if we want to get renewable energy into the grid. So somebody is going to have to buy out those coal plants, or nuclear plants, or whatever they are—the baseload plants—and shut them down. And we're sort of facing that here in Colorado right now. One big issue here now is the centralized investor owned utility is proposing and seeking approval for a \$350 million upgrade to one of its older coal-fired power plants to extract more ongoing profit by extending its useful life--when in fact that plant should simply be shut down.

Smart Grid Quadrilogue - PART 1

CAMILLA: How big of a bailout could this be if we're going to have to assure that the investors in the utility stocks get a return comparable to what they were expecting? What are we looking at? How many companies are there? Who are they?

TIM: I don't know the total numbers. But over 65 per cent or two-thirds of the utility customers in the United States are served by investor-owned utilities, who live in this regime of guaranteed rate of return.

JIM: Let me talk a little bit about that guaranteed return regime from the standpoint of the consumer and democratizing the framework that we're in. One of the lessons we learned 20-25 years ago that has really alienated the public and made them very cynical is that the more that we lowered our use of energy the higher our energy rates went. Because it was the only way you could maintain the equation. Because if you are guaranteeing a return to investors on their investment and then you have people buying *less* electricity, you have to put the unit cost *up*. So the public is over there saying, "Well, let's save energy." And they save energy but then their bills go up. One of the things that happens immediately is the consumers get really mad. Now, you asked earlier about the "smart" meter situation. What's interesting about the "smart" meter is it's a *physical* expression of the enemy right in your own house; and people can rebel against that. And they are.

TIM: That's an excellent point.

DUNCAN: And what I want to add here is the notion of "creative destruction". There is absolutely no reason to bail out these industries. They have had guaranteed return at a point in time in history where they *needed* that to make the initial investments, as I said, to set up the centralized grid—which took tremendous capital investments—when they were relying then on sources of energy like coal, which are not in the cities. You had to go find it, you had to set up a plant, you had to take it through the transmission lines, and so on. That whole model has now been superseded by the reality of climate change, by the reality of the technologies where we can access the limitless energy of the Sun, the wind, and geothermal. So basically, what will happen is that there has to be a move to distributed generation and away from centralized utilities altogether. It *will* happen in this century. The only question is: how will it happen?

And what Hermann Scheer pointed out, again from his experience in Germany, is that distributed generation and the democratizing of our grid is the fastest and efficient way to get to this goal—to move through this creative destruction process of our existing dysfunctional energy infrastructure to distributed on-site and renewables-based generation. He said this would take only 15 years if the politicians could get behind it, because now it's really only a political question. He said it's very clear that we can't get to this endgame which is necessary for evolutionary purposes, to deal with climate change, and all of that, and the tremendous health hazards of the coal industry, the tremendous hazards of the nuclear power industry, all of that are all known quantities, without *having* to actually make a choice. He said of our

Smart Grid Quadrilogue - PART 1

politicians: “Are we going to *guarantee* the future interests of the conventional power business or are we going to take care of the future of society?”

And that’s where the rubber hits the road. Just as we now know in hindsight from the near-collapse of the financial situation in 2008, there’s no reason why we should have bailed out all of these shareholders in the banks. They *should* take a hit—just like the private investors are taking a hit right now in Europe. Somebody has to take a hit in this creative destruction necessary to get to a new and sustainable paradigm. So if we set it up that somehow we *owe* some ongoing guaranteed rate of return to the centralized utilities and their investors, we’ll never get to where we’re actually needing to be going. And that’s exactly the big challenge we have politically.

CAMILLA: Well, thank you very much. This concludes Part 1 of our series on the “smart” grid. I’m your host, Camilla Rees. And with me today we have had Jim Turner from Citizens For Health in Washington, D.C., Dr. Tim Schoechle, author of the new report, *Getting Smarter About the Smart Grid*, published by the National Institute for Science, Law, and Public Policy, and Duncan Campbell, host of *Living Dialogues*. Thank you all, very, very much for being with us today. It has been my pleasure to be with you here today and to foster this dialogue on such an important subject.

DUNCAN: For those wanting to receive a copy of the new report, *Getting Smarter About the Smart Grid*, please email info@gettingsmarteraboutthesmartgrid.com. This concludes Part 1 of our Quadrilogue. Please stay with us for Part 2.

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