

BEFORE THE
CALIFORNIA ENERGY COMMISSION

In the Matter of)	Docket No. 12-EPIC-01
)	
Commission Investment Plan)	
for the Electric Program)	Staff Workshop Re: Clean
<u>Investment Charge Program</u>)	Innovative Priorities

CALIFORNIA ENERGY COMMISSION
FIRST FLOOR, HEARING ROOM A
1516 NINTH STREET
SACRAMENTO, CALIFORNIA

FRIDAY, AUGUST 3, 2012
10:00 A.M.

Reported by:
Tahsha Sanbrailo

APPEARANCESStaff Present:

Sherrill Neidich, Renewable Energy Office
Dave Ashuckian, Efficiency and Renewables Division
Erik Stokes, Research and Development Division

Panel 1: (* Via WebEx)

Gary Simon, CleanStart Co-Chair, Sacramento Area Regional
Technology Alliance
Erika Kula, Prescience International
Bill Walden, TECHNIKON
*Josh Gould, Department of Energy, ARPA-E
*Cameron Gorguinpour, Office of the Assistant Secretary,
U.S. Air Force

Panel 2:

Valerie Winn, State Agency Relations, PG&E
Jennifer Barrett, Permit & Resource Management Dept.,
Sonoma County
Gary Craft, Craft Consulting
Mike Hart, Sierra Energy
Chris Calfee, Office of Planning & Research
Vernon Hunt, United States Department of the Navy

Panel 3:

Barbara Halsey, California Workforce Association
Mark Lennon, Department of Veteran Affairs
Jim Caldwell, Workforce Incubator
David McFeely, SolarTech
Kurt Schuparra, California Labor and Workforce Development Agency

Public Comment:

Bob Raymer, California Building Industry Association
Frank Goodman, San Diego Gas & Electric Company
Noah Long, Natural Resources Defense Council
David McFeely, SolarTech
Jessie Halpern-Finnerty, Don Vial Center on Employment in
the Green Economy, U.C. Berkeley
Harold Galicer, Technology Director, California Smart
Grid Center

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Questions to Consider:	
1. What are the benefits of innovation clusters in supporting the development and deployment of innovative clean energy technologies?	
2. What are the pros/cons of the different models of energy innovation clusters to accelerate a successful path to market? (i.e. Technology Incubators, Innovation Hubs, Centers of Excellence)	
3. Do you recommend funding for innovation clusters in the EPIC Program? Provide program specific recommendations.	
4. If this is meritorious for funding, how should EPIC measure ratepayer benefits for energy innovation clusters?	
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Questions to consider:	
1. The Energy Commission anticipates that cities, counties and regional governments will seek grant funding. Are there other entities that should be targeted for regulatory assistance funding?	
2. What local planning and permitting challenges do clean energy technologies pose now and in the future?	
3. How can EPIC investments leverage current efforts rather than duplicate them (e.g. DOE SunShot Initiative and model frameworks from the California County Planning Directors Association and Governor's Office of Planning and Research)?	
4. What, if any, local planning activities should EPIC invest in? What, if any, local permitting processes should EPIC invest in? What do these initiatives cost and how long do they take?	
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 Questions to consider:	
1. Does the clean energy sector shape employee training programs? What partnerships exist between training programs and employers to promote job placement, apprenticeships, and externships?	
2. Significant investments are being made to develop a clean energy workforce. Should EPIC workforce development investments build upon these efforts? If so, how?	
3. Should EPIC fund the collection, storage and dissemination of a clean energy workforce information center? Would a clean energy workforce center connect the workforce to the employer?	
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1 PROCEEDINGS

2 AUGUST 3, 2012

9:05 A.M.

3 MR. GOLDSTEIN: Good morning. We're on the
4 second day of our two-day workshop on the EPIC Program.
5 And I want to thank you -- I see many of you are going
6 through two days, the second day, familiar faces here,
7 and we have people joining us online, as well. Today is
8 all panels, I'm going to introduce -- bring up Dave
9 Ashuckian in just a moment, but I wanted to again thank
10 you for coming and participating in this event. I know
11 you're investing a lot of time, but it's going to be
12 worth it.

13 I will also tell you that nobody got the Dress
14 Down Friday memo, I forgot to do that, myself, it's 100
15 degrees in Sacramento, and we're not dressed for it, so
16 anyway, without further ado, thanks again for being here
17 and I want to introduce my Deputy Director for the
18 Efficiency and Renewables Division, who will discuss the
19 agenda for today, David Ashuckian.

20 MR. ASHUCKIAN: Thank you, Rob. And thank you
21 all for coming to Day Two of the EPIC Workshop here at
22 the Commission. As Rob said, I'm the new Deputy Director
23 for the Efficiency and Renewables Division and our
24 division will be responsible for part of the program for

1 EPIC funding. We will be working on the Technology
2 Demonstration and Deployment, as well as Market
3 Facilitation elements of the program that the Energy
4 Commission operates. And that's the focus of today's
5 workshop. So market facilitation and technology
6 demonstration include the regulatory assistance and
7 permit streamlining elements of the program, addressing
8 barriers to commercialization, and workforce development.

9 Yesterday's focus was an overview of the program,
10 as well as there were three breakout sessions on Clean
11 Energy Generation, on Grid Operations, and Energy
12 Efficiency and Demand Side Management.

13 Today we will have three panels. Those panels
14 will include Energy Innovation Clusters, that is, ways to
15 get organizations together, working together to actually
16 achieve results; Regulatory Assistance and Permit
17 Streamlining; as well as Workforce Development. All of
18 today's panels will be in this room, there's not going to
19 be breakout sessions today. And after the panels are
20 completed, there will be a period for public comment and,
21 again, as you probably all know, this is WebEx'd and so
22 Sarah will be operating the computer on the WebEx. She
23 will mute the people until, if you want to make a comment
24 on WebEx, you either send an email to Sarah, or you can
25 raise your hand on the system. And I wanted to also add

1 that we are accepting written comments on the program,
2 and those are due August 10th, which is one week from
3 today.

4 Before we get started, I just have a couple
5 housekeeping issues. Restrooms are across the hall in
6 the atrium here, there's a snack bar on the second floor
7 of the Commission if you're hungry, and if there's an
8 emergency, if the alarm goes off and we need to evacuate
9 the building, follow Commission staff across the street
10 into the park, that's where our gathering area will be.
11 And with that, I'll have Eric come up and start with the
12 first panel, unless anybody has questions, I certainly
13 welcome any questions at this point. Valerie. We have a
14 mic. Again, because -- I also want to mention that this
15 workshop is recorded, so we would like everybody to speak
16 and make sure they get a microphone before they make any
17 comments.

18 MS. WINN: Good morning, Dave. Sorry, there's
19 nothing like walking in the door with a question. You
20 noticed that the comments are due next Friday, the 10th,
21 and I know that we have the two days of workshops next
22 week in Southern California, as well. Is there a
23 different due date for the comments from the Southern
24 California workshop? Or are their comments also due on
25 the 10th?

1 MR. ASHUCKIAN: Actually, for Southern
2 California, the comments are due on the 17th, so I guess,
3 in reality, the comments are due on the 17th, not the --

4 MS. WINN: So for both Northern and Southern,
5 yeah, because we'll be attempting both, so if we could
6 have one set of comments on the 17th, that would be
7 preferable.

8 MR. ASHUCKIAN: I understand.

9 MS. WINN: Okay, thank you. Oh, I'm sorry,
10 Valerie Winn with PG&E.

11 MR. ASHUCKIAN: Okay, can we have the first
12 panel, unless there are any other questions? Oh, yes.

13 MS. TEN HOPE: So I'm Laurie Ten Hope, I'm the
14 Deputy Director for Research and Development, and I just
15 thought there might be a couple people online or in the
16 room who weren't here yesterday, so just a couple of
17 points that would be useful for you.

18 We are repeating this workshop in Southern
19 California next Thursday and Friday, so you're welcome to
20 participate in both, but wanted to make sure that people
21 realized that it was basically the same format, providing
22 an opportunity in both locations for participation. And
23 we will have an additional workshop on the Investment
24 Plan for the Electric Program Investment Charge Program
25 in September, and we'll be taking the results from this

1 two-day workshop and putting out a Draft Investment Plan
2 and then we'll take public comment on that plan before we
3 submit it to the Public Utilities Commission November
4 1st. And as Dave said, we have three panels today and
5 these panels are an opportunity to explore some
6 investment opportunities presented by the EPIC Program
7 that are really closer to commercialization, and we're
8 really interested in the public feedback on these
9 concepts, whether you think they are appropriate for the
10 EPIC Program, and we have some really exciting panelists
11 that are going to be here in the room, and at least one
12 on WebEx. So without further ado, I'm going to turn it
13 over to Erik for Panel One.

14 MR. ASHUCKIAN: If we could go ahead and have the
15 panelists come up to the table?

16 MR. STOKES: Good morning, everyone. My name is
17 Erik Stokes. I'm with the Energy Commission's Research
18 and Development Division, and I'll be the Moderator for
19 today's first panel session on Energy Innovation
20 Clusters. First off, I'd like to start by thanking all
21 the panelists for participating in today's discussion.

22 There's been a great deal of interest in Regional
23 Innovation Clusters and similar approaches that can
24 accelerate clean energy technologies into the
25 marketplace. This includes, but isn't limited to, models

1 such as technology incubators, energy test beds, and
2 innovation hubs.

3 We have a great panel today to speak to some of
4 these cluster models and share their thoughts and
5 experiences. Each of the panelists will have up to five
6 minutes to make their opening remarks. After that, we
7 have four questions, that you could see on the agenda,
8 that we'd like each of the panelists to address, and then
9 we'll open up to comments and questions. So with that,
10 let's go ahead and get started, and we'll start off to my
11 right here with Gary, and then we'll go to those that are
12 participating remotely.

13 MR. SIMON: All right, well, thank you very much,
14 Erik. And I appreciate being here this morning. My name
15 is Gary Simon. I'm one of the Volunteer Board members of
16 the Sacramento Area Regional Technology Alliance. That's
17 a nonprofit organization in the Sacramento nine-county
18 area, whose mission it is to accelerate technology
19 ventures and help them succeed. Among the programs that
20 we have at SARTA is one called CleanStart, specifically
21 focused on clean technologies, which is probably most
22 appropriate for the discussion this morning.

23 SARTA is an organization, it's a nonprofit, as I
24 said, it's supported by contributions, sponsorships, and
25 memberships, and it has a small professional staff, but

1 most of its work is done by volunteers.

2 When we look at the question of energy
3 innovation, our program is based on the insight that many
4 brilliant new clean technologies that would have
5 extraordinary savings for customers, extraordinary
6 benefits to the State, die in somebody's garage because
7 people don't have the know-how to take that into a
8 business, to license it with somebody, to know how to
9 make it into a real product. So what we try to do, as I
10 think so many incubators or technology accelerators do,
11 is focus on three things to help people with those
12 brilliant ideas, one is training and coaching, training
13 how you form a business, what structure should it have,
14 how you protect your intellectual property, how you hire
15 people, how you make sure that you're doing all the
16 things properly and organizing a business, your capital
17 structure, etc., coaching is a part of that, sitting down
18 with somebody who can tutor you, who has been through the
19 ropes before. I myself have been the leader of several
20 technology ventures, currently the Chairman of a publicly
21 traded Clean Technology company here in California, so we
22 do have a lot of experienced people.

23 The second area is networking and making
24 connections. So much of getting a technology into the
25 marketplace is getting connected to investors, customers,

1 people that can help, funding sources, etc., that just,
2 you know, there's no simple way for people to find that
3 on their own, they do need help, and so we provide that
4 help.

5 And the third thing that we do is provide
6 visibility to companies. Over and over again, when we
7 take a company, a small start-up with a new technology
8 out into the marketplace, making those connections, what
9 we hear back is, "I had no idea something like this was
10 available." And that comes from a company that's
11 actively trying to buy green products. You find that
12 over and over again, so getting visibility with
13 customers, visibility with investors, is very important.

14 So in order to do this, we run a number of
15 programs. VentureStart is our mentoring program, a
16 leadership series, a general training program, we have
17 CleanStart Showcase -- by the way, coming up October 22nd
18 here in Sacramento, Sac State, where you can look up
19 companies here that are doing great things.

20 We have in this region a cluster of about 100
21 companies that are doing great things, and we're trying
22 to make them much more successful. In terms of success
23 rate, we have had a number of companies get funded, some
24 of you have heard of SynapSense, a technology that came
25 out of U.C. Davis, now very successful, invested in by

1 General Electric, RCS Technologies, a company in Energy
2 Efficiency, and several others.

3 So it does work, I think it does help to get
4 clever ideas and brilliant new technologies out into the
5 marketplace, and produce savings for ratepayers,
6 customers, taxpayers of the state, so we would like to
7 see more of that happen than is going on right now. So
8 that's background on what we do at CleanStart, at SARTA.

9 MR. STOKES: Thanks, Gary. Bill, you're up.

10 MR. WALDEN: Yes. My name is Bill Walden. I
11 manage a program. I manage a program out here at
12 McClellan Air Force Base. This is a program called
13 Renewable Energy Testing Center, it's a program that has
14 been a Demonstration Validation Testing Center since
15 about 2000. Since 2008, we converted it into green
16 energy, predominantly biomass and waste to energy,
17 Demonstration testing center.

18 The Government -- it's a 60,000 square foot
19 building that the Federal Government put over \$25 million
20 in on converting it, just to do demonstration and
21 validation technologies, predominantly, though, in high
22 temperature. When we converted it to waste-to-energy in
23 2008, virtually all of the investment was recaptured to
24 do that.

25 The approach with this project is different in

1 many ways than you see in other places. For waste-to-
2 energy and biomass-to-energy, those technologies
3 generally are technologies that are integrated
4 technologies used in a fairly large scale. Out here at
5 McClellan, we have eight of those component parts, both
6 the core conversion technologies, as well as upstream and
7 downstream technologies, to allow for a plug-and-play.
8 But the majority of that technology, suite of
9 technologies, are going to either the military, who is
10 one of the largest buyers, or the electric industry,
11 which is a large buyer. So the size and scale of these
12 integrated technologies is fairly large. The smallest
13 ones we have in tons per day are about eight to 10 tons
14 per day, but we are set up to scale to 1,000 tons per
15 day. I saw one of the panelists for one of our
16 technologies there on Panel 2, Mike Hart with Sierra
17 Energy.

18 The approach with this is really an approach
19 that's driven by the end user's needs, and we have a lot
20 of integration with end users, the power industry, as
21 well as the military, because those are the ones that are
22 actually spending the money on buying those integrated
23 technologies. We see a lot of the individual stovepipe
24 technologies and we shaped years ago the whole approach
25 to how do you help these technologies that come in, they

1 invented a transmission and, in the beginning they
2 believed they're a car, but they really are just a
3 transmission, and we have the other pieces that will help
4 them to understand how do they integrate, link to
5 upstream and downstream, and then how do they do it
6 safely? How do they get permitted? And the program is
7 really one that leverages government money because we
8 don't buy the technology, we don't choose which ones are
9 good or bad, we simply work with ones that do work at the
10 onset, and then help them become a system that has
11 commercial value by helping them understand how to
12 integrate.

13 MR. STOKES: Okay. Thanks, Bill. The next
14 panelist is Erika Kula with Prescience International.

15 MS. KULA: Hi, I'm Erika Kula. I'm the Director
16 of Business Development for Prescience International.
17 We're a firm dedicated to the commercialization of
18 technologies. One of the ways in which we do that is by
19 running Innovation Centers. So in the Bay Area, we run
20 the Environmental Business Cluster in San Jose, as well
21 as the San Jose Bio Center. So between those two
22 facilities, on the Clean Tech side, we support companies
23 through their R&D by providing them with lab space, and
24 about \$5 million worth of capital equipment, and a full
25 operations team, so management of chemical inventory

1 managing the environmental health and safety, managing
2 your facilities, etc., so a very plug and play type of
3 infrastructure for companies.

4 On the Environmental Business cluster side, we
5 focus a lot on the mentoring support, so similar to
6 CleanStart and what Gary talked about, we provide a
7 network of investors, of corporate strategics, of
8 customers, of angel investors, etc., and pitch practices
9 and coaching in order to ready our companies for
10 connecting with that network.

11 We also do a series of programs which are open to
12 the public, focused on financing your clean tech company,
13 as well as kinds of the nuts and bolts of starting your
14 company, so what do you have to think about as corporate
15 legal strategy, or IP strategy, etc.

16 We also provide one-on-one mentors for our
17 clients with folks from industry, so former general
18 counsel of BrightSource Energy, former partner of Siemens
19 Ventures, etc. So a lot of support provided to those
20 companies in order really accelerate the technologies
21 forward.

22 We're agnostic in the types of technologies in
23 the Clean Tech sector, so we have companies that are
24 working on water purification technologies, battery
25 technologies, wind turbines, transmission companies, etc.

1 MR. STOKES: Okay. Thanks, Erika. Next, we'll
2 go to our panelists that are participating remotely.

3 First off is Josh Gould with the Department of Energy.

4 MR. GOULD: Great, thank you. I work for an arm
5 of the Department of Energy called ARPA-E, it stands for
6 Advanced Research Projects Agency - Energies. We were
7 founded under the George W. Bush Administration and then
8 funded under the Obama Administration, with three key
9 initiatives in mind. The first is to reduce energy-
10 related emissions, the second is reducing energy imports,
11 and the third is to improve energy efficiency. So, if
12 you can imagine, those are pretty broad subject areas and
13 a pretty broad mission, so we're agnostic as to the types
14 of technology that we fund.

15 However, what we look to do is to generate
16 breakthroughs in energy related to technology, so we try
17 to fund things that are truly transformative and, in
18 fact, in our Congressional Authorization, the language is
19 to transform the way we generate for and use energy.

20 The set of resources we provide are intended to
21 -- because we do not seek to duplicate or replicate what
22 the private sector does, and we seek to fund the project
23 at their earliest, often very technical stage, where it's
24 very very high risk, high reward, our goal is to ensure
25 that ultimately the technologies make it to market in

1 some shape or form. We're also Agnostic about what shape
2 or form that takes, so we have had Awardees do everything
3 from license the technology, to spin it out in a venture-
4 backed start-up, to entering an agreement of some kind
5 with a strategic investor. And so our goal is to
6 facilitate those transitions to market and we provide a
7 number of resources to do that. Many of those are
8 technical in nature, we have a fleet of highly skilled
9 and highly technical PhDs here to help with many of the
10 technical and product development issues that our
11 performers encounter, particularly in the earlier stages,
12 but my role here, and we have a whole team dedicated to
13 this, is what's called Technology to Market, so again
14 making sure that those technologies that folks are
15 developing, often times in national labs, at
16 universities, but also in the R&D groups of large
17 companies in some cases, actually make it into the
18 market.

19 So, you know, the set of services we provide are
20 a number of what you might call asynchronous resources
21 that are online at any time and can be accessed, but I
22 think most importantly are those set of resources that we
23 provide in person, which kind of span the lifecycle from
24 legal, to team building, to financial, to sales and
25 marketing, you know, we don't do it directly, but advise

1 our performers on those set of activities required to
2 actually get them into the marketplace.

3 And so we funded almost 280 projects to date, a
4 couple hundred million dollars; a few names that probably
5 folks have heard of, everything from General Compression
6 to Envia which is in the Bay Area, and a number of
7 projects in California. And so we'd like to think --
8 it's still too early, given that we fund at the earliest
9 stages, it's a little bit too early to pat ourselves on
10 the back too much, or congratulate ourselves, but we
11 firmly believe there will be a number of successes from
12 this approach, which is modeled on the DARPA approach out
13 of the Department of Defense, which funded things like
14 http networking protocol for the Internet, GPS, LEDs, and
15 those are exactly the type of breakthrough technology
16 innovations that we're hoping to generate here in the
17 Energy industry. Thank you.

18 MR. STOKES: Okay. Thank, Josh. Our last
19 panelist is Cameron Gorguinpour with the U.S. Air Force.
20 Cameron, are you there?

21 MR. GORGUINPOUR: Yeah, I'm here. Can you hear
22 me?

23 MR. STOKES: We can. Thanks.

24 MR. GORGUINPOUR: Okay, great. Thanks. Well,
25 thanks for having me. Again, my name is Cameron

1 Gorguinpour. I am Special Assistant to the Assistant
2 Secretary of the Air Force, though my responsibilities
3 are really the Department of Defense wide. I actually am
4 in charge of developing and implementing DOD's Plug-In
5 Electric Vehicle Program.

6 So generally I'm responsible for figuring out how
7 to get as many EVs as possible into our fleet, in as
8 short a time frame as possible, without spending more
9 than we otherwise would on conventional vehicles, so it's
10 a small task to undertake here. But we have been able to
11 actually make some good progress towards that. Also,
12 I'll just briefly mention what we're looking at, though,
13 but to keep in mind, though, that our target here is
14 total cost of ownership parity, so considering all
15 elements of an Electric Vehicle system, how do you make
16 that work?

17 And just to give you a little bit of a sense of
18 what we're dealing with, our non-tactical fleet which is
19 the space I'm working in, we have 200,000 vehicles
20 worldwide, so we've got a lot to play with in terms of
21 affecting different segments of a fleet. And as it turns
22 out, most of the vehicles that we have are trucks and,
23 so, you know, a third of the fleet are medium and heavy-
24 duty trucks, another 20 percent or so are light-duty
25 trucks, and so that's been most of the space that we've

1 been working in. The thing to realize about our fleet is
2 that, while we have many many vehicles, we don't drive
3 too many miles on those vehicles, they're mostly vehicles
4 that sit on base and they're essential because you need
5 to have them when a military need arises, but they're not
6 constantly being driven.

7 So the ways that we're approaching this challenge
8 from a financial perspective is looking at principally
9 four things, looking at, okay, so we have 200,000
10 vehicles, Electric Vehicles cost more than conventional
11 vehicles right now, and so what can we do by way of
12 volume to bring that price point down?

13 And, again, when we looked out to the market, it
14 was pretty clear that the pricing options for larger
15 trucks and vans, so medium- and heavy-duty trucks and
16 vans, when we could effect that space of industry more
17 effectively than passenger stands, mostly because the
18 overall market size is smaller. The other thing about
19 medium- and heavy-duty trucks, in particular, is that
20 oftentimes you can right-size the batteries, so if we're
21 only driving the vehicle 30 miles a day, we don't really
22 need 100 mile range batteries, so we can cut the battery
23 size in half, potentially, and never know the difference,
24 and that saves us a whole lot of money.

25 And then we're also looking at carefully planning

1 out our infrastructure, you know, currently what we're
2 doing in DOD and really throughout the Federal
3 Government, and it's well intentioned, it's just not very
4 cost-effective, is that we're doing sort of onesies and
5 twosies, so we'll put a couple vehicles at this base,
6 we'll put one here, one there, and by the end of it, your
7 infrastructure costs are just astronomically huge. So
8 we're trying to get away from that and it's more
9 coordinated planning, aggregating large numbers of
10 vehicles in the same location, and even within a given
11 facility, making sure that all the vehicles are parked
12 and next to each other so that the charging
13 infrastructure costs come down.

14 And then probably the catchiest thing that most
15 people get excited about, it gets me the most excited, is
16 sort of the Vehicle-to-Grid element, which is the idea
17 that you can use the battery inside the Electric Vehicle
18 as an energy resource, back to the grid or to the
19 facility, and when you do that -- and it's both financial
20 value and operational value -- and so a lot of folks
21 might be aware of the work we're doing at Los Angeles Air
22 Force Base, where we are actually in the process of
23 turning that base into the first federal facility to turn
24 its entire fleet to Plug-In Electric Vehicles. And to
25 the greatest extent possible, those vehicles will be

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1 Vehicle-to-Grid, or V to G capable. So we are working
2 closely with California ISO, California Public Utility
3 Commission, Southern California Edison, we worked a bit
4 with the California Energy Commission, on sorting out
5 exactly how you do that, not just from a technology
6 standpoint, but from a regulatory standpoint, and process
7 perspective.

8 So we're pushing real hard on that. And just to
9 give you a sense of what it means to do Vehicle-to-Grid
10 from a financial perspective, in California, in Southern
11 California, if you participate in Frequency Regulation
12 markets with these vehicles, you can offset half to two-
13 thirds of the least cost, the operating costs of the
14 vehicles every year, so it really creates a situation
15 where not only do we have least cost parity, we actually
16 reduce our overall fleet expense by pursuing this type of
17 technology.

18 And then, more than that, we have exportable
19 power on a mobile device that adds a whole lot of
20 military operational capability that we otherwise
21 wouldn't have. Just a quick example of that: we went to
22 an Air Force Base in Arizona and we're looking at flight
23 line vehicles, so vehicles on the runway, all around the
24 runway. And what we noticed was that there were rows of
25 pick-up trucks next to rows of mobile diesel generators

1 and the primary functions of those pick-up trucks was to
2 latch those generators onto the back of the truck, take
3 the personnel about 30 yards out to park for several
4 hours while the staff member was operating basic test
5 equipment, their drill, you know, some volt meters, or
6 something like that, things that don't really require a
7 lot of power. And so it's occurred to us that, while we
8 had a pick-up truck with exposable power, we could
9 probably make the whole system much more efficient and
10 eliminate a lot of assets that we don't really need.

11 So, anyhow, those are the types of things that
12 we're looking at. We're looking at bringing a lot of EVs
13 into our fleet, getting the energy capability up and
14 running, and adding as much financial operational
15 capability as we can.

16 MR. STOKES: Okay. Thanks, Cameron. Next up,
17 we'll go to the questions and I'll leave it to the
18 panelist to weigh in whenever they feel. The first
19 question: What are the benefits of innovation clusters
20 in supporting the development and deployment of
21 innovative clean energy technologies?

22 MR. WALDEN: I think one of the things that you
23 have to look at in terms of how you structure the type of
24 cluster depends heavily on the type of industry that
25 you're trying to generate innovation in. If you're

1 looking to build a cluster for Computer Programmers to
2 develop Facebook, you really don't need a huge integrated
3 system to be able to pull multiple technologies together,
4 you just need smarter people and more computers. If
5 you're looking to do something and, say, the area that we
6 are in, you end up needing, because of the scale of the
7 technology, you need to end up with the kind of -- you
8 have a large Valley of Death and that Valley of Death
9 isn't one that necessarily needs really new technology,
10 cutting edge, what you need to do is to be able to put
11 those systems together so that you have marketable
12 products, not just innovative technologies. And so you
13 end up with a spectrum, depending on how wide your Valley
14 of Death is, before you have a product that will get the
15 kind of funding that you need in order to make sales,
16 where you're trying to sell to a power company, for
17 example, you have a very wide Valley of Death, and you're
18 not necessarily looking at the cutting edge technologies,
19 you need to take some older ones, some newer, and put
20 them together; where, on some of the ones, you have a
21 very short narrow Valley of Death that can be done with
22 helping people who actually do the technology, are the
23 ones that turn it into the business.

24 MR. SIMON: I think what I would add to that is
25 -- and this probably relates to the discussion you had

1 yesterday -- what is success for EPIC? I don't think
2 success for EPIC is conducting a number of
3 demonstrations, which show how great a new technology is
4 if it never results in the product getting into the
5 marketplace that people can buy and do buy. So I think
6 success for EPIC, whether stated or implicit, is that
7 you're actually converting a clever idea, an invention
8 into an innovation in a product that actually makes it
9 into the marketplace.

10 So going from a proof of concept demonstration
11 project to selling thousands of units of a product is not
12 an easy process, and it is not something that you can
13 take a lot of courses in college about, it's not
14 something that's been reduced to a handbook that works
15 every time, and I think that's where innovation clusters,
16 technology accelerators, incubators come in. It's very
17 much a process of individualized coaching and training,
18 networking, and so at the end of the day, I think what
19 people want to look back on with the success of the EPIC
20 Program is, you know, here you've managed to take some
21 good ideas, and now they're being sold by General
22 Electric, or some other corporation that doesn't exist
23 right now, and you can go back and say because of this
24 new light bulb, or smart grid device, or something like
25 that, we are saving energy. There is a yield for that

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1 back to the society as a whole.

2 But the benefits of whatever we call innovation
3 clusters all come, I think, in bridging another Valley of
4 Death, which is not just the funding gap, but it's the
5 commercialization gap, it's the product-to-market gap.
6 So I could rattle off a hundred devices that have really
7 some great potential in this area in the state and
8 beyond, but I would -- I guess I better be careful in how
9 I make this challenge because this room has a lot of
10 people and they're very knowledgeable -- I guess that 90
11 percent of the people in the room have never heard of and
12 they would be great to have in your home, or your
13 business, and there's the problem, you don't know about
14 them, you don't know any facts about what they will
15 really do to reduce your costs, so you have trouble
16 making a decision, you have trouble even thinking --
17 writing a check to some company you've never heard of,
18 and you're worried that a year from now they won't exist,
19 and so why should I buy the product? These are all the
20 big barriers, and many more, that prevent a good idea
21 from making an impact on society as a whole, and it's in
22 that gap, I think, that the innovation clusters,
23 incubators, etc., play. And I think from what Jim
24 Robbins did at the Environmental Business Cluster, if you
25 had tried to actually quantify for, I don't know, it was

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1 like two dozen businesses that were in Clean Energy, that
2 you helped to move along the path towards
3 commercialization, how much of that actually got into
4 products and what the impact of that was. And, you know,
5 not everything is successful, but I think it was
6 impressive, with a little bit of money how far you were
7 able to take a company that had a good idea and actually
8 get a product out of it, so I'd like to hear more about
9 that. You've probably got around the table here the most
10 experience in dealing with this whole innovation,
11 commercialization question.

12 MS. KULA: Yeah. You know, it's interesting, the
13 sector that we're talking about is so broad in terms of
14 the types of technologies that we're discussing, when you
15 have software companies working on an energy efficiency
16 technology, or monitoring technologies, you've got
17 battery technologies, you've got new solar panels, you
18 have micro inverters, I mean, it's really a very broad
19 spectrum. And so each of those different sorts of
20 subsectors, I guess, of the Energy space, or Clean Tech,
21 or whatever we want to call it today, they all have
22 different commercialization cycles, they all have
23 different customers, different ways of entering the
24 market, and so it's not straightforward, it's not a clear
25 path to commercialization, it's not clear on which

1 permitting to get. I mean, I think 27 different agencies
2 are involved in offshore wind technologies in the State
3 of California, so for an entrepreneur, especially a first
4 time entrepreneur, it's a little daunting to try to
5 figure out how to actually get your technology forward.
6 And so the benefit of these types of innovation clusters
7 is to really try to streamline things, learn from people
8 who have tried to break down barriers before, learn from
9 people who have been on the buying side of technologies,
10 on how to get that technology forward. You know, we
11 certainly -- we've worked with over 180 companies at the
12 EBC -- I'd love to say that every single one of them was
13 successful, but what we really try to do and focus on
14 with the companies is, how do you get to a proof point
15 where you can bring it forward, or you say, "You know
16 what? Right now is not the right time to move the
17 company forward." Or, you know, the United States isn't
18 the right market to go towards, you're better served
19 going to India, or China, or what have you, based upon
20 the technology that you're developing, where the market
21 is here. So there's a lot of different ways that we work
22 with the companies.

23 With regards to kind of integrating things
24 together, innovation clusters bring together a lot of
25 different technologies, so you could be developing a

1 solar cell, for example; well, that's great, but that's
2 never going to hit the market standalone, you have to
3 integrate it into a system. So when you're in these
4 types of innovation clusters, the value is also being in
5 a community of other technologies that are being
6 developed where you can integrate something together, or
7 you've got someone else who has done some things similar
8 and can kind of guide you through the process, so you
9 could develop a whole system that could be plugged in
10 with solar panels, and battery technologies, and new
11 tracking devices for solar, for example, all in one
12 package for deployment.

13 MR. STOKES: Josh and Cameron, do you have any
14 comments on this first question?

15 MR. GOULD: I do. This is Josh. I think how we
16 started this discussion is the most relevant part of it.
17 And how we started was, you know, what do we want to
18 accomplish? I love and couldn't be more supportive of
19 the idea that none of this stuff matters and is relevant
20 unless it's actually adopted and makes it into the
21 marketplace. Of course, I'm biased because that's what
22 my job is here at ARPA-E, and that's what we do as an
23 agency, well, we fund R&D breakthroughs, it's written in,
24 again, to our Congressional Authorization that, you know,
25 it is our goal that these technologies make it into the

1 marketplace in one way or the other and, you know, we'd
2 like to think we're doing our small part, but there's a
3 lot more that really needs to be done to ensure that
4 these technologies make it to the market. So let's just
5 -- let's just assume that that's our shared goal at the
6 moment, you know.

7 What do I see as the key gaps that could
8 potentially be addressed by an innovation cluster? I
9 think there's two. The first is at the earliest stage of
10 R&D, so many of the folks on the call and in the meeting
11 know, you know, large corporations have significantly
12 reduced their R&D budgets, there's been cuts at the
13 Federal, State, local level, you know, in terms of R&D to
14 universities, national labs, and all of that, and so
15 there does seem to be a gap in looking at those
16 technologies that can truly be sort of transformative in
17 our breakthrough, but are more than, say, just a year or
18 two away from the marketplace. So that's one that I feel
19 like a cluster potentially can address that gap in the
20 earliest stage of R&D in some shape or form.

21 The second is the issue of pilots and the role of
22 pilots in getting a technology to market, and I think
23 there are two key pieces of that pilot issue. The first
24 is the chicken and egg around an initial pilot of a
25 technology and funding for that pilot. Many private

1 sector investors will not fund a technology until there's
2 a proof of concept which is validated by data from a
3 pilot. The problem is, you know, once there has been
4 some initial R&D, a technology is ready for a pilot, the
5 problem is that there's no funding to get a company or a
6 technology to that initial pilot, so that then you can
7 have the data to go out to a set of investors or
8 strategic to actually get it to market. So it does feel
9 like there is a Valley of Death in the initial kind of
10 pilot element.

11 There's a second piece of piloting which is a
12 challenge, is what we see kind of "pilotitis," is what we
13 colloquially call it, which is a technology or a company
14 that is stuck in a series of pilots which often aren't
15 profitable, and are intended to show a proof of concept,
16 but there's no path forward in terms of getting that
17 technology, which is usually pretty promising, and moving
18 it from a kind of pilot stage to real commercial
19 deployment at, you know, many thousands of units.

20 And so those are kind of the three key things
21 that we see time and time again with our performers, that
22 I firmly believe that if an incubator, or even some
23 different form of investment could address; again, that's
24 early stage of R&D, this kind of chicken and egg around
25 getting the technology to an initial pilot, and then the

1 third step of, once you've done a pilot or two, moving
2 that technology at some scale into the marketplace.

3 MS. KULA: Can I just say one thing to follow on
4 what Josh said?

5 MR. STOKES: Sure.

6 MS. KULA: You know, Josh was talking about proof
7 of concept and turning those into real companies, so the
8 environmental business clusters have a contract with the
9 California Energy Commission to provide commercialization
10 support for companies receiving EISG, or PIER fund -- the
11 earliest stages of PIER funding. And what we saw often
12 is that the technologies were great, but there was no
13 business plan, there was no business model, there was no
14 actual realization on how to take this great technology
15 that is having great R&D happen and move that forward on
16 the technology side, so how you turn that into a company.
17 And so there's a gap that ends up resulting where you
18 have a great technology, but you have no way to actually
19 get that to market. And I see that being a problem with
20 a lot of SBIR Programs, as well. And certainly there are
21 initiatives to try to help provide commercialization
22 support through different agencies like the Department of
23 Energy and what have you, but without that type of
24 innovation cluster, or that type of support that's
25 provided to these technology-based companies, you won't

1 actually get the results that you're looking for, so
2 you're not going to actually get those technologies
3 deployed because there's no business behind the
4 technology.

5 MR. WALDEN: One of the things that Josh hit on
6 when he talked about the pilots is, really, I think, at
7 the heart of how we define, as we move forward, what a
8 cluster is because they really need to be narrowly
9 defined and many of the technologies where you're looking
10 at, say, a size that would on a military installation for
11 waste energy, or biomass to energy, what the pilot is and
12 how you define the pilot really is at the heart of being
13 able to get funding. If a pilot that makes electricity,
14 for example, is a minimum unit that has any economic
15 value in the commercial market, which means that it
16 probably is the minimum they would fund at the venture
17 capital market area, then you have to end up defining a
18 way that you can take a small integrated single
19 technology and build it in and help it become a larger
20 integrated pilot, so that it reaches that commercial
21 level, so that it does have value and can get funding.

22 MR. GOULD: If I can sort of chime in here, I'm
23 running a pilot now, or trying to run a pilot, so you
24 know, that's in my lens, and just to echo some of the
25 other things that have been said, I really think that, at

1 least within DOD right now, especially given our current
2 budget environment, that having a sound business case is
3 almost certainly the key way to get anything done, move
4 from an R&D phase up to a pilot phase. You know, the
5 project I'm running, we do have a good business case to
6 move forward, but frankly we have a good business case
7 because we went out and did all the research ourselves
8 and decided we were going to do it, that wasn't something
9 that necessarily presented to us any real way from
10 industry. And so, if commercial enterprises are going to
11 be working on these types of things, to focus on, okay,
12 well, what scale does this need to be at before it
13 becomes economically viable? Is it 100 units, 1,000
14 units? Is there some other service that needs to be
15 provided, and really hone in on those things. And the
16 other thing on pilots that I've observed, not just from
17 my projects here, but from others sort of in the energy
18 and environmental space around DOD, is that when we do
19 pilots, we do them -- we tend to do them in very small
20 ways that, you know, we'll drive five vehicles around for
21 a year and we'll pat ourselves on the back that we drove
22 five advanced vehicles around, but there's really nothing
23 more to it than that. And so I think that there's
24 something to be said if you really want to bring things
25 to commercial scale, then the pilot should be large

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1 enough and significant enough that it really makes a
2 difference. We'll have pilots on renewable energy
3 technologies that may have been great, I mean, you know,
4 for the year that they were funded, but beyond that year,
5 there was just no real plan for how to sustain the
6 project, and then everybody ended up getting mad because
7 the project funding had stopped, it's not a viable
8 business case on its own, and there was no real follow-up
9 plan for how do you take that pilot and then just evolve
10 it into something that is real and operational, so really
11 focusing, I think, on how to make good ideas real things
12 is important.

13 MR. STOKES: Okay, we'll move on to the next
14 question: What are the pros and cons of different models
15 of energy innovation clusters to accelerate a successful
16 path to market? And we kind of touched upon it in this
17 first question, so if anyone has any additional comments?

18 MR. SIMON: I would just add to it, I don't think
19 there's any silver bullet and, if you look at now what's
20 available to companies in the way of help to accelerate a
21 successful path to market, there's all sorts of things
22 out there, there's for profit accelerators, there's
23 nonprofits, there's course work, academies of
24 entrepreneurship, I don't think it's about choosing a
25 model. If I were to identify where I think the gaps are

1 and where EPIC would help, I would say it's in
2 communication. There's a lot out there that people are
3 not taking advantage of because they don't know about it.
4 And one size doesn't fit all, and a company that may find
5 its best path to success is with the Center of Excellence
6 -- and I'll leave that undefined -- you know, should go
7 that way. And one who finds that its best path is done
8 in a technology accelerator being physically co-located
9 with others, then that should be their path. The
10 diagnostic of trying to figure out where they belong and
11 sorting that through, I think there's a communication
12 problem. And I think we could get much more benefit out
13 of the individual efforts that already exist in the state
14 if there's a way of putting information together on what
15 do they offer, who are they looking for, what are some of
16 their models for success, what fits best with them, and
17 we can get that to the people who are struggling to
18 advance a technology into commerce, and can somehow bring
19 it together. So, you know, I'm mixing this with a little
20 bit of the next question, but if EPIC could fund just a
21 lot of us in the environmental cluster technology
22 incubation business, or industry, getting together like
23 once or twice a year to share experiences, and create
24 some kind of online community where we knew what others
25 were doing, I think we could amplify tremendously

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1 resources that are already being devoted to this. We
2 have companies that have ideas here in this region, but
3 their best customers may be down in Orange County. And
4 so we need to work -- for example, an organization down
5 there called Octane -- but we don't because we don't know
6 exactly what they're doing. San Diego Connect, or the
7 Environmental Business Cluster, or there are other things
8 in the Bay Area, and there are commercial operations,
9 there's one called Greenstart, and they will only accept
10 a handful of companies, but once you're in, you get some
11 amount of funding and, if you're the best company that
12 comes out of their program, you know, you basically get a
13 half a million dollars to go forward. They don't need to
14 be dealing with companies that are already pretty well
15 organized and know what they want to do -- how do we feed
16 them? So I think the communication would help create a
17 structured ecosystem of going from things like
18 CleanStart, which are the very earliest companies that
19 are just beginning, and how to feed that all the way up
20 the line until you get to something like Greenstart that
21 will fund companies, or actual VCs, or entry into the
22 Clean Tech Open. But there's a lot that's going around
23 there already, I don't think it's a matter of choosing
24 one model, I think it's more a matter of how do we
25 organize and leverage what we're already doing.

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1 MR. WALDEN: Gary is right, there won't be one
2 model. I mean, every technology space has its own needs
3 from the early part of the pre-commercial gap to the
4 latter part, but I think that one of the things that
5 stands out in my mind is that these clusters need to be
6 narrowly defined, their focus needs to be a narrowly
7 defined focus because, in many of the technical spaces,
8 the infrastructure requirements to help those
9 technologies is very large. I mean, the bio center has a
10 very large investment in infrastructure, the Renewable
11 Energy Testing Center has a very large investment in
12 infrastructure, and they're focused on specific technical
13 space. But, you know, they're not very applicable to
14 other technical spaces but for that one area, or those
15 two areas, or a dozen areas they are very good.

16 MS. KULA: Yeah, I think -- I would argue with
17 you a little bit though in that, with the bio side, I
18 think it's what type of infrastructure you have in place,
19 so at the Bio Center, we have companies that are working
20 on cures for cancers, and cures for Hepatitis C, and
21 diagnostics, and what have you, working side by side with
22 companies working on battery technologies and solar
23 cells, actually both of those companies are funded by the
24 CEC. And so you can be very broad, and I think it
25 depends on what stage you're working at. So those

1 companies are very early, they were funded under the EISG
2 Program, whereas the companies that you're working with
3 tend to be a little bit sort of later.

4 MR. WALDEN: Yeah, later. They are later.

5 MS. KULA: And Bill has got a great facility if
6 you have an opportunity to go see it, it's amazing what
7 they have there. So there so -- I think it depends on
8 the stage that you're working with, and so from an
9 infrastructure perspective you can be pretty broad and so
10 support the earliest stages of R&D.

11 MR. WALDEN: Right.

12 MS. KULA: And then you also have the kind of
13 mentoring support and what have you, which is consistent
14 across most of the incubators. I think the con side of
15 incubators are where they are too broadly focused in
16 terms of the types of companies that they'll work with.
17 I think there's a very specific network that's needed in
18 the clean tech space, or the energy space, and if you're
19 an Innovation Center, or an incubator that's focused on
20 every type of company, you're not going to have as much
21 depth in terms of the network for folks, or the
22 community, even. And so you can be working with the mom
23 and pop trying to start a coffee shop, or the social
24 media app, or what have you, very different sort of
25 resources for the companies. And so, on the con side, I

1 think you really have to look at the ability of the
2 Innovation Center. There's so many out there and they
3 are not --

4 MR. WALDEN: And as I said, it depends on which
5 part of the value you're talking about, if you're earlier
6 stage, and we do tend to work on later stage pre-
7 commercial.

8 MS. KULA: Uh-huh.

9 MR. STOKES: Okay, Cameron, Josh --

10 MR. GOULD: This is Josh from ARPA-E, and just to
11 tack on to that discussion, I think stepping away from
12 the exact outline of the organization and thinking about
13 -- of the potential innovation cluster -- and saying, you
14 know, regardless of the exact mission of that cluster,
15 what's incredibly important, I think, is clarity of
16 objectives. So I think that's been one thing that's been
17 pretty helpful here at ARPA-E in terms of, you know, how
18 we look at funding things, and the set of activities that
19 we do, because we're only -- we just had our third
20 birthday here and so, you know, how we look at what we
21 fund, it's got to be transformative, it's got to be
22 early, it's got to be something that the private sector
23 wouldn't do, and then we measure our outcomes in terms of
24 the number of projects that in some shape or form make it
25 to market. And I think, you know, that provides a really

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1 good clarity across the organization about -- think of it
2 like a textbook, or a notebook, to say, "Yeah, if this
3 company, if this technology goes not do X, Y and Z, then
4 that's not what we should be doing." And so I think
5 making sure that those objectives and that purpose for
6 this cluster is really well defined is critical because I
7 think, without that, what you'll find is you'll spread
8 yourself far too thin, and that the bang for your buck,
9 that dollar, will just not go very far because you're
10 trying to do simply too many things, whereas if you have
11 a clearly defined set of objectives, everyone marches in
12 the same direction and everyone knows what that cluster
13 does, but even more importantly, what it does not do. I
14 think no matter what the exact outlines of that cluster
15 are, those objectives need to be clear and well
16 communicated from the very start.

17 MR. STOKES: Cameron, do you have any comments?

18 MR. GORGUINPOUR: No, I mean, I think folks have
19 pretty much said everything that I would say. I've got
20 to say that RB has a spectacular model for how to work
21 this type of thing, so I'd defer to Josh.

22 MR. STOKES: Okay, the next question: Do you
23 recommend funding for innovative clusters in the EPIC
24 Program? Provide program specific recommendations.

25 MR. SIMON: Well, yeah. I think I put one idea

1 out there is that, in this state, I think it would be
2 good to have a network of innovation clusters working
3 together. The second thing that I see as a gap in this
4 whole enterprise of bringing technologies to market is
5 connecting these businesses with customers. And over and
6 over again, we see a lot of businesses searching now for
7 clean energy, clean technologies, in order to meet some
8 of their own corporate goals of being good citizens, or
9 reducing carbon footprint, or something like that, and
10 they don't even know what's available in their own
11 backyard. And similarly, from the companies, when you
12 sit down and talk with them about what it is they see as
13 being a product coming out of their innovation, they have
14 some fairly unsophisticated ideas of what people will pay
15 for. I can give you a specific example without naming
16 the company, but it's a company that wanted to optimize
17 the charging of electric vehicles in the utility network
18 and optimize use of energy in the home through the Smart
19 Grid. Great idea, we probably would agree there's great
20 potential there, but how many electric cars are there
21 really out there that you can control right now? That's
22 not a good place to start. When they changed, after some
23 coaching, their business plan to saying, "Well, maybe
24 what we should do is try to optimize the charging of golf
25 carts at resorts," then they had a business. Somebody

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1 would pay for that. Reducing the amount of money that
2 people were paying for electricity to charge golf carts
3 because you don't necessarily need to charge them all at
4 the same rate, they don't always need to be running after
5 they're fully charged, that made a difference. And, you
6 know, now that that business is running and it's got some
7 real customers, and it's got a value proposition, etc.,
8 but some of it is just understanding what customers are
9 out there. So if there is a way that EPIC could help us
10 put together a catalogue of what customers are looking
11 for, or sponsor events where customers are talking about
12 what they're looking for, and they can hear from
13 companies that have the technologies to meet their needs,
14 there's a matchmaking service that we're missing right
15 now and it's requiring a lot of time and effort for those
16 of us in the incubation business to try to think through
17 who are the customers that might be the good ones, and a
18 lot of that is based on limited experience and anecdotal
19 evidence, and we're not necessarily hitting the right
20 customer.

21 Here in the Sacramento area, it's interesting,
22 one of the biggest customers for green technologies,
23 clean energy in this region, would you guess, is the
24 health industry. They're looking for ways to reduce
25 waste, they're looking for ways to cut down their cost of

1 electricity because running a hospital is a pretty
2 expensive and energy intensive business, etc. There's a
3 lot of companies we have that should be presenting
4 information to the health industry on how to sell their
5 products. But I'll tell you, there's a big problem there
6 because a lot of people say, "Oh, I don't want to sell to
7 the health industry, what if my product fails and I incur
8 all the liability? What if something really bad
9 happens?" Well, it all depends on what it is you're
10 actually doing, I mean, yeah, if you're a medical device
11 in the surgical operating theater, that's one thing, but
12 if you're just somebody that's trying to reduce air-
13 conditioning load, you know, you don't really have that
14 liability. So, help the people through that, or thinking
15 through some other big customers, and a great customer is
16 here in the form of the Air Force this morning, and what
17 Cameron has been saying, you know, there are companies
18 here that could probably help the Air Force do a lot
19 better job in setting up the infrastructure at a lower
20 cost and we need to connect them. But I think it all
21 gets back to, if there is something to be done, I don't
22 know that we need to create more innovation clusters. I
23 think, a) we need to network them together, and b) we
24 need to have some effort go into identifying customer
25 needs and specific customers. If you have a well defined

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1 product which comes from working with customers and you
2 have some contracts in hand to sell your product to
3 customers, funding and organizing the business and
4 getting staff to move the business forward is so much
5 easier. Funding a business and trying to hire staff when
6 you have no product and you have no customers, really
7 hard.

8 MR. WALDEN: I think that this opportunity for
9 Energy Commission to pull this network together is going
10 to be that next great thing that keeps California out in
11 front for the world. Right now in the technical area
12 that we're in, we see innovation coming from Europe and
13 Russia, there's a lot of it in the Pacific Rim, but the
14 bulk of it in terms of both technical innovation and
15 visibility is California. There's stuff going on in the
16 rest of this country, but people look to California from
17 Europe, Russia, from the Pacific Rim, as that leader. And
18 I think that this putting money into this, into a defined
19 program that has life even after the Energy Commission
20 quits funding it, or public money goes away, which it
21 would at some point, I think is another way that
22 California is not only going to keep the reputation that
23 California has had in the past, but also to be able to
24 bring jobs into California. Companies want to move to
25 California, they want to be in a nurturing environment,

1 they want to be someplace where people are trying to help
2 them cross that Valley of Death, and no matter what part
3 in there they are, they still want to be here and they
4 will go out of their way, put money into bringing their
5 technologies here if they get the right kind of help.
6 And I think defining this is just a tremendous
7 opportunity for the State of California to build this
8 infrastructure that does help companies and that is self-
9 sustaining when it's over.

10 MS. KULA: There are other regions in the United
11 States that are doing something very similar in terms of
12 binding together, so New England, for example, has a New
13 England Energy --

14 MR. SIMON: Clean Energy Council.

15 MS. KULA: Yeah, thank you. And you know, those
16 organizations have kind of bound together under the Clean
17 Energy Alliance, which is the -- the EVC was a founding
18 member of -- I'm currently the Chairman of the Board of
19 -- but it goes all over the United States, bringing
20 together Innovation Centers from around the country, and
21 it's great to have that sort of exchange of ideas, the
22 access to the resources, and connecting the clients
23 together that are part of all of these clusters. So I
24 think California doesn't have that type of approach to
25 kind of binding everyone together, and I think there

1 could be great benefits of that, you know, connecting --
2 obviously, CleanStart is part of Clean Energy Alliance,
3 as well, but having something that we can regionally do
4 together would be beneficial.

5 Going back to my earlier comment, though, about
6 providing the support to the companies, especially the
7 earliest stages of companies focused on R&D and turning
8 those into companies, or even demonstration level
9 companies and turning them into companies, I do think
10 that, you know, given the ultimate goals of the EPIC
11 Program as I read about them, and the ultimate goals of
12 the California Energy Commission, I do think that
13 providing support to the companies in the form of
14 commercialization assistance, be it if you fund the
15 innovation clusters, or if you provide additional funds
16 to the companies for that type of support, to seek that
17 type of support, will be valuable in terms of the
18 ultimate benefits, so actually getting the technologies
19 to market, or even moving them from R&D to demonstration,
20 demonstration levels. I think leaving it to the devices
21 of the companies on their own can make that path to
22 market much longer. So, providing that type of funding
23 through the EPIC Program would be valuable.

24 MR. GOULD: This is Josh here at ARPA-E. You
25 know, I think innovation clusters can and have been

1 successful in a number of different instances, many of
2 which are right there in California, you know, both
3 inside and outside the Energy industry. You know, at the
4 risk of repeating myself, I think what is most important
5 is not only clarity of objectives for if and when you
6 launch an innovation cluster, but where we started this
7 conversation, which was clarity of objectives for, you
8 know, what we're seeking to achieve with that funding.
9 And it seems like we're starting to have some of that,
10 but again, I would argue that we want to start from not
11 only the clarity of objective, but these problems that
12 we're trying to solve and, you know, that's where we
13 started this conversation with things like, you know, a
14 gap in the early stage R&D funding, a challenge in
15 getting companies to an initial pilot, getting them out
16 of pilot stage into real commercial deployment and having
17 a business plan around that. These are the problems we
18 need to solve and I think we need to have an open mind as
19 to the best approach for solving them. That may mean an
20 integration cluster, it might not. You know, I'm frankly
21 not sure and at this stage don't know enough to take a
22 position. But I just want to make sure that, you know,
23 we were looking at the idea of a cluster, that we're not
24 losing sight of the problems and issues that we're trying
25 to solve and the goals we're trying to achieve. And

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1 then, I think once you have some clarity and you have all
2 stakeholders on board on that, I think it becomes a more
3 tactical discussion about what you actually do to address
4 that, but I think making sure that we fully have a clear
5 understanding of what those issues are and what the
6 problems we're trying to solve, I think that's probably
7 the most important thing and the place to start.

8 MR. GORGUINPOUR: Yeah, sort of following on what
9 Josh and others have said, you know, I think definitely
10 having a sort of clarity of purpose is the first spot,
11 but I was going to take a little different direction.
12 First of all, I always like the idea of innovation
13 clusters and getting people together to talk through
14 complex ideas because I find those great for getting
15 different connections you otherwise wouldn't get, so I
16 think in general it's a good idea; whether or not it's
17 worth funding, that's obviously for you all to decide.
18 But I would offer up just a couple of just thoughts on
19 this.

20 First is that what I think probably the State can
21 provide, and what's been really helpful to us in moving
22 forward on our project in California hasn't much to do
23 with the regulatory and policy issues as the technology
24 issue, so with Vehicle-to-Grid, as an example, so
25 something that the technology hasn't been actualized or

1 brought to scale, but it's been demonstrated, so we're
2 comfortable that the technology is there. But the
3 biggest part that we need help on getting the technology
4 into use on our installation is, again, working with the
5 Public Utilities Commission, working with the California
6 ISO, working with the Utilities, making sure that the
7 policy and regulatory environment is suitable to move
8 these technologies forward, I think, is key. And that's
9 something that I think a State funded program working
10 with integrative companies that are working together, I
11 think, could really help move things in the right
12 direction.

13 You know, the other thing that's helpful, and I
14 think a program like this could be helpful for, is
15 identifying not necessarily investor funding, but
16 identifying avenues where some sort of market or funds
17 are already available. You know, the reason why Vehicle-
18 to-Grid works is because there's this existing
19 marketplace for energy services, that it's already in
20 place in California, people have already been into, and
21 really what we're doing is we're linking the
22 transportation sector with the energy sector, and
23 leveraging the resources, financial resources available
24 in the energy sector to offset an advanced transportation
25 technology. And that's an example, I know there are

1 other examples I could give to you, but the whole point
2 is that finding those connections, I think, really helps
3 support innovation and that seems to me to be something
4 fundamentally the role of State and Federal Governments
5 to help industry identify those opportunities. And then
6 I think the last thing that I would just sort of throw
7 out there that's been successful, that I think is along
8 the same lines as identifying clear purpose, the Obama
9 Administration has been really good about this, in
10 pushing through challenges, you know, setting a benchmark
11 and saying, "Hey, the first company to get to Point A
12 gets some sort of award and cash bonus," and something
13 like that, but at least it gives you clear objectives,
14 it's good PR, and it tends to work, I mean, there's a
15 whole strategy around that which I think could be helpful
16 for an innovation cluster like this.

17 MR. STOKES: Okay. Thanks, Cameron. It looks
18 like we're at the end of our time. We're going to go
19 ahead and open it up to public comments.

20 MR. BROWN: Merwin Brown with the California
21 Institute for Energy and Environment at the University of
22 California. The subject that you touched upon has to do
23 with what I would call answering the question, will the
24 system of systems work? You mentioned, for example, a
25 photovoltaic cell is part of a system and it can't become

1 a product until you develop the system for that. But
2 there's also another question is will that system work
3 with the broader system, and to give you some example, is
4 for example you may have a smart charging system for an
5 electric vehicle that would interact with the grid, you
6 would have a photovoltaic system that would interact with
7 the grid, you've also got demand response kinds of
8 things, and plus the fact you've got the dispatch of
9 generation out on the system, that all have to integrate.

10 I hear from the utilities and the industry over
11 and over again is, will the system of systems work? And
12 I see that as a barrier that really hasn't reared its
13 head yet. And so I guess my question is, will these
14 integration clusters or incubator, do they have a role in
15 this? Or are we pretty much stuck with the utilities and
16 the regulatory industry and the standards going through
17 the usual plodding process to get this all worked out to
18 the point they're comfortable to buy these products, or
19 not? So I hope that question is clear, but is there a
20 role for that sort of big question of systems
21 integration?

22 MR. WALDEN: I think that ultimately
23 commercialization only happens when someone buys the
24 product and, if you're buying a product that's table top
25 product, that's one thing, but when you're doing

1 something that is an industry-wide issue like in the
2 utility industry, then I think you do have -- you have to
3 look at getting input from that base because they're the
4 ones with the money that are going to be creating the
5 demand for that technology. So I don't think as you get
6 toward the latter stage commercialization and you're
7 working on innovation cluster, or you're working on
8 incubator, I don't think you can avoid bringing in that
9 input because, at the end of the day, their demand is
10 what drives the VCs or the others to do investment in the
11 technology so that it integrates in what they're needing.
12 And we see that all the time from both the military who
13 is a big buyer, as well as the power industry, which is,
14 again, a big buyer.

15 MS. KULA: I do think there is a role for
16 innovation clusters in educating, and it's educating on a
17 lot of different levels, it's educating the
18 entrepreneurs, but it's also educating the utilities,
19 it's educating the regulatory agencies. When we go and
20 talk to people, we're representing 75 different
21 companies, all of which are going to have their own sort
22 of barriers to entry, and all of which may be impacted by
23 the CPUC, or the CEC, or state regulatory -- other state
24 regulatory issues. And so when we go, we have a little
25 bit more say than when an entrepreneur goes and talks to

1 people -- we carry a bigger stick, I guess, is a good
2 metaphor. And so I do think there is a role for the
3 clusters to educate on what the ultimate barriers to
4 entry are going to be, and if it's going to Sacramento,
5 or coming here, I guess I should say, or going to
6 Washington, D.C. and having the same conversation with
7 people, and we've done that on both the light science, as
8 well as the clean tech side. And so I don't think it's
9 up to just the utilities, or just us to try to do it, I
10 think it's all of us kind of trying to figure out how do
11 you ultimately integrate the technologies into the
12 market.

13 MR. SIMON: I think part of the role of an
14 innovative cluster or incubator is helping companies see
15 where there's a problem crying out for a solution, and
16 then coming up with a solution that solves the problem.
17 So understanding some of these interface issues, of
18 systems of systems, as Erika said, important, and I think
19 if you can just make more visible to people that are very
20 clear, that here's a problem waiting to be solved, that
21 people will come up with good ideas, and then it's the
22 role of the innovation cluster to help them connect with
23 the customers and get that into a good business.

24 An example that I think of right away is
25 Professor Raju Pandey at U.C. Davis in the Engineering

1 School, he's in the computer part of it, but he's very
2 much into understanding the system of system problems,
3 monitoring where the problems are, providing some
4 intelligence as to how he came up with the devices that
5 are now being promoted by Synapsense, which are in fact
6 controlling systems of systems; what Merwin Brown was
7 talking about is much bigger scale, but it's the same
8 question. So there are people out there thinking about
9 that, but I think what our job is as incubators is to
10 help them define what they can offer to solve the problem
11 and make the value proposition of that solution very
12 clear, so that things can go forward. And education, I
13 think both ways is important to that.

14 MR. GOULD: This is Josh from ARP-E. I just have
15 to second the importance of, you know, particularly for
16 innovations that are a component, or even a system, you
17 know, again that's part of a larger system, almost all
18 these innovations exist in a larger context, particularly
19 when you're talking about things that are integrated onto
20 the grid. And so what we do at ARPA-E is, when we fund
21 performers, oftentimes we will write it into their
22 milestones, i.e., one of the things that's necessary for
23 them to continue getting funding, that they model not
24 only the costs and performance of their own innovation,
25 but how that cost and performance factors into the

1 performance of a system as a whole, and so whether that's
2 done by an innovation cluster, or whether that's done
3 with the assistance of someone else, you know, that's
4 another decision. But I just want to emphasize that I
5 can't think of too many other important things in terms
6 of getting technologies to market, is to understand the
7 system level impacts of a particular technology, even if
8 that technology is a component. I mean, it's a really
9 good point and something we need to address and keep in
10 mind.

11 MS. TEN HOPE: I have a question for the panel.
12 This is Laurie Ten Hope with the Energy Commission. And
13 yesterday we talked about connecting good companies and
14 good products to the market, either through
15 communication, networking, etc.; implicit in that is that
16 there are good companies with good products. And my
17 question is, how do you kind of filter? Do you provide
18 your services equally to all the companies within your
19 cluster, you know, filter the companies or products that
20 you really think have the most promise? What's your role
21 in sort of making that distinction?

22 MR. SIMON: Well, on the part of SARTA, we have a
23 process of people applying for help and there is a filter
24 as to whether or not we think, a) they're far enough
25 along to be thinking about building a business, and b)

1 whether they have put enough thought into a good business
2 plan to address the problems of building a business. But
3 we see our role at SARTA as working at the very early
4 stages of this long process, so, you know, I think our
5 filters are pretty low. But on the other hand, at the
6 end of our process, it's probably not -- about \$25
7 million Series A funding. It's probably going into
8 somebody else's process to take the next step up, so I
9 think the degree of discrimination on the filter depends
10 on what it is you're trying to do and what companies
11 you're dealing with, but we have screened out quite a few
12 companies that we just say it's too early. Now, several
13 of them have come back, taken the initial feedback, put
14 more thought into it, got some training and come back,
15 and they're in the program. In a venture start program,
16 I think we've probably had about three dozen companies
17 come into it, probably a third of them are Clean Tech
18 companies. And then they go on to another process, or
19 they decide, hey, this is not for me, and they end.

20 But I would also say, while I've got the
21 microphone here, in terms of funding by a State agency,
22 and how you measure benefits to this, that one of the
23 things you have to understand is you're not going to see
24 benefits after a year, two years, three years, maybe not
25 even five years, this is a long process of getting

1 companies to put products into market and see that they
2 succeed. So if you start down this path, appropriately
3 set your expectations that you're not going to be doing
4 this for something you could measure as a short term
5 gain, it's a longer term process. If you enter it with
6 those sorts of expectations, then I think it's a lot
7 easier to see when it will be appropriate to measure
8 benefits. Now, fortunately, because the Commission has
9 been funding things like the Environmental Business
10 Cluster, there's already more than five years of
11 experience of how this works and I think that would give
12 some foundation for expanding that type of program, as
13 we've suggested. But in measuring the benefits, they
14 aren't going to short-term.

15 MR. GOULD: You know, in general there tends to
16 be a trade-off between -- you can have a more -- you can
17 have a bigger impact with a smaller number of people if
18 you have a finite set of resources, like say you've got X
19 number of people, Y amount of dollars, and that is all
20 set; typically, what filtering does is it allows you to
21 kind of maximize your benefit with a given set of people,
22 and so I think it's another important issue to touch on,
23 which is you can fund, let's say, 100 during the year,
24 now, what that will result in is essentially, you know,
25 sprinkling the same amount of dollars and impact over a

1 much larger group and the incremental benefit each
2 awardee is going to receive is going to be far less from
3 a cluster. But you could argue that that's part of your
4 public mission, is kind of to fund as many people as you
5 like. What we do at ARPA-E is we try to filter pretty
6 stringently for a smaller group because we feel like, you
7 know, given a group of five that's appropriate for the
8 resources that we have, we can have a real tangible
9 impact on those people. So I think the filtering
10 mechanism has got to come from having clarity of
11 objectives and clarity of purpose, and then there's got
12 to be some critical thought around, okay, what are the
13 tradeoffs between funding a larger group, but having less
14 impact on each one, versus funding the smaller group and
15 being able to influence and have a bigger impact on each
16 of them because there's a smaller number. So I think
17 it's an important tradeoff to talk about before forging
18 forward.

19 MR. WALDEN: When you're dealing with -- as we're
20 dealing with -- the latter stage technical equipment that
21 generally is larger scale, the vetting or the filtering
22 is not necessarily easier, but it's certainly different.
23 We get input from the military, from the Army
24 specifically, we're just now starting to get input from
25 the power industry. But in the larger technical

1 equipment, you're dealing with fewer companies that
2 actually come in. We don't pay for, nor does the
3 government pay for any of their equipment, but it's more
4 of a technical vetting than it is a business vetting
5 because most of these people have to pass safety checks
6 and they mostly have \$2 million to \$3 million invested
7 already. So it's really a straighter forward vetting, I
8 think, but still has to be done.

9 MS. KULA: Though, with companies coming into the
10 EBC, we go through an application process, as well, like
11 Gary and Bill. And from there, we really determine what
12 the company is looking for, what are the objectives of
13 the company, to go back to what Josh has been saying
14 numerous times, or what is the reason that the company is
15 coming to the EBC, is it something that we can help with?
16 Or is it not something that we have the capabilities of
17 providing? We also look at whether or not the company is
18 ready for constructive criticism. A lot of what we're
19 doing is providing insights and mentoring and
20 constructive criticism in order to get someone ready to
21 access those investors, or what have you, or customers,
22 or what have you. So, if someone is not ready for that,
23 or doesn't want that, they're not invited to join. So
24 with regards to connecting people, you know, we will, as
25 our client base, we'll go through the application

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1 process, we'll mentor them, we'll get them ready to go
2 out. We also do, through our open to the public
3 sessions, we'll do meet with series, we'll bring in
4 investors like Dow Chemical, which was in town last week,
5 we had 10 folks from Dow, from Michigan and all over, out
6 here. And so companies can apply to have a one-on-one
7 meeting, and some of them are companies and some of them
8 are entrepreneurs from all over California, and actually
9 all over the United States. And Dow selects, in this
10 case, who they want to meet with. So it's not just us
11 vetting the companies, it's up to the investor to vet the
12 companies, as well. So there's a few different things
13 that we do.

14 I just want to make a comment on Gary's comment
15 about measuring ROI. I think you have to look at the
16 companies as a portfolio, and so if you look at a venture
17 portfolio as an analogy, you have companies that are in
18 the portfolio that are going to be quicker ROI, and you
19 have companies that are going to be a longer term ROI.
20 And I think, as you're gauging the success of the EPIC
21 Program, you have to have a mixture of those because
22 every year you're going to have to be showing some return
23 on the investment, and so if you have companies that are
24 moving to investment, or whatever your measurement of
25 success is, those quicker ROIs need to also be part of

1 the longer term, so you have an overall strategy.

2 MR. GRAVELY: Mike Gravelly from the Commission
3 R&D Division. I'm just curious, under EPIC your vision
4 of incubation, or incubator cluster, or type of a
5 project, there's two areas I guess I was just curious to
6 see where you think the right focus is. So one area
7 would be, you mentioned helping people develop business
8 plans, marketing plans, helping them make their product
9 to market, and then we've also talked about areas where
10 there are barriers and restrictions, and when we've
11 talked about energy storage and CHP and distributed
12 renewables, there are areas. So would you see for EPIC
13 the purpose or goal of a cluster to be working mostly
14 with companies to allow them to work within -- I'll say --
15 - the system that exists? Or would you see the cluster
16 identifying significant barriers that would open up the
17 system or market for new technologies? I see those as
18 pretty substantially different objectives. We talked
19 before about the purpose and objectives, so I would say
20 the cluster would have a different structure, a different
21 objective, if you were working at one to work within the
22 system, and to help break down barriers so those
23 companies could be successful. So I would be interested
24 in your thoughts about what you would say the purpose of
25 the cluster would be in those two comparisons.

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1 MS. KULA: Well, I don't think that -- I think it
2 would be both. I know you see them as different, but I
3 think also the technologies that are being developed, you
4 can't necessarily be developing a technology to be
5 integrated today when you're at the R&D phase. You have
6 to be looking five years out or even, in some cases, 10
7 years out, depending on the technology. So it's a matter
8 of helping the companies understand where the market is
9 going to be in five years, you know, what the grid is
10 going to look like in five years, or what have you. And
11 so I think from the role of the cluster is to really
12 provide access across the board. So talking with you
13 guys and the CPUC, and the utilities about the goals, but
14 then also educating the entrepreneurs. I think it's a
15 broader -- it's a whole ecosystem basically that is our
16 primary role.

17 MR. WALDEN: I mean, if the objective is to get
18 companies of all sorts of technology space across that
19 Valley of Death and the right-hand side becomes -- they
20 are now part of a commercial industry, I think you end up
21 with a multi-dimensional problem to solve and, like Erika
22 says, the objective is to get them across there, and the
23 width of that depends on the type of industry that
24 they're in and who and what they're going into as a
25 commercial venture, so that's the third dimension of it,

1 is that one of the programs isn't going to fit everything
2 because you can't just focus -- we have tended as a
3 country to focus on the front end of helping them, which
4 is absolutely critically important to get them to the
5 back end, but we have to look at both the type of
6 industry, or type of space that they're going into, and
7 this is very relevant here since we're talking about the
8 electric power industry, and that's a very different
9 space than some other spaces. So the third dimension of
10 it is get them across there, but you have to have
11 clusters that are sized or designed for the type of
12 industry that you're in.

13 MR. SIMON: And, Mike, what I would add to that
14 is, if the Commission is interested in attacking a large
15 system-type problem where there may need to be some new
16 technologies, and there are some other barriers, that's
17 probably the Center of Excellence model, where you're
18 really trying to devote some time to the drilling of a
19 very hard board. If you're in the business incubation
20 part of the spectrum, the basic problem is getting --
21 shrinking the time to get to that first check from a
22 customer. And that sometimes means carving down the
23 problem that you're trying to solve in order to get to a
24 sustainable business. But the name of the game in
25 business incubation is getting to profitability, and the

1 key to profitability and the success of a business there
2 is you have to be present to win, you can't run out of
3 money before you get the revenue coming in. So sometimes
4 it means not addressing the big problem, but addressing a
5 smaller problem -- controlling golf carts, waiting later
6 to control electric cars, that sort of thing. So it
7 depends on really what it is you're trying to do, build
8 businesses, or address big problems and innovating
9 specific technologies.

10 Now, there's obviously a relationship between the
11 two -- you can innovate the technologies over here, and
12 then, as ideas come up that can inform businesses, for
13 which people will pay money for products, then it comes
14 over to the other side. So I think you have to look at
15 both parts of that equation.

16 MR. STOKES: Anymore public comments? Okay, I'd
17 like to thank the panelists again for their participation
18 and some really great comments. Our next panel is on
19 Regulatory Assistance and Permit Streamlining. And the
20 Moderator is Sherrill Neidich.

21 MS. NEIDICH: Okay, let's go ahead and get
22 started. This is Panel 2, we're going to be talking
23 about Regulatory Assistance and Permit Streamlining. I
24 want to welcome everyone who is attending today here in
25 person and on WebEx. I want to thank my panelists for

1 attending today. We've assembled a great group of
2 panelists with a wide range of expertise.

3 The purpose of this panel is to discuss planning
4 and permitting challenges that have been identified by
5 stakeholders and the CPUC in the EPIC Proceeding. The
6 Energy Commission will be developing its first triennial
7 Investment Plan per the EPIC Phase 2 Final Decision, of
8 which Regulatory Assistance and Permit Streamlining is a
9 component of.

10 The EPIC Phase 2 Final Decision, a total of \$15
11 million, is allocated annually, and a portion of that
12 budget will go towards grant-funded investments in the
13 following local government activities: the comprehensive
14 land use planning that includes clean energy development,
15 develop planning platforms that complement planning
16 activities and facilitate clean energy development, and
17 develop information materials and technical systems to
18 help build local capacity for clean energy development.
19 These are broad activities we generally agree with, some
20 of which are already occurring at the local level.
21 However, local governments remain resource constrained,
22 and providing public investment into the local
23 development process will help overcome some of these
24 resource constraints. We are looking forward to
25 receiving insight from our panelists today and solicit

1 public input to develop specific investment initiatives.
2 And my instructions to the panelists today is to go
3 ahead, and we're going to start with Valerie. And we'll
4 take about two or three minutes, go ahead and just, you
5 know, your name, organization, and your role in the Clean
6 Energy sector.

7 MS. WINN: Great. Well, I'm Valerie Winn and I'm
8 with PG&E, and currently I'm the Manager of our State
9 Agency Relations Team, so I spend a lot of time here at
10 the CEC. But before that, I was also a Manager in our
11 Renewable Energy Policy and Strategy area, and in that
12 role, you know, we spent a lot of time looking at
13 contracts, hearing from developers about their challenges
14 and getting their facilities on-line, and I'm talking
15 about, you know, general utility scale projects, some
16 below 20 MW range, but most of them much larger than
17 that.

18 You know, some of the challenges with permitting,
19 I mean, when you try to build a project, you've got so
20 many different agencies and jurisdictions, sometimes with
21 conflicting and competing timelines, and you don't know
22 where you go first, and I think we've actually made a lot
23 of progress in the last few years with the Governor's
24 Office, was taking a very active role in trying to work
25 with the existing processes to streamline things.

1 We've also, here at the CEC, been working on the
2 Desert Renewable Energy Conservation Plan, and that was
3 really taking a very science-based approach to looking at
4 what are the issues out in the Colorado and the Mojave
5 Desert, and some of those are the sorts of things, you
6 know, what are we dealing with, what are the preferred
7 areas for development, that if we did some of this work
8 upfront before we started setting our very aggressive
9 policy initiatives, we'd probably be better placed to be
10 able to achieve those goals, so I think a lot of the
11 effort, you know, taking a DRECP-like initiative and
12 looking at other areas of the state to learn what are the
13 environmental issues, what are the cultural issues, and
14 then taking that information and putting it into some
15 sort of a system that we can leverage going forward would
16 be really helpful and help streamline things. I think
17 what we have right now is someone files a permit and
18 you're starting essentially at Ground Zero every time you
19 file a permit, and we're always reinventing the wheel;
20 so, how can we get that wheel constructed a bit more
21 quickly?

22 MS. NEIDICH: Thank you. Jennifer.

23 MS. BARRETT: Yes, hi. I'm Jennifer Barrett and
24 I am the Deputy Director for Planning for the County of
25 Sonoma. I actually have a degree in Energy Studies, as

1 well as in Planning, unfortunately a lot of my initial
2 efforts to do energy planning early on were delayed for
3 20 years, so I really feel like we're behind the times
4 here in California, but Sonoma County is a very
5 progressive county in actually trying to deploy various
6 energy technologies, renewable energy technologies. I
7 worked as a project leader with the California County
8 Planning Director's Association on a team that was
9 developing a model Solar Permit Streamlining Guide, and
10 through that process we learned quite a bit about the
11 challenges that Valerie was just speaking about, we do
12 feel like we're at Ground Zero every time we look at a
13 permit for a major facility. And I think that the
14 process that we learned through that Solar Permitting
15 Guide also applies to other emerging and renewable
16 technologies, an example of which is, you know, looking
17 at trying to develop a model ordinance for the State of
18 California is quite challenging. We found that there's
19 many issues that are really common to every community,
20 but the approaches that you might want to take, or the
21 amount of resource that you have, or the other issues,
22 the constraints of the landscape, really play into how
23 you might go about addressing that.

24 So one of the things that we found with solar,
25 for example, just using that as one technology, is that

1 that is a very land extensive technology, meaning it
2 requires large areas of land, and so the issue there is
3 the cumulative impact on agriculture, the loss of Ag
4 lands and the impact that might have on our food systems
5 in the long term, as well as the biotic resources, you
6 know, how is that going to impact cumulatively.

7 One project, the first one that walks in, kind of
8 had to deal with it, then the second one that walks in
9 not only had to deal with it on that side, but they have
10 to deal with the fact that they're now plus two, and then
11 it gets worse and worse and worse down the line. So that
12 the County Planning Directors came up with a concept that
13 we would like to recommend for counties and that is a
14 Renewable Energy Combining Zone, and that is an effort to
15 really adjust the cumulative effects which become more
16 difficult each time you do a project to address, they
17 really need to be addressed on a county-wide scale, or a
18 community-wide scale, or a region-wide scale. So the
19 idea there is Renewable Energy Combining Zones would go
20 out, look at the resources on the land, look at the
21 infrastructure and the capacity of that infrastructure,
22 and that's one of the issues you talked about earlier,
23 and identify areas that could be appropriately sited for
24 rapid deployment, and then allow those to be permitted by
25 right, rather than going through an extensive Use Permit

1 process. What that would require, though, is that
2 counties do the upfront heavy lifting on the
3 environmental review, and documenting that, and looking
4 at ways to mitigate that, and that is a challenge. So we
5 are right now going through the process of amending our
6 Zoning Code, not only to add in the Renewable Energy
7 Combining Zones, but just really to amend our Code to
8 allow a wide range of emerging technologies, clean
9 technologies in all our zoning districts. I mean, just
10 even small scale technologies can often not be permitted
11 because there is really no definition of it, or allowance
12 for it, in your Zoning Codes. So that's been a very
13 difficult process. So I would say some of the things
14 that we really do need at the local level is we need
15 technical assistance in just understanding what these
16 emerging and renewable technologies require, what they
17 look like, what kind of impacts do they have, what kind
18 of interconnections they need, and just how do they work.
19 You know, you really need some understanding of the
20 proposal. So we need technical assistance. You know, we
21 went through that on trying to develop the Solar
22 Ordinance, this Model Ordinance, and we had a bunch of
23 solar providers in the room and a bunch of regulators,
24 and the regulators didn't really understand what the
25 solar providers were trying to do, what was required, and

1 the solar providers didn't understand the regulatory
2 process. So it was really quite interesting, but the
3 technical assistance would help the locals, that the more
4 you know about it, the more you understand it, the
5 quicker it goes, the easier it is to write about it, to
6 do the permitting, and deal with the issues.

7 Secondly, we do need to amend our Codes. Our
8 Codes are old fashioned, they're out of date, they take a
9 long time to update and it's money we don't have, the
10 staffing that we don't have often. So we need funding to
11 update our Codes, and that isn't just zoning, I mean, our
12 Building Codes, our Fire Codes, that we have a lot of
13 conflict between one jurisdiction to the next, as to how
14 do you even interconnect a solar panel on a roof, you
15 know, each jurisdiction is different. Having Standards
16 across the board would often help and streamline that
17 process, and just having the local inspectors understand
18 what they're looking at. And solar is probably ahead of
19 the game, other emerging technologies are going to have
20 to go through that learning and growing experience, and
21 then, in addition to being able to do that, we need
22 assistance with the environmental process to really
23 streamline the permitting.

24 Environmental review is important if you want to
25 know the impacts of these technologies before you start

1 opening the floodgate and you need methodologies and
2 understanding of how to mitigate those, so developing or
3 having some funding to do the environmental and do the
4 heavy lifting in advance, so that the innovative clusters
5 can develop, so that they can do the permitting and that
6 we all have an understanding of working together. And as
7 part of that process, I think one other thing of
8 integrating with business is really understanding the
9 critical path, what do you do first? What is the fatal
10 flaw is the hard thing sometimes to figure out, it's not
11 just the environmental impacts, and sometimes it's just
12 there's no capacity on the transmission system. Or, what
13 we found out, which was a surprise to each of the
14 Planning Directors is that the CPUC, when they look at a
15 connection, if it's a private transmission facility,
16 they're looking at the locals to address the
17 environmental impacts of that transmission line and the
18 connection. So, I mean, we wouldn't have known that, we
19 wouldn't have looked at that, you could go through the
20 whole permit process, get a use permit, go to the CPUC
21 and they'll say, "Well, you've got to do more
22 environmental work." So working together with all the
23 permitting agencies involved, in lockstep with the
24 development community, in lockstep with, you know,
25 environmental constraints, I think, is really important.

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1 So I think communication and working teams that have all
2 of those representatives on them is critical to moving
3 them forward.

4 MS. NEIDICH: Thanks, Jennifer. Gary.

5 MR. CRAFT: My name is Gary Craft. I'm the
6 principal of Craft Consulting Group. We're actually
7 relatively newcomers to the Clean Energy, Alternative
8 Energy space. But we've only been around, focused on
9 that area for about the last five years. And our focus
10 in on promoting innovation clusters in the Clean Energy
11 space and helping to remove market and regulatory
12 barriers.

13 Last year, we prepared with the Contra Costa
14 County Partnership and filed a grant application with the
15 Department of Energy, and we're a successful Awardee for
16 their Rooftop Solar Challenge, which was looking at
17 removing barriers and streamlining the permit process for
18 rooftop solar on residential and small commercial
19 buildings. Since then, we've been involved in putting
20 together a group of building officials from nine
21 jurisdictions within Contra Costa County, along with the
22 contractors and installers, working together to identify
23 where those regulatory barriers and constraints were.
24 We've also looked at and are working with some other
25 organizations, including joint venture Silicon Valley and

1 the Alameda County General Services Administration, on a
2 four-county aggregated procurement program for Clean
3 Energy, including solar, for a four-county region in
4 Santa Clara, San Mateo, Alameda, and Contra Costa
5 Counties in the Bay Area.

6 We've also gotten started to get involved in the
7 CPUC Rule 21 as it affects net metering and the
8 interconnection process. We're also getting involved
9 with -- Contra Costa County is in the process of updating
10 their General Plan and Zoning and Williamson Act to
11 address the planning and siting of clean energy,
12 including solar and wind facilities in Contra Costa
13 County. So we're currently, like I said, pretty actively
14 involved in looking at permit streamlining issues and
15 planning issues in order to help accelerate market
16 adoption.

17 MS. NEIDICH: Thanks, Gary. Mike.

18 MR. HART: Good morning. I'm Mike Hart with
19 Sierra Energy. I'm also the President of Sierra Railroad
20 and Company, that's sort of how I got started in this
21 space. We're the oldest private railroad in California.
22 And back in 2001, we became the largest consumer of
23 biodiesel in the country. We became the first railroad
24 in the country to run on biodiesel, wonderful fuel. And
25 U.S. EPA gave us Environmental Hero Awards, also the

1 stuff for doing it. But the problem with biodiesel, as
2 with many other biofuels, is that it comes from food
3 crops, and there's a lot of environmental pushback on
4 this issue. We decided it wasn't a sustainable source
5 and we looked for another solution. What we came up with
6 was a way of taking trash, any form of waste, and turning
7 it into clean biofuels through a process called
8 gasification. The problem is there's been a lot of
9 efforts to make gasification work, and it's been said you
10 can make anything with gasification except money, and we
11 found a way, we hope, that's going to work. We have been
12 working with U.C. Davis, we've come up with, we think, a
13 fairly brilliant technology that comes out of the steel
14 industry, it's blast furnaces and blast furnaces, I'll
15 give you the secret how they work, a big metal tube lined
16 with refractory, you blast at the bottom, you put stuff
17 in the top, it comes out as liquid metal, really a very
18 simple process. The advantage of this very simple
19 process is you can take complex waste, you can take any
20 form of waste, operating at 4,000 degrees, it all breaks
21 down, you recover liquid metal, liquid stone, and syn
22 gas, a very clean syn gas, and what you can do with that
23 syn gas is you can either make electricity, or biofuels.
24 And so, working with the Energy Commission, in fact, we
25 were the recent recipient of a \$5 million grant from the

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1 Energy Commission, we're demonstrating this technology,
2 in fact, we're demonstrating it here in West Sacramento.
3 But we'll be demonstrating one of the very first biofuel
4 projects using this technology at a very small scale.
5 Why a small scale? We believe that one of the problems
6 that we've seen in the biofuels industry, nationally, is
7 that for many of these technologies to work, it has to be
8 really really big, and that means that you have to
9 aggregate waste from as far as 100 miles away -- biomass,
10 trash, whatever their feedstock of choice is, it's a big
11 circle, which means you're trucking this biomass 100
12 miles to a central massive facility that costs hundreds
13 of millions of dollars, requires a huge DOE grant to
14 actually put up -- DOE or loan guarantee -- to put in
15 place so there is massive commitment, and that's the
16 reason why it's taken so long for us to wean ourselves
17 off foreign oil. So we believe the right solution is
18 putting the technology in the community where the waste
19 is created and where the fuel is consumed. We want to
20 build at a very small scale, at a small community, where
21 5,000 to 10,000 person communities could have one modular
22 system delivered to it. And this gets to your point
23 about, if you're going to be dealing with cities and
24 counties and such, they're the ones with the
25 responsibility, cities and counties, not waste

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1 management, not the big trash companies, they're not the
2 people who are responsible for trash, we are. It's the
3 communities that are responsible for dealing with it, and
4 they're our customer. Those are the communities that
5 we're targeting and we want to give them a solution where
6 they can put one of these systems on property the
7 community already owns, every community owns a waste
8 treatment plant, a sewage treatment facility or
9 something, all the utilities are in place, put our
10 modular system in place, it takes 5,000 square feet for
11 25 tons a day. You turn that into over 1,000 gallons of
12 clean diesel a day. What that means is the community can
13 avoid the cost of disposing of that waste, the avoided
14 cost of the fuel which they would have consumed, and the
15 inorganic solids in our system turn into a clean non-
16 leachable inorganic solid called Slag, and our Slag can
17 be used as road base, which again is an avoided cost for
18 the community. So the idea is that any community could
19 use this system as a way to eliminate waste. As you
20 know, trash put in a landfill creates methane going into
21 the atmosphere. Eliminating that source of pollution,
22 eliminating that risk of contamination to their
23 groundwater from throwing trash into a hole in the ground
24 in an unsustainable way, and turning it into very clean
25 fuels. FT Diesel created with our process 20 times

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1 cleaner than the California Fuel Standard, so a very very
2 clean process. So that's what we're trying to do. We're
3 trying to solve this not in some huge way, but instead on
4 a community by community basis across the state. What
5 does that mean from a permitting perspective? Well,
6 California, the agencies and the Cities, and all the
7 other folks, when you talk to agency in the State of
8 California, they're wonderful people. When you get them
9 altogether all at once, a little intimidating. We've had
10 the very good success of working well in advance with all
11 the various agencies and we've had great success with
12 each of the agencies in helping us put together our plan,
13 providing funding and advice, and helping us get this
14 first project built. But I think that coming up with a
15 master plan or a template, as Jennifer was talking about,
16 I think is a tremendous idea.

17 The Obama Administration was kind enough to
18 select us as a Champion of Change and asked us to give
19 speeches throughout the rural south as a way to take
20 trash and turn it into clean jobs, that's what they were
21 hoping to see us do, so we've been giving speeches
22 throughout the Southeast, and what they've done is really
23 innovative. The eight Governors of the eight most
24 impoverished counties in the country representing 252
25 counties have put together a grant and what they're doing

1 is they're having us make a template. And it's not the
2 permits that are the problem, in my opinion. It's the
3 planning, it's the soft costs. When you build a project,
4 the hardware is the easy part. The gadget, there's lots
5 of financing for gadgets. The problem is, it's all the
6 squishy tuff upfront, it's figuring out where's your
7 feedstock going to come from, which piece of land? Who
8 is going to negotiate for this? How do you pay for the
9 consultant? In some projects like for our project, it's
10 a relatively small amount of money, it's a quarter of a
11 million bucks. That's a rounding error in most of the
12 large energy kind of projects, but who is going to pay
13 for that initial chunk? And for a community,
14 particularly an impoverished small town, or a place that
15 right now is struggling, to come up with a source of
16 capital, where are they going to come up with that
17 quarter of a million dollars? Grants like that are the
18 key for success because not only could they take that,
19 use it to develop the project, the project financing can
20 easily step in once you have a developed project, and
21 that initial amount doesn't even have to be necessarily
22 money gone from the state forever. Communities are going
23 to make a lot of money running this process. It actually
24 is very profitable. So have them pay it back. But it's
25 pay it back if they're able. In other words, if the

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1 project doesn't work out, if they get to the end and they
2 go, "Wow, we can't do this," okay, it was a grant. But
3 if the project does succeed, expect them to pay it back.

4 But that's where I see a program like EPIC could
5 be tremendously successful for hundreds of communities
6 where they could get a grant that's at a small enough
7 level, that it's not painful to the State if this
8 particular thing didn't work out. But if it did work, a
9 community, then, creates 10, 12 jobs with each one of
10 these modules, they create 10 or 12 jobs, they create a
11 steady income stream for the community in avoided costs,
12 they clean up the environment where it happens, and they
13 create a renewable source of fuel. And so from our
14 perspective, at least, that's the direction to go.

15 Now, we've been demonstrating -- one of the last
16 speakers, Bill Walden, I don't know if he's still here or
17 not, but we actually came out of one of those Innovation
18 Centers, we've done all of our testing with the
19 Department of Defense at the Renewable Energy Testing
20 Center. It's been very successful. That's not an
21 opportunity available to many other technologies, and so
22 I would like to sort of just speak out in favor of that.
23 I think that was a tremendous opportunity for us and was
24 the key in our success, taking that and being able to
25 work here in Sacramento with all the agencies and through

1 the permitting process was tremendous. I hope that, by
2 putting together a program like EPIC, where grants can be
3 given to these communities so they can do the soft costs
4 of getting these first projects done, we could see the
5 entire waste problem in California diverted into a clean
6 fuels and jobs solution.

7 MS. NEDICH: Thanks, Mike. Chris.

8 MR. CALFEE: Good morning. I am Chris Calfee,
9 I'm Senior Counsel with the Governor's Office of Planning
10 and Research. OPR is designated by statute, for those
11 who don't know, as the statewide land use planning
12 agency. Our function is to coordinate the land use
13 planning policy efforts of various State agencies and
14 also to interact with local governments and to provide
15 technical assistance and planning guidance to local
16 governments.

17 We've been involved in the renewable energy and
18 streamlining efforts in a number of different ways, so
19 statutorily last year we worked with different
20 stakeholder groups and legislative leaders to secure an
21 exemption from the California Environmental Quality Act
22 for rooftop solar and solar on parking lots. But the
23 bulk of our effort really has been in providing some
24 technical assistance and guidance, so for example
25 recently OPR worked with a team of folks to put together

1 the California Solar Permitting Handbook -- and I believe
2 Gary has got a copy of that right there -- if you haven't
3 seen this document, it is on OPR's website and the intent
4 is to gather into one place all of the different
5 requirements that might apply to putting rooftop -- to
6 implementing rooftop solar, and it provides templates and
7 other good information like that.

8 Also, my colleague, Sandy Goldberg, worked with
9 the California Planning Directors Association to put
10 together the Model Ordinances and Guidebook, that is also
11 available on our website, as are a number of local
12 examples of ordinances that have been adopted since then.
13 And in general, we do interact with different local
14 governments and businesses as they're working through
15 this process.

16 Some upcoming work that will be relevant in this
17 area, we're about to commence an update to our General
18 Plan Guidelines in which we will be looking at what
19 information do locals need in order to do that upfront
20 planning for deployment of renewable energy. So we're
21 looking at are templates useful, what information and
22 resources do local governments need. So that will be
23 coming up in the near future.

24 MS. NEIDICH: Great. Thanks, Chris. Vernon.

25 MR. HUNT: My name is Vernon Hunt. Good morning,

1 everyone. Glad to be here. I'm here on behalf of Navy
2 Region Southwest. Our region covers the 10 Navy
3 installations in the Southwest Region, nine of which are
4 in California. Most of you probably know the Department
5 of the Navy has some fairly aggressive energy goals, both
6 on the demand side management and consumption reduction,
7 and also on the renewable energy deployment and
8 integration on our installations, specifically those
9 focused on reduction and consumption of 50 percent from
10 our baselines, increasing the amount of renewable energy
11 production to cover 50 percent of the shore requirement,
12 and also to work to have half of the installations
13 campus-wide CONOPS -- campus CONOPS or no campus CONOPS,
14 I think -- wide, at net zero energy consumers. So pretty
15 aggressive goals, both on the short side, and then also
16 on the fleet side. I think most people have seen the
17 headlines over the last bit that the Great Green Fleet
18 demonstration in Hawaii these past few weeks, so
19 utilizing those biofuels and moving forward in a lot of
20 different sectors as far as energy is concerned.

21 I think it's already been alluded to, as we're
22 moving forward in deploying these new technologies and
23 working to adapt them into our culture and our every day
24 operational ethos, and there are some barriers, both
25 regulatory and I guess to a lesser extent permit-wise for

1 the Department of the Navy in pursuing these goals, I
2 think Rule 21 was mentioned, and interconnection
3 agreements. I think one of the themes that we've kind of
4 heard in the first panel, and a little bit in our panel
5 already, is this idea of where are the cumulative effects
6 of things. And I think the opportunity within EPIC is to
7 really look down the road of, as we deploy more electric
8 vehicles, as we work with Vehicle-to-Grid type
9 technologies, as we work with new communication protocols
10 and energy management technologies, what's the cumulative
11 effect on what our regulatory picture looks like today?

12 And how can we get ahead of some of those effects so
13 that, as we move forward, as we have in the past with a
14 lot of these technologies, how do we get ahead of those
15 and allow for those technologies to have that smooth
16 transition into the marketplace over the next five years?

17 So there may be opportunities now to look at some
18 of those regulations that these new technologies, the
19 integration of the cumulative technologies, are now going
20 to have an impact on how we've been doing business in the
21 past, and maybe I think EPIC and funding, this type of
22 work, is a good opportunity to move towards those kind of
23 forward leaning solutions. So happy to be here, glad to
24 be a part of the panel, and looking forward to the
25 discussion.

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1 MS. NEIDICH: Thanks, Vernon. We have the
2 questions posted on the screen, I guess in front of us
3 and behind us, and they're also on the agenda. I'm going
4 to go through these questions, or start going through
5 them, and whoever feels like jumping in, I don't want to
6 put pressure on anybody if they don't feel like
7 answering, but whoever wants to jump in.

8 Question 1 is: The Energy Commission anticipates
9 that cities, counties and regional governments will seek
10 grant funding. Are there entities that should be
11 targeted for regulatory assistance funding? And we're
12 thinking like of trade groups, maybe what other local
13 governments like Special Districts.

14 MS. BARRETT: Special Districts, for sure.
15 Jennifer Barrett. We have a water agency that has, you
16 know, a lot of water facilities, water is a high energy
17 demand, it's heavy, you've got to move it around, and
18 they're very active in looking at deploying various types
19 of emerging technologies as demonstration projects, and
20 they've been very active in that area. But they're
21 always looking for funding for their programs, so I would
22 say Special Districts. Also, we have water districts,
23 sewer districts, there's also opportunities now that
24 redevelopment is gone, to create other types of
25 districts, so I think that we can use that as maybe a

1 model and a template for looking at ways to finance
2 projects and programs. So I would say Special Districts,
3 for sure.

4 MS. WINN: And just one of my thoughts was, is we
5 look just not at cities and counties or regional
6 governments, but then how do we look across the state.
7 And so is there perhaps some funding for someone, or some
8 organization that would be taking that more statewide
9 view and pulling all of that information together so that
10 we could create -- I know other states have somewhat of a
11 one-stop-shop so people can go and get information about
12 how do I do this in this jurisdiction, or that, but
13 looking more holistically, rather than just at specific
14 cities and counties could be helpful.

15 MS. NEIDICH: Thank you. Anyone else?

16 MR. CRAFT: I was going to add a couple of other
17 areas. Jennifer mentioned education and training when
18 she was talking, and what we're finding is that not only
19 building officials may not be current on some of the
20 technologies, or even some of the Code requirements, but
21 also contractors have the same issue. And so training is
22 a big issue out there and organizations such as CALBO,
23 California Building Officials Association, CALSEIA, other
24 professional organizations, community colleges, all could
25 put together training programs to help bring the level of

1 knowledge more current.

2 MS. NEIDICH: Perfect. Anyone else?

3 MR. HART: I hate saying this is a private
4 company, but I really prefer the money goes to public
5 agencies as opposed to private.

6 MS. NEIDICH: Okay.

7 MR. CALFEE: I would echo what Jennifer said
8 about Special Districts. I mean, there are so many
9 different types of Special Districts out there with a
10 whole lot of property that can be put to use for
11 deployment of solar, and definitely consider Special
12 Districts, School Districts, for example. You mentioned
13 trade associations, there are a number of associations
14 that interface with local governments routinely like the
15 Institute for Local Government, the Local Government
16 Commission, the Planning Directors Association, all of
17 those have developed relationships with local governments
18 and so can disseminate information, so it might be worth
19 looking into those, as well.

20 MR. HUNT: And I would just echo everything
21 that's been said. Gary brought up a great point in
22 rolling in the construction contractors, and there's
23 folks that will actually ultimately be installing a lot
24 of this technology and equipment sometimes, you know, it
25 sounds great, I mean, to throw a bunch of solar on top of

1 your roof, but if you don't know how it actually has to
2 happen, then it presents a lot more challenges, a lot
3 more costs.

4 MS. NEIDICH: Question 2: What local planning
5 and permitting challenges do clean energy technologies
6 pose now and in the future? Because currently we have
7 plenty -- well, not plenty -- but we have some Solar
8 Model Ordinances for solar and wind, if there is a new
9 technology out there that's coming, you know, how do we
10 educate the planning folks and everything to get on
11 board?

12 MS. BARRETT: I think that education is key and
13 it does start maybe with working with the private sector
14 businesses and through some of the trade associations to
15 really sort of learn what those technologies needs are,
16 what kind of scale we're talking about. I think the
17 distributed energy generation is a little bit easier to
18 deal with because it's smaller in scale than the large
19 massive facilities that either have high transportation,
20 or transmission costs. I think those are easier to deal
21 with from the permitting side. But, you know, Codes
22 again is what we follow, we have to regulate based on our
23 Codes; if it's not in our Code, we can't really do it,
24 and so the Codes are old-fashioned and need updating.
25 We're updating ours now to open it up to a wide range of

1 emerging technologies; you know, we don't really know
2 what they all are, what their scale is, but if you can
3 just at least add in anything -- a renewable energy
4 technology, emerging technologies, with the Use Permit,
5 you can still at least look at allowing it and still deal
6 with the CEQA later. So I would say that is a real
7 challenge is the Codes, themselves, at this point.

8 MR. CRAFT: I wanted to make a plug for both
9 the Energy Commission and OPR. A lot of these emerging
10 technologies, somebody needs to vet them to decide what
11 the issues are, whether they work, how they're going to
12 be applied, and then there's another need to determine
13 what Building Codes restrictions there are, or permitting
14 issues there are, that restrict the ability to put those
15 new technologies in place. And so Wade Crowfoot with the
16 Office of Planning and Research, who has really headed up
17 this planning effort here, did an incredible job in
18 pulling together the various state agencies, the Fire
19 Marshall, the Housing agencies, the Building Standards
20 Commission, Utilities, Building Officials from around the
21 state, and Solar Contractors, all looking at Code issues
22 that were barriers to adopting some of these new
23 technologies. And so that's a role that OPR could play.
24 The Energy Commission can play the role of looking at and
25 vetting some of these new technologies that then need to

1 be looked at in terms of their Standards and their Code
2 requirements.

3 MS. NEIDICH: Great. Thank you, Gary.

4 MR. HART: I certainly agree with the previous
5 comments. But watching our Governor when he tries to get
6 a project done, and he comes back frustrated sometimes as
7 far as the various permits and the processes involved in
8 the state, I think that experience is sometimes echoed by
9 other people in other industries, particularly in the
10 green energy space, because sometimes you're dealing with
11 new technologies. A suggestion that I'd like to offer,
12 if Governor Brown isn't available for all projects, you
13 know, personally, is to create a single point of contact,
14 and that is the idea of an Ombudsman, or just a single
15 point of contact from either the Governor's Office, but
16 it's like -- I hate to creation of another agency -- but
17 actually a developer-funded point of contact who would be
18 responsible dealing with all other agencies, Air, Water,
19 Fire, local planning, local permits, everything, and they
20 have the ability to squash down to make them all play
21 nice because, again, individually all these agencies do
22 tremendous jobs, but the problem is that their schedules
23 aren't necessarily the same as a person trying to put
24 together a project, and so, while we haven't had these
25 issues, I know a number of companies that have, and so my

1 suggestion would be a single point of contact and, from a
2 developer's perspective, paying for this one point of
3 contact's time would actually be relatively small, but it
4 would be tremendously beneficial to the State because
5 projects could be integrated, and people would stop
6 complaining about California. You hear people saying bad
7 things about the state, it's that we're more thoughtful
8 than other states. I mean, I'm doing projects in other
9 states and they don't think about it as much as we do.
10 But trying to coordinate all of these efforts under just
11 one person. You want a face. Talk to one person, they
12 say, "You know what? I'm going to go talk to the
13 following agencies and I'm going to go talk to the
14 following people in your county, or your city, and it's a
15 person, not a program, not a platform, it's a face, and
16 that face would cost the public nothing. The developer
17 would be 100 percent responsible for funding, heck, we'd
18 probably pay extra. But the idea is that the state would
19 have this single point of contact that would make dealing
20 with all these other agencies and such more efficient.
21 And it's not hiring a contractor or consultant, it's
22 actually hiring a government -- a person representing the
23 State of California, whose objective is to make sure the
24 right thing happens, whether that's building the project
25 or not building it, but at least making sure all those

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1 agencies are heard and reflected.

2 MS. WINN: Yeah, Mike has a really good point
3 and I think at PG&E, we've thought about it really from a
4 different perspective. We are, of course, looking at a
5 wave energy project and, you know, we've kind of
6 refocused our attentions these days on looking at safe
7 and reliable and affordable service, and haven't been
8 working so much in some of the emerging technology
9 arenas, but so on the wave connect projects, in
10 particular, that is -- there's a lot of risk for any one
11 company to try to permit a new technology of that size;
12 it's never been done, there are so many unknowns. And it
13 becomes really like the big money pit, and you don't know
14 how much you're going to need to be able to get that
15 technology through to be permitting -- if you could ever
16 actually get it permitted. And so, you know, our
17 perspective has been that maybe, you know, the State can
18 step in on some of these areas where it is such, you
19 know, that would be a really game changing technology,
20 and explore those issues and perhaps permit a site that
21 the State could permit that, and then auction off the
22 development rights, but then it wouldn't be any one
23 company bearing that financial burden to try to get that
24 new technology out there.

25 MS. NEIDICH: Vernon.

1 MR. CALFEE: So I'll definitely underscore the
2 value of coordination amongst different State agencies
3 and the private sector, etc., and we've worked to do that
4 on a number of different issues and will continue to work
5 at it. One thing I do want to emphasize is, a number of
6 panelists have talked about the planning process and how
7 it all starts with the General Plan; over half of the
8 jurisdictions in the State of California, over 500 local
9 governments, their General Plans are over 10 years old.
10 And a lot has happened in the last 10 years, including
11 the decimation of their Planning Departments, which I'm
12 sure Jennifer can speak to. There are a number of
13 jurisdictions that may be down to one or less than one
14 person in their planning steps, so how do we as a state
15 encourage local governments under those conditions to
16 update their General Plans to reflect both the need to
17 implement and roll out renewable energy, but also to
18 identify what are priority protection areas, what are the
19 different resource areas that need to be avoided, or
20 exploited? That will all take a lot of funding. And
21 there aren't sources of funding for Planning.

22 MS. BARRETT: Yeah, Planning probably is more
23 difficult, not only planning for local government, but,
24 as Mike mentioned, the soft costs even for a housing
25 project, it's really hard to get started to do the

1 preliminary planning that you need to get a project off
2 the ground. I just wanted to mention that Mike's idea
3 about the ombudsman is something we're trying in Sonoma
4 County, we've just hired an Ombudsman just for our County
5 agency to facilitate not just renewables, but all sorts
6 of development permits, and then we're also hiring one at
7 the Economic Development Board, so that we can have those
8 working in partnership to bring emerging businesses, new
9 businesses, to Sonoma County, and then work with our
10 Permitting Department to sort of facilitate that process,
11 just to get started.

12 MR. CRAFT: I wanted to pick up on sort of the
13 pre-planning. Recently here in the last month or so, the
14 Federal Government had done some pre-planning and
15 environmental review in Nevada, Arizona, Southern
16 California desert areas, and they were able to then
17 identify six areas where they then were able to lease out
18 those four energy projects. And so they avoid having a
19 company come in, having to go through those hurdles, and
20 multiple agencies' long lengthy review periods, not
21 knowing what the outcome is going to be, and by having
22 some pre-determined areas where you know that it's going
23 to be suitable to install your systems, and you've gone
24 through some preliminary level of environmental review,
25 you know that the hurdle is not going to be that high for

1 them.

2 MS. BARRETT: Renewable Energy Combining Zone.

3 MR. HART: I just gave a speech down in Puerto
4 Rico and DOE had actually gone in there and they
5 identified specific locations throughout the island where
6 there were government facilities, closed facilities that
7 were suitable for solar. They did all the calculations,
8 did all the pre-permit work, and the crowd of solar
9 developers that were in that meeting, it was almost
10 comical there were so many of them there, all ready to
11 go, and so Puerto Rico, as a result of a relatively small
12 government initial investment, is going to reap an
13 enormous benefit as far as solar on the ground.

14 MS. NEIDICH: Vernon, did you have any --

15 MR. HUNT: I don't have any big comment, to
16 keep going, but I think continuing to coordinate the
17 various planning agencies, the idea of the ombudsman is a
18 good concept, and also keeping in mind, I mean, looking
19 at the Navy from -- our installations are like, you know,
20 10 different little municipalities, really, with very
21 unique missions, but anyway -- in either case, looking
22 for those mission compatibilities and ensuring that we're
23 being good neighbors in how we're deploying technologies,
24 but also as municipalities and local agencies are
25 working, we're all working together to make sure we're

1 moving in the right direction, and identifying those
2 synergies where there's opportunities for both, for all
3 parties to kind of have a win win.

4 MS. NEIDICH: Okay, Question 3: How can EPIC
5 investments leverage current efforts rather than
6 duplicate them? In our current efforts, we have some
7 examples of the DOE SunShot Initiative and, once again,
8 the Model Ordinances, and then the Governor's Office of
9 Planning and Research, since we already have that
10 planning guide.

11 MR. CRAFT: Let me just give you an example.
12 As I mentioned, the Contra Costa Economic Partnership was
13 one of the Grantees for the SunShot Rooftop Solar
14 Challenge Project and that whole effort was to look at
15 permitting or streamlining the permit process for
16 residential and small commercial, and within a month of
17 being notified that we were one of the Awardees, we get a
18 call from OPR and OPR is off -- no offense here because I
19 think you guys have done a very good job and have
20 actually participated in this -- but OPR was involved in
21 doing basically the same thing. Then we also got a call
22 a little later from somebody at San Francisco City
23 College who had a DOE grant to start to train Building
24 Officials, and yet that was part of this DOE grant, so
25 you had different organizations with different funding

1 sources, doing different things, and yet they all need to
2 be working together. So not only do you need an
3 Ombudsman to help the contractors interface with planning
4 agencies, but you need somebody to help coordinate these
5 grants. And so I can see where OPR, Energy Commission,
6 DOE, could all be working together and maybe with diverse
7 sources of funding to help put together some -- whether
8 they're training programs, or funding the Ombudsman,
9 helping to fund the planning studies, but instead of
10 looking at separate sources and working in silos, that we
11 need to start working together.

12 MS. WINN: Yeah, Gary makes a good point there.
13 I think we're seeing that even within the EPIC Program,
14 itself, where the Utilities are doing Investment Plans
15 and the CEC is doing an Investment Plan, and we're having
16 a lot of conversations, we've been having those
17 conversations already about, you know, who is doing what,
18 and then even among the three IOUs not wanted to
19 duplicate efforts, so trying to talk about who might do
20 what within the scope of that plan. So having some sort
21 of -- kind of a central clearinghouse of who is doing
22 what would be really helpful. I think that's part of the
23 challenge, is we have so much information, it's so
24 disbursed that having some centralized collection of it
25 so that, again, it's kind of like with the permitting

1 information, so that you're not always starting at Ground
2 Zero every time out, you have somewhere you can go to
3 access what's already in play.

4 MR. HUNT: It's amazing how periodic
5 communications amongst a variety of stakeholders can make
6 all the difference in the world of moving things forward.

7 MR. HART: I would say go where the money is
8 and I think that really summarizes what I think the EPIC
9 Program could do. Again, there's a lot of money from
10 building stuff, that's not really the problem; there's no
11 money for planning stuff, not really, not at the early
12 stage where you're sitting around scratching your head,
13 going "we need some jobs here in this town." I mean,
14 that's literally you've got one planner left, you've got
15 a few City Councilmen saying, "We really need some jobs,
16 what can we do?" Well, the first thing is you go out and
17 you try to hire a consultant -- there's no money to hire
18 a consultant, it costs a lot of money. You know, what
19 are the planning hurdles that we're going to incur
20 because, even a community one, or however you do it, has
21 serious state issues and many many times in our
22 experience so far, and talking to a lot of communities
23 now, they turn away. When they reach that point, it's
24 like, you know, this could be a couple hundred thousand
25 dollars -- way beyond their resources. So I would

1 suggest what I had mentioned earlier, if you just figured
2 on a quarter of a million dollars, that's just a number,
3 \$50 million, I saw that in the budget forecast such as an
4 area that you guys could potentially invest, \$50 million
5 to 200 communities in California that could do the
6 planning work on projects, rather than dumping it all
7 into some great big projects or something like that --
8 200 communities a year could actually have the planning
9 done to the point where, if a community -- and, again,
10 not a private developer, but a community -- working with
11 the State, perhaps working with an Ombudsman, could reach
12 the point of saying, "Okay, we know exactly what the
13 planning pathway is, we know what the resource is, we
14 have the location, we have everything put together, now
15 put it out to bid." That means that the developer can
16 move with confidence. They're coming in -- all the soft
17 stuff has been done, it comes down to a financing
18 question. There's a lot of money out there, it's
19 ridiculous how much money is out there at zero percent
20 interest, two percent interest. They can't get any use,
21 they can't deploy their capital, but it's this quarter of
22 a million dollar hurdle is what's blocking massive multi-
23 billion dollar investments in our state, and I believe
24 that money should not be a grant, I believe it should
25 come back to the State. I believe every dollar should

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1 come back to the state on these projects who are
2 successful, even if a successful project only kicked back
3 \$1,000 a month, in 20 years, it's repaid, obviously I'd
4 add interest. But the point is that whoever ends up
5 building these projects is going to make money, and so
6 have them pay it back, same with the Ombudsman, the
7 developer can afford this, it's an avoided cost, have
8 them pay for it. The State shouldn't be out of pocket
9 for any of these programs.

10 MR. CRAFT: I wanted to pick up on a point that
11 Mike made that I think is critical, and I've heard this
12 comment over and over again from contractors, and it's
13 the uncertainty of whether the project is going to get
14 built. And they're willing to invest the money if
15 there's some certainty to the process, so your points are
16 well made.

17 MR. HART: Am I allowed to say an Amen about
18 this? That's it right there.

19 MS. WINN: No, I mean, we saw the same thing in
20 the early stages of renewables development, you know,
21 we've set some really aggressive mandates and yet we
22 hadn't really thought through the processes, and I think
23 taking some of those lessons learned and how do we look
24 at it going forward. I mean, when we think of
25 interconnections, not just through the transmission

1 system, but to the distribution system, we used to have
2 like one 550 MW plant hooking up every six months, and
3 now suddenly, to get the same amount of energy and
4 capacity on the system, you've got 30 or 40 plants making
5 up that 50 MWs. So how do we take some of those lessons
6 learned and think about how we staff these initiatives,
7 how do we have the right people doing the right thing,
8 and not just think of those as an afterthought, that's
9 really important.

10 MS. BARRETT: Yeah, and both ends of the
11 process, I think you're talking about beginning planning
12 on the ground, various sites, and you're a System
13 Operator, and one of the things that we don't know when
14 you go through the process is if there's going to be any
15 capacity left by the time they get to the end of the line
16 and want to do the Connection Agreement. Figuring out
17 the capacity of the transmission system if you're going
18 to be feeding into the grid is a challenge that I've
19 heard over and over, and trying to identify where that
20 capacity is available. We know where it might be
21 available because we know where the transmission lines
22 are, but do we know where the gas lines are? Not really.
23 You know, there's issues with that, I know that the
24 Homeland Security and all that, but being able to plan
25 for where you could connect, to the gas system, too, for

1 -- we haven't been able to finance some of the permitted
2 projects that we've done -- we've permitted a biofuels
3 facility five years ago, never got financed, never got
4 built, we just recently permitted a chicken manure
5 digester plant that would produce a clean fuel, natural
6 gas to power, our wastewater treatment plants would have
7 a revenue source already tied to it, it has not yet been
8 built, no financing, nobody willing to step in --
9 permitted and titled, ready to go. And so I'm not so
10 sure that there's always funding available for some of
11 these new emerging technologies, or for some reason they
12 just aren't moving forward, you know, with the
13 construction. Maybe there's a better technology, or
14 maybe they have problems with other sites and their cash
15 flow isn't working.

16 MR. HART: If you don't mind, I'll just jump in
17 again. With our technology, we have conservatively 100
18 communities that want to buy Serial No. 2, and so the
19 communities, as they should be, are very conservative and
20 cautious with investing in new technologies, and so a lot
21 of times the problem is that the innovative technology
22 coming in doesn't necessarily have enough fielded
23 experience, time out in the field, and so, while the
24 technology looks beautiful, the pilot scale, or it makes
25 tremendous sense on paper, the development community, the

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1 people who actually pay for things, they want to see more
2 than one -- you know, at least one that they've got at
3 least a year of really solid record of how, at this
4 scale, has it worked. And the fact that it has permits
5 is nice and helpful, but they want to see something
6 that's been out there and done. And that's why I said we
7 have a huge backlog of people who want Serial No. 2, so
8 building this first one with the help of the Energy
9 Commission is going to be very very helpful next year.

10 MS. BARRETT: The demonstration projects would
11 be really a good thing.

12 MR. HART: That's what Bill was walking about
13 earlier as far as the Valley of Death, and that is,
14 between having -- I'll tell you something, this country
15 wastes so much money on research when what it should be
16 putting money into is development, because you come up
17 with all these great ideas that get shelved, and it's
18 like, "Oh, that's nice," but it's building the first
19 commercial system is the hardest thing in the world, you
20 get that first one proven, and you get the bugs knocked
21 out of it, and it's working, there is an endless list of
22 communities that could use the technology, could get the
23 permitting as you're saying, and there is an absolute
24 ocean of money sitting on the sidelines right now -- show
25 me a proven technology, show me a permit so you've

1 eliminated the governmental risk, then you could build
2 them all day long.

3 MS. WINN: Mike, I'm expecting we'll see you at
4 our workshop on August 16th, talking about the importance
5 of deployment projects.

6 MR. HART: I'm looking forward to it.

7 MR. HUNT: Real quick, I just wanted to echo
8 what Valerie had said about some of the lessons learned
9 we've had with distributed generation. I think that
10 there's a great opportunity. I don't know if this is an
11 EPIC investment or not, but an opportunity to capture
12 some of those lessons learned and help for the next wave
13 of technology deployment, the next wave of energy
14 investments, so that we're not as caught -- well, I guess
15 "unaware" is probably not the right word -- but we're not
16 playing as much catch up on the regulatory and permitting
17 side when the next round of technologies come. And as
18 folks start to focus more on things like micro grids and,
19 in the case of the Department of Defense starting to look
20 more at energy security and those opportunities, really
21 forward looking and using some of the lessons learned
22 from distributed generation deployment to really affect
23 how we do business.

24 MR. CALFEE: One quick point I'd make, on
25 leveraging the current efforts, there are a lot of great

1 programs out there that aren't being promoted to the
2 extent that they could be. That's one point. The second
3 point is, even with the great efforts of the Planning
4 Directors Association, for example, there's a Model
5 Ordinance out there, what do we do to make sure that it
6 gets implemented in each of these different
7 jurisdictions? And so -- for each jurisdiction, it's
8 going to have to be customized to that local
9 jurisdiction's needs, and that takes a bit of money to
10 do.

11 MS. NEIDICH: All right, let's go ahead and
12 move to Question 4: What local planning activities
13 should EPIC invest in? What local permitting processes
14 should EPIC invest in? And what do these initiatives
15 cost and how long do they take? I know in a previous
16 hearing I overheard that, for just like a renewable
17 energy overlay and associated environmental reviews, they
18 may cost between \$100,000 to \$300,000, and take 18 to 24
19 months to complete. And I also heard permitting costs
20 for developing of an online permitting portal could cost
21 approximately \$100,000, and can be developed in six to 12
22 months, so what --

23 MR. HUNT: Mike, you want to take this one?

24 MR. HART: I have obviously said a lot about
25 this already, but I think one of the things to keep in

1 mind is that what I was talking about, about the 100
2 communities all wanting Serial No. 2, the cost of doing
3 permitting when you do Serial No. 3, 4, and 12, comes
4 down because a lot of the unknowns -- when you're doing
5 planning and permitting and such, it's not government
6 just wasting money, a lot of times they're very seriously
7 looking to make sure that there are no unknowns that are
8 going to come and bite us in the tail after you build
9 something, where there's some -- they're trying to make
10 sure that the public is protected. Well, you only have
11 to do that really one time on a lot of these issues. If
12 you know what the emissions profile is going to be, you
13 don't have to go figure it out again. And so, I believe
14 that the cost of permitting will go down as you come up
15 with sort of established technologies, you get them past
16 the Valley of Death, and particularly if you have --
17 again, I'm going to push for the Ombudsman -- where the
18 particular Ombudsman that's done this -- "yeah, I've done
19 six of this exact technology before, the next 10
20 communities, it's not going to cost that much money."
21 And so I believe the state can drive down the cost of
22 permitting tremendously by seeing the same technologies
23 repeated over and over again like they've done with
24 solar. Solar was a complete hash for years, every
25 community, their own crazy regulations, and with the

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1 standardization and handbooks and such that have been
2 done, the state from a regulatory standpoint has made the
3 state attractive to solar. And I know a lot more can be
4 done, but that can happen with the waste energy
5 technologies, the things that we're talking about. So I
6 believe that's where you're going to see the opportunity
7 driving down the cost of permitting, so it won't cost as
8 much. And when I'm talking about the EPIC Program,
9 again, don't blow a whole lot of money, millions of
10 dollars, to one community with some giant project. A
11 quarter of a million bucks, what can you do for it? Come
12 up with a great project, make us smile.

13 MR. HUNT: I think one area that's an
14 opportunity is along the lines of the transmission
15 planning and transmission constraints, a piece of that
16 looking at specific corridors could do those studies in
17 advance of developers coming in and looking at providing
18 those services. I think that I guess a combined approach
19 for those -- for the communities in the area, and the
20 other stakeholders that may be around and really looking
21 at the CAISO transmission plan and, say, all the
22 different planning studies, the "soft" work, to borrow
23 from Mike, a lot of the soft work and investing in that
24 upfront will help speed the deployment of these
25 technologies.

1 MS. WINN: But I think, along with that, and I
2 think sometimes we look at -- we're focusing really on
3 little silos of the business, like we're talking about
4 transmission planning and corridors there, we talk about
5 electric generation, and that's when I go back to some of
6 the more -- the science-based efforts that are in the
7 Desert Renewable Energy Conservation Plan, where they're
8 looking at what are the environmental issues across the
9 area, and those findings can be used, then, in any
10 infrastructure project, not just for energy, and so I
11 think that getting a better understanding of what is in
12 our state, and just generally talking about not just for
13 energy, but for other big infrastructure projects, high
14 speed rail, you know, how can we leverage that
15 information and develop that base, that we can then take
16 that information and apply it in different areas is
17 really important.

18 MS. BARRETT: Yeah, I agree with that. I
19 think, you know, back in the day one of my first energy
20 projects was to try to do an energy element for Sonoma
21 County back in 1981, and one of the things that you have
22 to look at is how -- where are the resources that you
23 really have available to you? You know, we were
24 fortunate in Sonoma County, we were very rich in
25 resources, we had one of the largest geothermal power

1 generating areas in the world, we have a coastline where
2 wave energy is something of a possibility, we have some
3 low grade wind, you know, not high enough to be a major
4 electric power generator, but on a smaller scale, if we
5 could find those technologies that can fit in the
6 resource that we have, we can develop that. And one of
7 the things that's really sort of under-utilized is the
8 biofuels. Bioenergy is everywhere and it's not utilized
9 enough, the transportation is the problem, but the
10 distributed small scale modular idea is one of the things
11 that, you know, we identified in '81 and we still haven't
12 brought it to scale, or even had enough demonstration
13 projects to look at that, and not just biofuels, but
14 biochar, I mean, there's a lot of different bioenergy
15 resources that you have to really go into your General
16 Plan, study what the resources you have in your area,
17 identify those, protect those, I mean, you don't want
18 them to be paved over with buildings or whatever, you
19 want to protect your resources, and then facilitate the
20 policy initiatives, the zoning initiatives, the
21 permitting, in advance.

22 I would say, for an overlay zone, \$300,000 is
23 probably a minimum. We spent \$200,000 on our zoning
24 update just to get energy facilities permitted in our
25 zones, and we will spend \$200,000 -- that was our

1 estimate, and we're on target. But to actually go out
2 and look at sites, to do the heavy lifting and update,
3 because it's an unknown, you know, we really don't know
4 what we're looking at yet, it's going to cost more to
5 start with. And it depends on the area that you're
6 looking at, how diverse it is, or how many issues you
7 have to deal with, and how large of an area and how many
8 different technologies you really want to evaluate
9 because each one has its own distinct footprint, is
10 impacts that you have to evaluate. So I would say at the
11 General Plan level is a good place to start, know what
12 your resources are, know what are your constraints, what
13 are your capabilities. Then do the more site-specific
14 pre-planning effort, and then streamline your permitting.
15 We're looking at permits by right up to 20 MW, for our
16 renewable energy zone, you know, so strategically it's
17 saying you could just do it here because we already know
18 what the impacts are and we have a long list of
19 standards.

20 MR. HART: That would be just -- in biomass
21 terms, that's 200 tons of trash a day is 20 MW of
22 electricity. So if you've got 200 tons of trash, you've
23 got 20 MW you're throwing in a hole in the ground every
24 day -- of clean energy.

25 MR. CALFEE: I would agree that the mapping is

1 critical, the mapping of the resource areas, the
2 resources to protect, but also, then, once the mapping is
3 done, get that data into a form that it can be shared,
4 then with the local government who is doing their General
5 Plan update. And data sharing is a real hurdle right
6 now.

7 MS. NEIDICH: Let's go ahead and go to Question
8 5: If meritorious, how should EPIC measure ratepayer
9 benefits for local planning and permitting assistance?

10 MS. WINN: Well, Mike might say "did they pay
11 their grant back?"

12 MR. HART: I actually think that the repayment
13 of a grant, I think, is something that, in this case that
14 is important and that is a good measure, and that is the
15 likelihood of it being paid back. I mean, if it's just a
16 hail Mary, maybe not. But if a community is coming and
17 saying, we have a resource, you know, of either a
18 feedstock that could be converted to clean energy,
19 whether that's fuels or electricity, it really doesn't
20 make a difference, but that it's a benefit to the
21 community, or a solar resource, or a wind resource,
22 whatever it is that they want to pursue, there should be
23 some reasonable likelihood it will succeed. But the
24 threshold should be relatively low. The objective is to
25 sail many ship, you know, launch many ships, let's see a

1 couple of hundred communities a year receive these awards
2 and at least get them moving, and then there should be a
3 likelihood that that money will come back to the state.
4 I don't think this should be a gift.

5 MS. WINN: I think the other way that you can
6 measure some of the benefits, we know something now about
7 how long it takes to get through these processes, you
8 know, the other metric is always did we shorten the time
9 to get the permit, and then also, you know, for me the
10 question is -- "and then did customer costs decline
11 because of these streamlining processes?" Right now,
12 what we see is, if the developers aren't sure about the
13 longevity of the process, that they may just keep some of
14 those early financial benefits of that streamlined
15 process for themselves, and it won't result in reduced
16 cost to customers, so there needs to be not only the time
17 dimension, but also do the customers get the actual
18 financial benefit.

19 MS. BARRETT: Competition, I think, is key in
20 that arena. I hate to say that, but when you're talking
21 about utilities or energy or anything, the price that
22 they'll sell it for is the price they can get, you know,
23 and if you don't have a lot of people competing for that,
24 so maybe many ships is a good idea, they're not going to
25 drop the price, you know, you're going to pay what the

1 market will bear for that energy.

2 MR. HART: I don't want to risk the wrath of
3 PG&E in saying this, but lower price of energy isn't
4 necessarily a good thing. I think that one of the good
5 things about power prices going up the way they have has
6 enabled a lot of alternative energies like solar to even
7 have a chance. If you were based in, let's say, the
8 rural southeast where your price per KW is about three
9 cents, this doesn't have a chance, it's just not
10 practical. And so I think having a relatively high price
11 that is out there in the marketplace, but if you come up
12 with a lot of alternative sources of energy, the
13 community that creates it, again, that's why I would like
14 to see the community creating that power source, the
15 profit -- the margin that potentially is created there
16 could go into the community's pockets. Every city and
17 county I know in the State of California is hurting;
18 this is a new source of revenue they could create and
19 perhaps provide grid stability because it's distributed
20 generation out on the edges. You know, a couple of
21 megawatts here and there, I know it's a pain to put
22 together, they'll pay for the interconnect studies, but
23 again, when you put the power out there where the people
24 are, it's better for the grid, generally.

25 MS. WINN: Yeah, and we're not going to get

1 into a DG discussion here because we've got a whole host
2 of -- you know, we spent two days, I think, last summer
3 down in L.A. talking about DG, but, yeah, there are a lot
4 of safety issues and reliability issues, and voltage
5 issues, that we're still learning a lot about as we add
6 more DG to our system. And just generally, you know, as
7 a buyer of energy, we're really more technology neutral.
8 We're really looking for what's the lowest cost of energy
9 for our customers. You know, there have been some
10 initiatives the state has fostered like the 33 percent
11 renewables where certainly we've seen declines in prices,
12 you know, as that mandate has gotten rolled out. Some of
13 that is not just because of the -- initially, it was much
14 more of a seller's market and we were having to buy and
15 pay tremendously high costs, but when you've seen the
16 global downturn in the Solar market, I think that's
17 certainly brought prices down a lot as the manufacturing
18 capacity caught up, as well. So, I mean, when you factor
19 in general supply and demand with some of these things,
20 it's -- we're always looking at how can we get energy to
21 our customers, the type of energy that they want at a
22 reasonable cost.

23 MR. HART: Please don't turn off my lights.

24 (Laughing)

25 MS. WINN: I don't have that switch, Mike, so...

1 MS. NEIDICH: Anyone else? Okay, I think right
2 now it's actually a little early, but we'll go ahead and
3 open up for public comment. We'll open it up for public
4 comment for those who are in attendance, and please come
5 up and state your name and organization.

6 MR. RAYMER: Thank you. I'm Bob Raymer,
7 Technical Director with the California Building Industry
8 Association. And I served on OPR's task force that just
9 put together the Permitting Streamlining Guidebook. I
10 guess as far as EPIC goes, I'd like to make the case to
11 keep the momentum going, particularly with the OPR effort
12 and with the Building Standards Commission's Building
13 Code process.

14 Right now, you know, Chris mentioned the
15 document is done, but the State has very little funding;
16 right now, the private sector is passing the hat so that
17 the League of Cities can make copies of this, both in
18 hard copy and in CD form, and put a copy of this in the
19 hands of each Chief Building Official in the 500 plus
20 jurisdictions throughout the state. This is something
21 that's going to have to go on for the long haul. With
22 the downturn in the economy, we lost about 80 percent of
23 our workforce in the Building Industry, we were
24 devastated, from those levels that we saw in 2004 to
25 2005, but the exact same thing has happened to the City

1 and County Building Departments across the state. Just
2 as the industry goes down, usually about a year to two
3 years later, so follows the local government. And to
4 give you an example, in a jurisdiction close to Chula
5 Vista, down in the San Diego area, what used to be a 22-
6 person Building Department is now a two-person Building
7 Department. And one of those people is a transfer from
8 Planning and Land Use, very knowledgeable in Planning and
9 Land Use, has never worked with Building Codes before.
10 So it's a problem. And to the extent that the State can
11 help keep this information out there, keep it updated,
12 and keep it in the hands of the people who can make
13 greatest use of it, would be very helpful. And this is a
14 very low cost item to do. This is not millions of
15 dollars, this is not hundreds of thousands of dollars,
16 we're talking about.

17 As Gary mentioned, the California Building
18 Officials, the County Building Officials Association, and
19 the Regional Council of Rural Counties are all three
20 organizations all made up of members of the local
21 jurisdiction who work and use this every day, who could
22 effectively, if they got the resources for them, and
23 we're talking thousands of dollars, not millions, they
24 could make good use of this.

25 And moving on to the same thing, we don't want

1 to lose momentum with the Building Code process either.
2 As Chris mentioned, as we went through this OPR effort,
3 we've identified several dozen items that need to be
4 tweaked with our State Building Code. The State is
5 already moving on that, I believe there's about six of
6 these items that we identified that will go before the
7 Building Standards Commission's Building and Fire
8 Advisory Committee on August 14th. Right now, there
9 doesn't seem to be any opposition to this at all. I
10 suspect it will probably be handily approved at the
11 Building Standards Commission Adoption Hearing in
12 December. Certainly the private sector and public sector
13 are strong supporters, but there are still a couple dozen
14 left. For example, if you're doing solar on top of a
15 large commercial building, putting that solar array up
16 there, on stilts of course, so you've got access to the
17 underneath, is not creating a new floor, but
18 unfortunately the Code wasn't ready for this and all of a
19 sudden you've got soundproofing requirements,
20 fireproofing requirements, and in a few odd cases, put a
21 sprinkler system underneath the PV panel. The Code never
22 envisioned all of this. And so California is moving a
23 little bit faster than our National Codes, but to the
24 extent that EPIC -- once again, at very low cost -- could
25 keep this effort moving and get the job done, we'll have

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1 another Code adoption cycle over the next 18 months
2 period. I suspect after we get past the 45-day language
3 in the fall, we'll start working on the next round of
4 these, but they need resources. So, thank you.

5 MS. NEIDICH: Anyone else?

6 MR. GOODMAN: Hi, I'm Frank Goodman with San
7 Diego Gas & Electric Company. I did want to support a
8 couple thoughts that I heard up there, which I thought
9 were good -- Ombudsman was one of them, and as an
10 example, we had a wind turbine just installed on Harbor
11 Island by a third party, they own it, we do not, but
12 we're helping pay for a test program, and they had hired
13 a consultant to claim to know all the ins and outs of
14 working with the City of San Diego to get it permitted,
15 and our test program, which we had budgeted for in 2010
16 is happening in 2012 because of a long litany of issues
17 that I'll spare you the details on, but getting all the
18 way down through electrical things, and then into
19 weldments in the structure that the poor installer had to
20 do, but safety first. So the Ombudsman could have maybe
21 helped this company and pointed them, and be giving them
22 an awareness of what to expect ahead of time, and how
23 much time it might take, so generalize the point, that's
24 just an example around a wind turbine, but I think in
25 terms of a number of new technologies, that would be very

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1 helpful, is knowing where to go. And it might even make
2 you decide to relocate the site or something like that.

3 And then the last related point is, in terms of
4 the utility side of the meter, EPRI has been an effective
5 ombudsman role for a number of things, like a recent
6 example, pulse reclosers, helping utilities understand
7 what a new product is about and sharing information among
8 the utilities to where new entry into the marketplace on
9 the utility side, a new buyer of the project can learn
10 from what the other utilities have already done.

11 MS. NEIDICH: Thanks, Frank. Anyone else?

12 MR. LONG: Noah Long from NRDC. Thanks for the
13 opportunity to give a little public comment. I found
14 this panel really useful and really appreciated all of
15 the comments, and I just wanted to add a couple of things
16 on a couple of the questions here. With regard to the
17 first question, I think universities are potential grant
18 seekers, particularly with regard to the DRECP process
19 that Valerie mentioned, I think there's definitely a dire
20 and immediate need for some new wildlife and
21 environmental resource data that could be used and,
22 certainly, if there is an interest in doing similar
23 projects in other parts of the state, building up that
24 data, doing the primary research in the first place of,
25 you know, where are the Golden Eagles, where are the

1 Condors going to fly, is there habitat at expense, and
2 also similarly with bats and their habitat and how they
3 use the aerial habitat, I think all of that will be
4 really important, so universities are likely on that
5 list.

6 I think State agencies, Department of Fish &
7 Game potentially is a potential applicant for grants and
8 should be considered, and nonprofits, as well. I work
9 for a nonprofit and we're probably not going to be a
10 grant seeker, but there are others that have done really
11 quite impressive studies of wildlife and natural
12 resources for the purposes of renewable energy siting
13 that I think would be good potential grantees.

14 I guess just a couple other thoughts in terms
15 of questions 2 and 3, and that is, you know there have
16 been pretty impressive efforts, both by OPR, DRECP, that
17 just recently finalized Solar Programmatic Environmental
18 Impact Statement on large scale planning, and I think the
19 effort going forward should really be focused on
20 continuing to rationalize planning efforts and
21 systematize planning efforts across counties so that the
22 counties are working together and not duplicating, so
23 developing a system of maintaining information from
24 previous applicants and the cumulative impacts, as was
25 mentioned by Jennifer and, I think Valerie, as well. So,

1 again, universities might be good storing places for that
2 information, and I can imagine that the Commission itself
3 could also play a role in that.

4 And I think in the same vein, I guess I would
5 just question a little bit whether the word
6 "streamlining" is the best word for this program, it's
7 not that there isn't sometime a need for changing
8 regulatory process to smooth them, but I think the role
9 of the EPIC Program is really developing information,
10 making sure that there is adequate data, and so the
11 siting and permitting can be done based on adequate
12 information of the needs of the infrastructure, the needs
13 of the resources, rather than focus on changing permit
14 structure, rather than a focus on, for example, CEQA
15 exemptions, and so forth. I think, as sometimes
16 permitting processes can seem overwhelming or unnecessary
17 to permit applicants, but often that's because there's
18 simply not enough information yet about a new technology,
19 or about a resource area, and if we have that information
20 available and we can share it across permit applicants,
21 then the existing permit structure may not be so onerous,
22 and I think that's really a great role for this program.
23 I'm trying to think if there were other questions I
24 wanted to respond to. I think that gets to the main
25 points, so thanks very much.

1 MS. NEIDICH: Thanks, Noah. Anyone else?

2 MS. WINN: So, Sherrill, I just -- I did want
3 to remind people about the two Utility Investment Plan
4 workshops that will be coming up, one that PG&E will be
5 hosting is August 16th, and there's one in Southern
6 California on August 17th. There was a notice that was
7 sent out to people in the CPUC Service List, I'm not sure
8 if people actually got that notice, so if you didn't and
9 you need information, you can send me an email at
10 Valerie.Winn@pge.com, but the workshop will be at the
11 Pacific Energy Center, it's 851 Howard Street, and you
12 can get driving directions there at www.pge.com/pec. So
13 if you need anything else, just shoot an email. Thanks.

14 MS. NEIDICH: Thanks, Valerie. I think we did
15 have another person with a comment.

16 MR. MCFEELY: David McFeely with SolarTech.
17 We're a nonprofit trade association working on these
18 kinds of issues, streamlining permitting, air connection,
19 financing, insulation, workforce, which I'll be on the
20 next panel in a bit. I wanted to speak to the first
21 point there as far as other grants and agencies, and I
22 too am running a Rooftop Solar Challenge Program along
23 with Gary, and unfortunately these grant programs, and
24 especially Federal grant programs, you know, they're
25 usually a little bit on the underfunded side. We develop

1 a lot of really good things and working with Solar Sonoma
2 County and San Francisco to develop permitting model,
3 best practices, I just shipped off my first one from San
4 Francisco -- City and County of San Francisco to the DOE
5 last night. But then it's the outreach part, you know,
6 once we've developed something like this, how do we get
7 it out to the other communities that weren't individually
8 involved in that particular project, and get it adopted
9 statewide. And I think that's an area where EPIC might
10 be able to help organizations such as Gary's or mine,
11 that have been working on these DOE projects to be able
12 to spend the next year more on the marketing and
13 outreach, to get the word out that, you know, there are
14 these kinds of programs, there are all these kinds of
15 model best practices, and take a look at them, try them
16 out in your community, as opposed to what this gentleman
17 was saying, or maybe it was in the earlier panel, you
18 know, a lot of this stuff gets developed and it goes on
19 the shelf and collects dust, and I hate to see that
20 happen. Thank you.

21 MS. NEIDICH: Thanks, David. Anyone else?

22 MR. HART: May I make one last plug?

23 MS. NEIDICH: Yes.

24 MR. HART: We're building our demonstration
25 project at the Port of West Sacramento. We have 19 acres

1 there and we're building a 50,000 foot facility, room for
2 lots of other projects and such that are going to go in
3 there. But we're putting an 87,000 foot roof on it
4 specifically to develop solar. We're going to have
5 thousands of people a year coming in to see the
6 technology that we're demonstrating in our waste energy
7 technology, and we're looking for people that have got an
8 innovative solar technology that they would like to
9 demonstrate here in the Sacramento region, to go in with
10 us on this roof, and we also have qualified for 1603
11 financing for the project, so there's a 30 percent kicker
12 that the developer would be able to see in this. But we
13 don't know, because the solar industry is something I see
14 all the time, but I don't know a lot about it, and we'd
15 like to find the right people that can suggest some
16 innovative technology they'd like to show off here at the
17 right place, there at the Port of West Sacramento, this
18 innovative facility. So if somebody has got a great
19 idea, we'd love to hear it.

20 MS. NEIDICH: Thanks, Mike. Is there anyone
21 online? And then if you can go to the next slide,
22 there's information on how to submit written comments
23 coming up -- soon. Written comments are due by August
24 10th and I know Valerie brought up about when comments
25 would be due for the Southern California workshop and

1 those will be due August 17th. And they would go to the
2 same address. Anymore questions? No? Comments? Going,
3 okay, I guess we're going to go ahead and adjourn. We do
4 have another panel, Panel 3, on Workforce Development,
5 and that will start at 1:30 in Hearing Room A, in this
6 room right here. Thank you, everybody. And thanks to
7 our panelists.

8 (Off the record at 12:00 p.m.)

9 (Back on the record at 1:30 p.m.)

10 MS. NEIDICH: We're going to go ahead and get
11 started. This is Panel 3 of the Workforce Development to
12 Accelerate Clean Technology Deployment. My name is
13 Sherrill Neidich. I work here at the Energy Commission
14 in the Renewable Energy Office. I want to welcome
15 everyone here who is attending in person and by WebEx,
16 and I also want to thank my panelists. We have assembled
17 an excellent group of panelists with a wide range of
18 knowledge in our workforce sector.

19 I'm going to have some opening comments. The
20 purpose of this panel is to discuss workforce challenges
21 that have been identified by stakeholders and the CPUC in
22 the EPIC Proceeding. The Energy Commission will be
23 developing its first triennial Investment Plan for the
24 EPIC Phase 2 Final Decision, of which workforce
25 development is a component of.

1 The EPIC Phase 2 Final Decision, a total of \$15
2 million, is allocated annually, for market facilitation
3 activities. And a portion of that funding will go
4 towards assisting workforce efforts occurring across the
5 state. Workforce development is a broad activity with a
6 lot of investments taking place at the Federal, State and
7 local level, and providing public investment into
8 workforce development will complement these efforts. We
9 are looking forward to receiving insight from our
10 panelists today and solicit public input to develop
11 specific investment initiatives.

12 Now we're going to go ahead with our panelists.
13 If you can go ahead and take two to three minutes, or
14 however long, just provide us your name and who you're
15 affiliated with, and your role in the Clean Energy
16 sector. And we'll start here with Barbara.

17 MS. HALSEY: Good afternoon. My name is Barbara
18 Halsey, I'm with the California Workforce Association.
19 The Association represents Workforce Investment Boards
20 across the state, and we connect them to opportunities
21 for work within sectors that are critical to California's
22 economy.

23 My work in clean energy really was spurred when I
24 had the pleasure of serving as the Executive Director of
25 the California Workforce Investment Board, in the

1 Schwarzenegger Administration. At that point in time, we
2 were looking into sector strategies and how we could spur
3 connection to the Clean Energy sector. We were able,
4 with the assistance of the Energy Commission, to develop
5 a leveraged pool of investment that funded regional
6 industry Clusters of Opportunity studies across the
7 state. We had 10 funded teams at that point and all of
8 them were working in some way or another, connected to
9 the Clean Energy sector. So I'll stop there.

10 MR. LENNON: Good afternoon. I'm Mark Lennon,
11 Deputy Secretary from the Department of Veterans Affairs.
12 California has \$1.93 million Veterans, that's far more
13 than any other state in the nation. We're running at
14 about 11 percent unemployment with our Veterans for ages
15 20 to 24, that's 42 percent unemployment for Veterans,
16 that's a fairly startling number, I found it startling,
17 as well. These are men and women that, in many
18 instances, have fought for our country and they're coming
19 out after four, five, six years in the Military, trained,
20 disciplined, ready to go to work, and so the mission of
21 our department is many, connecting Veterans to benefits
22 and services is probably the best way to summarize that.
23 When I say benefits and services, everything from
24 compensation and disability claims, to helping them find
25 employment, to obtaining healthcare, to obtaining

1 housing.

2 On the matter of employment, as far as the Clean
3 Energy industry is concerned, I look at it more
4 generally. It's an emerging industry and, with an
5 emerging industry, you need to tap a disciplined, skilled
6 workforce. Now, in many cases, Veterans will not come out
7 of the Military specifically with those skills, but what
8 they come out with is some course skills, whether it's
9 Clean Energy or any other industry, are very attractive
10 to employers, and that is discipline, experience leading
11 teams, particularly at a very young age and level of
12 experience, ability to problem solve in dynamic
13 environments, so if you're Clean Energy or any other
14 industry, those are some core skills sets that you want
15 to hire. And California has a large pool of veterans
16 that are coming back and ready to go to work, so that is
17 one of the core focuses of our department.

18 MS. NEIDICH: Thanks, Mark. Jim.

19 MR. CALDWELL: I'm Jim Caldwell, Executive
20 Director of Workforce Incubator. We're a nonprofit
21 focused on bringing together industry, education and
22 government agencies to develop the 21st Century
23 workforce. A lot of experience with energy efficiency
24 and the energy sector, Workforce Incubator is a
25 consultant to the Smart Grid Center at Sacramento State.

1 We're working with Pacific Gas & Electric on their Energy
2 Workforce Sector Strategy, which is an initiative that
3 is, pursuant to the Workforce Education and Training
4 Needs Assessment that was done by U.C. Berkeley and the
5 CPUC, we've done a number of programs with SolarTech,
6 which is my friend to the right here, we'll tell you
7 about. Basically what we do is we look for areas where
8 we think we can elevate the trajectory toward AB 32
9 goals, toward meeting AB 32 goals. So that's both a
10 technical and economic approach to workforce development.
11 We're very committed to linking workforce develop to
12 economic development and making sure we have that impact
13 in whatever we do, and we're also committed to
14 employability by design, so we work with industry to
15 identify their high priority jobs. We reflect the skills
16 requirement back into the student learning outcomes of
17 the different programs that we work on, so that there can
18 be pretty much a direct hit on what these employees are
19 able to qualify for when it comes to the jobs that the
20 Employers are looking for.

21 MS. NEIDICH: Thanks. Thanks, Jim. David?

22 MR. MCFEELY: Thank you very much. My name is
23 David McFeely. I'm a Director with an organization
24 called SolarTech, I'm Director of Grants and Industry
25 Solutions. SolarTech is a nonprofit industry association

1 focused on solar PV. We're a membership driven
2 organization, we have a number of companies such as PG&E,
3 Southern California Edison, Sun Edison, Sun Power,
4 whether you're a manufacturer, or a utility, or a City
5 such as San Jose, we also have Workforce Investment
6 Boards on our Board of Directors, and as member
7 companies, so we have a pretty broad base of people
8 interested in removing the hidden costs, or market
9 barriers to the growth of the solar industry such as
10 permitting, which was in the previous panel, utility
11 interconnection, and installation best practices. We've
12 worked on a lot of finance methods and methodologies in
13 coming up with templates and processes that streamline
14 financing.

15 And that brings me into workforce, being also an
16 impediment to the growth of the solar industry; you can
17 have the greatest technology on the loading dock, and if
18 you don't have the right people to deploy it and get it
19 out to the customer, sell the customer, install it,
20 project management, whatever it takes, then the
21 technology is just going to sit on the loading docks. So
22 that's how also workforce is probably one of our six core
23 initiatives.

24 I personally am finishing up a couple of grants,
25 one that is actually related to the Energy Commission on

1 some other best practices, and then also a workforce
2 development grant that I'll get into in a minute, but I'm
3 also the director of a Rooftop Challenge grant through
4 the DOE, along with the four other Rooftop Challenge
5 Awardees in the State of California, looking at
6 permitting an interconnection best practices.

7 So on the workforce side, we just finished up a
8 grant with the Secretary of Labor, State of California,
9 that we received in 2010 to look at some innovative
10 things to develop a workforce in the renewable energy
11 sector. And fortunately, I was able to take a step back
12 and leverage some experience I have with HP and Agilent,
13 as a project manager, and say, "Well, how should we
14 approach workforce?" What if we approached it from the
15 employer's perspective, similar to what Jim was just
16 talking about, because training doesn't create jobs,
17 employers create jobs. And innovation creates what
18 employers do and, so, with the economic development
19 policies, the right policies, then innovation, that
20 creates businesses which then create jobs.

21 So let's go find out what the employers need and
22 what the employers are actually looking for in skill
23 sets. We've seen this mistake made before, we've been
24 involved in other grants and projects where it was really
25 fashionable to go out and develop a certain kind of

1 program, say, you know "Rooftop Installers," and you're
2 training hoards and hoards of rooftop installers, and the
3 jobs don't materialize as fast. So our goal is to align
4 the right jobs with the right people at the right time,
5 and not create such an oversupply in some areas, or an
6 undersupply in other areas because we missed
7 opportunities. So that came about as a program that we
8 called the Solar Workforce Acceleration Method under our
9 grant, which we called the SolarTech Innovation Workforce
10 Collaborative. Too many acronyms, I even trip over them.

11 And probably the hallmark of this, again, what I
12 said, was to look at the employer side, which I'll get
13 into a little bit more later, but moreover, it was to
14 constantly sample the employers, not to just do a once
15 every annual or biannual survey of employers, but to
16 create a strong constant dialogue with the employment
17 community such that we also create buy-in for future
18 employment, as well as the information that we need to
19 guide Workforce Investment Boards, as well as Community
20 Colleges, on what their training programs -- what would
21 be best successful for them. So that's a little bit
22 about me and SolarTech, and I'll turn it over to --

23 MS. NEIDICH: Thanks, David. Kurt?

24 MR. SCHUPARRA: Yeah, Kurt Schuparra with the
25 Labor and Workforce Development Agency. Just very

1 briefly, the agency is kind of the parent of the
2 Employment Development Department the Department of
3 Industrial Relations, those are the big ones, and when I
4 say big ones, just a lot of PYs and, obviously, we at the
5 agency level look at all our entities equally, and that
6 includes the Workforce Investment Board, and the
7 Employment Training Panel, which I think are the two
8 entities that are the most germane to what we're talking
9 about today. And, you know, I can't help but just cite
10 what David said a moment ago about training and just kind
11 of "let's start a program," "let's get a bunch of people
12 in there," and try to prepare them, give them a skill
13 set, without really being mindful of just what is the
14 demand for this skill out there.

15 Now, having said that, it's not always easy to
16 predict what the demand is going to be, especially when
17 you're in an economy as volatile as what we've seen in
18 the last three, four years. But we need to do better,
19 there's no doubt about it. And hopefully we're going to
20 have the WIB reestablished in terms of new membership by,
21 well, I'm not going to put a specific timeframe on this.
22 And then we will also, I mean, the Green Collar Jobs
23 Council, which was established in 2008 by -- it was
24 through a bill that then speaker Fabian Nunez ran -- that
25 is essentially like a subcommittee of the WIB, and we're

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1 going to get that active again. But I think it is going
2 to be for the purpose of really trying to do smart
3 training, if you will, and really look at where the job
4 needs are because, frankly, we don't have the luxury of
5 doing -- of herding cattle and putting people into these
6 programs that may or may not end up with jobs. And let's
7 be honest about it, I mean, as David said, I mean, there
8 were some instances where this sort of thing happened,
9 understandable to a point because I think there was an
10 expectation at the time when the Green Collar Jobs
11 Council was established, for example, that there would be
12 a big wave of jobs, but that was of course right before
13 the Great Recession began and other factors that have
14 contributed to the volatility.

15 So I guess I would say that one of the things
16 we're doing at the agency, and one of the things that
17 we're going to do with the Workforce Investment Board is
18 look at this so-called middle skills job gap, so to
19 speak, it's not actually -- that's probably
20 inappropriately worded -- it's the projected lack of
21 workers to meet the middle skilled jobs over the next
22 decade, and there's been a fair amount of news recently
23 and it's not a new topic, I mean, back in 2008, 2009,
24 there were some projections of this shortage, but
25 ironically the bad economy may have kept some of the

1 older workers on a little longer than what they would
2 have preferred otherwise. But we definitely have a
3 shortage that we're going to be facing and so we have to
4 figure out how we can best meet that and, you know, I
5 think that that's going to be the primary task for the
6 labor agency and the WIB, as well as the Employment
7 Training Panel and the Green Collar Jobs Council, as we
8 move forward.

9 MS. NEIDICH: Great. Thank you, Kurt. We're
10 going to go ahead and go through some questions. The
11 questions should be posted on the screen, they're also on
12 the agenda. And I'm going to go ahead and just pose
13 these questions. If anyone wants to jump in and answer
14 them on the panel, that's fine, I'm not going to put any
15 pressure on you to answer them.

16 The first question: Does the clean energy
17 sector shape employee training programs? What
18 partnerships exist between training programs and
19 employers to promote job placement, apprenticeships, and
20 externships?

21 MS. HALSEY: Okay, I'm sure you want some of us
22 to respond so we're not just sitting up here (laughing).
23 So let me take a stab at it from the workforce
24 perspective. So when we're out there talking with local
25 businesses about how they impact training programs, we do

1 know that they have impact both from the incumbent worker
2 side and new entrants training side. The employers that
3 we talk to are committed to ensuring that their workforce
4 is prepared to support new technology, to use new
5 equipment, to deal with customer perceptions, and
6 businesses are working consistently to train people so
7 that they're able to manage all of those three areas. We
8 also know that they're reaching out to educational
9 institutions to provide input on academic content and
10 workplace expectations associated with the sector.

11 Another promising practice that we're seeing is
12 business providing externships, or sabbatical
13 opportunities for instructors at the high school and
14 junior high level, as a way to get teachers familiar with
15 industry standards within the industry, and then bring
16 those skill sets back to the classroom. Given the fact
17 that most high school counselors are busy trying to
18 manage classroom discipline issues, or class schedule
19 changes, what we're seeing is the teacher take a primary
20 role in guiding students into career fields. So the more
21 that we can connect with teachers and provide them with
22 exposure to the industry, and then have them take that
23 lens back to the classroom as they're looking at students
24 and giving them advice on career pathways that they
25 should be considering, and applying that same lens to

1 their existing curriculum, and making sure that their
2 curriculum is contextualized to the standards of
3 industry, it's another really great technique that
4 industry is adopting and deploying.

5 In terms of partnership that exist between
6 training programs and employers, we're seeing employers
7 partnering with local colleges on training programs, and
8 trying to influence the shape of those programs. They're
9 sharing information about internships and jobs, as well
10 as attending career events and information sessions that
11 are held at the junior high, high school, and college
12 level. They're participating in resume reviews and mock
13 interviews in some instances, providing feedback to
14 potential job candidates on the applicability of their
15 skills sets and how their resume reads for entrance into
16 the occupations or the job opportunities. And they're
17 also offering tools and job shadowing opportunities to
18 students so that they can understand day to day
19 activities of someone who is engaged in Clean Energy, or
20 the Energy field.

21 And then the last point that I wanted to make
22 is that businesses are engaging with student groups on
23 special projects, so if you have junior high or high
24 school students that are preparing to do science for a
25 project, we're often seeing businesses now reaching out

1 and saying, "Gosh, we'd love to be able to partner with
2 you on that and add our expertise to the project team so
3 that your project will be more representative of what's
4 going on in current practice today, and it also gives the
5 students the opportunity to engage with professionals
6 within the career field.

7 MS. NEIDICH: Thanks, Barbara. Anyone else?
8 David.

9 MR. MCFEELY: Yeah, I've seen something similar
10 with, I think, the larger companies, but my limited
11 experience working on this program with more the new
12 emerging companies, they don't have the bandwidth to
13 really get out there, so they know they should, and they
14 appreciate it when somebody like us shows up and talks to
15 them about these kinds of things, and in some cases like
16 with SMA America, which has an office just north of here,
17 now they're partnering more closely with the local
18 community colleges and Sac State because we went out and
19 met with them and visited, and held a workshop in their
20 area. But in general, you know, new emerging companies
21 in this field don't have the bandwidth, they're trying to
22 figure out if they're going to stay in business tomorrow,
23 and they just really don't -- you know, intellectually
24 they know they should do it, but they don't. And so I
25 think it's going to take a lot of energy by certain

1 organizations working together, you know, we work very
2 closely with the WIBs in Santa Clara County, and the
3 community colleges in the Santa Clara County, and we also
4 work with the Workforce Incubator to do that kind of
5 outreach and sort of fill that role for them, but I think
6 it's going to take a lot more effort around the state on
7 the more emerging side of these different new industries.

8 MR. CALDWELL: I'd like to echo the energy
9 required to build some of these employer relationships.
10 I think, if you just look at it from a community college
11 point of view, great employee relationships in terms of
12 what's needed for the area served by that community
13 college. What seems to be happening, though, is that
14 there's a trend toward bigger pathways, regional pathways
15 that might be, for example, the East Bay, you know, east
16 of San Francisco, where a number of employers come
17 together, for example, in the Regional Industry Cluster
18 of Opportunity that Barbara's team initiated several
19 years back, that's really important because most
20 community colleges don't really have all of the tools to
21 complete a pathway for a group of employers. And also,
22 the CSU system, the U.C. system needs to be in that
23 dialogue, as well. More recently, we're looking at
24 statewide sectors like trying to organize -- it's not
25 quite statewide, but Pacific, Gas & Electric, PGE, is

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1 developing a strategy, convened some 40 employers along
2 with a number of other stakeholders, and are building a
3 sector strategy for energy efficiency in non-residential
4 buildings, and that sector is from Bakersfield to the
5 Oregon border. And so it's a very broad alliance of
6 stakeholders. We're getting good input from interviews
7 and so forth on some of the opportunities and some of the
8 barriers to growing that sector, and where workforce
9 development can fit in to address those barriers.

10 So I think that's the trend we're looking for,
11 is more of a statewide approach, looking at regions where
12 there are common interests, for example, in the regional
13 industry clusters, and applying that. And then, of
14 course, I think we're going to get this later, but having
15 some standard credentials that are based on industry
16 requirements reflected in student learning outcomes
17 within these pathways, and then some sort of a
18 credential, which could be a degree, it may be a
19 certificate, it could be something actually a little more
20 granular than that, that employers recognize and say,
21 "Oh, they now have this credential," no matter which
22 college it comes from, and the employers say, "That's
23 valuable to me, I'd like to consider that person for
24 employment."

25 MS. NEIDICH: Any other comments? Okay, we'll

1 go ahead and go to -- oops, sorry. Go ahead.

2 MR. MCFEELY: I was going to give the other two
3 gentlemen a chance. I really support what Jim was just
4 saying and maybe add a little bit different twist to it
5 by having other third parties like, say, Workforce
6 Incubator or myself, SolarTech, involved in the process.
7 Sometimes we can add a different set of eyes to the
8 problem, to get maybe a more complete picture as an
9 advisory organization to both the workforce organizations
10 and the community colleges. And so to kind of just give
11 you an example from my own experience with my grant, you
12 probably heard of this little company called Solyndra,
13 and they were originally going to be a part of our grant,
14 and something -- you know, from being in the industry,
15 something about the whole thing told me that this was not
16 a good idea, this was in 2010, and so I advised my other
17 two partners, you know, they really shouldn't be involved
18 in this grant. We went ahead, we got the grant, and we
19 kept revisiting that issue throughout the remainder of
20 2010, and something just didn't seem right. They were
21 telling us they were going to be able to employ 600
22 people, 600 people doing manufacturing -- being
23 manufacturing techs? I don't see it, and I don't care
24 how big your building is. As you know, by the end of
25 2010, the stories really starting hitting the paper, that

1 they were, you know, in deep yogurt. But by having
2 somebody from the industry in that conversation with no
3 other -- with kind of a neutral axe to grind, I think it
4 helped advise the overall program not to go down a
5 certain path that was going to be a disaster, and so I
6 think organizations like Jim's or mine bring that kind of
7 visibility into the conversation.

8 MS. NEIDICH: All right.

9 MR. SCHUPARRA: I'll just say very quickly that
10 we have entities within the agency such as, well, the
11 WIB, the Employment Training Panel, and the VA
12 Apprenticeship Program that work quite well with the
13 private sector. Could there be improvements in that?
14 Well, I think there's always room for improvement, but
15 we've had a good relationship, we've had some good
16 results, we'd hoped to get better results as we move
17 forward.

18 MS. NEIDICH: Jim.

19 MR. CALDWELL: Did you want to say something
20 before I jump in? Because I want to talk about Veterans
21 a little bit. The utilities in California had a meeting
22 recently and talked about veterans as a source of
23 employees, and so now I'm aware that there's some
24 operations going on to translate the Enlisted Classified
25 Manuals into occupational descriptions for some of the

1 utilities and a focus on actually enhancing that program
2 and being a lot more focused on bringing veterans into
3 jobs and developing training that can bridge the gap
4 between whatever that military occupational
5 classification said, and what the job requirements are
6 for the utilities. So I think, you know, thinking about
7 this 42 percent unemployment rate, and the kind of skills
8 that the military imparts, it's a huge source of talent
9 that and I think employers are starting to understand we
10 need to tap into.

11 MR. LENNON: I'd just quickly add on to that,
12 exactly right, you know, the 42 percent, that's a very
13 willing workforce, and the biggest challenge that
14 veterans face, or active duty service members as they're
15 transitioning to become a veteran, is how to find that
16 job, or how to get into that training pipeline. That's
17 not something that comes intuitively to you when you're
18 on active duty. And you mentioned translating
19 essentially skills that you gain in the military and
20 gaining certifications, or licensure, on the civilian
21 side. I was just having a conversation with the military
22 department about an hour and a half ago about this, and
23 this is something that the Governor's Interagency Council
24 on Veterans is going to be tackling, you know, agency by
25 agency, board by board, what are those skill sets gained

1 in the military that can translate over into the civilian
2 sector? If you are an electrician in the military and
3 you've been an electrician in a combat zone, you should
4 be that much further advanced towards gaining that
5 license on the civilian side, and so that's something
6 that we're going to be focusing on. And, again, I look
7 at the Clean Energy industry as it's an industry where it
8 can really benefit from having a ready workforce that's
9 ready to get to work.

10 MS. NEIDICH: Great, thank you. We'll go ahead
11 and go to Question 2. Significant investments are being
12 made to develop a clean energy workforce. How can EPIC
13 workforce development investments build upon these
14 efforts? Does anyone want to jump in?

15 MS. HALSEY: Sure. So I think one of the
16 things that we've long acknowledged in the workforce
17 community is that there is no one entity that is so
18 richly resourced that they can do all the work that needs
19 to be done by themselves, so it is about the collective
20 impact that we have together. It's one thing to
21 collaborate on projects, but I think we're really
22 beginning to see that there is a clear need for us to
23 align our investment strategies for a higher level of
24 impact.

25 So I would strongly encourage -- that is, if

1 you look at your investment portfolio over the course of
2 the next three years, that you look for where has work
3 already been done that you can build upon, where are gaps
4 within that work that your funding could be used to, you
5 know, put mortar in the chinks to shore up the structure
6 that's already there, and then how do you take it to the
7 next level? Where do you connect with organizations that
8 may already be doing work that could be leveraged in
9 order to accelerate the speed with which your investment
10 can have effect?

11 So I want to talk just for a second about the
12 Center for Energy Workforce Development. It's an
13 organization that's been around since 2006, it was formed
14 by the -- it was a utility initiated entity, it's a
15 virtual entity that does real work. It has a membership
16 of four of the major trade associations, energy related
17 trade associations, and they've done a lot of good
18 digging into all of the topics that we're talking about
19 today -- Troops into Energy, they're very concerned about
20 it, they know that, for our returning men and women, they
21 need to understand how the skill sets that they've
22 developed while they've been in the military can be
23 applied to civilian occupations. They also, because
24 they're working at the national level, have some gravitas
25 when their voice is raised and can lend their voice to

1 the conversation around getting troops credit for prior
2 work experience so that, if they do have to go into
3 training programs, they can accelerate in those training
4 programs rather than having to start at, you know,
5 Electricity 101 if they've already been through it, they
6 can start them at the 201 series.

7 But that means that we have to change some
8 things about the way that colleges recognize prior
9 learning. They're dealing with how you get the minority
10 populations and underrepresented populations into these
11 careers, they're looking at women in Energy, they have
12 already done a lot of work around career pathways and
13 stackable credentials.

14 They're already looking at ways to support
15 companies and the industry-at-large in understanding the
16 demand and the supply equation and keeping that equation
17 in balance. And they've uncovered a lot of the stumbling
18 blocks that, if we're not carefully aligning with people
19 who have done some of this research ahead, we're going to
20 stumble over again. So they're developing methodologies
21 for measuring what you're demand is like and projecting
22 out demand.

23 They're also developing toolkits for folks
24 within the energy industry to take to their leadership
25 because it has to be recognized first if you want to

1 understand what the impacts of your -- what the
2 demographic is of your current workforce, and how that
3 plays out over time, you have to have management support
4 to do that. And a lot of times when they're looking at
5 -- when a management eye is looking at workforce, they're
6 saying, "Gosh, we don't have a problem now," but what
7 they may not be paying attention to is what the scenario
8 looks like in five years or 10 years, so sometimes that
9 takes some support. So the Center for Energy Workforce
10 is also looking at that -- stackable credentials, how do
11 we identify those Tier 1, Tier 2 through Tier 6 skill
12 sets that can be built upon? What are the base level
13 skill sets that people need to come into Energy and then
14 how do we build on those skill sets that are required
15 within the Energy field and the clean energy field? So I
16 think they've done a lot of work. And we have good
17 examples of work that's gone on in California as a result
18 of previous investments that you've made, so taking all
19 of that learning and really laying it out on a table and
20 saying, "This is where we've made good progress, here is
21 another entity that we need to bring to the table so we
22 can understand and fine tune the investments that we're
23 making, here is work that's already been done." We don't
24 need to fund re-doing this work, what we need to fund is
25 what builds upon this work and takes us up to the next

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1 level, so I would encourage you to look at the Center for
2 Energy Workforce Development. MS. NEIDICH:

3 Thank you.

4 MR. SCHUPARRA: Well, Barbara covered a lot of
5 ground there, so I'm going to try not to be redundant.
6 But when Barbara was head of the WIB, the State WIB, she
7 was, for lack of a better word, fortunate enough to have
8 Stimulus funds to work with and that provided a good deal
9 of money for a good deal of projects. And we know that
10 there were some headaches with some of that money and so
11 forth, that we need not get into, but that money for all
12 practical purposes is gone, and so that's why I think,
13 you know, in terms of should EPIC build upon earlier
14 efforts? Yeah, I think that they should -- prudently.
15 And I look at the landscape ahead and perhaps there are
16 other ways that we need to go about it because we're not
17 going to have the same resources.

18 And I guess, you know, one thing I would just
19 want to bring to light here in terms of workforce needs,
20 they could be -- actually, I don't want to couch this in
21 a way that sounds like advocacy one way or the other --
22 but it's Prop. 39, otherwise known as the Sire Initiative
23 that would make a change in state tax policy, which could
24 yield as much as a billion dollars to the State's General
25 Fund. The way the Initiative is written is, for the

1 first five years, half of that money, so let's just say
2 it's probably a billion, and so it would be \$500 million
3 would go to green projects and a lot of it would be like
4 retrofitting schools and things like that. I mean, \$500
5 million is a lot of money, even in California, and for
6 five years in a row, you know, that's \$2.5 billion,
7 that's going to create a major workforce demand, too, and
8 that, I think you would argue, is a positive thing, but
9 we could have a surge of demand that is quite pronounced,
10 that will be upon us fairly soon. Now, as we know, large
11 amounts of money take a fair amount of time to administer
12 in a wise fashion, and I have no idea of there are
13 timelines involved in terms of the dispensation of these
14 funds, but I guess I would say that we welcome workforce
15 development dollars from EPIC and we at the Labor and
16 Workforce Development Agency are very willing partners,
17 as we have been in the past with the Energy Commission
18 and, to a lesser extent, the PUC, but we'd like to
19 nurture that relationship, as well. Thanks.

20 MS. NEIDICH: Thank you, Kurt.

21 MR. CALDWELL: So just building on Barbara and
22 Kurt's comments, I think the Stimulus dollars did an
23 excellent job in kind of an R&D mode as to what kinds of
24 courses can be developed and what sort of graduates come
25 out of those, and what does employment look like, and so

1 forth, and I have some very specific thoughts about
2 investment that relate to continuing those and building
3 on them.

4 First of all, yes, we should do that.

5 Secondly, it turns out that a lot of these courses and
6 programs aren't sustainable over the long term, they
7 haven't been brought into the mainstream of the community
8 college, or other educational facility, and part of that
9 is because they don't have faculty. I mean, these are
10 new areas that are advancing very fast in emerging
11 technologies, and so there aren't a lot of faculty out
12 there that are prepared to teach these kinds of courses,
13 so I think an investment in, a) taking these courses
14 mainstream, b) professional development so that we can
15 have faculty who are capable of maintaining these courses
16 in the mainstream, and I think there's another factor
17 here is that we ought to look as SolarTech has done at
18 the full spectrum of jobs required for a particular
19 segment, or sector, such as renewables, or energy
20 efficiency in residential, or in energy efficiency in
21 non-residential, and so forth, and really look at the
22 jobs that are going to make a difference in terms of
23 growing that economy, and creating more jobs because we
24 find that you don't necessarily create jobs, depending on
25 the workers that you train, right? And so the idea is to

1 say, where is the best use of our resources from an
2 economic development point of view? And in terms of
3 raising that trajectory toward the AB 32 goals, and say,
4 what jobs are most affected and we're most able to
5 leverage to those ends? So those are three investment
6 areas I was thinking about, one is professional
7 development, another is mainstreaming these ARRA or
8 Stimulus funded programs, and the third is of course
9 really looking at the entire labor spectrum and
10 identifying those jobs where the training investment
11 ought to be made first, not that it should be limited,
12 but it should be made first.

13 MS. NEIDICH: Thank you very much, Jim. David.

14 MR. MCFEELY: Yeah, I wholeheartedly agree with
15 both Barbara and Jim, and you kind of stole some of my
16 thunder, so let me see if I can add something on top of
17 that, that's not repeating everything that they just
18 said. I guess, taking a step back and just kind of
19 looking at this from a neophyte point of view, because
20 I'm fairly new to this whole workforce area, what I've
21 observed over the last couple of years is different
22 entities put out grants, invest a lot of money, something
23 gets invented, looks really cool, the grant money runs
24 out, it goes on the shelf and collects dust. And
25 effectively, that's what's happening right now with our

1 SWIC Program. I suspect the same thing might happen with
2 the panel previously where we're talking about the
3 Rooftop grant from the DOE for permitting, I kind of have
4 the feeling in the back of my mind that, come February,
5 that's going to sunset, and so all these efforts that
6 have been developed as far as that particular grant
7 program will go on the shelf someplace and not get
8 disseminated. So there's a lot of really good ideas out
9 there already.

10 We felt so strongly about this SWIC Program and
11 what we did with our Workforce Acceleration Method that,
12 on a lot of our own time, we wrote several different
13 white papers, and I've actually got one right here if
14 you're interested, on the process, how it can be
15 deployed, and also, more importantly, future funding
16 proposals. And we're taking the position that this
17 should also be kind of a public/private type of
18 partnership that we need to get industry to get a little
19 bit more skin into the game, but it also takes money
20 upfront to do this and education and workforce
21 development isn't something that necessarily most
22 companies want to make an investment in, they'd rather go
23 out and build a new factory. But we've got some ideas in
24 a white paper that we just released that could involve
25 the use of an endowment fund from some source, a

1 revolving line of credit, and I'm thinking along the
2 lines of something similar to what the gentleman from
3 Sierra was talking about earlier where this might be
4 something that the Energy Commission could create a fund
5 for, that could actually become a self-funding fund, like
6 an endowment, or a revolving line of credit, to where
7 it's not just you give it away and it's gone, but it
8 could be something where the program, either through some
9 kind of other industry participation, pays back into it
10 as they build success with the workers that they're
11 hiring. So we've got some white papers on that, I'd love
12 to share them with you, with anybody else on the panel,
13 to take a -- I recommend taking a strong look at that and
14 see how we can move forward in that direction.

15 MS. NEIDICH: Thanks, David. We'll go ahead
16 and move to Question 3: Should EPIC fund the collection,
17 storage and dissemination of a clean energy workforce
18 information center? Would a clean energy workforce
19 center connect the workforce to the employer?

20 MR. MCFEELY: I'm going to be a nay sayer on
21 part of this. It's sort of a qualified yes, I mean,
22 information centers are always useful and helpful, and I
23 think there are ways to do it right where it can be an
24 information center. I think there was a comment made
25 earlier today about communication, so I think the Energy

1 Commission can best help build infrastructure and build
2 communication across different entities along the lines
3 of what Barbara was saying earlier, as far as helping
4 organizations collaborate together better, because none
5 of us are going to have all the resources, all the tools,
6 all the smarts. But if you're expecting employers to
7 then go to this resource center and somehow connect
8 themselves to employees, uh-uh, we tried that, it doesn't
9 work, and we finally figured out that we had to build a
10 very proactive outreach, basically I had to invent a
11 recruiting organization within my organization, which I
12 never ever want to have to do again. That's why
13 recruiters are recruiters, they know what they're doing.
14 I'd rather partner with them in the future. They love
15 calling on the phone every day and banging on HR Manager
16 to look at a resume. I don't think -- HR Managers don't
17 have the time and the bandwidth to go to yet one more
18 website outside of Craigslist and Monster and everything
19 else. So I think, with some qualified yes's it's a good
20 idea if you look at it more from an infrastructure
21 perspective.

22 MR. LENNON: I tend to be a very big advocate
23 of technology. I think the days of your brick and mortar
24 information center are fairly well dusted. An
25 interesting statistic, and I think it probably reflects

1 the general population, but 73 percent of veterans, they
2 want to get online, not in line, to access benefits and
3 services, among which are obviously employment. What
4 better way, I think, for the Clean Energy industry, which
5 is fairly leading edge, to provide perhaps information
6 than virtually, using social media, using existing
7 technology that's out there via the Web? So I imagine
8 that this nascent workforce is going to want to get
9 information via those means, and I think that's probably
10 the more effective way to reach out to them.

11 MR. CALDWELL: I tend to -- I like aspects of
12 this center. I think that, if I were designing it, I
13 would make it a lot more proactive, it wouldn't be just
14 an information repository and place where you can search
15 and find things and get connected. I think that one of
16 the things I would look at is how can the Energy
17 Commission help structure the stakeholders in energy
18 efficiency in this state because right now there are some
19 attempts being made at structuring it, and those are
20 working to one degree or another, but I think there's a
21 big role to play for the Energy Commission to help
22 facilitate the structuring of the energy efficiency
23 ecosystem within California.

24 And one of the things I would include in this
25 is actually the manufacturing and vendor community that

1 are associated with energy efficiency products and
2 services because one of the things that you look at with
3 an emerging market is that they're public subsidies that
4 help the investment decision get easier for building
5 owners, let's say, that want to deploy an energy
6 efficiency solution. But over time, you want that
7 subsidy to go away because you want the cost to be able
8 to be borne, and without that, and for the business case
9 to prove in.

10 In terms of people in California who
11 manufacture energy efficiency products and services, and
12 provide consulting, it's a huge -- I had the number at
13 one point in time, I don't know how many companies there
14 are like that anymore, how many employees they have, but
15 I do know that the global market for energy efficiency
16 products and services is \$7 trillion by the year 2017,
17 and I think California ought to be getting its unfair
18 share of that market; in other words, earning income from
19 the rest of the world to help bring prices down so that
20 subsidies here in California can go away.

21 MR. SCHUPARRA: I would say, I mean, I think
22 that would be okay for some funds to go for this purpose,
23 I would want to make sure that we don't have redundant
24 functions elsewhere. I mean, because everybody can go on
25 Google and plug in California Green Economy and how many

1 hits will you get? Over a million, I'd just betcha -- I
2 kind of sound like Sarah Palin, and I don't want to say
3 that. But, you know, I mean, for example the Green
4 Collar Jobs Council I was looking at the Master Plan,
5 which was approved last May; now, yes, that was in the
6 first four months of the Brown Administration, but it's
7 sort of a vestige now of the biggest incarnation, what is
8 soon to be the biggest incarnation. And you had a lot of
9 good things in there. But you know, we're thinking now
10 about trying to make the focus a little sharper on job
11 training, and less on nurturing the green economy, or
12 whatever, because, boy, there's a lot of that going on
13 out there, and you know, let's think of the one thing we
14 can do best and focus on that, which is not to say we
15 should be myopic and not be aware of what other entities
16 are doing that could affect what the Council is doing,
17 and likewise for other entities. But you know, we are in
18 some leaner times here and so there is the how do you use
19 your resources best factor, and so I would just say, you
20 know, we need some element of this, but we just want to
21 make sure it's not duplicative of something else that's
22 out there because that obviously diminishes its value.

23 MS. HALSEY: My only comment would be, again,
24 because the Center for Energy Workforce Development has
25 done some of this work, I would really encourage you to

1 explore that interface and it may be that it's
2 appropriate for investment and it may be that there's an
3 appropriate California arm, but to the extent that you
4 can leverage work that's already been done, and
5 infrastructure that already exists, that's been
6 acknowledged by industry trade associations, and industry
7 partners already, if you can grab onto that and lift
8 yourselves off of that momentum for whatever you decide
9 to do with this investment prong, that would be where I
10 would offer my guidance. I think there's already a good
11 body of work that's been done and I think the decision on
12 whether or not EPIC invests in that way is tied to the
13 next -- the following questions about what kind of
14 certification for a particular -- I mean, you build
15 momentum if you tie into a nationally recognized, or
16 nationally organized effort, and how does that then
17 influence your conversations around certification for a
18 particular careers, and how do you move information out
19 about that and does it give -- again, does it give you a
20 level of gravitas because you're connected to a national
21 effort, as opposed to being a regional or a state effort?
22 So I think that decision may be influenced by some of the
23 other conversations.

24 MS. NEIDICH: Go ahead, David.

25 MR. MCFEELY: Something Barbara just said

1 caused me to think of something I wanted to say earlier,
2 which maybe is another twist to look at this Center,
3 sure, yeah, that's my fear, too, is you can go on Google
4 and you can Google and you can come up with a million or
5 a billion different green energy, clean energy, energy
6 efficiency sites from XYZ types of organizations, public,
7 private, you name it. Maybe one thing that EPIC could
8 look at is how to aggregate that on a local level
9 because, at the end of the day, I don't care, if I'm
10 looking for a job, I don't care what's going on in Modoc
11 County, I don't care what's going on in San Diego --
12 unless I want to move, you know, then that's a whole
13 different story, but if I'm living in Santa Clara County,
14 I want to know what's going on in Santa Clara County, and
15 there's not very good aggregation or mapping systems that
16 map this stuff out so that somebody, say like a veteran
17 coming back and he wants to move back into the Bay Area,
18 and he wants to see what are the job opportunities, or
19 what are the educational opportunities in that geography
20 versus Googling and getting the whole -- boom. So I
21 think that would be an area where you might be able to
22 partner with some of these other organizations and maybe
23 take it down to very local connecting, that all jobs are
24 local, everything is local, so if you could work with
25 them to try to take it down to a local level, that would

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1 be very useful.

2 MS. HALSEY: Great, and I would support that
3 comment, David. I think that there are some existing
4 structures, so if I'm a veteran and upon release I'm
5 being told you can go to a one-stop career center and get
6 help with job placement, then the connection you want to
7 make is with the one-stop career center, so that the
8 Energy Commission and EPIC aren't responsible for
9 replicating the network that's already available, but
10 there is a responsibility to inform that network so
11 they're behaving appropriately when someone comes in and
12 says, "I'd like to get into clean energy." So it is
13 about sourcing that with the information they need, so
14 that they can be informed advisors to consumers coming in
15 seeking assistance.

16 MR. MCFEELY: And in the local colleges, to
17 also know what's available, what isn't available, so
18 they're not creating training for what two colleges next
19 to them already provide, they can create training for
20 something that is a missing element.

21 MS. HALSEY: Uh-huh.

22 MS. NEIDICH: We've already kind of went over
23 question 4, but I'll just read it: Distributed PV and
24 wind have industry recognized certifications, like
25 NABCEP. What technologies would benefit from similar

1 certification programs?

2 MR. SCHUPARRA: There was a study that I think
3 the -- I think it was done by the PUC, that was conducted
4 by a U.C. Berkeley group of professors on the benefits
5 potentially of certifying energy efficiency program work,
6 and I met with the lead author of that study and she, I
7 think, has met with Commissioner McAllister, too, and I
8 think there's a good case to be made. At the same time,
9 we want to make sure that whatever we do in the
10 certification realm, that we don't create any unintended
11 market barriers where you have a couple people come in to
12 do something and I need two nails put into the wall,
13 "Well, that's a different crew, I'm not certified for
14 that," or something. I mean, obviously I'm using a
15 somewhat absurd example, except it's happening in real
16 life, I can attest to that. So, yeah, I think that
17 energy efficiency would be one where right now I don't
18 think there really are any certification standards,
19 perhaps on some more sophisticated levels there are, but
20 because as someone who is a Veteran of the electricity
21 crisis, and I see a couple other people out in the
22 audience who were veterans with me in the trenches, you
23 know, we always said that the cheapest megawatt was the
24 one that we never used, and I think there's some evidence
25 that, despite the obvious value of efficiency efforts,

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1 that some of them have not been executed real well and
2 that we could be getting a better bang for the buck.

3 MS. NEIDICH: Thanks. David.

4 MR. MCFEELY: Yeah, this is David speaking.
5 I'm also a little bit kind of on the fence and leery of
6 certifications, I mean, I'm also -- I've participated in
7 a lot of NABCEP activities, I helped design their
8 certification standard for sales and technical marketing,
9 but you know, certifications are also something that
10 could be a double-edged sword and be used as a gatekeeper
11 to get people from -- to keep people from entering the
12 market, as well as helping people to get into the market,
13 so I think we need to be careful along those lines.
14 Having said that, even in the PV world, I think there's
15 still an opportunity for some certifications, so I'll
16 just speak from within that world because I'm more
17 familiar with that, and one of the things that we've been
18 kicking around for a while is a certification for power
19 engineers, and this would kind of go along with the
20 career ladder thing, which I'm also a big fan and
21 supporter of, you know, having small steps to where
22 people can have onramps to get into a particular industry
23 and then move up with that industry by taking additional
24 programs, curricular classes. But one of the classes
25 that we did put together, and then had to kind of back

1 off from doing additional cohorts was a solar PV design
2 class, an engineering class for a commercial scale
3 building. And the roadblock that we ran into was that
4 most of the people, you know, we could teach them how to
5 design a high power solar system, but they're probably
6 not going to get a job because they're missing one
7 important element in their resume, and that's a PE
8 license. So I don't want to get into the legal
9 ramifications of all of that, but if there was a way that
10 they could have gotten some other kind of certification,
11 some other kind of testing that would have been legally
12 as equivalent for that particular niche industry, we
13 could have put another 25 people to work in the larger
14 commercial solar companies. As it was, we had to close
15 that program, that particular class down, because here's
16 a barrier to entry. And I've talked with actually the
17 director of NABCEP about that kind of thing and he's, you
18 know, running around the country with a proposal and all
19 he needs is a cool little \$200,000 to get started and he
20 can put together a certification program for Power
21 Engineering for solar specific, but you know, it's a hard
22 thing for him to get manufacturers to pony up for that
23 right now because of the way the economy is, and we have
24 to keep in mind that we are in a pretty sick economy.

25 MR. CALDWELL: Yeah, I'm kind of mixed a little

1 bit, too. The Workforce Incubator helped create a
2 Master's level certificate program at one of the CSU
3 campuses and it was based on employer input and we had
4 lots and lots of certifications to choose from, and this
5 is an engineering curriculum, so it's the more
6 sophisticated, Kurt, that you're talking about, we could
7 have chosen LEED or ASHRAE, or any AEE Standards, and the
8 employers didn't really want that. They said, "We're
9 willing to hire people who don't have that level of
10 credential, but what we do want," and I'm going to go
11 back to this same theme, "...is that we have things that we
12 want these employees to be able to do when we hire them
13 and we want you to teach them to do those, and so we'd
14 like those to be your student learning outcomes, and if
15 those are the student learning outcomes, then we will
16 recognize this certificate." And so the Advisory Council
17 for that program, it was a four course, one-year program,
18 agreed and so now that's recognized by about 30
19 employers, which is a good start, but it's not everything
20 that it needs to be, it needs to be recognized statewide,
21 implemented in other universities, because the demand is
22 not just, you know, within the service area of that
23 university.

24 The other thing that we learned was that many
25 of the people who came into that class -- this was for

1 dislocated workers, to help them repurpose their careers
2 to get into energy efficiency -- so the prerequisites
3 were that they had to have either a Bachelor's Degree or
4 higher in either engineering or physical sciences because
5 we found that they would have probably 90+ percent of the
6 skills that were already needed to complete this
7 workforce program, and we were surprised at the talent
8 that was out there. We went to Work to Future and the
9 Workforce Investment Board in San Jose, and we found that
10 there were 3,500 applicants in their database that met
11 those criteria, which was completely shocking to me,
12 completely shocking to me. But the thing that I took
13 away from that was you can get a certificate that's
14 recognized by industry, but that's a great tool for
15 employability.

16 The other is that, what we also learned, is
17 that some of the requirements didn't really need a one-
18 year certificate program, you could be a lot more
19 granular, and I know from Center for Energy Workforce
20 Development, you've heard this term "badges" or micro-
21 credentials," where a student learning outcomes becomes a
22 credential that's recognized by industry, and it could be
23 a course, it could be a module, or a group of modules,
24 that are specific to the employer's needs. So I think
25 that there needs to be investment in pursuing those kinds

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1 of employer credentialing programs, that put people back
2 to work right away. I mean, 3,500 people could have
3 gotten into that class and you put 16 in the class, you
4 know, 16. Another example of needing to sustain, that
5 was ARRA funded, well, it was actually your Green
6 Innovation Challenge Grant, and you know, we're starting
7 another cohort of that, but I mean, 16 at a time, it
8 takes a long time to get to 3,500.

9 MS. NEIDICH: Thank you very much. Let's go
10 ahead and go to Question 5: How should EPIC measure
11 ratepayer benefits for workforce development?

12 MR. CALDWELL: Well, this is hard. I mean, I
13 would like for the measurements to be things like, you
14 know, how much did you impact the trajectory and progress
15 toward AB 32 goals? And what is the economic impact? I
16 don't know that those are realistic, but if there's some
17 representative metrics that could be used that kind of
18 help us align with that, that would be good.

19 MR. MCFEELY: Yeah, when I was noodling on this
20 earlier, I wrote down economic development in the local
21 region, you know, how did the investment lead to job
22 placement, which led to a paycheck, which led to cutting
23 consumer spending, which leads to the growth in the local
24 GDP and tax revenue. And that should be pretty easy to
25 quantify.

1 MS. HALSEY: Yeah, I looked at it and I thought
2 it was an algebraic equation, so I just stayed away. It
3 involved higher math. (Laughing) No, actually, I did
4 talk with some folks in industry and their comments were
5 around speed of adoption, so how are -- how are the
6 customers -- how are businesses actively engaging to
7 drive customer demand? What's happening, and how are
8 these investments actually driving customer demand?
9 Which I think goes back to, you know, do you see your
10 return on investment? Where is that return on investment
11 being identified in the local economy? So --

12 MR. MCFEELY: I think you're adding a time
13 element to it, you see, I think that's very important
14 too, so it's not, okay, did we increase the GDP this
15 year, or five years from now? I think we need it this
16 year, so I think a time element would be very important,
17 so how did you say -- the speed of adoption or
18 acceleration of the market, you know, how fast can these
19 companies grow with your assistance?

20 MS. HARLEY: Uh-huh.

21 MR. SCHUPARRA: Yeah, I would just say that
22 there's -- I generally agree with everything that's been
23 said here and, first of all, there's a direct nexus,
24 these are ratepayer funds that are being used for energy
25 purposes, so it's not like somebody is using them to fund

1 something totally unrelated. There's also, I mean, we
2 certainly have precedent for the fact that these are in
3 many ways going to be indirect benefits, but we already
4 have a major program with the solar on rooftops where
5 obviously the direct beneficiary is the homeowner, or
6 such that puts a system on his or her roof, and says,
7 "Okay, I'm going to reduce my -- I'm going to get my
8 money back and reduce my bills," and so forth. And of
9 course, the corollary to that is that, even though I
10 don't have solar on my rooftop, because this is going to
11 help shave the cost of energy at peak overall, I'm going
12 to be an indirect beneficiary of that. And I think,
13 generally speaking, the same thing applies here. There
14 are going to be some ratepayer beneficiaries who are
15 going to be primary and some who will be secondary, but I
16 just think people want to know how their money is spent
17 and that's well accounted for. And I would -- I don't
18 think we need to labor over coming up with the algebraic
19 equation that Barbara so fears, along with me, and
20 perhaps others at this table.

21 MS. NEIDICH: Well, thank you very much for
22 answering our questions. We're going to open this up for
23 public comment, so anyone who wants to come up to the
24 podium and speak, please do so, and if you do, please
25 state your name and your company you're associated with.

1 MS. HALPERN-FINNERTY: Hi. I'm Jessie Halpern-
2 Finnerty and I'm with the Don Vial Center on Employment
3 in the Green Economy at U.C. Berkeley. So we completed
4 the Needs Assessment Report for the Public Utilities
5 Commission on Workforce Education and Training that Kurt
6 and Jim mentioned earlier. And, you know, one of the key
7 findings of it was the implementation of California's
8 energy agenda, and deploying these new technologies
9 successfully is going to really require supporting a
10 market that has demand for a skilled and professionalized
11 labor force, so that's a lot of what we've been talking
12 about today. And I'm happy to be here, to be part of
13 this discussion, and we want to encourage a really
14 dedicated focus on strategic workforce planning and
15 innovation, and labor market analysis for this.

16 So one way that we might -- that we suggest
17 doing this, specifically thinking about alignment and a
18 lot of things we talked about today, would be to have a
19 panel of workforce experts to advise EPIC on a dedicated
20 portion of the portfolio for workforce analysis and
21 planning, and this panel could advise -- sort of direct
22 the portfolio and issue RFPs on workforce topic, which
23 could include research or demonstration projects, so we
24 think that the California Labor and Workforce Development
25 Agency, Division of Apprenticeship Standards, ETP, the

1 California Workforce Investment Board, could be involved
2 in this and it would draw on their expertise in workforce
3 planning and address some of the problems that have been
4 raised today in terms of aligning workforce efforts in
5 this area, and really building off of the existing
6 resources that we have.

7 And the focus of this group specifically within
8 EPIC should really be tackling strategic problems that
9 impede market growth for innovative technologies, and the
10 green economy generally such as poor installation, you
11 know, lack of this -- lack of specific skills for
12 technicians who are otherwise trained in the broad array,
13 so a great example of this is apprenticeship and one of
14 the key recommendations of the Needs Assessment was to
15 make use of the State Certified Apprenticeship System,
16 and build off of that infrastructure to supplement and
17 sort of fill the gaps needed and really expand the Clean
18 Energy Economy. So, thank you.

19 MS. NEIDICH: Thank you, Jessie. Anyone else
20 want to make any comments?

21 MR. GALICER: I'm Harold Galicer, the
22 Technology Director of the California Smart Grid Center.
23 We're a PIER Program and also the coordinator of an
24 initiative funded by the California Energy Commission and
25 the Department of Energy and Workforce Development in

1 Smart Grid. I'd like to sort of add a little different
2 perspective than what we've heard this afternoon. I've
3 been working with the California Utilities and trying to
4 figure out how Smart Grid and workforce development fit
5 hand in hand together. What we've realized is that
6 there's not a linear traditional relationship in terms of
7 jobs created and the needs for those jobs. The other
8 non-linear relationship that we've seen is there's not a
9 direct connect between our existing both community
10 college and educational system and the specific skills
11 that are going to be needed for the workforce of the
12 future. The last piece that we've seen is a sort of
13 challenge, I think, for our traditional workforce
14 development system is the nature of the workforce that's
15 coming in right now, and the nature of the workforce that
16 we're seeing in terms of having a major wave of
17 retirement is entirely different. The skills that are
18 going to be required, the kinds of people that are coming
19 into the workforce, the people that are going out, are
20 very discouraged and disconnected.

21 Given this context and our initial findings,
22 and we are releasing a strategy document to get together
23 with the utilities on an effort that we think will answer
24 some of these disparate needs and would really encourage
25 the formation of an EPIC approach that's radically

1 different than what's happened in the past, and just to
2 give you a hint of the vision that we have for this,
3 traditionally I think we've seen historically as we've
4 moved forward in our PIER Program that there have been
5 various silos and approaches for energy in terms of
6 energy efficiency, in terms of building demand side
7 management, in terms of transmission and distribution,
8 the challenges of Smart Grid and the deployment plans
9 that are being enacted by the Utilities now really
10 require a crosscutting approach. A crosscutting approach
11 is not in terms of analyzing specific skill sets, but
12 realizing that the workforce of the future is going to
13 need integrated skills sets that are not going to be able
14 to be delivered with traditional curriculum in classroom
15 type of approach. Given that, what our approach is
16 looking at is more online and embedded curriculum that
17 people can access, and also much more of a modular
18 Department of Energy and Department of Education, call
19 this a badge approach, where workforce enables human
20 resources people, or utilities can basically take small
21 pieces of information, convey them to people online, and
22 basically supplement people's existing skills sets going
23 forward. And I would really encourage EPIC to take a
24 look at an alternative approach to the traditional silos
25 that have happened in the past, and get on board to what

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1 we can say is going to be enabling a workforce
2 development approach that targets specific pieces of
3 information, uses more technologies, and works hand in
4 hand with the utilities and utility supply chain that are
5 going to have to deploy technology in the future. And
6 it's going to take a radically different approach, that's
7 about the least I can say, in terms of what's happened in
8 the past and we're very interested to be part of the team
9 working forward with the CEC on our grant, and to
10 continue to support you in adopting a different approach.
11 Thank you.

12 MS. NEIDICH: Thank you very much. Anyone else
13 who would like to make a comment? Is there anyone on the
14 WebEx? No? I'm sorry, David?

15 MR. MCFEELY: I have a follow-on comment to
16 that if that's appropriate.

17 MS. NEIDICH: Sure, yes, go ahead.

18 MR. MCFEELY: The gentleman reminded me of
19 three anecdotal experiences that we had doing our SWIC
20 program which I think illustrates the workforce
21 development conundrum that we all face. So, for example,
22 we would go out and we would interview different
23 companies and we'd spend half a day with them trying to
24 understand what makes them tick, what are they looking
25 for, they would host us and so forth. So, for example,

1 the first one that he reminded me of was our experience
2 with eMeter, which is working in the Smart Grid sector,
3 they've been acquired by Siemens, so we went out and
4 figured, well, okay, these guys are going to tell us, you
5 know, some kind of interesting curriculum in the Smart
6 Meter world that we can develop in the local community
7 college, Foothill, De Anza, you name it. Their number
8 one issue, the thing that they were looking for and
9 needed most urgently, that they could not find on the
10 open market, was Java Programmers. They didn't need any
11 specialized energy training, they didn't need anything
12 specialized related to that whole eMeter -- I mean, we
13 could have put together a whole eMeter, Smart Meter
14 curriculum, that wasn't their interest. They could not
15 get Java programmers, which every community college in
16 the nation probably has at least three Java classes, but
17 they couldn't get people through that, so it's a
18 completely different problem that we would have been
19 solving.

20 The other one was Sungevity, they're also a
21 member of SolarTech, they hosted us up there for, again,
22 half a day, we had actually a lot of people from EDD also
23 join us on these visits. The one thing that they said
24 they really needed more than anything else were people
25 who could do the financial calculations, who understand

1 the underlying finance, so maybe just a Finance 101 in
2 solar or energy efficiency, or anything along those
3 lines, would have been sufficient to get somebody over
4 the hump, at least to the next interview, and that's all
5 you can hope to achieve. And one of the others, oddly
6 enough, that we had the most success with on the solar
7 side, was AutoCAD. We had people who, if they knew
8 AutoCAD, which is a drawing program that they all use to
9 draw different solar layouts, they'd get sucked up in a
10 heartbeat. But you didn't have to teach them about
11 solar, we didn't have to teach them anything else, so
12 these are like basic skills repositioned into a new
13 market in the right way, that are already off the shelf
14 curricula, that that particular employer is looking for,
15 that they can't find. And so it's somehow making those
16 kinds of connections might be a better use of money than
17 coming up with a lot of different -- now, we also did
18 very specialized programs and I'm surprised you didn't
19 talk about the one that we were -- you know, that we were
20 very successful. But it isn't always some specialized
21 program that needs to be developed, sometimes it's just
22 repositioning existing basic stuff that's already being
23 taught.

24 MR. SCHUPARRA: Yeah, and I guess I'd just add
25 to that by saying that, you know, we work closely with

1 the community colleges because, I mean, as much as we are
2 the workforce agency for the State of California, you
3 know, the middle skill jobs that I mentioned before are
4 really more in our wheelhouse than the programming
5 engineers and things of that sort, which are in the realm
6 of higher education and generally our involvement with
7 that sector of the workforce is a little more tangential
8 than critical. But I would just say that, in the
9 community colleges, I mean, one of the problems is that
10 what David is talking about, these are -- I probably
11 won't call them general skills, but there's nothing
12 extraordinary about them, but we've got to do better in
13 terms of the amount of time it's taking students who
14 enroll in community colleges to get a certificate for a
15 two-year degree because the numbers are abysmal. And,
16 you know, that's a little tangential to what we're
17 talking about here, but it's an issue, so it's -- you
18 know, it's something that -- and to the credit of the
19 community colleges, too, I just saw where they did
20 something, the governing board, serious students will get
21 greater preference in terms of getting courses, and I
22 applaud that because I think, in part, what David is
23 talking about here is, despite the three Java courses
24 that may be offered by any given school, they're not
25 producing that many people who are well versed enough to

1 meet our workforce needs.

2 MS. NEIDICH: Thank you. If there's no further
3 comments, we have the next screen that has the
4 information on if anyone wants to submit some written
5 comments, and those are due for Friday, I'm sorry, August
6 10th, which is next Friday, and there's information, the
7 address, and the Docket number. And if there's nothing
8 else, I want to thank the panelists, you were wonderful,
9 and thank everybody for coming, and we'll go ahead and --
10 oh, I'm sorry, Laurie.

11 MS. TEN HOPE: I want to make sure we open the
12 floor for any public comments related to the two days of
13 workshops, so I join Sherrill in thanking this panel and
14 the previous two panels were fabulous. Just make sure
15 that if there is anyone here on the room or on the phone
16 that has a question or a comment regarding the two-day
17 workshop, raise your hand, step forward. Come on up. Do
18 we have anyone online while we're waiting. Okay.

19 MR. GALICER: I'm Harold Galicer, the
20 Technology Director for the California Smart Grid Center.
21 One aspect, and I think I hinted at it before, but I just
22 want to be a little more clear in terms of as EPIC moves
23 forward. One of the lessons learned from working on
24 Smart Grid for, I think it's about five years now, is
25 that Smart Grid is a challenge and an opportunity, and I

1 think it's going to be a great boom for the economy, but
2 one of the things we've learned in working with the
3 regulatory agencies is it's very much of a crosscutting
4 type of approach, and you'll see that across the
5 deployment plans that the utilities are putting forward.
6 And the concern that I have is that, as EPIC moves
7 forward that it's able to deploy and basically empower
8 research projects that are crosscutting also, that span
9 the different realms and silos, and topics that EPIC is
10 trying to deal with, in that certain embedded topics like
11 workforce development and cyber security are able to be
12 housed within EPIC, that don't fit into the traditional
13 paths or patterns that have been laid out in the
14 workshop, and so I think that's going to be the challenge
15 going forward in this. Thank you.

16 MS. TEN HOPE: Thank you. Other comments? As
17 Sherrill said, we welcome your written comments by August
18 10th, but I would also realistically until August 17th
19 because we have a similar workshop in Southern
20 California, and their timeframe is the 17th. What are
21 you signaling me, Tony? Did we have a comment? I'm
22 sorry, I didn't see your hand.

23 MR. MCFEELY: I would just suggest that -- I
24 doubt if there's many employers in the room here, at
25 least especially for this panel, so to the extent that I

1 think you can get more employers in this dialogue, I
2 think it would benefit you tremendously.

3 MS. TEN HOPE: So let me just summarize, in
4 terms of written comments, you know, general comments are
5 welcome, but what is particularly helpful is to return to
6 the questions that were asked. They're in the agenda,
7 they're online. Yesterday we focused on research
8 initiatives broadly across an entire research continuum,
9 and those included particular buckets, as well as
10 crosscutting initiatives. If you have specific ideas on
11 what initiatives should be included in this program, what
12 the funding levels should be, what the benefits of those
13 are, those will be most welcome. If you reflect on the
14 questions that were asked today in terms of innovation
15 clusters, permitting, and workforce development, we would
16 welcome your submitted comments, as well. They'll be
17 posted for other people's thought and consideration, as
18 well, so thank you very much and really appreciate
19 everyone taking their time today to participate. We are
20 adjourned.

21 (Adjourned at 2:51 p.m.)

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23

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25