

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

I) Community Engagement Panel Member Attendance

- a) Present: Dr. David Victor (CEP Chairman/UCSD), Hon. Tim Brown (CEP Vice Chairman/San Clemente City Council), Dan Stetson (CEP Secretary/Ocean Institute), Ted Quinn (American Nuclear Society), Valentine “Val” Macedo (Laborers' International Union of North America Local 89), Hon. Jerome M. “Jerry” Kern (Oceanside City Council), Gene Stone (Residents Organized for a Safe Environment), Donna Boston (Orange County Sheriff’s Department), Dr. William Parker (University of California, Irvine), Garry Brown (Orange County Coastkeeper), Jim Leach (South Orange County Economic Coalition), Rich Haydon (California State Parks), Tom Caughlan (Camp Pendleton)
- b) Absent: President John Alpay (Capistrano Unified School District Board of Trustees), Supervisor Bill Horn (San Diego County), Supervisor Lisa Bartlett (Orange County)
- c) Panel 1 Guests: Tim Frazier (Bipartisan Policy Center), Dr. Per Peterson (University of California, Berkeley), Geoff Fettus (Natural Resources Defense Council), David Wright (Bipartisan Policy Center Advisory Panel, formerly Chairman, South Carolina Public Service Commission & President, National Association of Regulated Utility Commissioners, NARUC)
- d) Panel 2 Guests: Tim Frazier, Director, Nuclear Waste Initiative (Bipartisan Policy Center), Rob Oglesby (California Energy Commission), Jim Williams (High-Level Radioactive Waste Committee, Western Interstate Energy Board), Einar Ronningen (Sacramento Municipal Utility District, Rancho Seco Nuclear Generating Station), Marni Magda (Community Member)
- e) Southern California Edison Representatives: Tom Palmisano (VP and Chief Nuclear Officer), Chris Thompson (VP Decommissioning)

II) Convened by Chairman David Victor at 6:05 p.m.:

- a) Over the last year the CEP has heard a lot of concern surrounding the fact that the San Onofre used fuel is accumulating at the site and will be there for the foreseeable future. That reality reflects the difficulties in Washington and many people in the public and on the panel have asked us to focus on that and on what could be done. So much of what is needed is at the federal level and outside our committee. It is very important that the panel partner with an institution that knows a lot about what’s going on at the federal level. Tonight, the CEP is partnering with the Bipartisan Policy Center, to think about the federal, regional, local efforts underway and to try and get a smarter long term storage policy for nuclear waste.
- b) The CEP was set up more than a year ago as a two-way conduit of communication between the communities and the co-owners, particularly SCE. It is not a decision-making body.
- c) The meeting is organized around two panels:
 - i) Tim Frazier is the facilitator for the first panel which will look at the federal and regional level and at some of the large strategic questions surrounding nuclear waste.
 - ii) The second panel looks at what all this means for California and the local communities.
 - iii) The two panels will be followed by the standard public comment period, using a facilitated format as was done at the special meeting on the dry cask storage vendors, back in October.
 - iv) Live streaming of the meeting is on the SONGScommunity.com website and all documents will be available on the website after the meeting. BipartisanPolicy.org will also have the information from tonight’s meeting.

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Meeting Minutes

III) Welcome and Introduction by Tim Frazier, Bipartisan Policy Center:

- a) The Bipartisan Policy Center (BPC) is a bipartisan think tank in Washington looking for bipartisan solutions. The members are working very diligently on a nuclear waste project which is taking action to address nuclear waste. There are several advisory members on the council, split fairly evenly between Democrats and Republicans, industry, environmental, and grass roots people.

IV) Panel Discussion # 1 – Nuclear Waste at the Federal Level: Solutions, Barriers to Progress, and Opportunities to Break Through the Barriers

- a) Facilitator: Tim Frazier, Bipartisan Policy Center:
- b) Introduction of panel participants:
 - i) David Wright, BPC Advisory Council, formerly with the South Carolina Public Service Commission and the National Association of Regulated Utility Commissioners; brings the perspective of the regulatory environment to the discussions
 - ii) Dr. Per Peterson, University of California, Berkeley; Blue Ribbon Commission on America's Nuclear Future; will talk about the current status of the federal policy and some of the things that the Blue Ribbon Commission recommended that the BPC believes are still worth pursuing
 - iii) Geoff Fettus, Natural Resources Defense Council (NRDC); will provide his perspective on what is happening in the federal policy world
- c) Dr. Peterson (University of California, Berkeley) – update on where the nuclear waste program stands at the federal level:
 - i) The federal nuclear waste program is still at an impasse; there is very little to no activity, small amounts of research, and a small amount of progress towards furthering the license application for the Yucca Mountain project
 - ii) Primarily, policy right now is being determined by how courts interpret the lack of congressional direction that currently exists. Some of the key findings:
 - (1) Continuing to award funds to utilities to pay for the interim storage of spent fuel. This is important here locally because the federal government will pick up the tab, or most of the tab, for dry cask storage, since the Department of Energy (DOE) is long in arrears of fulfilling its responsibilities to remove the spent fuel from the power plants.
 - (2) There has been some limited restart to the Yucca Mountain project that will proceed at whatever pace additional funds are appropriated. The courts directed the DOE and the NRC to do this. Congress, as yet, has not appropriated any additional funds, so they've been working with the funds that have accumulated.
 - (3) The courts have now directed the DOE to stop collecting the nuclear waste fund fee since there's not much logic collecting the fee if there's no nuclear waste program to work on.
 - iii) At this point, it's clear that some sort of congressional action will be needed to restart a functional US nuclear waste program, and hopefully this Congress will be able to pass some legislation to do that. We need to think about what would be important for that legislation to do. To start appropriating money to restart the Yucca Mountain project is not sufficient, nor is it likely to work unless a number of other problems are also corrected, which were outlined in the Blue Ribbon Commission report.
 - iv) There are a number of areas where there is broad consensus for what needs to be done, and other areas where there is significant disagreement.

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

- (1) We do have significant disagreement on whether we should use nuclear energy, but we have broad consensus that we have a responsibility to manage the wastes generated by nuclear energy, safely and well. It's questionable as to whether we are being successful in doing that.
 - (2) There is not a consensus as to whether we should build a repository at Yucca Mountain, but a good compromise position could be to start work on a second repository as well, that might turn out to actually function better and be more attractive. In order to do this, we do need to have legislation passed that would restart the program and outline key elements that were recommended by the Commission:
 - (i) Transfer the responsibility for implementing this program out of the DOE to some type of new entity that has this task as its sole mission, and
 - (ii) When we do start recollecting the fees, to not spend them for other purposes, and rather to put them into a special fund. All of the money that has been collected to date has already been spent. The federal government has a legal obligation in the longer term to actually use the money collected but it's very difficult for Congress to do that under their current budget rules. Fixing that problem is also critical if we want to have a successful program moving forward.
- v) Hopefully some of the things discussed tonight involves what can be done to encourage Congress to move forward and pass legislation to get a federal nuclear waste program up and running again in the United States.
- d) Geoff Fettus (NRDC):
- i) There is not a lot of hope for this Congress moving forward on the legislation that Dr. Peterson described. It will very likely be necessary to move forward with the nuclear waste program, but that is a political discussion we can probably get to during the question and answer session.
 - ii) The fundamental things that NRDC and many of his colleagues and the public interest think need to be in place prior to meaningful legislation, or part of meaningful legislation going forward that can help address the nuclear waste, both commercial and the defense nuclear waste issues that we have around the country. The Blue Ribbon Commission got one thing fundamentally importantly right. It didn't go far enough, but they got one fundamental thing right and that's the issue of consent and the issue of finding a way for the host state to give meaningful consent.
 - iii) There is a long history of failure in the repository program and that's why we're here today. The issue that the Blue Ribbon Commission got right was, with all the extraordinary effort that was put into the lined casks in the 1960s, monitoring retrievable storage in the 1970s, and the Yucca Mountain project that failed finally in 2009, the fundamental issue of trying to figure out a way to work through our federal system has never really been grappled with. From a legal perspective, the failure of Yucca Mountain had much more to do with the corruption of the siting process and weakening standards as well as the fundamental federalism problem inherent in selecting a state and telling that state they pulled the short straw. What the Blue Ribbon Commission got right with consent was important, but what they didn't do is figure out the solution to it, and the solution really sits at the heart of the way environmental laws in this country work. That is the Atomic Energy Act's exemption from environmental laws. Many people don't understand that nuclear, which is heavily regulated in terms of the safety process, is not heavily regulated compared to many other

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

- industries in terms of environmental public health. The nuclear industry, both commercial and defense, are exempt from environmental laws in great measure when it comes to radioactivity. That is, once a site starts to go forward and a selection is made, as what happened with Yucca Mountain, the state has very little say except to challenge.
- iv) We have a very simple set of prescriptions that we think have to be in place for meaningful legislation to move forward, both for the commercial sites like here in Southern California and across the country from Illinois to New York to South Carolina. Some of that was shared by President Obama's 2012 Blue Ribbon Commission and that was fundamentally:
- (1) Focus on a geologic repository;
 - (2) Create a legal framework that's equitable and transparent before the siting process starts, for interim storage as well as for the repository program itself, and agrees with Dr. Peterson that it's going to be multiple repositories;
 - (3) Approach the issue and finally solve the issue of state consent by the fundamental change in environmental law and giving states meaningful regulatory authority by ending the exemptions from the Atomic Energy Act;
 - (4) Approach the issue of interim storage in a phased, careful approach. That has actually been suggested in legislation, but unfortunately the trajectory right now is going the other way. Former Chairman of the Senate Energy Committee, Jeff Bingaman of New Mexico, issued in 2012 the first legislative presentation of the Blue Ribbon Commission's ideas and we think that's a very careful presentation in terms of approaching consolidated storage because it preserved the link between storage and disposal, meaning it would not have created a new breed of disposal site which would go forward and someday, maybe, allow for a repository.
 - (5) Excluding and moving past closed fuel cycles and reprocessing because we don't see it as a persuasive process for the back-end of the fuel cycle over the next fifty years.
- e) David Wright (BPC Advisory Panel):
- i) In going around the country, the BPC Advisory Panel has been trying to open their minds and put their biases aside and look at this issue in a way that can get something moving in the area of waste. Right now there is no sense of urgency around the issue to move or consolidate the fuel. The country lacks the political will to do anything and that's a big part of the issue.
 - ii) We have the Nuclear Waste Policy Act and we followed the Act in the case of Yucca Mountain. Yucca Mountain was selected and it is the law of the land. It hasn't failed because there is a license application and the judicial system has told them to move forward. In the end, if it fails because of bad science or for some other reason, the Nuclear Waste Policy Act spells out what's to happen and that is to pick a second repository. Right now there's a political fight between the House and the Senate on whether or not you fund the license application. The Senator of Nevada is set in his ways so nothing has been happening.
 - iii) There's a new Congress and agrees with what Geoff Fettus said, that the likelihood of anything coming out of Congress without a President veto might be remote, but it doesn't mean we can't try to put some markers down and try to put things together so that at some point we can move forward very proactively and progressively.
 - iv) Part of the issue is in the area of consolidated storage (or interim storage). Consolidated storage by itself is not really being asked for. All it consists of is bringing dry cask canisters

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

- onto a site, putting them on a pad or maybe putting them underground, and watching the site. There aren't a lot of jobs created from it and there isn't a lot of economic development that results from it. That needs to be looked at, along with the issue of consent.
- v) To a willing host community, thinks it will be a bottoms-up process. The communities will tell the Federal government that they will do it, but with incentives or agreements that will help the communities.
 - vi) Some people like the idea of reprocessing and recycling and looking at the back-end of the fuel cycle, others don't. That's part of a healthy discussion and we need to go through that process.
- f) Tim Frazier:
- i) The Blue Ribbon Commission recognized that consent was needed, but we didn't go farther than that primarily because there were 15 people involved and it was going to be really hard to get all 15 people to agree on it. The more relevant point is, we were worried about being too prescriptive at a time when it hadn't fully been fleshed out.
 - (1) Dr. Peterson added that one of the recommendations was that the process for siting new facilities should include negotiations of legally binding contracts with the state and local government that would transfer to them the responsibilities that they felt necessary to properly protect the citizens who live in those states. It's that sort of mechanism that you can say has been responsible for the success of the Waste Isolation Pilot Plant (WIPP), including remarkably resilient support even following an accident that happened back in February. Under the Senate Bill that Senator Feinstein and others have developed, it would give legal authority to negotiate legally binding contracts and that provides a mechanism to address at least part of these concerns.
 - ii) The BPC has been looking at the barriers to taking action. Asked each of the panelists to provide one barrier towards making progress on nuclear waste, and why:
 - (1) Geoff Fettus: The debate is so polarized over Yucca Mountain or not. There's very little focus on the foundational problem in the Nuclear Waste Policy Act, and that was the allowance of federalism to bubble up. If the Yucca Mountain project was to be restarted without addressing this fundamental process necessary to solve the federalism problem, different people, hopefully not us, will be here 25 years from now with the same conundrum in front of them.
 - (a) The fundamental process referred to is the failure of states to have meaningful regulatory authority over the waste that comes in. Dr. Peterson talked about the idea of allowing for contracts or on-off agreements with states in the future that would give them more authority than, for example, what Nevada had in the Yucca Mountain process. The objection to that from a simple legal matter is that no future Congress is bound by what a prior Congress did, so if they decide to do away with that contract, that's what will happen.
 - (2) Dr. Peterson: The fundamental area of disagreement between the House and the Senate about whether and how to proceed with Yucca Mountain. If looking at this as something that was critical for our nation to be successful, they would move forward with multiple repositories. There is no need to rush forward but they do need to make a good faith effort to find a second repository facility that is required by the Nuclear Waste Policy Act. We have accumulated more than enough spent fuel to make it legally required for us to find an additional repository. My expectation is that we can probably

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

find one that in many respects would have more attractive features, but certainly would provide some diversity and some robustness to this overall system.

(3) David Wright: A lack of urgency because of no political will as a result of there being no national pride on the issue.

g) Panel member discussion:

i) Hon. Tim Brown asked that if the process for establishing an interim storage system would likely be as challenging and as complex as developing a permanent facility, such as Yucca Mountain, then if you were going to go through all that effort, wouldn't you want to achieve a permanent outcome?

(1) Geoff Fettus agreed that it would take the same effort for a new consolidated storage site and that unless it's tied to a repository, you will have precisely what you described.

(2) David Wright added that if you're going to solve this problem it's going to have to start from a willing host community initiating the effort themselves. A number of sites around the country are now considering it but they're not considering being just an interim storage facility.

ii) Dr. Peterson pointed out that there are no physical or technical limitations to implementing the transportation of spent fuel because it already happens in Europe where spent fuel is generally not held in long-term, on-site storage. Europeans have solutions that include reprocessing and underground repositories. We need to think about other risks that come from our inaction because there are many places in the world where we can expect that spent fuel may not be safely stored in the long-term after reactors are shut down. In the past, with the research reactors, we took back spent fuel that had significant levels of security issues. Dr. Peterson recommends for people to go back and look at what we were doing in California in 1998, when we were returning highly enriched uranium spent fuel from South Korea and other foreign countries, transported through California. At that time we addressed a lot of the technical, policy, and safety issues associated with spent fuel transport and the California Energy Commission did a lot of great policy work. It's something that can be done technically. It's much more a matter of how do we put together and develop the consensus to move forward and implement these solutions which are done routinely in other parts of the world.

iii) Chairman Victor summarized what had been discussed:

(1) Pursue Yucca Mountain;

(2) Multiple sites needed;

(3) Consolidated interim storage and let local communities bid;

(4) Provide more information to communities regarding the transportation of waste.

(a) Chairman Victor asked the panel for a recommendation on where to put our efforts to make progress.

(i) David Wright believes the focus should be on consolidated storage at decommissioned facilities, such as the Yankee plants, the Prairie Island community in Minnesota, and others that have been sitting there forever. Find sites that are willing to take on other's waste.

(ii) Dr. Peterson stated that the Blue Ribbon Commission spent a lot of time thinking about the questions surrounding consolidated storage and the arguments for and against it. There's a compelling argument to do due diligence and the best we can to develop consolidated storage for the spent fuel

San Onofre Decommissioning Community Engagement Panel

BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California

Meeting Minutes

currently stored at shut down reactors. On page 113 of the Blue Ribbon Commission report there is a graph that shows all the countries around the world that have reactors right now. 21 of these countries have tiny programs and very few of them will ever develop programs domestically to handle these materials. 85% of the spent fuel is being generated by the remaining 10 countries and adding small amounts to that would not impose a significant qualitative change in their programs. The key point is that if we don't develop the capability to consolidate our own spent fuel, 20-30 years from now when an urgent need comes for us to do something because there's a security problem elsewhere around the world, we will not have the physical ability to do it and that could be a very terrible place to be. We don't have to think about doing it today, but the future generations need the capability to manage these materials safely and if we don't build up the infrastructure now, they'll be sitting there with no tools to do the right thing if they need to in the future.

1. Chairman Victor asked if that implied that we should be thinking about whether there are other countries (although currently illegal under Federal law) that could be providing consolidated storage services even for US fuel?
2. Dr. Peterson responded that just this month, Russia announced that it was ending a long-term deal we had with them to help them secure all their nuclear weapons material. We have concerns that as a consequence the security is going to degrade as the equipment provided to them becomes obsolete and wears out. We tend to focus on ourselves so much, rather than thinking about what's helping other places in the world. We did bring back spent fuel from other places in the world, through California. It was very controversial but in the end the shipments were executed very safely. The material we brought back represented a security hazard to us. Right now we no longer really have the functional ability to do that sort of thing and if we can't get our own act together in the US, it's difficult to see how we'll be able to manage problems that crop up in other parts of the world in the future.

(iii) Geoff Fettus suggested that what he would do to make things happen, something along these three areas but in a smaller bite bill are theoretically possible but highly unlikely for all the reasons David Wright and he agree on. It's not just politics, it's more institutional and there are significant world views that are clashing. The three areas where I think there could be progress in the next few years is some sort of combination of storage with the commercial industry in terms of substantially improving safety, combining a significant set of requirements that the NRC has not seen fit to require of the industry yet, along with something like a pilot project for interim storage that does address the stranded sites of which San Onofre is now essentially becoming one. We believe the way to do it is to send the used fuel to operating reactors because you already have consent and you can essentially keep the onus on the industry. Third, set up environmental standards first for whatever was going to go forward.

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

1. Chairman Victor asked how we actually get something done in the House and should we be leaning on our House of Representative members to introduce some bill, and should that be around consolidated storage? Is that what is being recommended?
 - a. Geoff Fettus responded no, that the house will likely do nothing. We haven't seen anything like that from the House in a very long time, so instinctively if anything's going to happen it's going to come from the Senate Committees. They do occasionally work together and create something.
 - b. David Wright added that all the House wants is that the license application be allowed to move forward through the process, live or die, fail or not, there is will in the House to work with the Senate on a consolidated storage plan.
- iv) Gene Stone asked how to move the political will to get something done? The only solution to that is the doctrine of public trust and it's something we could all work together on. Work together on a strategy to force the government to do its job. We've been sitting here for a year now and we may be sitting here for another 25 years unless we work together on this.
- v) Dr. Peterson commented that in the end Congress has to take some action to start a program. We'll likely be more successful if the actions they take build on the foundation where there's consensus and reach compromise in areas where there's disagreement. There is strong consensus that we should transfer these responsibilities to a separate entity. The place we run into loggerheads right now is what to do with Yucca Mountain. We would be better served by pursuing multiple options at the same time in terms of developing a repository.
- vi) Geoff Fettus added that part of knowing where to go is knowing where you come from. One of the problems we have on the federal level, is that people who were in place in 1987 and later, are gone. A whole new group of people have to be re-educated on the issue. They don't understand why we're arguing about what we're arguing about. Meetings like this, around the country, and the education process, is going to be the one thing that will rally the country.
- vii) Hon. Jerry Kern commented that robust local storage would take the pressure off finding a permanent solution. I see this issue as NIMBY-ism on the state level, the idea that people in Arizona don't want spent fuel from California. I don't think it's the politics on a party-line but more of a state-by-state issue. Do we give up on Congress and find a state-by-state solution? Look at a site in California for California to solve its own problem?
 - (1) Geoff Fettus responded that it's a thoughtful observation because you got right to the heart of some of the problem. It is a burden issue when you're looking at the west. Nevada did not have nuclear power plants and there they are the recipient. They did have nuclear weapons testing but they were the potential recipient of an enormous amount of waste. The state burden issue is definitely something significant and that's where he would suggest we try to crack the nut. End the Atomic Energy Act's exemption from environmental laws which would allow states to have regulatory authority which they don't have now over nuclear waste, and then for example, states could make deals to take waste. What happened with the Waste Isolation Pilot Plant is

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

a perfect example. They had a significant radioactive release and the state had limited authority over the site. Without that fundamental state control you're going to have exactly the problem you described.

(2) Dr. Peterson commented that although it would be wonderful to amend the Atomic Energy Act, it's not practical. You can get far enough along on that through having the legally binding agreements. Congress can undo anything it wants to do, except the fact that if you violate a contract you have to pay. The constitution protects people from unfair taking. There's another important point that needs to be emphasized. There is a very strong scientific and technical consensus that deep geologic disposal, properly designed and located, can provide safe and effective long-term isolation of nuclear waste. This is a problem for which there is a technical, scientifically-viable solution. Moreover, the work that has been done to demonstrate the foundations are as solid as everything we've done to understand how carbon dioxide affects the climate. It puts us in the position to make rational decisions going forward. The final thing to remember is that we dispose very large amounts of highly toxic chemicals in shallow disposal and we've already contaminated thousands of wells with chemicals. When we look at the consequences of geologic repositories not performing as well as they were supposed to, they involve the contamination of small amounts of water. The long-term consequences of having a geologic repository not work that well is quite small compared to other things that our generation is doing with chemicals. It's manageable because you can move the wells or treat the water and it is quite a bit different from the consequences of what we're doing with all the coal we're burning in states like Nevada and elsewhere, which is something that will never be practical to get out of the atmosphere. If you want to think about access to safe water for agriculture and drinking going forward, geologic repositories are not going to be a problem.

(a) Chemical waste and climate change. We're observing that while we're heating up the arctic areas, the jet stream is being pulled further north and we're seeing persistent high pressure over California. That high pressure is pumping lots of heat up into the arctic, displacing large amounts of cold air out of the arctic down into warmer areas and making life miserable for those that live on the east coast. It is providing a positive, reinforcing mechanism to accelerate the effects of climate change. If this high pressure persists, then water problems in California are going to get vastly worse than any geologic repository could ever do, and it will be vastly worse within just a couple of decades. Trying to keep things in perspective is a very important thing to do in this overall area of endeavor. It does require careful scientific and technical work to properly site and design repositories and it has to be done under a rational regulatory system. It is not easy to do, but at least it's possible.

viii) Hon. Tim Brown commented that it feels as if these problems are generally on a federal policy level and ultimately we keep turning back to the federal government, the DOE, for the solutions to the problems they've generated systemically. Right now San Clemente is going through the Local Coastal Program. The California Coastal Committee oversees all coastal-related items in the state of California, but the cities can engage and become local regulatory authorities through the Local Coastal Program. I see no reason why the federal government can't relinquish control and all of these issues must involve more of the states.

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

- There is so much invested in Yucca Mountain as the only solution, which makes it so emotional and I would say, if I was a Nevadan, that I wouldn't want to be stuck with this waste. But if every state has the ability to pursue its own solution, ultimately the elected will engage on a better level with the public that allows for them to meet the criteria established by the DOE and also make them co-stakeholders with the DOE, maybe on a state level. It allows for them to engineer solutions under strict DOE criteria, that will be managed locally and ultimately be a better environment than what we currently have which is all of these sites caught in a perpetual state of storage. I feel that the federal government has completely left the states alone on this issue. Make us stakeholders, make us empowered stakeholders to be able to engineer these solutions as effectively as we do with the Local Coastal Program. We can find interim storage solutions that would be far better than what we're stuck with now.
- ix) Ted Quinn asked the panelists what they believe the consensus is on the final solution, which he believes should be the back-end of the fuel cycle, after it leaves the site, for example staying in the physical presence of the fuel rods, or be re-processed as the Navy does.
- (1) Geoff Fettus believes there is a lot of disagreement on this subject. A long consensus on deep geologic repositories for spent fuel. We don't see any future for re-processing or close cycle, certainly not on an economic level.
 - (2) Dr. Peterson added that the current technologies for reprocessing fuel are more expensive than using the once-through fuel cycle and to deploy recycling technologies would take decades to put in place. The Blue Ribbon Commission reached consensus that we don't need to decide today one way or the other. There will be plenty of spent fuel remaining in storage that we could reprocess in the future if we choose to do so.
 - (3) David Wright said "never say never." At some point reprocessing may be economic so it can't be ruled out. As you look at consolidated sites, a willing host may want research and development in the area of reprocessing.
- x) Tim Frazer wrapped up the session by summarizing that this issue is very complex and multi-faceted, and there are n+1 opinions on the subject. There are solutions out there but it will take a combined effort of people willing to work, willing to open their eyes, and willing to listen to each other.

V) Panel Discussion # 2 – Nuclear Waste at the Regional Level: How Regional Stakeholders Can Take Action to Stimulate Progress

- a) Facilitator: Dr. David Victor, San Onofre CEP Chairman (University of California, San Diego):
- b) This discussion will focus on the regional west, the state of California, and local levels and be as pragmatic as possible. A lot of people here are focused on this question and want to know what to do and we're all grappling with this in different ways. I'm hoping that this next panel will help us think about what might work, or not.
- c) Introduction of panel participants:
 - Tim Frazier, Bipartisan Policy Center
 - Rob Oglesby, California Energy Commission
 - Chris Thompson, South California Edison, Vice President of Decommissioning
 - Jim Williams, High-Level Radioactive Waste Committee, Western Interstate Energy Board

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

- Einar Ronningen, Sacramento Municipal Utility District (SMUD), Rancho Seco Nuclear Generating Station
 - Marni Magda, Community Member
- a) Tim Frazier:
- i) When the Blue Ribbon Commission was established, we were chartered to go out and look at essentially what was going to be the next step, what was the plan forward. We were directed by Secretary Chiu not to look at Yucca Mountain. The discussion was what to do from this point forward to try to get consent or a new charter, a new path forward. We were specifically precluded from taking any action on the recommendations we made. There were 8 broad recommendations backed by a ton of data. Nothing in those recommendations excludes Yucca Mountain from being included in the process going forward.
 - ii) This Bipartisan project that we're running is all about taking action. Identifying the barriers that are stopping us from taking action, what actions should we encourage that might move us past the barriers or remove them entirely. One of the deliverables for the project is a broad action plan, built on what we've heard in community meetings (including utilities, nuclear industry suppliers, environmental organizations, NGOs, grass-root organizations, etc.). The action plan will basically consist of talking points that will be normalized so that everyone can agree on them and support them.
 - iii) One of the things you should think about is common ground between the represented groups. The BPC learned that in general, everyone can focus on the fact that the waste needs a repository. The BPC is agnostic when it comes to nuclear energy; we're not in favor of it, nor against it. If you shut all the plants down tomorrow you're still going to have nuclear waste.
 - iv) We are optimistic that Congress can try and move forward on some collaborative bill to address nuclear waste. Watch the BPC website for actions that we think you can support. Stakeholders are going to drive this and they have to be informed, engaged, and keep at it.
- b) Rob Oglesby:
- i) The role of the California Energy Commission (CEC) has been to keep the lights on with the absence of SONGS. Initially and immediately responding to shore up the infrastructure and work with others to make up for the loss of SONGS and its role on the grid. Now, the longer-term planning process looks at energy resources going forward and as the state grows. Presentation slides included:
 - (1) CEC's Nuclear History
 - (a) The Energy Commission doesn't have jurisdiction over nuclear facilities or waste but our history is born from nuclear policy and nuclear development of energy resources in the state.
 - (b) 1972 – The Rand Report determined that if we did nothing and continued in the direction of energy policy of the day, which was growing rapidly, that we would need something like 120 very large power plants up and down the coast of California.
 - (c) 1975 – Creation of the CEC – A bill was passed that created the California Energy Commission to do some planning and to look at options, instead of just building our way out of our needs for power that included efficiency and conservation.

San Onofre Decommissioning Community Engagement Panel

BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California

Meeting Minutes

- (d) 1976 – State legislature passed a law that was basically a moratorium of new nuclear plants – before you go forward with additional nuclear facilities a solution needed to be in place to deal with the waste and the CEC was given the duty of making a finding that it has happened, before the moratorium would be lifted.
- (e) 2008-2009 – CEC challenges DOE environmental review of Yucca Mountain.
- (f) 2013 – CEC comments on NRC Draft GEIS and Continued Storage Rule
- (2) CEC's Role in Nuclear Waste Transport and Storage:
 - (a) CEC does not have direct jurisdiction but we do have a State Liaison Officer to the NRC, who is the principal contact for the state of California on matters related to nuclear activities. We have also weighed in on federal policy, such as filings and comments on Yucca Mountain and Continued Storage.
 - (b) Regional – Western Interstate Energy Board High-Level Waste Committee.
 - (c) CEC coordinates with others, such as the Highway Patrol and Office of Emergency Services, on the transport of nuclear material (California Nuclear Transport Working Group).
- (3) California's Nuclear Power Plants:
 - (a) Diablo Canyon Power Plant
 - (b) San Onofre Nuclear Generating Station
 - (c) Rancho Seco Power Plant
 - (d) Humboldt Bay Power Plant
- (4) Some major points of the Integrated Energy Policy Report (IEPR), which the CEC publishes every other. Since 2005, this report has been the place for input and policy recommendations on nuclear power and issues related to nuclear power in California.
 - (a) Selection of nuclear waste recommendations:
 - (i) Evaluate California routes for safe transport of nuclear waste transport (2005)
 - (ii) Return spent fuel pools to less-crowded open racking arrangements (2008-2011)
 - (iii) Estimate and assess costs of low level waste generation and disposal from operating and decommissioning sites (2008)
 - (iv) Monitor key spent fuel pool parameters (2011)
 - (v) Expedite transfer of spent fuel assemblies from pools to dry cask storage (2013)
- (5) The CEC takes this duty very seriously and we have a position established at the Energy Commission that's been around a long time, and Danielle Osborn Mills, Senior Nuclear Policy Advisor at the Commission is here tonight; she focuses on nuclear issues in the state of California.
- c) Chris Thompson:
 - i) I'd like to give an overview of Edison's position on long-term storage of fuel and look at areas of common ground. Clearly an area of common ground between Edison, as the operating agent and decommissioning agent for the plant, and the surrounding communities is that we all have an interest in the movement of the spent fuel off-site, as soon as possible, to a permanent storage solution.
 - ii) As long as we have the fuel on-site, we're committed to safely storing it either in wet or dry configurations. We currently are safely storing 2,668 fuel assemblies in spent fuel pools and 1,187 fuel assemblies in an on-site dry cask storage system. We will continue to safely store that fuel until DOE takes possession and title.

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

- iii) Some of the things we've done as a company over the years is advocating for, and investing in, off-site storage solutions. Since the late 1990s, SCE has been a partner in a Private Fuel Storage solution, which is a consortium of utilities seeking to establish an off-site repository that was sited in Utah, on the reservation of the Skull Valley Band of Goshute Indians and it was a good lesson in consent-based siting. The tribe was interested in hosting a storage facility, the state of Utah was not. The state of Utah advocated with the federal government to block access by rail and road to the site. The site was licensed in 2006 for 20 years, but the Bureau of Land Management and other agencies declined to give access to the site through right-of-way and the site never broke ground and has not made progress since then. I think that is a good illustration of the importance of getting consent prior to moving forward with a storage solution.
 - iv) Edison's position currently is that we are open to and advocate for a number of solutions. We are proponents of a geologic repository and are in support of Yucca Mountain or another geologic repository. We are supportive of consolidated storage. We support the bill that has been referred to a number of times, authored by four Senators, to establish a consent-based consolidated storage facility. We believe that DOE needs to do its job and take possession of fuel and should be prioritizing taking possession of fuel from decommissioning and decommissioned sites first.
 - v) We also have fuel stored off-site at GE Hitachi facility in Morris, Illinois. About 270 fuel assemblies were moved off-site to that facility in the 1970s when that site was going to be a reprocessing facility. The Carter Administration put in place a prohibition on reprocessing and movement to that site ended. The 270 SONGS assemblies are still on-site at Morris, Illinois.
 - vi) SCE is an advocate for the Nuclear Waste Administration Act, which is the formal title of the bill that keeps getting referred to. We lobby for and support the bill, with its authors, Senators Landrieu and Murkowski. Landrieu was the Chairman of the Senate Energy and Natural Resources Committee, Murkowski was the ranking Republican member.
 - vii) We are a member of the Decommissioning Plant Coalition in Washington, DC, which provides advocacy for decommissioning plants and one of the things they do is advocate with DOE to give preference in the queue of fuel pickup to the fuel at decommissioning sites.
 - viii) To circle back to something Tim Frazier said, I'm anxious to hear what your thoughts and suggestions are and how we can work together to solve this problem that I think is in all of our interests.
- d) Jim Williams:
- i) As you apply pressure to get spent fuel off-site and secure, try to appreciate the concern of downstream or corridor communities. These downstream communities are your necessary but likely very reluctant partners, whose concerns are in your best interest to appreciate or maybe even advocate. This is not easily done. Most of these downstream communities don't even know that they're slated for this role in this national program. There are potentially lots of them. Disposal at Yucca Mountain, for example, would require spent fuel shipments through 890 counties in every region of the country. That's about 12 target counties for every sending county, such as yourselves. Some are large, some are small, some urban renewal, some rural, but every one of them is a local political entity like yourselves. Consider what these people are going to think when they find out that the

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

- federal government intends to ship spent fuel on their rails and highways, perhaps over decades. First the program managers are going to say that transport will be done very safely and they'll do lots of technical studies. Next they'll say that shipments are legal and they'll have plenty of legal support. Each of the 890 potential corridor communities will have deep concern about the high radiological content of the material being shipped. They will reflect that they do not directly benefit from this transport. They will worry about their economy and their property values and they'll soon understand that spent fuel shipment is logistically complex and that it presents many opportunities for things to go wrong. It could get contentious and it could take time for all these corridor communities to accept inevitability, and to exhaust their legal and political objections. Things could get delayed, including the removal of fuel from the sites, and if there's an event it will have a negative impact on all schedules.
- ii) The solution is in a larger, more integrated national program. The 890 potential corridor communities will expect a convincing explanation why this imposition on them is actually necessary for a legitimate national purpose. If the program cannot meet that test, corridor communities might reasonably not agree with it.
 - iii) In the current federal program, the 890 corridor communities are out of sight and out of mind. Almost exactly three years ago, the Blue Ribbon Commission forcefully said that shutdown sites should be first in line for spent fuel removal. That siting of spent fuel storage should be consent-based. But it did not seriously consider the perspectives of the 890 potential corridor communities. The program is not being considered or designed on that integrated basis, so maybe you can remind them.
- e) Einar Ronningen:
- i) The Sacramento Municipal Utility District (SMUD) owns the Ranch Seco Generating Station. SMUD is a medium-sized public utility that operates for the benefit of our owner-ratepayers. In a unique event in 1989, as the result of a public referendum, the owner-ratepayers voted to cease operations of Rancho Seco and we've been shutdown since.
 - ii) At Rancho Seco we've had the fuel in dry storage since 2002. Other utilities have had fuel in storage for a longer period and I'd like to state that's an example by doing that this can be done safely. We would prefer to have the DOE fulfill their obligation and take the fuel away and I think many of us can agree on that.
 - iii) Chris Thompson mentioned earlier the Decommissioning Plant Coalition. SMUD was an early member of the coalition and does work through that organization to try and influence federal policy. As a public utility, we try to be neutral on political issues but we do advocate on the behalf of our owner-ratepayers and we've seen some benefit from our efforts. One example is that the recognition by the Blue Ribbon Commission that it's a good idea to take the stranded fuel from the decommissioned facilities first. That's probably a logical conclusion but SMUD firmly supports that ideal.
 - iv) As far as national politics go, we have taken efforts to work closely with our local federally-elected officials, local Congress people as well as the State Senators, and developed a good relationship with them. We have limited ability to influence what they do but as a group, through the Decommissioning Plant Coalition, we have a little bit of a stronger voice. We work with them on many issues that affect public utilities, not just the nuclear issues.
 - v) SMUD supports everything we've discussed here. As we work together with the communities and the elected representatives, we need to find a solution to this. As I

San Onofre Decommissioning Community Engagement Panel

BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California

Meeting Minutes

- mentioned, SMUD doesn't play politics but we do advocate and I think we can find a common solution. While a solution is being developed, SMUD and the rest of the industry remain dedicated to the safe storage of the materials as long as it's on our sites. We just hope that's not forever.
- f) Marni Magda:
- i) As I've listened tonight, my concern is that the public is not informed and we sit here calmly in a situation that is urgent. We must get the information to all the California residents. Any time I talk to a Congressman or to anyone in the public that I encounter, they have no idea that we're going to be leaving 150 casks, 1,632 tons of spent fuel at San Onofre, on the bluff for the next 60 to 240 years, or indefinitely. With an industry that is still so young, this radiation cannot have been tested to know what the future will bring. We must take another look at the nuclear industry. We must force bipartisan pressure from local communities, from our state legislatures, through all ranges of our government, to begin to solve what we have not been looking at for 50 years. We have a radiation mess on our hands and we are not coming up with the solutions. Stop pointing fingers. It has been a bipartisan mess-up and now it's time for it to be bipartisan fix-up.
 - ii) What we're looking for is a possible solution; something must be possible. We cannot afford to leave the fuel where it is. We're in the ring of fire, we have terrorists, we've known since the Bush Administration in 2002 that our nuclear plants are in the plans of Al Qaeda and we cannot let ISIL [Islamic State of Iraq and the Levant] have us this vulnerable.
 - iii) With that in mind, we are suggesting the laws be made so the 33 states that have the reactor fuel have the clout to start creating the solution for their own fuel. Every time we try to move 70,000 metric tons of fuel to one location in this country, we have a lot of states who don't want it. If we open up an interim solution on a military base in California, where it's protected by a no-fly zone, our tax dollars will be saved because we're not going to have to pay private industry for this fuel to be watched for 10,000 years. If it goes to a military base we own the land. This would be for stranded fuel only from closed California reactors. That's 2,700 metric tons. We wouldn't want 70,000 metric tons pushed here into one of our California military bases. No state wants that. State's rights must be honored; it must be a hard look at hard choices; we must all show up as Germany did. Right now, our government looks the other way because there is no imperative to go after this.
 - iv) We have three problems with what the industry says to us about it being safe. Their paradigms are all based on probability models and what we have watched is that sabotage, human error, and Mother Nature can take this deadly fuel and turn places into a dead zone. We have watched the proof of Chernobyl, Three Mile Island, Fukushima, and now the Waste Isolation Pilot Plant. The tax dollars going into these mistakes are insane. The taxpayer is responsible for all expenses for interim or final storage of nuclear waste, not the ratepayer or the nuclear utility. It is a taxpayer burden for thousands of years.
 - v) We have much legislation that must change. We have to go after all the steps at once. We have to have it pushed from the public of every city in California and we have to sit down and make this happen. We cannot wait.
- g) Panel member discussion:
- i) Chairman Victor asked Rob Oglesby what can be done at the local community level to help the CEC develop state-driven options. What does the CEC need to proceed?
 - (1) Rob Oglesby answered that the CEC could engage in two primary avenues:

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

- (a) State legislation that specifically tells the CEC to do something and make an assessment or recommendation, or study an issue.
- (b) Integrated Energy Policy Report (IEPR) process that includes visiting issues and making policy recommendations. This is a public process that includes public workshops and there are opportunities for input and we develop policy recommendations that are put forward.
 - (i) Chairman Victor suggested that if the communities and interested parties got together and organized their efforts perhaps that would help the CEC make this a priority and we could then see what a state-level strategy would look like.
 - 1. Rob Oglesby added that the CEC has already made a number of policy recommendations on waste.
 - ii) Dan Stetson asked Tim Frazier about his recommendation to move the authority from the DOE and would it make sense to move that authority to the state level?
 - (1) Tim Frazier said the BPC looked at a federal solution and in the Blue Ribbon Commission report it was referred to as a federal corporation. Essentially they wanted the authority insulated from politics as much as possible, following the Tennessee Valley Authority (TVA) model which is a federal entity as well as a private corporation. The state solution is intriguing, but who's going to pay for it? The ratepayers have already paid into the Waste Fund and the federal government likely won't pay for it as they don't have the authority to do so.
 - (i) Chairman Victor suggested amending the current law, such that if a state has a solution then they have claim on some of the funds that have already been collected.
 - 1. Tim Frazier agreed that would be easier than revising the Atomic Energy Act, but as soon as the money is requested, the government will have to go borrow it as the funds are currently in notes and bonds in the treasury.
 - iii) Ted Quinn asked the panelists what the implementing actions and pros and cons are for doing this at the state level. Are the cons such that it would be better to have a western area repository instead of doing it state-by-state.
 - (1) Jim Williams said that as long as the final disposition of used fuel is uncertain, as it is now, his opinion is to take account of these potential 890 communities that don't have any stake in this game, and move it the shortest distance possible. Regional storage is a remarkable idea. This idea of state's addressing their needs on a sub-national basis is brilliant.
 - iv) Chairman Victor reminded everyone that on the previous panel, Dr. Peterson said that we know technically that deep geologic storage is the solution for the long-haul. If we're going to do consolidated interim storage and state-based strategies, we need to find a way to connect those to deep geologic storage so we don't create an unsolvable problem for the next generations.
 - v) Marni Magda commented that the laws would all have to change because currently it is not legal for the DOE to take the fuel to interim storage. As we look at changing the law, to create a separate trust fund going forward creates the same kind of bureaucracy that is difficult to deal with. 33 states have the fuel and those 33 states need to make the hard decisions on what to do with that fuel. As the law has to be changed, make the change so

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

- that the federal government works with the states to find solutions within their states, protecting states' rights and the taxpayer from short-sighted solutions.
- vi) Chairman Victor directed a comment and question to Chris Thompson: A number of laws will need to be changed but we must do so strategically. Private Fuel Storage, which SCE is a member of, went pretty far down the road without a change in laws. Does SCE have a perspective as to how much the laws would need to change for some of these consolidated interim storage strategies?
- (1) Chris Thompson responded that he doesn't have a definitive answer, but for long-term or consolidated storage, there are a number of issues. Utilities' rate-payers have paid into the Waste Fund and the end result was supposed to be that the DOE take title, possession, and responsibility, thus relieving the rate-payers and the states of that burden. There are third party entities that are seeking to license facilities now, for example in Texas, and part of what they want is for the DOE to provide them access to the Waste Fund.
- vii) Hon. Tim Brown asked Rob Oglesby if there is a framework in place where there is delegated authority from the DOE to the state of California that fits this type of framework.
- (1) Rob Oglesby responded no.
- (2) Hon. Tim Brown asked, in terms of management, if the CEC has the capacity to take on this type of responsibility and to create a framework that would be up to the DOE standards.
- (a) Rob Oglesby said that there are principles that would have to be respected. There are so many unanswered questions about what the appropriate location would be, transport, etc., that don't get solved by switching jurisdictions. In terms of resources, the state of California doesn't have an in-house NRC. We have expertise in some areas but we don't have standing by a complete infrastructure that would be able to, without augmentation and a lot of building, duplicate what now exists elsewhere.
- viii) Chairman Victor asked Einar Ronningen to what degree should the Decommissioning Plant Coalition be urged to expand its mission and to take on some of these consolidated interim storage questions. There are a lot of questions as to who is going to push for what, and perhaps this coalition should be asked to do more.
- (1) Einar Ronningen responded that the coalition does work on that front. They support the Feinstein bill, the Big Four bill, and are very much a supporter of consolidated storage. Whenever a bill gets drafted and gets published, the coalition comes together as a group to try and support anything that looks like it might be a solution. They meet with the elected officials in Washington and try to take the pulse of who might be supportive of those things and act with our members and our local elected representatives to try and get support for those.
- ix) Gene Stone asked that everyone stop and think a moment. Conventional wisdom has got us here today with millions of pounds of nuclear waste. He's not convinced that conventional wisdom is the way to go, and he's not at all convinced that putting nuclear waste in multiple spots in the nation is the safest thing to do for the long-term. Having only stored nuclear waste for 50-60 years, when you talk in terms of 10,000 years, he thinks more research is needed in regards to what's ahead for long-term storage.

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

- x) Chairman Victor is concerned that if we do something that takes the focus off deep geologic storage as part of the overall solution in tandem with the consolidated interim storage, the political support needed for the legislative changes would be hard to keep mobilized.
- xi) Chris Thompson observed that there is a lot of discussion and interest around the notion of a state-based repository. A lot of what we heard from the previous panel was to look at multiple locations simultaneously because some of them are going to fall away. SCE is looking at multiple solutions: private solutions, interim solutions, deep geologic solutions. Does the panel want to narrow its focus to a state-based repository or pursue multiple solutions?
 - (1) Chairman Victor feels that if you don't know what you're doing and you don't know what's feasible, the worst thing to do is create a monopoly, and so you want to have options to create pressure on each of the options to perform better. The logic that was outlined in the early panel for deep geologic storage was to have multiple options, partially to raise the game on Nevada to want the waste if they do, or not, and that will create other options. Chairman Victor believes the same logic would apply to the consolidated storage. There's some balance to be struck here because at some point you could have so many options going that it's not consolidated, it's just a lot of storage pads.
- xii) Tim Frazier said regional consolidated storage has always been on the table; regional, not state-by-state. We need to be specific in terms of what type of storage we're talking about: deep geologic (e.g., a Yucca Mountain) or interim storage (e.g., similar to an ISFSI). More than one repository is a good thing. I think the state solution is an interesting idea for storage but I worry about where you get the funding. The DOE has already stopped collecting the \$750 million a year it was collecting. I think it bears further review and discussion and the BPC will take a look at it as well.
- xiii) Chairman Victor feels these last two panels were terrific. This is a difficult, complicated topic. What's interesting is that we're now beginning to identify elements of a playbook. Perhaps this is something the BPC could help with, and some of the things we could do here within our communities. Five elements of a playbook could be:
 - (1) Perhaps there is some international strategy that could be involved here related to consolidated interim storage;
 - (2) What does smart politics look like that brings in both Houses, including the House of Representatives, for legislative change. Maybe BPC could help identify some of the smart elements of real legislative possibilities. We have some bills that a number of companies are already supporting;
 - (3) The feasibility of state-driven solutions with and without legislative change;
 - (4) California Energy Commission is the right institution and they could play a big role here, but we need to organize and make that ask. Also, what is the CEC's view about regional solutions and the trade-offs between state-level and regional-level solutions, so we don't end up with 33 states doing different things;
 - (5) Corridor communities are crucially important. Private Fuel Storage was a good idea, but it died in part because of a corridor community strategy that didn't work.
 - (a) You are going to have other items for that list and I urge you to help the CEP focus on them and we can end up with a playbook that can lead to some practical action

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

and that can help even at the local community level as societies determine what town and council resolutions should look like and what they should be asking for.

VI) Public Comment Period

- a) Chairman Victor asked Dr. Peterson to respond to questions asked by Richard McPherson and Richard Gardner concerning where Canada put its spent fuel.
 - i. Dr. Peterson explained that currently Canada stores its spent fuel on-site at its reactors. It also went through a very difficult and ultimately unsuccessful effort to develop a repository. It rebooted about 10 years ago and is well along the way and moving forward with the consent-based process to develop geologic disposal for the CANDUs. CANDUs are a type of reactor designed to run with heavy water, which means they can use natural uranium but consequently they generate much larger quantities of used fuel than the type of reactors developed to be used in the United States. They face a slightly different set of challenges, but ultimately they're also focused on developing geologic disposal.
 - Richard McPherson commented that when working at the International Atomic Energy Agency, they looked at Canada and the United States and split it down the Mississippi River for a number of reasons. A lot of it had to do with what was discussed earlier, the number of counties and cities affected and the fact that we could have water-borne transportation for most of it. Based on our analysis, Newfoundland is an ideal place for putting long-term storage.
- b) Question from Casey Thornahlen for Rob Oglesby: if we're concerned about waste storage, why is the CEC suing to stop Yucca Mountain?
 - i. Rob Oglesby responded that the CEC is concerned about waste storage and there are a number of issues related to groundwater at that facility.
- c) Richard Gardner pointed out that on the long-term repository possibility, it doesn't necessarily have to be very deep (1-2 miles under the surface), it can be nearer the surface. There are areas in the northern United States and Canada where the geology is clay which can be a water barrier without having to go so deep.
 - i. Chairman Victor asked Tim Frazier why we are thinking about ultra-deep
 - Tim Frazier responded that the depth is really particular to the medium in which you're disposing of it in; if it's granite, the further down you go, the permeability of the granite decreases, therefore less groundwater and less potential for migration. The DOE is now evaluating deep bore holes that are kilometers deep. The emplacement zone for the fuel is between 3 and 5 kilometers. It's very dependent on the media and one size does not fit all.
 - (a) Chairman Victor added that Gene Stone said earlier we needed to have a broader view on what the right strategy is. Is this an area where there's a lot of geologic and technological innovation going on, there might be a lot of wisdom in not spending a lot of time on deep geologic storage and waiting a little longer?
 - (i) Tim Frazier responded that the international standard has always been deep geologic storage. Deep to them is 500 meters, 1,500 feet more or less. There isn't a lot of R&D to be done here and not a lot of technology that needs to be developed to dispose of this waste in a careful, thoughtful, environmentally friendly manner. If you had a site, willing-host, and the state on board, you could start tomorrow with your core-drillings and putting together the safety-

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

basis and the analysis required to get an NRC license. All the technology is known, we just continue to step over our feet on where to do it.

1. Gene Stone commented that Richard McPherson said something very telling. He said that at some point, we are going to reprocess this. Tim Frazier just talked about long-term deep repository. These meetings are a cover to get us to a place to accept these answers that others have come up with. If the public process is important, than listening to the public is just as important, and the public needs to be part of these solutions.
- d) Chairman Victor asked Dan Schinhofen for a perspective from the state of Nevada who commented that there is bipartisan support in the House, and support from 9 of the 17 counties in Nevada.
- i. Dan Schinhofen, a Commissioner from Nye County, the host county of the only repository in the United States by law, wrote a resolution 4 years ago (signed by 9 of the 17 counties) that called on the NRC and the DOE to move forward with the licensing process. We won't know all the answers until we get all the science heard. We have a new Congressman who spoke in favor of it, and an older Congressman who says if it includes reprocessing he would be interested in talking about it. There is an appetite for us to move forward with Yucca Mountain. There is 1,000 feet of rock above, and 1,000 feet below before it gets to water. These fuel rods have ceramic pellets in them, and they're in a cask that will be in a cask, so both of those would have to fail, then water would have to run over that and down into the aquifer which has been irradiated over the years by about 1,000 nuclear tests. This is about the only use this property could have. We're not opposed to a second repository, but the quickest way to move this forward, is to continue with Yucca Mountain while we look for another repository. We can have Yucca Mountain open by 2025 and the other one by 2048, and in the meantime, Nye County has property you can store it on.
- e) Chairman Victor introduced a comment by Audrey Prosser asking if the cost would be less than the current cost if it were put on a California military base.
- i. Tom Caughlan (Camp Pendleton) said that the Marine Corps and the Navy do not have the expertise to manage used fuel. The Marine Corps is there to be a 911 force for the rest of the country. The DOE has the responsibility and that's where the expertise lies. Clearly, the Marine Corps' interest is returning that land to useful training ground and that's what the lease in place says it's going to do. The lease obliges the utility to remove and restore the facility to an as-was condition. If you want to remove the fuel to another military base here, you've simply tripled your location of concern and that's not something anyone would advocate.
 - Audrey Prosser's concern is that the fuel on-site at SONGS is vulnerable.
 - (a) Tom Palmisano explained that the dry cask storage at San Onofre meets NRC requirements for protection. You can't get inside the fence without someone opening it; it's monitored by closed-circuit television, infrared capability, watch towers providing constant vigilant surveillance, and a heavily-armed response force that can respond in minutes. These are canisters that are stainless-steel and sealed in concrete, not something that can be breached quickly or easily. It has quite heavy security that meets NRC requirements and the NRC continually reviews that. More information cannot be disclosed without crossing a line about what we can't disclose. It may not be visible but there is continuous surveillance.

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

- (i) Chairman Victor added that he has noticed the extent to which security is becoming increasingly automated and the confidence around the automated security systems is actually greater than that for human security systems. Do not assume that security comes from a person with a gun, but that security comes from layers of protection.
- f) Chairman Victor summarized two security questions, from Bryan Johnson and Ren Wicks Jr., regarding safety and how vulnerable are the spent fuel pools at San Onofre.
 - i. Tom Palmisano explained that the pools at San Onofre are very well designed and constructed. They are steel-lined, in heavy concrete-reinforced buildings, and the majority of the fuel at SONGS sits below grade which is different than a lot plants. The pools are inside a building that is protected much like what was described for the dry cask storage, protected by both automated systems as well as personnel response from security. San Onofre has not operated for over 3 years so the fuel has decayed significantly which reduces the risk related to the pools. For a plant that is no longer operating it makes sense to move the fuel out of the pools, as safely as we can, into dry cask storage.
- g) Chairman Victor introduced members of the public that wished to speak (maximum 3 minutes)
 - i. Gary Headrick, San Clemente Green – believes a sense of urgency is missing and an earthquake is inevitable.
 - ii. Ray Lutz, Citizen’s Oversight – we don’t know how to store fuel long-term; offered to help with state storage solution.
- h) Chairman Victor asked Dr. Peterson to provide an overview of the WIPP accident that occurred.
 - i. Dr. Peterson commented that we must try to learn from experience and in Europe they’ve transported mass quantities of spent fuel that are quite close to the total we need to move. We have examples of on-site storage. Doing transportation properly requires a lot of effort to set up all of the local response and to involve communities as Jim Williams has pointed out. If done well the experience has been that it can be done with high levels of safety.
 - At WIPP, first of all there was an underground fire with diesel-driven hauling equipment; essentially a truck fire. This exposed some deficiencies in their maintenance; the proper thing to do then is corrective action to make sure you don’t make the same mistakes again. The more important event that occurred was a major mistake that was made at Los Alamos where they switched to using organic material to soak up liquids in waste that they were loading into drums classified as a difficult waste stream. The root cause evaluation is still underway, but from what we can tell, this was nitrates that had been produced in the chemical processing of plutonium and that apparently someone neglected to write in, in front of organic, and specify the type of kitty litter. They mixed organic materials and other chemicals and oxidizers and essentially built a small fertilizer bomb. They packaged about 100 drums this way. The interesting point is that the drum, three weeks before it was placed in WIPP, was sitting in a fabric tent on a Mesa outside of Los Alamos. By far the most fortunate thing that happened was that it got moved and put in that repository, where that material was actually contained by the ventilation system which worked remarkably well, beyond design-basis. As a consequence, I think there’s a strong support for re-opening that facility at both the local community and the state level and I think it’s testimony to the effectiveness of consent-based processes that that’s the case.

San Onofre Decommissioning Community Engagement Panel
BPC/CEP JOINT MEETING

Tuesday, January 27, 2015, from 6:00-9:30 p.m. PDT in San Juan Capistrano, California
Meeting Minutes

- (a) Chairman Victor pointed out that what happened at WIPP was due to co-mingled waste, whereas what we have here is a situation where we have a single kind of waste with single highly-monitored technology and that's very important.
 - (i) Dr. Peterson agreed and mentioned that the challenge in cleaning up the weapons complex is that there is an extraordinary diversity of stuff and much of the early waste is very poorly characterized in terms of what they actually have. Fortunately, spent fuel is much more homogeneous to deal with, but that doesn't mean we can be complacent about making sure we're doing the very best we can to handle it safely and to learn from mistakes to make sure they're not repeated.
- i) Chairman Victor asked Tom Palmisano to give a brief summary on the choice of cask.
 - i. Tom Palmisano explained that SCE selected Holtec for the next design, which is a stainless steel canister in a concrete over-pack. It's the vertical system which you saw on the CEC slides that is being used at Humboldt Bay. We evaluated the licensed US cask designs and the designs that are being licensed in the US. Holtec is currently licensed for Humboldt Bay for the vertical, their next license will be published in the Federal Register in the next two weeks as they've completed the licensing process.
 - We looked at the question of the thick cask design, particularly suggested was CASTOR who came to California to meet with us. We interviewed Dominion which owns the Surrey plant where there are 26 thick-walled CASTOR casks. CASTOR never licensed them for transport in this country, they withdrew their application. We met with the NRC staff to understand why they withdrew their application. The company that selected CASTOR and loaded 26 casks went on to use stainless steel canisters and concrete over-packs because at the time CASTOR elected not to license them for transport. In looking at all this, we were not satisfied that CASTOR was a viable choice for San Onofre to license the casks and have them available to load in a timely manner to support offloading fuel from the fuel pool. We've heard from a number of people the importance of offloading the fuel as early as we can, including the CEC as an example.
 - We selected Holtec and it is a suitable cask design for its purpose, subject to NRC reviews for relicensing for continued use in storage as all the canisters and cask systems in this country are subject to relicensing, and we're satisfied with our choice.
 - (a) Donna Gilmore has concerns about the Diablo Canyon Holtec canisters having the potential to crack and has concerns because the design will be used at San Onofre.
 - (b) Dennis Nelson, Support and Education for Radiation Victims, has concerns about the Holtec cask design because they are air-cooled and could produce noxious chemicals.
 - (c) Chairman Victor reminded the public that the panel has spent a lot of time talking about this issue and several panel members have spent an enormous amount of time looking through the evidence and tried to synthesize that material in plain English in a white paper that is on the SONGScommunity.com website.
- j) Chairman Victor asked Tom Palmisano to discuss Private Fuel Storage (PFS) and what we know about that experience and why they pulled their license.
 - i. Tom Palmisano clarified that Private Fuel Storage has not pulled their license and the license is active today.

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Meeting Minutes

- ii. PFS successfully got an NRC license to build an independent spent fuel storage facility (at the time it was called “away from reactor” storage) under 10 CFR 50.72. The facility was never built and Chris Thompson talked about some opposition from the state of Utah that influenced federal action for the Bureau of Land Management and the Bureau of Indian Affairs not to allow the right-of-way to be built to transport fuel. Today, Private Fuel Storage has a license. It will realistically never be built because of the lack of consent-based process with the state of Utah. The Indian tribe was supportive and continues to be supportive, but time will be running out on Private Fuel Storage.
- k) George Allen, SCE employee, thanked the NRC for its service and wanted the public to know that San Onofre is a very safe site.
- l) Roger Johnson commented that most of the panel has a national perspective and that there was too much focus on plan A, a national solution that satisfies everyone; and plan A isn’t going to happen. Start looking at plan B, a California solution.
- m) David Bartholomew participated in the closure of the El Toro Marine Base and suggested using the Irvine Great Park property.
- n) Rita Conn commented that we need to think creatively and think about what solutions we haven’t thought of before. My message is to the community: the people have to create the public will. “Just do it!”
- a) Hon. Jerry Kern shared comments from the public that he will include in an e-mail to Chairman Victor and perhaps we can address them in the future, such as re-investing in the community.
 - Chairman Victor suggested that if any of the panel members or members of the public have topics they would like discussed, please send them in. We are trying to help the public comment period focus on themes and be able to get an answer on the spot.

VII) Closing (Chairman David Victor):

- a) In closing, we committed about 6-8 months ago, while we were working on the short-term issues, to look at what the longer-term might look like. This meeting and the great support of the Bipartisan Policy Center and Tim Frazier is part of that effort. We promised these would be hard issues, not for technical reasons, but hard because they’re difficult political problems that involve thousands of moving parts. I think we’ve delivered on that promise but I think what’s more interesting is that there are plausible strategies coming into focus. It’s not obvious which are the right ones, which are the wrong ones, but I think we need a strategy as well. I’m actually very encouraged that in the spirit of “just do it” that some strategies are coming into focus that don’t require the federal government to all dance to the same tune.
 - Gene Stone reminded everyone that something as simple as kitty litter can cause a major debacle, so question the experts and keep thinking in and out of the box.

VIII) Meeting adjourned at 9:35 p.m.