

**This is a preliminary transcript of a Committee hearing. It has not yet been subject to a review process to ensure that the statements within are appropriately attributed to the witness or member of Congress who made them, to determine whether there are any inconsistencies between the statement within and what was actually said at the proceeding, or to make any other corrections to ensure the accuracy of the record.**

1 {York Stenographic Services, Inc.}

2 RPTS ALDINGER

3 HIF154.030

4 HEARING ON THE AMERICAN ENERGY INITIATIVE

5 FRIDAY, JUNE 3, 2011

6 House of Representatives,

7 Subcommittee on Energy and Power

8 Committee on Energy and Commerce

9 Washington, D.C.

10 The Subcommittee met, pursuant to call, at 9:05 a.m., in  
11 Room 2322 of the Rayburn House Office Building, Hon. Ed  
12 Whitfield [Chairman of the Subcommittee] presiding.

13 Present: Representatives Whitfield, Walden, Terry,  
14 Bilbray, Scalise, McMorris Rodgers, Olson, McKinley, Gardner,  
15 Pompeo, Inslee, Green, Gonzalez, and Waxman (ex officio).

16 Staff present: Charlotte Baker, Press Secretary;  
17 Patrick Currier, Counsel, Energy and Power; Cory Hicks,  
18 Policy Coordinator, Energy and Power; Ben Lieberman, Counsel,

19 Energy and Power; Dave McCarthy, Chief Counsel,  
20 Environment/Economy; Carly McWilliams, Legislative Clerk;  
21 Mary Neumayr, Counsel, Oversight/Energy; Tiffany Benjamin,  
22 Democratic Investigative Counsel; Jackie Cohen, Democratic  
23 Counsel; Greg Dotson, Democratic Energy and Environment Staff  
24 Director; and Caitlin Haberman, Democratic Policy Analyst.

|  
25           Mr. {Whitfield.} Call the hearing to order this morning  
26 and today is the ninth day in our American Energy Initiative  
27 hearing, and today we are going to be discussing a more  
28 comprehensive plan to explore ways to produce the necessary  
29 energy for the American people.

30           As you know, when we talk about energy, we talk about  
31 electricity as one part of it and transportation and fuel for  
32 transportation as the other part of it. We also know that we  
33 have a vast amount of natural resources within the borders of  
34 the United States of America, and many of us believe that we  
35 have not been able to fully explore and produce from those  
36 natural resources. And there are many impediments out there  
37 to it. We also understand that natural resources here in  
38 America alone will not meet all of our demands for the  
39 future.

40           We also recognize that not only must we use fossil  
41 fuels, but we have to use renewables, and we need to explore  
42 opportunities and more green ways to produce energy for the  
43 American people, but we also need to be realistic that by  
44 2035, the amount of electricity, for example, needed in  
45 America is going to increase by about 50 percent, and we have  
46 to be realistic on recognizing the cost of green energy, how  
47 much can it realistically provide, and what will the cost of

48 electricity be for the American people because we find  
49 ourselves in a global marketplace in which we are competing  
50 with other countries around the world, and our electricity  
51 prices and transportation prices have to be competitive if we  
52 are going to be sure that businesses expand in the U.S.,  
53 locate in the U.S., and we create jobs in the U.S.

54         So I look forward to today's hearing. We have three  
55 panels today. On the first panel we have Devin Nunes, a  
56 member of Congress from California, who has done extensive  
57 work on the energy needs of America and has actually  
58 developed legislation to address some of those problems and  
59 issues. So I look forward--we look forward to his testimony,  
60 and at this time I would like to recognize the gentleman from  
61 California for his opening statement. Mr. Waxman.

62         [The prepared statement of Mr. Whitfield follows:]

63         \*\*\*\*\* COMMITTEE INSERT \*\*\*\*\*

|

64 [H.R. 909 follows:]

65 \*\*\*\*\* INSERT 7 \*\*\*\*\*

|

66           Mr. {Waxman.} Thank you very much, and Mr. Chairman,  
67 today we are holding a hearing on a bill that is titled,  
68 ``Roadmap for America's Energy Future.'' Our Nation faces  
69 major energy challenges, and we need to have a serious  
70 conversation about the American energy future, but I am sad  
71 to say this legislation we are examining today proposes no  
72 innovative solutions to our Nation's energy needs. It  
73 doubles down on oil, and it doubles down on old, ineffective  
74 policies.

75           We have seen this roadmap before. This is a recycled  
76 version of a plan developed by the secretive Bush, Cheney  
77 Energy Task Force and pushed through Congress by Republicans  
78 while they were in office. The Bush Administration and  
79 Congressional Republicans spent 8 years following this  
80 roadmap. They pushed oil and gas drilling onshore and  
81 offshore. They expedited permits and weakened environmental  
82 protections.

83           They opposed efforts to increase fuel economy. They  
84 called for nuclear fuel reprocessing. They tried to green  
85 wash proposals for drilling in the Arctic National Wildlife  
86 Refuge by implying additional appropriators that could use  
87 royalty revenues to support renewable energy. They pushed  
88 the dirtiest alternative and unconventional tools, coals to

89 liquid, oil, shale, and tar sands.

90         And where did they get this--and where did this roadmap  
91 lead us? Energy prices soared, and carbon pollution  
92 increased, and we have become even more dependent on foreign  
93 oil. In the last year of the Bush Administration the Energy  
94 Information Administration projected that our dependence on  
95 oil and oil imports would continue to rise year after year.

96         Today we are sending nearly \$1 billion per day overseas  
97 for foreign oil. We use 25 percent of the world's oil, but  
98 we only have 2 percent of the world's oil reserves. We  
99 worked to increase our domestic crude oil production by  
100 nearly 300,000 barrels per day and yet gas prices remain  
101 high.

102         Increasing oil production is not going to solve our  
103 energy needs. Even if we doubled our oil production, oil  
104 prices would still be set by world markets and leave us  
105 vulnerable to price sharks.

106         H.R. 909's roadmap doesn't lead to the future. It leads  
107 to the past. The technology to turn coal into liquid fuel  
108 has been around since World War II. Its problem is as it has  
109 always been; huge amounts of carbon pollution that will drive  
110 uncontrolled climate change. American entrepreneurs and  
111 inventors are using technology to unlock real energy  
112 solutions, energy solutions that are clean, safe, and

113 affordable and grow our economy.

114           In testimony provided to the committee for today's  
115 hearing we will hear that the wind and solar industries will  
116 create over 200,000 new jobs, but H.R. 909 would abandon our  
117 clean energy future to China. For many reasons it is  
118 unlikely to help renewable energy because of flaws in its  
119 reverse auction mechanism.

120           The bill does nothing on efficiency, which is the  
121 cheapest and most reliable new source of supply. It promotes  
122 the form of nuclear energy that is putting nuclear bomb grade  
123 material into the hands of terrorists. It does nothing to  
124 develop carbon capture and storage, the technology that coal  
125 needs to remain a competitor in a carbon-constrained world.

126           In 2001, Vice President Cheney said, ``Conservation may  
127 be a side of personal virtue, but it is not a sufficient  
128 basis for a sound, comprehensive energy policy.'' Ten years  
129 later the Republican budget funds the federal investment in  
130 energy conservation and innovation. The rest of the world  
131 has been racing ahead over the last decade. It is too bad  
132 the Republicans' energy policies have not.

133           We have seen this roadmap before, and we know where it  
134 leads us.

135           Thank you, Mr. Chairman.

136           [The prepared statement of Mr. Waxman follows:]

137 \*\*\*\*\* COMMITTEE INSERT \*\*\*\*\*

|  
138           Mr. {Whitfield.} Thank you. At this time I would like  
139 to recognize Congressman Devin Nunes for his opening  
140 statement regarding his legislation, and Congressman, we are  
141 delighted you come before the subcommittee, and we look  
142 forward to your testimony, and thank you for being here.

|  
143 ^STATEMENT OF HON. DEVIN NUNES, A REPRESENTATIVE IN CONGRESS  
144 FROM THE STATE OF CALIFORNIA

145 } Mr. {Nunes.} I do appreciate that, Mr. Chairman and  
146 Ranking Member, for allowing me to testify here today. It is  
147 an honor to be before the Energy and Commerce Committee. In  
148 fact, I have never been before the Energy and Commerce  
149 Committee before, so it really is an honor and a privilege  
150 for me to be here today.

151 Our Nation has been blessed with great abundance of  
152 natural resources. Consider these astounding facts. ANWR  
153 potentially contains ten billion barrels of oil, the Outer  
154 Continental Shelf is estimated to hold 85 billion barrels of  
155 oil and 420 trillion cubic feet of natural gas, and over two  
156 trillion barrels of oil are held in oil shale deposits, more  
157 than are contained in all of the countries in the Middle East  
158 combined. Additionally, our Nation has nearly 250 billion  
159 tons of recoverable coal reserves, which is the estimated  
160 equivalent of 800 billion barrels of oil and constitutes more  
161 than three times Saudi Arabia's proven oil reserves.

162 Unbelievably, our government has chosen not to utilize  
163 these resources fully, despite the repeated promises to  
164 achieve energy independence by both Democrats and Republican

165 Administrations and Congresses alike. But continued inaction  
166 is unacceptable with stubbornly high unemployment, lackluster  
167 economic growth, widespread unrest in the Middle East, and  
168 the prospect of escalating gas prices punishing American  
169 families. Nothing done by our government in the past 4  
170 decades has actually helped to achieve the goal of energy  
171 independence, or for that matter, kept energy prices  
172 affordable for American families and businesses. The reverse  
173 is true. We are more dependent on foreign oil today than  
174 ever before and far more economically vulnerable than at any  
175 point in our Nation's history.

176         If we summon the political will to enact this  
177 legislation before the committee, H.R. 909, would reverse  
178 this course, immediately lower energy prices, and finally  
179 deliver on the unfulfilled promises of recent decades.

180         The energy roadmap is not a radical alternative to  
181 current energy policy. That is, while we can all agree that  
182 we need a comprehensive approach, this approach must be  
183 market-based and gradual if we are to achieve true energy  
184 independence. I predict that any other approach will  
185 ultimately be rejected by the American people.

186         The energy roadmap would lift restrictions on  
187 development and extraction of resources in ANWR and OCS.  
188 This could create up to two million jobs and maybe just the

189 construction of these jobs would create another 100,000  
190 construction jobs.

191         The roadmap recognizes that dependence on any one fuel  
192 source is dangerous and short-sighted. It also recognizes  
193 that the American people have made it clear that they do see  
194 the merit in federal resources to develop and transition to  
195 alternative energy sources and to reduce carbon emissions  
196 when economically and technologically feasible.

197         The status quo does not provide adequate support to the  
198 development of alternative energy. It is not necessarily a  
199 question of resources as much as it is a question of the  
200 appropriate structure to deliver support for the development  
201 of renewable energy. For example, while many renewable  
202 energy companies support the current production tax credit,  
203 they are frustrated with its lack of predictability and that  
204 it can get caught up in the legislative process and lapse.

205         Accordingly, H.R. 909 would provide the financial  
206 resources and structure necessary to transition our economy  
207 to renewable and advanced energy alternatives. It would do  
208 this by depositing the new federal lease and royalty  
209 revenues, estimated to be over \$500 billion in the next 30  
210 years, into a trust fund. These dollars would then be made  
211 available to renewable energy producers through a reverse  
212 auction. This market-based mechanism would ensure that the

213 cheapest and most efficient technology thrives while  
214 simultaneously opening the alternative energy market to  
215 greater innovation and competition.

216         Importantly, the roadmap would not end the credit.  
217 Rather, it would give an alternative to energy entrepreneurs  
218 to choose to receive the credit or to forego it to receive  
219 support through the reverse auction. Moreover, the support  
220 provided under the energy roadmap for the development of  
221 renewable energy would not be subject to the federal budget  
222 or the legislative process. Put simply, it provides the best  
223 mechanism to develop, produce, and transition to alternative  
224 energy.

225         Another component of the roadmap would establish or  
226 would mandate that 200 reactors be--permits be granted by  
227 2040. This bill would provide new, streamlined regulations  
228 and a system to manage the waste that will drive private  
229 sector investments in these facilities, which today are  
230 stalled as a result of red tape, lawsuits, and parochial  
231 concerns. Nuclear power in my estimation is essential to  
232 achieving an abundant and affordable supply of electricity to  
233 fuel our Nation's economy.

234         H.R. 909 would enhance our national security by removing  
235 barriers to expand our Nation's secure coal supplies to fill  
236 the tanks of the American military vehicles and jets. In

237 fact, the bill's near-term goal is to produce at least  
238 300,000 barrels of CTL, coal to liquid. Such supply would  
239 equal the amount of fuel consumed daily by the U.S. military  
240 for domestic operations.

241 The American people are looking to us for leadership.  
242 They know intuitively that we are running out of time, and  
243 they are worried about the future of our country and for  
244 their--and our country's future for their children. They  
245 have given us the opportunity to offer solutions to this and  
246 other big problems. My fellow colleagues, it is time for us  
247 to act, and I really do appreciate, Mr. Chairman, Ranking  
248 Member, for having the opportunity to testify here today.

249 [The prepared statement of Mr. Nunes follows:]

250 \*\*\*\*\* INSERT 1 \*\*\*\*\*

|  
251           Mr. {Whitfield.} Well, thank you, Mr. Nunes, for that  
252 testimony, and I will recognize myself for a period of  
253 questions and then will recognize Mr. Waxman for the same  
254 purpose.

255           In your testimony you talked a little bit about a  
256 reverse auction for a fund to encourage more development of  
257 renewable fuels. Would you elaborate a little bit on the way  
258 this reverse auction would work?

259           Mr. {Nunes.} Absolutely, Mr. Chairman. I believe that  
260 despite the ranking member's testimony at the beginning, I  
261 think this is something that is new, is innovative, and it  
262 would change the way that alternative energy is deployed.  
263 Basically to put it simply you take the royalty revenues,  
264 which some people estimate to be \$500 billion over 30 years,  
265 it could be higher, it could be lower, but a significant  
266 amount of money. And what you do is essentially that money  
267 is there, and it acts as a reverse auction. So the lowest  
268 bidder wins.

269           So if I could maybe give you an example. Say that  
270 someone, one person has windmills that they want to put up in  
271 California, and someone has a windmill farm that they want to  
272 put up in Nevada. And if one company says that they need  
273 \$100 to get their project off the ground, in California let

274 us say it is \$100, but in Nevada that company for the same  
275 size project only needs \$90, they would submit those bids,  
276 and it is per megawatt, and the Nevada company would win.

277         So you would--basically it gets to the cheapest way to  
278 deploy renewable energy, and this has been I think met with--  
279 in the Silicone Valley and the entrepreneurial community in  
280 California, this has been well received throughout the  
281 companies that want to see changes to the way these  
282 technologies are deployed.

283         Mr. {Whitfield.} Now, is there an example of where this  
284 type of reverse auction has been implemented in other places  
285 and has been proven that it works very well?

286         Mr. {Nunes.} Yes. Matter of fact, good question, Mr.  
287 Chairman. I was quite embarrassed to learn that when I  
288 developed this legislation I thought that I had developed  
289 something new. In fact, this is being used in Brazil, and to  
290 my knowledge, although I have not talked--I do coach the  
291 Brazilian Caucus, which is even more of an embarrassment that  
292 I didn't know that this was there, but from my understanding  
293 it is working very well.

294         Mr. {Whitfield.} And they use it for the same purpose,  
295 for the development of renewables?

296         Mr. {Nunes.} Yes, and I think it would be, it would  
297 probably for this committee, it would be worth your time

298 maybe to look into that if you have another hearing.

299           Mr. {Whitfield.} We have heard a lot recently,  
300 particularly from our friends on the other side of the aisle  
301 about removing production tax credits and other things from  
302 the oil industry, and without getting into a discussion about  
303 that proposal per se, I would like to just broaden it, and do  
304 you think it would be reasonable or would it be helpful if we  
305 are going to have a debate about removing tax credits from  
306 the oil industry, should, in your view should we have a  
307 debate about just removing incentives from all energy  
308 production?

309           Mr. {Nunes.} In fact, Mr. Chairman, we have been--  
310 Chairman Camp of the Ways and Means Committee, we have been  
311 conducting a series of hearings of tax reform, and we have  
312 had many different companies from both foreign nationals and  
313 small businesses basically all say the same thing, that they  
314 would like to see the tax rate reduced and would basically  
315 forego all of these types of little production tax credits  
316 and different tax credits that are out there.

317           And so I think President Obama, you were at the meeting  
318 the other day, he indicated that this is something that he  
319 would like to do also, so I think simplifying of the tax  
320 code, getting rid of all these credits would be something  
321 worthwhile, and that is what the Ways and Means Committee is

322 working on.

323 Mr. {Whitfield.} You are working on that right now?

324 Mr. {Nunes.} Yes.

325 Mr. {Whitfield.} Now, in your proposal you talk about  
326 licensing 200 new nuclear plants in a relatively short time.  
327 I forgot it you said 2040, or whenever it was, but  
328 recognizing that we have this significant issue of how do we  
329 dispose of this waste because the Administration has  
330 basically stopped Yucca Mountain after the expenditure of \$15  
331 billion and after judgments against the Federal Government of  
332 \$15 billion and after taxpayers and energy users have paid  
333 the fee for this, how do you propose that we would get rid of  
334 this waste?

335 Mr. {Nunes.} Well, one of the--what I tried to achieve  
336 in drafting this legislation was that tried to create a  
337 scenario where the Congress forces an Administration to act  
338 one way or the other on Yucca Mountain and reprocessing and a  
339 whole host of issues, because as you know, it seems like  
340 every President, no matter if it is Republican or Democrat  
341 is--they are all for nuclear power yet nothing ever happens,  
342 and I think that our country, I think the most significant  
343 innovation in the last 100 years from my perspective is the  
344 development of nuclear power.

345 And I think we have been set back in this country over

346 the last 4 decades because we really have not invested in new  
347 nuclear technology, and we are in real danger of falling  
348 behind China, who, you know, some folks estimate that they  
349 are on their way to build over 200 nuclear reactors. We  
350 don't really know, but I think they are building several  
351 dozen right now that are being built or in the process of it.

352 So to not--so what this bill does is it basically forces  
353 the Administration to say, yes or no, and it develops a  
354 timeframe so that we would either know that Yucca Mountain  
355 will be used or it will not be used, but we need to get to  
356 the bottom of that and get it, well, either stop it or start  
357 it.

358 Mr. {Whitfield.} Well, thank you, Mr. Nunes.

359 At this time I will recognize Mr. Waxman for his 5-  
360 minute question period.

361 Mr. {Waxman.} Thank you very much for your testimony,  
362 and I think I might have been a little too harsh in my  
363 opening statement. I do want to consider your idea because I  
364 have long believed that we need to have market mechanisms to  
365 try to drive the results that we want. I don't think we can  
366 decide the winners and losers. We ought to say what we want  
367 to achieve and help the entrepreneurs in this country,  
368 unleash them and let them go forward and profit when they  
369 accomplish the goals we want. That is what we try to do, not

370 to everybody's satisfaction in the Cap and Trade Bill because  
371 we said if you can figure out new technology and ways to  
372 reduce the carbon emissions, it will be to your economic  
373 benefit. You will be able to have a clear profit for it.

374       You seem to be doing that in a very different way, but  
375 nevertheless, you are trying to accomplish something that I  
376 find attractive, and I want to understand this more from you  
377 and from other witnesses later on.

378       Mr. {Nunes.} Absolutely.

379       Mr. {Waxman.} As I understand it, in order to be  
380 eligible for the reverse auction a renewable energy project  
381 must have a power purchase agreement in place, and the price  
382 in that contract is essentially the bid in this reverse  
383 auction. It would seem that because the prices will already  
384 be set in the contract, generators will not be able to change  
385 their bids as the auction proceeds, and the price-driving  
386 mechanism of a traditional reverse auction will not  
387 available.

388       I assume the intent of the provision to drive down the  
389 price of renewable energy. Isn't that what you are trying to  
390 do?

391       Mr. {Nunes.} That is correct.

392       Mr. {Waxman.} And do you anticipate generators breaking  
393 or renegotiating power purchase agreements in order to lower

394 their bids?

395           Mr. {Nunes.} Well, one of the things, Mr. Chairman,  
396 that--and I do appreciate your comments as it relates to the  
397 reverse auction, this is--it was a very difficult provision  
398 to draft, and we have spent several years doing it. You may  
399 remember that there in EPAC, whatever year that was, '05,  
400 there was something similar for renewable fuels that was put  
401 in.

402           However, and the President actually has I think \$150  
403 million in his budget for that proposal, but the way that the  
404 law was drafted and then how the regulations were written  
405 basically there has never been any money put into it, and  
406 there doesn't seem to be any interest from the renewable fuel  
407 community to utilize it.

408           So what we attempted to do here was to keep it as clear  
409 and basic as possible so that you would have a clean way to  
410 run this auction. So, I mean, this is actually probably an  
411 expertise of yours on this committee, but we actually modeled  
412 it after the--originally when--before I knew that other  
413 people had tried this, we modeled it after the spectrum  
414 sales, the way that you auction off spectrum sales. So that  
415 was kind of our goal and then asking, when the regs would  
416 come out to basically have kind of three different levels so  
417 that you could have one level for technological development

418 and research, you would have kind of a mid-sized level so  
419 that maybe small businesses and folks could utilize the  
420 program, and then you would have another pot at the highest  
421 level for the big energy companies to go out and build, you  
422 know, big wind farms or big solar farms.

423         That is the attempt of the legislation. I would, you  
424 know, I think one of the options here is in this bill some of  
425 the oil provisions have moved through the House already, and  
426 I think there is an opportunity for this committee to maybe  
427 take this reverse auction and move it by itself, spend some  
428 time, you know, to make sure that it would work, you know, in  
429 a bipartisan way and maybe, you know, get this bill marked up  
430 and get it out to the Floor, just the reverse auction  
431 provision. I would be very supportive of something like  
432 that.

433         Mr. {Waxman.} Do you have concern that if the choice  
434 between a reverse auction and a production tax credit, that  
435 the production tax credit is more certain, and the groups,  
436 the businesses involved will decide to forgo the reverse  
437 auction and stick with the tax credit?

438         Mr. {Nunes.} I think that there is a--the uncertainty  
439 now in the production tax credit business is leading to a  
440 more complicated deployment of renewable energy, renewable  
441 power. I think there is some people that can use these

442 credits, some people can't, and I think--and because I think  
443 what is 2012, they lapse anyway, and if you just look down  
444 the road, I mean, when you have Republicans and Democrats  
445 agreeing that we need to get out of this tax credit business  
446 to some degree, I just don't think it is--I think this  
447 program, having a trust fund in place where you take royalty  
448 revenue from oil and gas, is a way that would give some real  
449 certainty.

450       Mr. {Waxman.} My time has expired, but let me thank you  
451 for your hard work on this legislation. You are a highly  
452 respected member of our California delegation and in the  
453 House, and I want to look at this more carefully because I do  
454 think we need a bipartisan approach, and I like the idea of  
455 something that will drive the markets rather than dictate the  
456 markets.

457       Mr. {Nunes.} Well, Mr. Chair or Mr. Ranking Member, I  
458 would be willing to come and sit down with you and walk you  
459 through this or your staff.

460       Mr. {Waxman.} I don't walk through things because I am  
461 sitting down, but I would be glad to--

462       Mr. {Whitfield.} Well, in keeping with the procedures  
463 of our committee, Congressman Nunes, the chairman and ranking  
464 member are the only ones that would be asking you questions  
465 today, but our staff has looked at your legislation, and you

466 have some really innovative approaches like the reverse  
467 auction, and we are going to continue to look at that and at  
468 some point work with other committees and try to move  
469 something to address some of the problems that you are trying  
470 to address in your legislation.

471         So thank you for your time and for your involvement in  
472 this important issue.

473         Mr. {Nunes.} I really appreciate it.

474         Mr. {Whitfield.} Appreciate that.

475         Mr. {Nunes.} Thanks for the opportunity, Mr. Chairman.

476         Mr. {Whitfield.} At this time I would like to call us  
477 the second panel of witnesses. On the second panel we have  
478 Mr. David Sandalow, who is the Assistant Secretary for Policy  
479 and International Affairs at the U.S. Department of Energy,  
480 and we also have Mr. Thomas Hicks, who is the Deputy  
481 Assistant Secretary of the Navy, and we would like to welcome  
482 both of you to this hearing. We appreciate your taking time  
483 to be with us and offering us your expertise and knowledge,  
484 and with that, Mr. Sandalow, I would like to recognize you  
485 for 5 minutes for your opening statement.

|  
486 ^STATEMENTS OF DAVID SANDALOW, ASSISTANT SECRETARY FOR POLICY  
487 AND INTERNATIONAL AFFAIRS, U.S. DEPARTMENT OF ENERGY; AND  
488 THOMAS HICKS, DEPUTY ASSISTANT SECRETARY OF THE NAVY (ENERGY)

|  
489 ^STATEMENT OF DAVID SANDALOW

490 } Mr. {Sandalow.} Thank you to members of the  
491 subcommittee. Thank you for the opportunity to be here today  
492 to discuss H.R. 909, the Roadmap for America's Energy Future.

493 The Administration agrees with many of the goals of this  
494 bill. For example, the Administration believes that  
495 facilitating the efficient responsible development of our oil  
496 and gas resources is a necessary component of energy  
497 security. We are working to expand cleaner sources of  
498 energy, including renewables like wind, solar, and  
499 geothermal, nuclear power, as well as clean coal and natural  
500 gas on public lands.

501 However, the Administration has serious concerns with  
502 many provisions in this legislation. For example, a number  
503 of the changes in Title I would make amendments to Interior's  
504 Offshore Energy Program, undercutting safety and  
505 environmental reforms adopted in the wake of the Deepwater  
506 Horizon oil spill, and it would open the coastal plain of the

507 Arctic National Wildlife Refuge to oil and gas drilling.  
508 Department of the Interior and other involved agencies may  
509 have additional views on this legislation.

510 H.R. 909 touches on programs implemented by a number of  
511 Administration's agencies, and I will not comment in detail  
512 about programs outside of the Department of Energy's purview.  
513 In the remainder of my time I would like to discuss the  
514 Administration's energy agenda and address several specific  
515 provisions from H.R. 909.

516 In the State of the Union address President Obama laid  
517 out a plan for the United States to win the future by out-  
518 innovating, out-educating, and out-building the rest of the  
519 world while at the same time addressing the deficit. Many  
520 countries are moving aggressively to develop and deploy the  
521 clean energy technologies that the world will demand in the  
522 coming years and decades. As the President said, this is our  
523 generation's Sputnik moment.

524 We must rev up the great American innovation machine to  
525 win the clean energy race and secure our future prosperity.  
526 To that end, President Obama has called for increased  
527 investments in clean energy research, development, and  
528 deployment.

529 In addition, he has proposed generating 80 percent of  
530 America's electricity from clean energy sources by 2035. A

531 clean energy standard will provide a clear, long-term signal  
532 to industry to bring capital off the sidelines and into the  
533 clean energy sector. It will grow the domestic market for  
534 clean sources of energy, creating jobs, driving innovation,  
535 and enhancing national security.

536         And by drawing on a wide range of energy sources,  
537 including renewables, nuclear, clean coal, and natural gas,  
538 it will give utilities the flexibility they need to meet our  
539 clean energy goals while protecting consumers in every region  
540 of the country.

541         The Department of Energy's goal is to strengthen the  
542 Nation's economy, enhance our security, and protect the  
543 environment by investing in key priority, including  
544 supporting groundbreaking basic research, leading in the  
545 development and deployment of clean and efficient energy  
546 technologies to reduce our dependence on oil, and  
547 strengthening national security by reducing nuclear dangers,  
548 maintaining a safe and secure and effective nuclear deterrent  
549 and cleaning up our cold war legacy.

550         As the President said in his State of the Union address,  
551 investing in clean energy will strengthen our security,  
552 protect our planet, and create thousands of new jobs here at  
553 home. We are doing this through programs to make, for  
554 example, homes and buildings more energy efficient with a new

555 Better Buildings Initiative. We are also developing new  
556 sources of wind, solar, and geothermal supporting the  
557 modernization of the electric grid and carbon capture and  
558 sequestration technologies. We are supporting reducing our  
559 dependence on oil by developing the next generation of  
560 biofuels and promoting electric vehicle research and  
561 deployment supporting the President's goal of putting one  
562 million electric vehicles on the road by 2015.

563         Mr. Chairman, I drove to work today in a plug-in hybrid  
564 vehicle. At night I plug that car into an outlet in my  
565 garage. I often get 80 miles per gallon as I drive through  
566 the streets of Washington, DC, and I am pleased to say that  
567 today I drove to this hearing from the Department of Energy  
568 garage in one of the new plug-in electric vehicles in the  
569 Department of Energy's fleet. So I think building on the  
570 investment that we are making in this country in electric  
571 vehicles we can bring down our dependence on oil. That is  
572 going to require further investment in lithium ion batteries,  
573 and Mr. Chairman, someday I hope that one of my grandchildren  
574 will look at one of my children who are now teenagers and  
575 say, what, you mean you couldn't plug in cars back when you  
576 were young.

577         At the Department of Energy we are also focused on  
578 moving clean energy technologies from the lab to the

579 marketplace. Over the past 2 years our loan programs have  
580 supported more than \$30 billion in loans, loan guarantees,  
581 and conditional commitments. I want to emphasize, too, that  
582 nuclear energy has an important role to play in our energy  
583 portfolio. To jumpstart the domestic nuclear industry the  
584 President's budget requests up to \$36 billion in loan  
585 guarantee authority. It also invests in the R&D for advanced  
586 nuclear technologies, including small modular reactors. H.R.  
587 909 takes a different approach to expanding nuclear power  
588 production.

589 H.R. 909 creates a reverse auction mechanism to fund  
590 renewable energy projects just discussed in the last panel.  
591 We share Representative Nunes's view that reverse auctions  
592 are a useful tool for promoting renewable energy. From our  
593 experience with reverse auctions it is important to protect  
594 the taxpayers by requiring adequate assurance from bidders  
595 that they will perform. We look forward to working with the  
596 committee on a provision that accomplishes our shared goal of  
597 promoting American renewable energy and protecting taxpayers.

598 To spur innovation, the Administration has prioritized  
599 investments in basic and applied research. These are  
600 discussed in more detail in my statement, which I have  
601 submitted for the record.

602 Mr. Chairman, in conclusion I want to thank the

603 committee for inviting me to testify on issues associated  
604 with H.R. 909 that relate to the DOE's mission. I appreciate  
605 the opportunity to discuss the President's roadmap for a  
606 clean and secure energy future.

607 [The prepared statement of Mr. Sandalow follows:]

608 \*\*\*\*\* INSERT 2 \*\*\*\*\*

|

609 Mr. {Whitfield.} Thank you, Mr. Sandalow.

610 At this time, Mr. Hicks, you are recognized for a 5-

611 minute opening statement.

|  
612 ^STATEMENT OF THOMAS HICKS

613 } Mr. {Hicks.} Thank you, Chairman Whitfield and  
614 distinguished members, members of the subcommittee, thank you  
615 for the opportunity to appear before you today at this  
616 hearing on H.R. 909. While neither the Administration nor  
617 the Department of Defense has a formal position on this  
618 legislation, I am here to share with you the perspective of  
619 the Department of the Navy.

620 As the Deputy Assistant Secretary of Navy on Energy, I  
621 have been actively involved in assessing the policy,  
622 economic, technological, and environmental costs and benefits  
623 associated with the use of fossil fuels and alternative  
624 fuels. I and many members of my staff and colleagues have  
625 personally met with dozens of industry representatives of  
626 U.S.-based organizations from a wide range of interests  
627 including alternative fuel companies, large oil companies,  
628 venture capital, private equity, and industry associations.  
629 We have also met with government experts from DOE, the  
630 Department of Defense, Department--U.S. Department of  
631 Agriculture, NASA, EPA, and others. So the perspective  
632 provided here today is drawn on these discussions and on  
633 contemporary studies and analysis on the topic of alternative

634 fuels.

635           Changing the way the United States uses, produces, and  
636 acquires energy is one of the central policy challenges that  
637 confront the Nation. It is something that Secretary Mabus  
638 cares deeply about, and it is something that the Navy and  
639 Marine Corps, under his leadership, has been aggressively  
640 working towards for the last 2 years.

641           As a military and as a country, we rely far too much on  
642 fossil fuels, far too much on foreign sources of oil. This  
643 dependency degrades our national security and negatively  
644 impacts our economy. Our dependency on fossil fuels makes us  
645 more susceptible to price shocks, supply shocks, natural and  
646 man-made disasters, and, as we have recently seen, political  
647 unrest in countries halfway around the world.

648           The challenges we face today are not just about what  
649 types of fuels we use or where and how those fuels are  
650 produced. Clearly we must be more efficient in the fuels  
651 that we use. The best barrel of oil is the barrel of oil we  
652 do not use. The challenge we face in the Navy today is the  
653 280 ships we have today, the 3,700 aircraft are largely the  
654 ones we are going to have tomorrow and into the future, so  
655 focusing on new sources of fuel, drop-in replacement fuel is  
656 critical.

657           For ships being more efficient means we can increase the

658 days between refueling, improving both its security and  
659 combat capability. Better fuel economy for our aircraft  
660 means we can extend the range of our strike missions,  
661 enabling us to base them farther away from combat areas.  
662 Being more efficient and more independent and more diverse in  
663 our sources of fuel improves our combat capability both  
664 strategically and tactically.

665         The Department of the Navy's interest in this topic of  
666 alternative fuels is fundamentally about improving our  
667 national security and our long-term energy security. The  
668 more we replace for in sources of oil with more diverse,  
669 domestically-produced alternative fuels the better we are as  
670 a military and the better we are as a Nation. How one  
671 successfully accomplishes that objective is where the debate  
672 lies, and it is a topic that the Department of the Navy has a  
673 perspective.

674         It has recently suggested before this committee that the  
675 best near-term approach to meet the Department of Defense  
676 fuel needs is essentially a coal-derived or a mixture of  
677 coal-derived and biomass Fischer-Tropsch fuels. Fischer-  
678 Tropsch is a thermo-chemical conversion process invented and  
679 developed in pre-World War II Germany to convert resources  
680 such as coal, natural gas, and biomass to fuel oil. In this  
681 country given the enormous quantities of biomass required and

682 its relative limited availability at the scales required to  
683 run a Fischer-Tropsch or an FT plant, biomass as a long-term  
684 feedstock that is typically not considered. More often than  
685 not, coal is viewed as the primary, if not exclusive,  
686 feedstock, and as a result, in addition to requiring large,  
687 new sources of coal, it requires enormous quantities of  
688 water, \$5 to \$10 billion in capital per plant to provide a  
689 fuel result that is more than twice as carbon intensive as  
690 petroleum.

691 From the Navy's perspective, there simply are too many  
692 questions to suggest that this is the best near-term  
693 solution. In our ongoing dialogue with industry, venture  
694 capital, and the equity communities, one thing is clear.  
695 America's advanced biofuel industry knows no geopolitical  
696 boundaries, and unlike the proposed near-term solution, the  
697 feedstocks and refineries needed to produce advanced biofuels  
698 to power the fleet or our aircraft can literally be produced  
699 in every State, all 50 States.

700 The U.S.-based companies comprising this industry that  
701 are currently producing or will soon be producing fuels  
702 across the spectrum from the tens of thousands of gallons to  
703 the tens of millions of gallons. These are companies new and  
704 old, some are small businesses, and some are now publicly  
705 traded. These companies represent the type of innovation and

706 spirit needed to meet the energy demands of the future.  
707 In conclusion, a robust advanced drop-in biofuels market is  
708 an essential element of our national energy security. Energy  
709 security for the Nation requires unrestricted, uninterrupted  
710 access to affordable energy sources to power our economy and  
711 our military. Traditional fossil-fuel based petroleum  
712 derived from crude oil has an increasingly challenging market  
713 and supply constraints. Chief among these is limited,  
714 unevenly distributed, and concentrated global sources of  
715 supply. Advanced biofuels that use domestic, renewable  
716 feedstock provide a secure alternative that reduces the risks  
717 associated with petroleum dependence.

718         Just in closing, I would like to personally thank the  
719 Committee for addressing the important topic of alternative  
720 fuels and for providing the Department of the Navy the  
721 opportunity to offer its perspective. Thank you.

722         [The prepared statement of Mr. Hicks follows:]

723 \*\*\*\*\* INSERT 3 \*\*\*\*\*

|  
724           Mr. {Whitfield.} Thanks, Mr. Hicks. We appreciate your  
725 testimony as well.

726           I will recognize myself for 5 minutes of questions.

727           Mr. Sandalow, you are Assistant Secretary for Policy and  
728 International Affairs at DOE, and you know as well as any of  
729 us that we are utilizing about 20 million barrels of oil a  
730 day here in the U.S. for all of our needs, most of it  
731 transportation. And since 19--my first memory was 1976, on  
732 this subject when Jimmy Carter was President, and the big  
733 push was made we have got to be less dependent on foreign  
734 oil.

735           Now, this Administration in my personal view is  
736 overselling the electric cars and some of these renewable  
737 energy mechanisms, not that we don't need them but I don't  
738 realistically think that they are going to be able to meet  
739 all of our increased energy demands any time soon.

740           But you have probably studied this even more than I have  
741 since you are head of policy. What is your realistic  
742 appraisal on our ability to significantly reduce the amount  
743 of oil that we are buying from the Middle East and other  
744 countries, and what kind of timeframe from your analysis do  
745 you think is realistic?

746           Mr. {Sandalow.} I think the ability of this country to

747 meet any great challenge is extraordinary, Mr. Chairman, and  
748 I believe that if we set our minds to it that we can reduce  
749 our dependence on oil, reduce our dependence on imported oil,  
750 and we can do it by following a number of different pathways.  
751 I do believe that electric vehicles have tremendous  
752 potential, and by the way, not just to reduce our dependence  
753 on oil but also to create jobs in this country.

754       Mr. {Whitfield.} Let me just make one comment on  
755 electric cars. The other day I saw a 1917 issue of the New  
756 York Times, and the front page was, electric cars are the  
757 cars of the future. That was 1917, and so I just point that  
758 out, that I would like for you to go on with your explanation  
759 and talk about some timelines as well.

760       Mr. {Sandalow.} Yeah. Thank you, Mr. Chairman.  
761 Fortunately, today we have new battery technologies like  
762 lithium ion batteries that weren't in existence in 1917, that  
763 are transformational that I think are really going to make a  
764 difference in this sector.

765       But I fundamentally agree with the point you made about  
766 it is not just electric vehicles. I mean, we also need to  
767 pursue a number of other technical pathways. Biofuels have  
768 already been discussed, and biofuels have tremendous  
769 potential to reduce our dependence on imported oil and by  
770 also creating jobs here in the United States. And we need to

771 do that with new advanced biofuels, we need to build the  
772 infrastructure to make that work, and we need to pursue  
773 natural gas as a transportation fuel. We have tremendous  
774 resources of natural gas here in this country expanding  
775 dramatically.

776 We need to improve efficiency. That will matter  
777 tremendously in terms of it, and then finally we need to  
778 expand production of domestic oil as well, and we need to do  
779 it in an environmentally responsible way. That can make a  
780 big difference.

781 So if we pursue all of these pathways, Mr. Chairman, I  
782 am absolutely confident that we can get off of imported oil  
783 in a significant way.

784 Mr. {Whitfield.} Thank you. Many of us had a lot of  
785 frustrations up here about some of the money, the way it was  
786 spent on the Stimulus Package and others, and specifically I  
787 want to ask you about this one. The first company that DOE  
788 chose to give a federal loan guarantee was Solyndra, which is  
789 a solar manufacturer. It received \$535 million in 2009.  
790 Since then the information we have that the company has  
791 imploded. Its initial public offering failed, auditors have  
792 raised questions about whether the company will survive, and  
793 it has closed one of its facilities and laid off 180 workers.

794 Could you tell me what your information is on this

795 company?

796 Mr. {Sandalow.} Yeah. I don't have specific  
797 information on that project to relate here today, Mr.  
798 Chairman. I would be happy to follow up for the record on  
799 that, but I would say more broadly this loan guarantee  
800 program has created tens of thousands of jobs and helped to  
801 America in a competitive footing in some of these renewable  
802 energy technologies.

803 Mr. {Whitfield.} Well, I mean, some of them may have  
804 created tens of thousands, but that one--they have already  
805 laid off 180, and I might also say that first win Hogan's had  
806 sort of the same experience. So, I mean, I think all of us  
807 are encouraging people to develop alternative fuels, but to  
808 be spending this kind of money on failed projects is just  
809 irresponsible in my view.

810 And then I want to ask this question also. We hear a  
811 lot about wind power, and everyone I talk to does not think  
812 wind power is a realistic, major producer of energy anytime  
813 soon, and I want to know have you all conducted any studies  
814 with any groups on the amount of land that is necessary to  
815 produce any meaningful amount of electricity from wind? I  
816 mean, I am genuinely concerned about the amount of land that  
817 it takes to produce any meaningful amount of energy from  
818 wind.

819 Mr. {Sandalow.} Mr. Chairman, I would say the wind  
820 power is already producing significant amounts of energy and  
821 growing in this country. It has been one of the major  
822 sources of new energy in this country for the past couple of  
823 years.

824 In--there was a study done actually in the prior  
825 Administration which pointed to the potential for wind power  
826 in this country at the range of 20 percent and more in the  
827 decades ahead.

828 Mr. {Whitfield.} To be without incentives. Right now  
829 there is a \$24 per kilowatt hour incentive for wind power.

830 Mr. {Sandalow.} But the cost is coming down like it is  
831 with all these new technologies, and you know, I would say on  
832 the topic of land, that certainly land is required for some  
833 of these big turbines, but there is increasing interest right  
834 now in offshore wind all the way around, you know, around the  
835 world. So I think this is another area where with American  
836 innovation, American ingenuity, and research we can create  
837 the technology of the future that will allow us to have  
838 cheap, clean, secure energy.

839 Mr. {Whitfield.} Thank you. My time has expired.

840 Mr. Gonzalez, you are recognized for 5 minutes.

841 Mr. {Gonzalez.} Thank you very much, Mr. Chairman.

842 Let me go straight to Mr. Hicks, because you said a

843 couple of things that were rather interesting. Regarding DOD  
844 and the role that it can play obviously as we go in search  
845 for alternatives, on page--I am trying to see what page this  
846 is actually. I think it is page 3 of your testimony, ``the  
847 camelina grown in Florida and Montana, the algae grown in New  
848 Mexico, Hawaii, or in Pennsylvania, for example, can be  
849 turned into fuels blended in existing infrastructure in the  
850 Gulf or on the East or West Coast to power the Fleet.''

851         So you are saying that that may be a realistic  
852 alternative in your opinion?

853         Mr. {Hicks.} It certainly is a realistic and growing  
854 alternative for us, literally and figuratively. I mean, it  
855 is one that we are seeing--today we are aware of a facility  
856 in the--in Texas, for example, that is capable of alternative  
857 fuels, bio-based alternative fuels, 90 million gallons per  
858 year, and claiming at competitive prices with petroleum.

859         So we are seeing that. You know, what we are looking at  
860 is fuels that don't need new infrastructure, and that is both  
861 for the commercial sector but also for us. We need ready,  
862 dropped-in fuels, fuels that don't require changes to our  
863 platforms and our engines, that don't require changes to our  
864 infrastructure to store and use the fuel, and that is exactly  
865 what we are getting by looking at these advanced biofuels.

866         And to be clear, we are looking at these in 50/50

867 blends, so these are blended with petroleum, and that is a  
868 common point for the commercial industry as well, going to a  
869 50/50 blend.

870           Mr. {Gonzalez.} In the production of these  
871 alternatives, but they still require some incentives, some  
872 encouragement in the way of tax credits and such that we have  
873 attempted to do in the past. Is that something that still  
874 would be in the mix?

875           Mr. {Hicks.} Certainly that would help. That said,  
876 there are companies and there are about a handful of those  
877 that are publicly traded now and are moving forward with  
878 their plans without necessarily those subsidies in hand. But  
879 certainly that type of support would accelerate the  
880 maturation of that market and enable that--those technologies  
881 in this country to be something that can be exported outside  
882 of this country, and I think to the betterment of those  
883 commercial industries.

884           Mr. {Gonzalez.} Let me ask you about the Department of  
885 Defense specific as far as contracting for alternatives. Are  
886 you allowed to enter contracts that are long-term, because  
887 obviously that would have some benefits, there would be some  
888 predictability in the producers of biofuels alternatives and  
889 so on.

890           What is the situation when it comes to DOD contracting

891 long term?

892           Mr. {Hicks.} Sure. So for contracting long term for  
893 fuels and to be very clear, the Navy and all the services  
894 purchase our fuels through Defense Logistics Agencies,  
895 Energy, which is part of the Department of Defense. Their  
896 limit is a 5-year agreement to purchase fuels.

897           Mr. {Gonzalez.} And I don't know the answer, that is  
898 why I would ask you. Is 5 years something that works to the  
899 benefit of both the Department of Defense as well as the  
900 producers of the alternatives that were seeking greater use?

901           Mr. {Hicks.} Well, certainly as we have talked to the  
902 producers, 5 years for an emerging industry is not something  
903 that they feel is sufficient, and I know through legislative  
904 proposals the Defense Logistics Agency Energy has put forward  
905 requesting as much as 20 years, and what we have heard  
906 consistently from industry is 10, 15 years are needed, but I  
907 think where the Department of Defense is today is requested  
908 through DLA Energy upwards of 20 years.

909           Mr. {Gonzalez.} And full disclosure, Mr. Griffith and I  
910 have a bill to that effect. That is the reason I am asking.  
911 It is kind of self-serving but--

912           Mr. {Hicks.} We thank you for your support, and I think  
913 it would be a help as well as the ability to address some of  
914 the scoring issues that go with those purchases as well.

915           Mr. {Gonzalez.} I only have 40 seconds left, and Mr.  
916 Sandalow, I have a question for you, and that is I know the  
917 chairman had some doubts about electric vehicles, but I do  
918 see that is an increasing role, but have you all been able to  
919 or is there another agency or department that would be more  
920 appropriate to factor in the increased demands on the  
921 production of electricity if, in fact, we increased the  
922 number of electric vehicles? Some could be hybrid, and some  
923 would be like the Leaf, which is fully electric.  
924 Nevertheless, you still got to plug them in.

925           Mr. {Sandalow.} Thank you for the question,  
926 Congressman. That is something the Department of Energy has  
927 looked at very closely, and the good news there is that we  
928 have a lot of excess capacity in our power generating sector  
929 at night, and when cars plug in at night, they are going to  
930 be able to refuel.

931           Another piece of good news is that these electric  
932 vehicles are very efficient. They are much more efficient in  
933 terms of their use of energy than in a standard internal  
934 combustion engine. So the technical productions that have  
935 been done say that even with tens of millions of these cars  
936 on the road we would not be putting major stresses on our  
937 electric generating.

938           Mr. {Gonzalez.} Thank you very much. My time is up.

939 Thank you, Mr. Chairman.

940 Mr. {Whitfield.} Yes, sir, and Mr. Terry, you are  
941 recognized for 5 minutes.

942 Mr. {Terry.} Thank you. Mr. Hicks, I appreciate your  
943 testimony here today and presence. In your opening you made  
944 statements and suggestions about making the Navy vehicles  
945 more energy efficient, and of course, you also then mentioned  
946 that the major users of fuel are ships and planes.

947 How do you make them more fuel efficient? How do you  
948 get better air miles per gallon for your planes and ocean  
949 miles for your ships? And following up you can just make  
950 them more efficient, why haven't you?

951 Mr. {Hicks.} Well, we are making them more efficient,  
952 and the way you do that, and I will speak both for our  
953 surface vessels as well as our aircraft, in many ways you can  
954 look at the codings on those, and so for our service vessels,  
955 for example, we are putting on whole codings, propeller  
956 codings to make the ships effectively silkier in the water,  
957 better able to float through the water.

958 We are also putting on stern flaps onto many of our  
959 ships, and where we can, where it is economically justified  
960 in the lifespan of those platforms, as they go through their  
961 dry docking procedures, we are putting those measures on  
962 place--on board.

963           With our aircraft it is largely, again, looking more at  
964 some of the codings we have on our aircraft, and again, we  
965 are doing that, but there is another opportunity that we are  
966 working on, we have had some success with our surface  
967 vessels, and that is an incentivized energy conservation  
968 program. We call it INCON, and it is a way for the skipper  
969 of the ship as they go forward and plot out their course if  
970 they can do that in a more efficient way, some of the savings  
971 that comes from that could be used for other supplies on the  
972 ship, and the rest of that savings coming back to the Navy  
973 for other purchases such as fuel order training.

974           So there is a culture aspect to this as well that we are  
975 looking at, and we are also looking at the so-called hotel  
976 loads on these--on the ships, so not only as they are under  
977 way, what do we really need to power and when and then  
978 certainly as they plug into the shore and literally plug in  
979 and get much of their power from the shore, how can we reduce  
980 the energy on there to limit it to what is really required to  
981 maintain the combat readiness of that craft.

982           So we are doing these, and we are exploring many other  
983 opportunities as well, but, you know, the ships and the  
984 aircraft we have today are the ones we are going to have for  
985 the future. So being more efficient is critical to that but  
986 also finding alternative sources of fuel is--

987           Mr. {Terry.} Let us go into that quickly, and you had  
988 mentioned coal to liquid, and in fact, a few years ago that  
989 was a major push by the Department of Defense for national  
990 security and defense security in having a domestic source  
991 that is reliable and secure.

992           Where are--where is the Defense Department overall,  
993 Navy, on production of aviation fuel or diesel fuel from  
994 coal? Has that been shut down?

995           Mr. {Hicks.} Well, the Navy--I can't speak for all the  
996 Defense Department, but the Navy never really had a coal to  
997 liquid certification program. The Air Force has had that  
998 program. They are also testing hydro-renewable fuels, jet  
999 fuels, as we are. Our path has been more with the hydro-  
1000 renewable jet fuels. We will have tested and certified every  
1001 service vessel and every aircraft frame by 2012, to use 50/50  
1002 blends of alternative fuel, hydro--

1003           Mr. {Terry.} Is the Navy's position that they would  
1004 like to have a coal-to-liquids program? You had mentioned  
1005 that in your statement.

1006           Mr. {Hicks.} I don't believe I mentioned it, sir, and  
1007 if I did, I misspoke, but I think we are very comfortable  
1008 with the program that we are on, and we feel that that is the  
1009 best near-term solution for the Department of Navy is one  
1010 that is focused on alternative biofuels. The challenges with

1011 coal to liquids, as has been mentioned before, it is a  
1012 technology that has been around since pre World War II  
1013 Germany. The challenges there are the capital expenditures  
1014 required, \$5 to \$10 billion, the amount of water and the  
1015 sources of water that you need for that, the amount of waste  
1016 that is generated from those plants, and then certainly there  
1017 is the carbon picture there that--which is typically those  
1018 plants without carbon capture and storage--

1019 Mr. {Terry.} And my last--

1020 Mr. {Hicks.} --hasn't been done in this country.

1021 Mr. {Terry.} --question, I hate to interrupt but--

1022 Mr. {Hicks.} Sure.

1023 Mr. {Terry.} --I have been told that the Navy has used  
1024 aviation fuel blend with the aviation fuel from algae. Can  
1025 you tell me how that has worked?

1026 Mr. {Hicks.} It has worked flawlessly. I have actually  
1027 had the privilege to sit down with the pilot of the F-18 that  
1028 used the 50/50 blends of biofuels. Part of what we, you  
1029 know, one of the things that we require is that the ready  
1030 drop-in fuels, the blends that we have is transparent to the  
1031 end users and does not sacrifice any part of our mission, and  
1032 that is what we are finding today.

1033 So F-18 hornet a year ago in April flew at mach 1.2 and  
1034 has since gone through its entire envelope with not a--any

1035 sort of issue at all with the fuel, and we are finding out  
1036 that same case in the rivering command boat that we have got,  
1037 a Seahawk helicopter, and the other platforms that we see.  
1038 Algae is one of the biofuels or feedstocks that we have used  
1039 to date. It is not the only one. We have also used  
1040 camelina, and there are many other types that would be, that  
1041 could be grown in, again, all 50 States in the country, and  
1042 we are seeing that.

1043 Mr. {Terry.} Thank you.

1044 Mr. {Whitfield.} Thank you. Mr. Waxman, you are  
1045 recognized for 5 minutes.

1046 Mr. {Waxman.} Thank you very much, Mr. Chairman. Mr.  
1047 Sandalow and Mr. Hicks, I would like to thank you for  
1048 appearing before us.

1049 Mr. Hicks, our Armed Services set an interesting nexus  
1050 in our energy policy. They are both the biggest single user  
1051 of energy and also reliant on the civilian energy  
1052 infrastructure. Because of these two factors they can be a  
1053 significant catalyst for helping the Nation transition to a  
1054 clean energy future by advancing new technology and leading  
1055 the way for the development of new commercial transportation  
1056 fuels.

1057 In 2007, we enacted the Energy Independence and Security  
1058 Act. Section 526 of that act contained a provision to ensure

1059 that long-term government contracts are not used to prop up  
1060 dirty, unsustainable fuels.

1061 Mr. Hicks, from the Navy's perspective what signal has  
1062 Section 526 sent to industry and the Armed Services, and can  
1063 you explain what the result has been?

1064 Mr. {Hicks.} I can explain that from the Department of  
1065 Navy's perspective, again, not speaking for Department of  
1066 Defense or the Administration, but what we have seen is in  
1067 working with, again, industry from the refiners and the  
1068 companies themselves to the equity communities that support  
1069 them is that they are responding to that, and they are  
1070 holding themselves to that higher standard, not only on  
1071 greenhouse gas emissions as 526 requires, so we see that as  
1072 an effective policy tool, but also on things such as food,  
1073 security, water use, land use, indirect and direct, and they  
1074 are holding themselves to that higher bar because, well, I  
1075 will leave it to them to describe why, but that is what we  
1076 are seeing as a trend.

1077 Mr. {Waxman.} Well, you mentioned the algae-driven jet  
1078 fuel the Navy purchased from Solazyme. I had the opportunity  
1079 to visit their operations in Northern California. It is the  
1080 world's first 100 percent algae-based jet fuel, and you have  
1081 mentioned that there are other things along those same lines,  
1082 but this just seems to be the right result from the market

1083 signal that has been sent by Section 526. Is that right?

1084 Mr. {Hicks.} Yeah, it does, and I think as you  
1085 mentioned Solazyme is a great example as a company that  
1086 literally started in a garage as I understand it and has as  
1087 of a week ago just went public and was over subscribed by 10  
1088 or 12 fold. So--and hundreds of jobs coming along with that,  
1089 but bottom line providing fuel for us in the areas where we  
1090 have used it for the testing and certification, you know,  
1091 blended with traditional fuels and, again, transparent to the  
1092 users.

1093 It has been an effective tool. The market is responding  
1094 to this and is ramping up to support it, and I would also say  
1095 that private equity in our conversation, multiple, multiple  
1096 conversations with them is lining up as well, and they are  
1097 starting to see these companies with some very solid business  
1098 plans and business models and supporting them as well.

1099 Mr. {Waxman.} The bill that is before us for discussion  
1100 would repeal Section 526. From the Navy's perspective, from  
1101 your perspective would repealing Section 526 send the right  
1102 direction of the industry in the Armed Services?

1103 Mr. {Hicks.} I think, again, we are comfortable with  
1104 526. It is an effective policy tool. It is having an affect  
1105 on the market that I think is one that is the right direction  
1106 in the sense that it is providing not only clean fuels but

1107 fuels that ultimately will be competitive, and I think that  
1108 is what we are looking for.

1109       Mr. {Waxman.} It in effect means the Armed Services and  
1110 the Congress are consistent in the message that we must  
1111 pursue new, more sustainable fuels. I think that is an  
1112 important policy that we want to continue.

1113       Mr. Sandalow, the bill before us purports to be a  
1114 roadmap to our energy future, but it omits key policies that  
1115 many recognize are critically important. For example, it  
1116 does not even mention energy efficiency. It also fails to  
1117 mention technologies that show so much promise and are just  
1118 now beginning to be commercialized like electric vehicles.

1119       Instead it seems to be a proponent to return to the  
1120 energy policies of the Bush Administration with a focus on  
1121 drilling in the Arctic Refuge and the Outer Continental  
1122 Shelf.

1123       Can, Mr. Sandalow, can you discuss whether this  
1124 legislation identifies the right areas for us to focus on as  
1125 a roadmap to our energy future?

1126       Mr. {Sandalow.} Well, thank you, Mr. Ranking Member.  
1127 Let me emphasize in response to the point you made about  
1128 energy efficiency. I talked to a power plant executive  
1129 recently who told me that the cheapest power plant for him is  
1130 the one that he doesn't have to build, and he underscored the

1131 tremendous potential in this country to improve our economic  
1132 performance by saving energy, by stopping the wasting of  
1133 energy. So any comprehensive energy plan for our country  
1134 needs to include energy efficiency, what some people call the  
1135 first fuel.

1136 It also needs to emphasize innovating, and you know, we  
1137 are an extraordinary Nation with--throughout our history we  
1138 have innovated and succeeded by doing so. The energy race in  
1139 the next century is going to be absolutely central, and I  
1140 think government and business working together can help  
1141 position the United States in this global competitive  
1142 marketplace.

1143 Mr. {Waxman.} If this committee were to craft an energy  
1144 policy to meet our Nation's needs now and in the future,  
1145 would the Department be willing to work with us and support  
1146 those efforts?

1147 Mr. {Sandalow.} Yes, Mr. Ranking Member, very closely.

1148 Mr. {Waxman.} Thank you. Thank you, Mr. Chairman.

1149 Mr. {Whitfield.} Mr. McKinley, you are recognized for 5  
1150 minutes.

1151 Mr. {McKinley.} Thank you, Mr. Chairman.

1152 Since I have come to Congress now, what, 140 days now, I  
1153 have come to really understand more the frustration of the  
1154 process here, and I have really come to the characterization

1155 coming from West Virginia that is a coal State, I really can  
1156 sense a strong disdain in this Administration for using coal,  
1157 and it manifests itself time and time again, even at the  
1158 White House here today, how he, the President  
1159 mischaracterized fly ash as being poisonous and running in  
1160 our streams and killing our marine life. Just patently  
1161 false.

1162 I see in Wellsville that there was a coal liquefaction  
1163 facility plan for there to create diesel fuel, excuse me,  
1164 airplane fuel for our military. That has been held up by  
1165 permitting. There was a facility constructed in Marshall  
1166 County, West Virginia, in the '60s with a coal liquefaction  
1167 facility there.

1168 I would ask you, I guess, Mr. Sandalow, that might be--  
1169 no one has records of that that we can find. Is that  
1170 something that you could get back that that plant was  
1171 operating for numbers of years to prove the viability of that  
1172 technology and conclusions?

1173 As I recall from the 60s that there was something that  
1174 as long as petroleum was over \$40 a barrel, that is age ago,  
1175 that is before inflation obviously, that it was commercially  
1176 viable that we could take coal and liquefy it.

1177 Could you possibly try to find that, some of those older  
1178 findings so we could refresh that? It is just an ongoing

1179 characterization I have of this Administration that they  
1180 have--they are avoiding--you all seem to be avoiding  
1181 accountability. I am an engineer. I want to solve a  
1182 problem, not take on more problems. Once I identify and we  
1183 have got issues out here, and we never seem to finish them.

1184 We have talked--we know about liquefaction, we know  
1185 about some of these things, but now let us take on another  
1186 project so that we never conclude that project. Clean coal  
1187 technology. Everyone was thumping their chests over the  
1188 years. We were going to have clean coal technology, we are  
1189 going to put more money into research, and then when the  
1190 President submits his budget, he slashes the money in the  
1191 National Energy Technology Lab. It is just so blatantly  
1192 evident that you all don't want to use coal.

1193 So now my question would be if we can, I guess we just  
1194 have to wait you out. Two years we will find out. Can we  
1195 not use the spent fuel rods? Then you all have, I mean,  
1196 participated--the Yucca Mountain Project is on hold.  
1197 Correct? Can we put fuel rods in Yucca Mountain today? The  
1198 answer is no?

1199 Mr. {Sandalow.} Congressman, if I could, first I want  
1200 to be sure to respond to the question you asked about the  
1201 specific plant you mentioned, and I would be happy to--I am  
1202 not familiar with that particular plant, but I would be happy

1203 to look into that for you.

1204 Mr. {McKinley.} Thank you.

1205 Mr. {Sandalow.} Follow up on that. Second, I want to  
1206 state clearly that coal is a vital energy source for this  
1207 Nation, that it is one that is essential for our future, and  
1208 it is one that this Administration is committed to as an  
1209 important source of energy for our country. And that is one  
1210 reason that we have invested so much in our coal future, in  
1211 funding for clean coal research, and funding for deployment  
1212 of carbon capture technologies, and a variety of other  
1213 programs that would make the difference for this country, and  
1214 you know, I have had the privilege of visiting the National  
1215 Energy Technology Lab in your State, Congressman. It is--I  
1216 think it is a real jewel of the Department of Energy lab  
1217 system, doing important work in this area.

1218 So I hope it is something we can work on.

1219 Mr. {McKinley.} The Department, the EPA has become a  
1220 rogue agency for--they are pulling permits for mines, they  
1221 are shutting them down, they were operating for 4 years,  
1222 Melville Mine down in Logan County. They pulled the permit  
1223 for Dan Mine in northern West Virginia over a water permit.

1224 These are operating mines. I want to get back now to  
1225 the--I think it is clear where the Administration is. They  
1226 don't want to be held accountable, they want to continue

1227 doing research rather than finish the job on what they are,  
1228 and one of those elements is coal.

1229           But I want to go back to nuclear. Is there any way that  
1230 we can take those spent fuel rods instead of storing them,  
1231 are they--is there any way that we could use them for the  
1232 military in fueling our ships that once they have been  
1233 completed, their lifecycle is finished for creating energy?

1234           Mr. {Hicks.} We can take that one back for the record,  
1235 sir. I am not able to speak to that today.

1236           Mr. {McKinley.} Do you have any--

1237           Mr. {Sandalow.} I know this, I mean, this committee has  
1238 had extensive conversations about Yucca just this week,  
1239 Congressman, I know, and my colleague, Pete Lyons, was up  
1240 here testifying on exactly this topic, and I know he is  
1241 answering extensive questions for the record from your  
1242 committee on exactly this topic.

1243           Mr. {McKinley.} But right now for the--we cannot store  
1244 any fuel rods at Yucca Mountain. Is that correct?

1245           Mr. {Sandalow.} Right. I mean, Yucca Mountain, of  
1246 course, Congressman, is, you know, right now not in a  
1247 position, and it is--

1248           Mr. {McKinley.} Fifteen billion dollars spent--

1249           Mr. {Sandalow.} --the blue ribbon--

1250           Mr. {McKinley.} --and we can't put anything in it yet.

1251           Sorry. I have run over my time.

1252           Mr. {Whitfield.} The gentleman from Texas, Mr. Green,  
1253 is recognized for 5 minutes.

1254           Mr. {Green.} Thank you, Mr. Chairman. I have a number  
1255 of questions.

1256           My first one is for Mr. Hicks. Section 526 of the  
1257 Energy Independence and Security Act of 2007 sought to limit  
1258 the DOD's ability in her contracts for fuels derived from  
1259 coal to liquids, fuels, or non-conventional oil sources such  
1260 as Canadian oil sands. Advocates of Section 526 claim it was  
1261 supposed to impact the purchase of fuels that were made  
1262 available to the general fuel supply for environmental but  
1263 environmental groups are suing DOD for purchasing fuels  
1264 derived from oil sands.

1265           Is that practically possible for the DOD to determine  
1266 which fuels are derived from Canadian oil sands or which are  
1267 not in the general, Nation's general fuel distribution  
1268 system?

1269           Mr. {Hicks.} Congressman, I appreciate that question.  
1270 I think the best way for me to answer that is really take  
1271 that one for the record. That is really a better question I  
1272 think for Defense Logistics Agency Energy, who is the one who  
1273 that is purchasing the fuel on behalf of the services to  
1274 answer. Yeah. I would prefer that, to take that for the

1275 record, sir.

1276 Mr. {Green.} Well, I have refineries that produce--  
1277 bring in crude oil from a lot of different places, and the  
1278 result is aviation fuel, and you can't tell if the aviation  
1279 fuel meets the criteria whether it comes from the Gulf of  
1280 Mexico, Saudi Arabia, or even Canadian oil sands. So--

1281 Mr. {Hicks.} Yes, Congressman. I know that is a  
1282 challenge and how they can find that accounting, and we can  
1283 do, can kind of track where the dropped fuel and barrel of  
1284 oil came from, but it is one that is probably better suited  
1285 for DLA Energy to respond.

1286 Mr. {Green.} Thank you.

1287 Mr. Sandalow, Wednesday the last question from my  
1288 colleague, the Environment Subcommittee had a hearing on  
1289 Yucca Mountain. In that hearing we discussed the need to  
1290 develop at least one interim storage facility to ease the  
1291 burden of the storage dilemma.

1292 The President has said that he supports investments in  
1293 alternative fuels of energy, and Secretary Chu testified  
1294 before this committee that we are unable to meet the  
1295 President's goal if we do not continue to invest in nuclear  
1296 energy. This, of course, means that we will have to have an  
1297 increase in nuclear waste, and we need to safely store it.  
1298 So we will need to resolve the situation sooner or later.

1299           In June of 2009 the DOE withdrew its proposed Global  
1300 Nuclear Energy Partnership Technology Demonstration Program.  
1301 This program would explore different ways to recycle spent  
1302 fuel much as the French system. If the Administration does  
1303 not support long-term storage at Yucca Mountain or recycling  
1304 fuel rods but remains insistent on we must rely on energy  
1305 source such as nuclear, then just what do we intend to do  
1306 with this nuclear waste? Is there an alternative? Because I  
1307 know the French have been, you know, recycling those rods for  
1308 at least 20 years.

1309           Mr. {Sandalow.} Yeah. Thank you for the question,  
1310 Congressman. It is very important and along the same lines  
1311 as Congressman McKinley.

1312           This is a topic that is being addressed by Blue Ribbon  
1313 Commission appointed by the Secretary of Energy, composed of  
1314 some of our Nation's leading experts on this topic, and their  
1315 report is expected this summer. So I would defer any further  
1316 question, you know, and answer on that, I mean, answer on  
1317 that to Blue Ribbon Commission.

1318           Mr. {Green.} Mr. Chairman, we might need to have the  
1319 Blue Ribbon Commission come up some time because I wasn't in  
1320 Congress in the '80s when the decision on Yucca Mountain was  
1321 made, but obviously, hopefully, they had a Blue Ribbon  
1322 Commission in the 1980s to make that decision.

1323           Let me ask a question also. H.R. 909 has set up a  
1324 reverse auction to incentivize renewable energy development.  
1325 I have some concerns on how the details are laid out in the  
1326 legislation. Mr. Sandalow, you testified about the  
1327 Department's experience with reverse auction for cellulosic  
1328 biofuels which has yet to achieve its objectives. The  
1329 cellulosic biofuels industry, which was expected to take off,  
1330 has stalled, and last summer's call for bids in the reverse  
1331 auction went unanswered.

1332           Clearly reverse auctions must be carefully crafted in  
1333 order to achieve the dual goals of saving money and  
1334 incentivizing production. Several aspects of reverse auction  
1335 in this legislation may be problematic. Reverse auctions  
1336 have potential as incentive for renewable energy development,  
1337 but it is clear from DOE's experience that the details  
1338 matter, and if our committee develops legislation on the  
1339 matter, we will be mindful to do so very carefully.

1340           For example, in order to be eligible to participate in  
1341 reverse auction, facilities have to have power purchase  
1342 agreements in place. My question, Mr. Sandalow, is what  
1343 stage of development will a renewable energy project  
1344 developer enter into a power purchase agreement?

1345           Mr. {Sandalow.} Well, I think the way that that relates  
1346 to the reverse auction is something that will need to be

1347 worked out in the course of discussions about this  
1348 legislation, Congressman. I agree completely with the point  
1349 you are making that reverse auctions have tremendous  
1350 potential. They are an important market-based mechanism, but  
1351 the details do matter in terms of how we work that out.

1352 Mr. {Green.} Is there any portion of the renewable  
1353 energy sector in your estimation that has progressed to that  
1354 stage?

1355 Mr. {Sandalow.} I am sorry, Congressman. When you say  
1356 that stage?

1357 Mr. {Green.} To the stage of even talking about a power  
1358 purchase agreement.

1359 Mr. {Sandalow.} Yes, absolutely, Congressman, there  
1360 are.

1361 Mr. {Green.} And as soon as they reach that stage, will  
1362 they have done so without the benefit of federal loan  
1363 guarantees included in--including DOE loan guarantees and  
1364 loan guarantees administered by USDA for biofuels?

1365 Mr. {Sandalow.} That is a good question which I will  
1366 take for the record, Congressman.

1367 Mr. {Green.} Okay. I don't expect you to answer about  
1368 USDA, but if you could--if they have done it without the  
1369 Department of Energy loan guarantees.

1370 Mr. Chairman, I know I am out of time. I will submit

1371 the rest of the questions.

1372 Mr. {Whitfield.} Okay. Mr. Olson, you are recognized  
1373 for 5 minutes.

1374 Mr. {Olson.} Thank you, Mr. Chairman. I seem to be the  
1375 guy who always comes up when votes are being called, so I  
1376 will try to be brief. But thank the witnesses for coming  
1377 today, thank you for your expertise.

1378 My first question is for you, Mr. Sandalow. As you know  
1379 now, the U.S. is the largest producer of natural gas in the  
1380 world, and there is great potential there to improve our  
1381 energy security, our national security. Hydraulic fracturing  
1382 advancements in horizontal drilling techniques have been the  
1383 key to developing these resources. President Obama in the  
1384 State of the Union and energy speeches this year has said  
1385 natural gas is a big part of our energy future.

1386 EPA is studying the fracturing process over concerns  
1387 about contamination of drinking water, but Administrator  
1388 Jackson admitted on the Hill over on the Senate side last  
1389 week that there are no known cases of contamination as  
1390 results of hydraulic fracturing.

1391 Last year in a reference to hydraulic fracturing  
1392 Secretary Chu was quoted as saying, this is a quote, ``We are  
1393 going to have some regulation going on then.'' Let me read  
1394 that again. ``We are going to have some regulation going on

1395 then.' ' So basically DOE is looking to have DOA doing some  
1396 regulation, and has your agency been actively pursuing any  
1397 regulations over the practice of hydraulic fracturing?

1398 Mr. {Sandalow.} Congressman, thank you for your  
1399 question. A couple of points in response to it. First, I  
1400 would emphasize that all the--that the technical progress  
1401 that we have made in shale gas in the past couple of years is  
1402 extraordinary and impressive and that much of it started with  
1403 funding from the U.S. Department of Energy. It is a great  
1404 example of the important role of the Federal Government in  
1405 spurring technological innovation.

1406 At this--in your question about the environmental  
1407 impacts, the Secretary of Energy has asked his advisory board  
1408 to take a look at this issue, and in fact, just this week  
1409 that advisory board has been meeting, looking at technologies  
1410 that will allow us to develop our shale gas resources using  
1411 hydraulic fracturing and doing so in a way that minimizes  
1412 environmental impact. And that has been the main focus of  
1413 our activity at the Department of Energy on this topic.

1414 Mr. {Olson.} Okay, but there is no known contamination  
1415 of drinking water from a DOE perspective. Correct?

1416 Mr. {Sandalow.} I don't have specific information on  
1417 that, Congressman. That would mainly fall into the purview  
1418 of the Department of the Environmental Protection Agency.

1419 Mr. {Olson.} I couldn't agree with you more. The  
1420 government has a great record of investing resources but once  
1421 we get beyond that, that is about it, and it is my concern  
1422 that we don't have the competing things, EPA, these things to  
1423 keep these resources going, because, again, our natural gas  
1424 reserves are--right now, clean source of energy, so our  
1425 generation is probably in transportation, the next, you know,  
1426 replace gasoline with something we need to do right here in  
1427 our country, American jobs and decrease our dependence on  
1428 foreign sources of oil.

1429 Mr. Hicks, I appreciate your comments today about the  
1430 Department of Defense, the Department of the Navy's  
1431 dependence on fossil fuel. If I understand your comments to  
1432 Mr. Terry, DOD and the progress you are making isn't because  
1433 you are changing fuels per se. It is because you are doing  
1434 all sorts of things outside, streamlining the aircrafts,  
1435 moving in the propellers, those type of things, the screens  
1436 on the surface vessel subs. And obviously wind and solar  
1437 aren't going to be used in those--our carriers, our subs, or  
1438 our airplanes. I mean, some fossils are going to be a big  
1439 part of our future and very specific fossil fuels; mosinavia  
1440 and JP, JP-5, JP-8. JP-8 was on--because it was specifically  
1441 designed to have a lower flash point so the fires we had in  
1442 history like the USS Forrestal during the Vietnam War.

1443           And that is a very special fuel, and most of that, a lot  
1444 of that is, built is not the right word, but is processed in  
1445 the district Congressman Green represents at the shale  
1446 facility in Deer Park, Texas, and you know, it is, again, if  
1447 it was made more difficult to obtain these fossil fuels,  
1448 would that have a weakened affect on the military of today?

1449           Mr. {Hicks.} Certainly that would have an affect, and I  
1450 think it speaks to our overall energy strategy, which is both  
1451 one of efficiency and one of finding domestic alternative  
1452 sources so we can be more independent in our field choices,  
1453 and, again, the waypoint that we are going toward is a 50/50  
1454 blend of the JP-5 that you mentioned in hydro-renewable jet  
1455 fuel, and likewise, F-76 Marine diesel and a combination of  
1456 HRD hydro-renewable diesel fuel for our service vessels.

1457           Mr. {Olson.} Thank you for those comments, and I am  
1458 about running out of time, but I know you share this  
1459 sediments, but, you know, our job, our main job of our  
1460 military is to kill our enemies, and our job here in Congress  
1461 and your job is to give them all the equipment, the proper  
1462 equipment, the proper fuel they need to do that and not to be  
1463 some sort of test bed for some future generated source of  
1464 energy. Other people can do that. We need you to have your  
1465 fuel and fossil fuels for as long as you need it to have the  
1466 best equipment out there that is second to none.

1467 I yield back the balance of my time. Thank you.

1468 Mr. {Whitfield.} Mr. Inslee, you are recognized for 5  
1469 minutes.

1470 Mr. {Inslee.} I thank you, thanks, Mr. Sandalow, for  
1471 being here. Glad you are on duty, and I want to ask you both  
1472 about biofuels potential. I am going to be a little  
1473 parochial talking about this for a moment because we really  
1474 have an aggressive effort to develop a biofuels industrial  
1475 base in the Pacific Northwest. There is a very active  
1476 consortium with Boeing and a host of civilian aviation firms,  
1477 and we appreciate Secretary Mabus's leadership on this. He  
1478 was hugely excited on our Earth Day last year in the rose  
1479 garden when he announced that we had had our Green Hornet  
1480 first time break the sound barrier using biofuels. That was  
1481 pretty exciting.

1482 Mr. {Sandalow.} Yeah.

1483 Mr. {Inslee.} So I guess the question is what can we do  
1484 to facilitate a bioreactor actually going in out in the  
1485 Northwest, how can we help that effort, and what is the  
1486 status of those considerations?

1487 Mr. {Sandalow.} I am going to start by thanking you,  
1488 Congressman, for your long-time leadership on these issues.  
1489 I have learned a lot from reading what Mr. Inslee has written  
1490 and--

1491 Mr. {Inslee.} Good. There was somebody out there. I  
1492 wasn't sure.

1493 Mr. {Sandalow.} This is an extremely important area of  
1494 our country, one with tremendous potential. I am going to  
1495 have to take back the specific question about the  
1496 opportunities in the State of Washington and come back to you  
1497 on that, but there is no question that overall this country  
1498 can create jobs and reduce our dependence on oil with  
1499 investment in new biofuels technologies. We just heard what  
1500 I think is an amazing American story about taking a fighter  
1501 jet to mach 1.2, you said, I believe, and using American-  
1502 made, you know, biofuels from a technology nobody would I  
1503 think believe was possible 10 or 20 years ago.

1504 That is exactly the type of thing that we can do, and  
1505 the future, I think, many--I have heard experts say that the  
1506 next stage in this industry is scaling up commercial-sized  
1507 bio-refineries that will get significant volumes of biofuels  
1508 that have been tested at bench scale up and into the  
1509 marketplace, and I think it is very important that we look at  
1510 ways to do that in the years ahead.

1511 It is important that we continue the research in the new  
1512 types of feedstocks that are really going to make a  
1513 difference in the years and decades ahead.

1514 Mr. {Hicks.} And if I could add, and I would be remiss

1515 if I didn't mention that the Green Hornet actually has now  
1516 gone to 1.7, mach 1.7. Commander Weaver, Pie, as he is  
1517 known, I think would want it to be known that he has taken it  
1518 to its full limit with no challenges at all to the fuel  
1519 whatsoever.

1520 Certainly as we know a couple of companies in the State  
1521 of Washington, they are doing great work, AltAir Fuels is  
1522 one, and I believe Imperium is another, and we are watching  
1523 those companies as they mature.

1524 In terms of your question I think just, you know,  
1525 continued support toward alternative fuels is something that  
1526 we can do as a country to help us and enable us to be more  
1527 energy independent. As David mentioned, you know, R&D plays  
1528 a critical role in this both in the near term and the long  
1529 term. I think for our efforts being able to test and certify  
1530 the platforms we have and be able to accomplish those  
1531 missions at 100 percent of their abilities with no challenges  
1532 at all with those fuels is something that we would also just,  
1533 you know, request continued support for.

1534 Mr. {Inslee.} Well, just to be a little parochial,  
1535 there is an amazing consortium out in our neck of the woods,  
1536 and we have multiple companies, Targeted Growth is doing  
1537 genetically-modified base, a company with some leadership in  
1538 Washington State, Sapphire Energy, is doing algae-based.

1539 There are now commercial scale or pre-commercial scale ponds  
1540 in New Mexico, and I know you will be looking for--from  
1541 growing to distribution to testing to commercialization. I  
1542 think we are developing that kind of environment out in the  
1543 Northwest, and if there is any way we can help accommodate  
1544 your efforts, that would be great.

1545 I want to ask you about coal to liquids. I am a person  
1546 who has supported the effort to develop cleaner coal to  
1547 reduce CO<sub>2</sub>, and we supported here in the bill we passed in  
1548 the House last year, the year before last, a billion plus  
1549 dollars a year to help develop a way to use coal in a way  
1550 that does not significantly disrupt the climate.

1551 But the coal to liquids that I am familiar with that are  
1552 addressed in this bill it appears to me would actually go  
1553 backwards from a CO<sub>2</sub> pollution context and lifecycle of the  
1554 product. If that is correct, then why would we want to go  
1555 backwards to a product that actually is going in the opposite  
1556 direction than we all know we need to go?

1557 Mr. {Hicks.} I would just say those are some of the  
1558 questions that we have from the Navy's perspective, which  
1559 are--I think there are some large questions around that  
1560 technology and may explain why some of those in that industry  
1561 are pulling back or dialing back some of their efforts there.

1562 But the questions of the enormous capital expenditures

1563 needed, \$5 to \$10 billion, enormous water needed, as well as,  
1564 you know, just some of the waste product that would come out  
1565 of that are all areas that need to be addressed, in addition  
1566 to, and this is what is great with Department of Energy is  
1567 dealing with and doing the research and development on carbon  
1568 capture and storage technology, which can be used, you know,  
1569 with the coal plants that we do have, the plants that have  
1570 been providing affordable power for, you know, a century now  
1571 and will into the next and using that technology focused on  
1572 those plants I think is something that could be an advantage.

1573 But for coal-to-liquid facilities and to suggest that  
1574 that is the near-term solution with all these other question  
1575 marks I think is something that needs further inquiry.

1576 Mr. {Inslee.} Thank you.

1577 Mr. {Whitfield.} Thank you. We have one vote on the  
1578 House Floor, and so we are just going to take a little time  
1579 off here. I think Ms. McMorris Rodgers will be coming back,  
1580 and when she comes back, I think she will have questions for  
1581 the two of you, but whether she does or does not come back,  
1582 we will be back within about 10 minutes.

1583 So we will be in recess until then.

1584 [Recess.]

1585 Mr. {Terry.} [Presiding] Hopefully I will have some of  
1586 my colleague continue to join me, but we are finished with

1587 the second panel. So Mr. Sandalow and Mr. Hicks, really  
1588 appreciate your testimony. It was interesting, and I thought  
1589 you gave good detail on your answers, which is much  
1590 appreciated by this committee.

1591 So at this time you are dismissed.

1592 At this time we will call up the next panel. While we  
1593 are setting up name plates and getting the chairs organized,  
1594 our third panel is Neil Auerbach from the Hudson Clean  
1595 Energy, James Bartis, Senior Policy Researcher, RAND  
1596 Corporation, and Jack Spencer, Research Fellow, Nuclear  
1597 Energy, from The Heritage Foundation.

1598 Mr. Auerbach, we are going to start with you. Give us  
1599 just a few more seconds to get settled in, get your water,  
1600 turn your mike on, and Mr. Auerbach, if you would begin.

|  
1601 ^STATEMENTS OF NEIL AUERBACH, MANAGING PARTNER, HUDSON CLEAN  
1602 ENERGY; JACK SPENCER, RESEARCH FELLOW, NUCLEAR ENERGY, THE  
1603 HERITAGE FOUNDATION; AND JAMES BARTIS, SENIOR POLICY  
1604 RESEARCHER, RAND CORPORATION.

|  
1605 ^STATEMENT OF NEIL AUERBACH

1606 } Mr. {Auerbach.} Thank you very much, members of the  
1607 committee, for the opportunity to testify for you today. It  
1608 is an honor and privilege.

1609 My name is Neil Auerbach, and I am the Founder and  
1610 Managing Partner of Hudson Clean Energy Partners. Hudson  
1611 Clean Energy Partners is a global private equity firm that  
1612 focuses exclusively on investing in the clean energy sector.  
1613 With over \$1 billion in assets under management, Hudson is a  
1614 leading global investor in sectors that include wind, solar  
1615 and hydroelectric energy, and biofuels, biomass, smart grid,  
1616 electric vehicles, energy efficiency, and storage. Given our  
1617 position on the front lines of these fast-growing industries,  
1618 we have seen firsthand the impact of government policies on  
1619 private sector capital flows, both at home and abroad.

1620 New capital flowing into our sector is coming in at such  
1621 a quick pace that we are already drawing nearly equal to

1622 capital flowing into new fossil-fueled fire power plants  
1623 around the world, and in fact, in 2010, the amount of capital  
1624 in renewable energy power generation was about 85 percent of  
1625 global capital flowing into fossil-fuel powered generation.  
1626 So this is becoming and is now a very big business.

1627         The increasing scale of our industry is causing dramatic  
1628 changes and strategic thinking of industry players and  
1629 policymakers around the world. Other forces at work in the  
1630 energy industry are also causing a reassessment of strategic  
1631 thinking, most notably the rapid advances made in extracting  
1632 shale gas cheaply.

1633         While these and other forces are at work are putting  
1634 pressure on lowering the cost of power, upward pressure on  
1635 the price of oil is occurring leading to higher prices at the  
1636 gasoline pump for motorists here in the U.S. and around the  
1637 world.

1638         As the Chinese economy continues to grow, demand for  
1639 petroleum will continue to increase. Today China is by far  
1640 the world's largest market for automobiles, yet on a per  
1641 capita basis the market penetration for automobiles is  
1642 roughly about 1/20 of what it is in the United States.  
1643 Imagine what will occur when they draw equal to the United  
1644 States.

1645         While my written testimony addresses the reverse auction

1646 mechanism in Title III of H.R. 909, I just want to articulate  
1647 first, although my specialty and frankly a majority of my  
1648 network and my career is now devoted to clean energy, I am  
1649 broadly in support of an all-of-the-above strategy and that  
1650 strategy informing this legislation, and so I support the  
1651 basic concept of using dedicated oil and gas royalties as a  
1652 funding source to create a trust fund out of which payments  
1653 will be made to renewable energy generators.

1654         It is important to understand why I believe so  
1655 passionately in the future of clean energy and why I believe  
1656 it is actually in the present. There are three basic reasons  
1657 why clean energy is increasingly attractive to consumers and  
1658 to policymakers around the world. It is good for energy  
1659 security, including American energy security, it is good for  
1660 economic growth, and it is also good for the environment, and  
1661 I believe that by looking at all three factors one concludes  
1662 that more clean energy, in particular, renewable energy, is  
1663 better than less for America's energy future.

1664         I want to focus before getting into renewable--to  
1665 reverse auctions directly on the chart which is to my right,  
1666 and if you want, I can--if the camera can focus on it. Just  
1667 as an illustration to make it as clear as I can with a chart,  
1668 that looks fairly complex I will try to simplify it, at just  
1669 how dramatic the changes are that I refer to in the--in what

1670 is happening today in clean energy.

1671           Over the past 80 years there have been obviously  
1672 significant price movements in the electricity sector in the  
1673 United States of coal-fired, gas-fired, nuclear-fired, wind-  
1674 powered, and solar-powered electricity. And what this chart  
1675 shows is how prices have come down as each of these power  
1676 sources has scaled over the past roughly 100 years. The  
1677 fastest declining cost for power is coming from solar, and  
1678 that is the orange dotted line all the way on the right.  
1679 Next fastest is wind, and then we have got natural gas and  
1680 coal and then nuclear, which to date has actually been  
1681 increasing in cost.

1682           Now, again, I am not against any of the power sources  
1683 but ultimately I believe that the reverse auction mechanism  
1684 that I will address in more detail now speaks to the need to  
1685 allow market forces to drive down the cost of all sources of  
1686 energy in our economy, and the most--and so what we have seen  
1687 here is enormous progress.

1688           Last week the research director for GE gave his  
1689 pronouncement that he thought that solar electricity would be  
1690 cheaper than coal, electricity in 3 to 5 years. My personal  
1691 assessment from investing hundreds of millions, if not  
1692 billions of dollars in the solar industry over the past 10  
1693 years is that it may be 5 years away, maybe a little bit

1694 more, but it is coming very fast.

1695           Just to give you a further example, the solar industry  
1696 has grown from 2005 to 2011, 15 times. The changes that are  
1697 occurring in that industry alone are enormous, and they are  
1698 going to bring cheaper power to Americans everywhere if we  
1699 scale up the industry wisely in the United States.

1700           The reverse auction mechanism, first of all, very  
1701 simply, there is a lot of confusion about what a reverse  
1702 auction is, and I think Congressman Nunes addressed it  
1703 clearly. A regular auction is clearly where one seller is  
1704 trying to induce multiple buyers to bid, to raise the price.  
1705 In a reverse auction the buyer is trying to do the opposite,  
1706 and so there is a lot of window dressing or detail associated  
1707 with how one constructs a reverse auction, but reverse  
1708 auctions work, and they have been demonstrated to work, and I  
1709 will get into the Brazil example in a few minutes.

1710           The bill effectively proposes replacing the current tax  
1711 credit system over time that has existed for about 18 years  
1712 for supporting renewable energy with a reverse auction. I  
1713 want to point out here that the reverse auction mechanism in  
1714 essence works. There are some issues that need to be  
1715 addressed, and I will just mention two of them, and then we  
1716 can get into the rest of it in questions.

1717           I believe that we need to remove the reverse auction

1718 from annual appropriations. Billions, hundreds of billions  
1719 of dollars of capital can be mobilized in support of  
1720 renewable energy in the United States, but capital will not  
1721 flow if the reverse auction mechanism is subject to annual  
1722 appropriation, and I think that the PPA issue that has been  
1723 raised by several members that is noted in my testimony also  
1724 needs to be addressed. In my written testimony we focus on a  
1725 recommendation to actually expand the use of the reverse  
1726 auction to include all three revenue streams.

1727 [The prepared statement of Mr. Auerbach follows:]

1728 \*\*\*\*\* INSERT 4 \*\*\*\*\*

|  
1729           Mr. {Terry.} Thank you. I appreciate that, Mr.  
1730 Auerbach.  
1731           Mr. Spencer of The Heritage Foundation.

|  
1732 ^STATEMENT OF JACK SPENCER

1733 } Mr. {Spencer.} Mr. Chairman, members of the  
1734 subcommittee, my name is Jack Spencer. I am the Research  
1735 Fellow for Nuclear Energy Policy at The Heritage Foundation.  
1736 The views I express in this testimony are my own and should  
1737 not be construed as representing any official position of The  
1738 Heritage Foundation.

1739 Thank you for inviting me to testify before you today  
1740 regarding the Roadmap for America's Energy Future. I would  
1741 like to focus on the nuclear power provisions of that bill.

1742 Nuclear is among America's least expensive electricity  
1743 sources. It emits nothing into the atmosphere, has a great  
1744 safety record in the United States, including no injuries.  
1745 Despite these facts no plants have been ordered for over 3  
1746 decades. In many instances there will be none, there will no  
1747 additional construction without taxpayer backing.

1748 So this has been the basic approach of most  
1749 policymakers. In fact, looking at many of the proposals  
1750 currently under consideration, one might conclude that  
1751 Washington thinks that it can subsidize nuclear energy into  
1752 commercial viability.

1753 I would suggest, however, that a lack of taxpayer

1754 support is not the problem. The problem is an incoherent  
1755 nuclear waste management policy and an antiquated regulatory  
1756 system. The energy roadmap begins to address both of these  
1757 areas.

1758         Ultimately, America's failed approach to nuclear waste  
1759 management presents a substantial risk to the future of  
1760 nuclear power. Constructing a nuclear materials repository  
1761 is essential to fixing this problem. Current law states that  
1762 the repository shall be built at Yucca Mountain. The energy  
1763 roadmap breaks the impasse over Yucca Mountain by  
1764 establishing a 90-day timeline for the Nuclear Regulatory  
1765 Commission to determine based on technical and scientific  
1766 data whether or not to issue a permit for repository  
1767 construction. If Yucca is not suitable, the proposal sets  
1768 forth a process to find an alternative site.

1769         But the roadmap goes a step further. It directs the  
1770 Department of Energy to report back to Congress on the  
1771 feasibility of both establishing an organization outside of  
1772 the Department to manage Yucca and of removing the fee that  
1773 ratepayers pay to the Federal Government for waste management  
1774 services. Removing the fee would allow for a market-based  
1775 system to emerge. It is this provision of the--that sets the  
1776 roadmap apart from recent, from its recent predecessors.

1777         Instead of attempting to fix the flawed system, this

1778 legislation allows for a fundamental reform of how nuclear  
1779 waste is managed. In a market-based system instead of paying  
1780 a preset fee to the Federal Government to manage used fuel or  
1781 in this case not managed used fuel, nuclear power operators  
1782 would pay a fee for service. This could include simply  
1783 paying a fee for geologic storage or a more complex suite of  
1784 processing services.

1785         The key is to establish a pricing mechanism for placing  
1786 nuclear waste storage in a geologic repository. Nuclear  
1787 power operators could then decide, given the price of used  
1788 fuel in Yucca, how to manage their waste. As the price to  
1789 access Yucca goes up, so will the incentive for nuclear  
1790 operators to do something else with their used fuel.

1791         This should give rise to an industry that competes to  
1792 provide used management, used-fuel management services. One  
1793 could imagine a marketplace where everything from interim  
1794 storage to full fuel reprocessing was available. The basic  
1795 regulation would be that all the waste must be disposed of by  
1796 the time the plant is decommissioned, and of course, that  
1797 everything is done within the guidelines set by the NRC to  
1798 protect public health and safety.

1799         This idea is gaining ground. For example, Tim Echols, a  
1800 Georgia State Public Services Commissioner, recently  
1801 published an op-ed in the Atlanta Business Chronicle

1802 supporting the approach. More recently, experts from the  
1803 Center for Strategic and International Studies, the  
1804 Federation of American Scientists, the University of Illinois  
1805 Champaign-Urbana, and The Heritage Foundation, I would be the  
1806 representative there, authored a report entitled, ``U.S.  
1807 Spent Nuclear Fuel: A Market-Based Solution.'' Even nations  
1808 like Finland and Sweden are finding great success in waste  
1809 management programs where waste producers are responsible for  
1810 waste management.

1811         The energy roadmap also would reform how new reactors  
1812 are permitted by creating a second permitting track that  
1813 would allow for a permit to be issued in approximately 2  
1814 years. The expedited process would entail more efficient  
1815 processes for both environmental and technical review.

1816         The bill also begins to build regulatory support for new  
1817 reactor technologies. Without this regulation new  
1818 technologies are effectively banned from the marketplace.  
1819 Customers do not want reactors that the NRC will not  
1820 regulate, and the NRC does not want to put its resources  
1821 towards a reactor technology that has no customers. The  
1822 result is that new technologies are at a severe disadvantage.

1823         The begin changing this the roadmap directs the NRC to  
1824 develop a set of guidelines for technology-neutral nuclear  
1825 plants. Allowing our reactor designers to meet a general set

1826 of plant guidelines would represent a significant step  
1827 forward in building a more diverse and competitive nuclear  
1828 industry.

1829           And the final point that I would like to bring to the  
1830 committee, the subcommittee's attention is that the proposal  
1831 would give the NRC a 90-day deadline to report to Congress  
1832 what personnel and resources are required to establish a  
1833 predictable, regulatory program for small modular reactors.  
1834 Like other elements of the bill, this provision moves away  
1835 from the subsidy-first mentality that consolidates market  
1836 power in Washington to a market-based division that allows  
1837 the actual commercial value of a technology to determine its  
1838 ultimate success.

1839           That concludes my testimony. I look forward to your  
1840 questions.

1841           [The prepared statement of Mr. Spencer follows:]

1842 \*\*\*\*\* INSERT 5 \*\*\*\*\*

|  
1843           Mr. {Whitfield.} Mr. Bartis, you are recognized for 5  
1844 minutes for your opening statement.

|  
1845 ^STATEMENT OF JAMES BARTIS

1846 } Mr. {Bartis.} Mr. Chairman and distinguished members,  
1847 thank you for inviting me to further elaborate on the  
1848 testimony that I gave to this subcommittee on May 5 of this  
1849 year. I will be focusing my remarks today on the policy  
1850 implications of sections of H.R. 909 that deal with oil,  
1851 shale, and coal liquefaction as is RAND's policy. My  
1852 testimony neither endorses nor opposes specific legislation.

1853 The United States has enormous oil shale, has an  
1854 enormous oil shale resource base, enough to support the  
1855 production of millions of barrels per day for centuries. But  
1856 getting a useful fuel from this resource is technically  
1857 complex, requiring temperatures that are much higher than  
1858 those used in processing Canadian oil sands.

1859 Moreover, nearly all of the high value oil shale  
1860 resources geographically concentrating on federally-managed  
1861 lands lie in a very small area, roughly 30 by 35 miles in  
1862 Colorado's Piceance Basin and within a small portion of the  
1863 Uinta Basin within Utah. That oil shale belongs to all of  
1864 us. The public value is potentially tens of trillions of  
1865 dollars.

1866 But reaping that public benefit, not to mention the

1867 energy security benefits of domestic alternative fuels  
1868 production, requires the development of a commercial oil  
1869 shale industry capable of producing a few million barrels per  
1870 day. That level of production should be the long-term  
1871 strategic goal for oil shale. At this stage I don't know if  
1872 that goal can be achieved. We are talking about a tremendous  
1873 amount of industrial activity, especially when we consider  
1874 supporting infrastructure within a very small region.  
1875 Extensive measures will be required to prevent serious  
1876 adverse ecological and social economic impacts and to protect  
1877 the quality of the Colorado River.

1878 My analysis of the oil shale provisions of H.R. 909 is  
1879 that they do not move our Nation towards that long-term  
1880 strategic goal of large and sustainable commercial  
1881 production. My specific concerns are detailed in my written  
1882 testimony.

1883 There are a several areas where Congress may need to  
1884 provide direction so that the Nation can realize the full  
1885 opportunity that oil shale offers. The critical step is  
1886 obtaining early production experience. Until we understand  
1887 the performance of the process options, it is not productive  
1888 to engage in establishing a detailed, regulatory structure  
1889 for a large, multi-million barrel-per-day commercial  
1890 industry.

1891 I suggest the following for consideration by the  
1892 committee. First, require that the Departments of Energy and  
1893 the Interior and the Environmental Protection Agency  
1894 cooperatively develop and publish a federal plan for  
1895 promoting the construction and operation of a limited number  
1896 of pioneer commercial plants. That plan should be designed  
1897 to attract America's top high-technology firms.

1898 Second, require that the Department of the Interior  
1899 develop, public, and implement a 15-year schedule for  
1900 multiple offerings of small R&D leases.

1901 And third, require the preparation of plans for  
1902 conducting critical environmental and ecological research and  
1903 an assessment of the carbon management options in the  
1904 vicinity of the federally-managed oil shale lands.

1905 Turning to coal, here we have another enormous resource  
1906 that we could be utilizing to meet our liquid fuel needs.  
1907 Technical approaches are available to produce liquid fuels  
1908 from coal or a combination of coal and biomass with life  
1909 cycle greenhouse gas emissions that are comparable or  
1910 significantly below those associated with conventional  
1911 petroleum.

1912 Moreover, over the long term liquid fuels derived from a  
1913 combination of coal and biomass could provide a new market  
1914 for coal that could counter the adverse local and regional

1915 economic impacts of reduced demand for coal in power  
1916 generation due to measures to reduce greenhouse gas  
1917 emissions.

1918 I am concerned with the slow progress towards gaining  
1919 commercial experience in coal-derived liquids production in  
1920 the United States. However, I do not believe that government  
1921 ownership of alternate fuels production facilities is a  
1922 credible solution. If the Congress is interested in using  
1923 the purchasing power of the Defense Department to promote  
1924 early commercial experience, I suggest providing the  
1925 Department with the authority to make long-term agreements to  
1926 guarantee a minimum sale price to the benefit of the  
1927 alternative fuel producer in the event that oil prices are  
1928 low. In return for this benefit the Department would  
1929 negotiate a maximum purchase price that would be lower than  
1930 world oil prices in the event that world oil prices pass a  
1931 specified threshold.

1932 I would also like to make a few comments regarding 526  
1933 of the Energy Independence and Security Act of 2007. The  
1934 primary policy issue raised by repeal of this section is  
1935 whether it is in the national interest to allow government  
1936 agencies to promote the production of alternative fuels to  
1937 have life-cycled greenhouse gas emissions that are  
1938 significantly higher than their petroleum counterparts. For

1939 example, repeal of this section would open the door to a  
1940 government procurement of coal-derived liquids produced  
1941 without any management of greenhouse gas emissions.

1942 As enacted, Section 526 places severe constraints on the  
1943 government's ability to purchase fuels. This is because  
1944 commercially-available fuels might contain certain amounts of  
1945 alternative fuels that fall under the prohibitions of that  
1946 section, as was mentioned by the Congressman from Texas.  
1947 Congress attempted to correct this problem in 2010, when it  
1948 enacted Public Law 111314, but the language of Section 3010  
1949 of that law is very unclear. Congress should consider  
1950 clarifying the meaning of that section.

1951 If the intent of Congress is to promote the early  
1952 production of alternative fuels with greenhouse gas emissions  
1953 that are comparable or very close and well within the  
1954 uncertainty of our petroleum imports, then Section 526 can be  
1955 appropriately amended. For example, an amendment could allow  
1956 government purchases of alternative fuels derived from coal  
1957 if 90 percent of greenhouse gasses produced during the  
1958 production process were captured and sequestered. Such a  
1959 provision would greatly simplify the ability of a coal-to-  
1960 liquids plant to qualify for government purchase contracts.

1961 My written testimony contains a section-by-section  
1962 review of the oil, shale, and coal-to-liquid provisions which

1963 I hope you will find useful.

1964 Thank you very much, sir.

1965 [The prepared statement of Mr. Bartis follows:]

1966 \*\*\*\*\* INSERT 6 \*\*\*\*\*

|  
1967           Mr. {Whitfield.} Well, thank you all for your opening  
1968 statements, and at this time I am going to call on Mr. Terry  
1969 for 5 minutes of questions.

1970           Mr. {Terry.} I appreciate that, Mr. Chairman.

1971           Mr. Auerbach, fulfilling my promise, but it is one of  
1972 the more intriguing aspects of the bill is reverse auctions  
1973 and clean energy. So in the context of Brazil, you said you  
1974 were going to tell us about Brazil, but put it in the context  
1975 of what also you think would positively and negatively work  
1976 in the United States to encourage more clean energy.

1977           Mr. {Auerbach.} Sure. Certainly provides greater  
1978 investment in clean energy infrastructure and the current  
1979 system we have of tax credits that expire every couple of  
1980 years has introduced uncertainty and has stymied deployment.  
1981 The reverse auction mechanism in Brazil, which came actually  
1982 I think it was last year, the year before that was, ``the  
1983 PROINFA feed-in tariff,`` at an average price for winds of  
1984 about \$136 a kilowatt. I am sorry. A megawatt hour.

1985           In the reverse auction process auctioning off 2.1  
1986 gigawatts of wind energy in a number of different contracts,  
1987 the average price bid was \$74.40 in U.S. dollar terms. That  
1988 came in below hydropower, which averages in Brazil about \$80  
1989 a megawatt hour. That is remarkable. Some have criticized

1990 the auction for allowing too many speculative bids, but if  
1991 you look at the list of winners, you see some of the largest  
1992 utility companies, companies that have very substantial  
1993 balance sheets and are capable of transacting. So I do  
1994 believe that the auction there has worked.

1995           And so the biggest difference between the Brazilian  
1996 auction and what is in this current program is that you sell  
1997 the power to the reverse auction agency rather than just one  
1998 attribute, and so in our proposal one way of solving the  
1999 chicken and egg problem associated with meeting a power  
2000 purchase agreement to establish credibility before  
2001 participating in the reverse auction to get the benefit  
2002 payment that substitutes for tax credit is to be able to sell  
2003 all the revenue streams through the reverse auction agency  
2004 that would be administering the purchase and sale of  
2005 electricity.

2006           So a renewable energy generator would have a price  
2007 certain for all of its attributes. The three income streams  
2008 are to sell the power itself, the sale of renewable energy  
2009 credits, which are a substantial portion of the revenue  
2010 stream of a renewable energy generator, and the benefit  
2011 payment that comes from the trust fund. And that would take  
2012 some work to get that innovation into the law and obviously  
2013 we would need bipartisan agreement, but I think it would

2014 actually streamline and dramatically increase the clean  
2015 energy generation in the United States.

2016 Mr. {Terry.} Does Brazil have a credit as well?

2017 Mr. {Auerbach.} I don't think so, but I would tell you  
2018 I would like to do more homework. I have researched, but we  
2019 don't have facilities in Brazil today. So I may be missing a  
2020 beat, but I have studied it, and I don't believe so. I think  
2021 it is just one price.

2022 Mr. {Terry.} So but in your testimony you mentioned  
2023 multiple revenue streams, one of which is the tax credit.

2024 Mr. {Auerbach.} Right.

2025 Mr. {Terry.} The philosophy I think that we are working  
2026 under is reverse auctions instead of credits.

2027 Mr. {Auerbach.} Correct, and so what I mean, let me  
2028 just make this as simple as I can because there is a lot of  
2029 complexity here. If--I actually have companies that have  
2030 several hundred billion dollars invested in clean energy  
2031 generation in the United States in development. What we want  
2032 to do is to know how much money we are going to make for the  
2033 sale of the electrons, and the way you get paid is through  
2034 the power purchase agreement, through the tax credits today,  
2035 and through renewable energy credits.

2036 And so that, the total of that revenue divided by the  
2037 capital costs and minus your funding costs is how much money

2038 we made, and so if the clean energy generator knows how much  
2039 money they are going to make and they can have that price  
2040 certain, then you are going to have more clean energy  
2041 generation because the market is determining it.

2042         The reverse auction mechanism is substituting a tax  
2043 credit for a benefit payment, which I believe is more  
2044 efficient on its own. So if the reverse auction only covered  
2045 substitute tax credit payments, we need to solve the chicken  
2046 and egg problem. There are other ways of solving it. Our  
2047 recommendation is to just--is to have a more organized sale  
2048 of renewable power through the reverse auction agency, which  
2049 I believe can be used for a broader purpose, including the  
2050 diversion of royalty payments into the trust fund and any  
2051 allocations to renewable energy generators.

2052         Mr. {Whitfield.} Mr. McKinley, I will recognize you for  
2053 5 minutes for questions.

2054         Mr. {McKinley.} Thank you, Mr. Chairman.

2055         I am just curious to get a sense of where we are in this  
2056 with the--if the bill was presented, would you support it?

2057         Mr. {Auerbach.} I would support it with modifications.  
2058 If we got the modifications that we asked for, I would  
2059 support it. As written it needs further work in order to  
2060 have its intended effect.

2061         Mr. {McKinley.} Thank you. Mr. Spencer?

2062 Mr. {Spencer.} I am not in a position to support or not  
2063 support legislation. I can say that I think that a lot of  
2064 the ideas and policies put forth certainly from a nuclear  
2065 standpoint really give us a new way to address some really  
2066 fundamental flaws in our we do nuclear energy and gives us a  
2067 future there.

2068 Mr. {McKinley.} Mr. Bartis.

2069 Mr. {Bartis.} I would rather not comment on that. I  
2070 haven't studied this.

2071 Mr. {McKinley.} I am just--I was curious because I  
2072 think at least he is showing some imagination here and  
2073 something that reflects a little bit on the use of coal, and  
2074 as I said to the earlier panel, my--I have come pretty  
2075 clearly to understand there is quite an aversion in  
2076 Washington and especially under this Administration to use  
2077 coal.

2078 Mr. {Bartis.} Well, there has been a long history of  
2079 Congress and the Administration specifying how to do thing as  
2080 opposed to what they goals are, and as we pointed out with  
2081 coal liquefaction, if we can do it with a small amount of  
2082 biomass and coal, gets you fantastic environmental benefits,  
2083 and it gets you very reasonable costs. And yet the way we  
2084 have structured some of our legislation, that option is not  
2085 allowed because as soon as it is coal involved, it doesn't

2086 meet the renewable.

2087           And so I think there is, you know, the goal of the  
2088 Congress should always be focused on, you know, what are you  
2089 trying to achieve. Are you trying to achieve energy  
2090 security, are you trying to achieve lower greenhouse gas  
2091 emissions? Use those as your goals, not specifying  
2092 technologies.

2093           Mr. {McKinley.} Do any of you know from the coal  
2094 industry whether the coal industry is subsidized? I hear  
2095 that all the time here. Panels, members of the other side of  
2096 the aisle talk about the subsidy on the coal industry. Do  
2097 any of you have any record at all of the subsidies on coal?

2098           None? Again, I am just curious because it seems like we  
2099 just keep chasing things down the stream. I won't use that  
2100 clique, but, again, we just don't seem to solve anything. We  
2101 are about--we get close to solving something. There was the--  
2102 --what was it, the Fischer-Tropsch process, it was--why aren't  
2103 we just back in the '30s, why aren't we just perfecting it  
2104 instead of taking on something new?

2105           And maybe it is--maybe I am being naïve about the whole  
2106 process. I am thinking as an engineer that we would complete  
2107 something instead of starting something new. It just seems  
2108 like this Administration and the whole process that we don't  
2109 have the energy policy, we don't have any plan to have an

2110 energy policy, everyone talks about it, but there is none.  
2111 And we are--we don't want to be held accountable. We seem to  
2112 be so much more filled here in Washington with symbolism that  
2113 we want to move symbolically to starting a new fuel process  
2114 and new energy when we have things that we could work.

2115 I can imagine if this would have been back in the  
2116 automobile industry if we had quit making the first  
2117 automobile and went with something else, but they kept  
2118 perfecting it until it became the automobile, the vehicle  
2119 that we use. Same thing with airplanes when they started in  
2120 the process. Why don't we finish it? Why don't we just--  
2121 what--is it the economics? Mr. Bartis?

2122 Mr. {Bartis.} No. Our discussions with organizations  
2123 that are interested in promoting and building plants is that  
2124 there is a residual concern regarding where the world oil  
2125 prices are heading, and we all, because they are high today,  
2126 we think they are going to stay high, and if you have got a  
2127 large investment to bet on that, you are going to be a little  
2128 bit more cautious.

2129 So there is downward potential that could last. It may  
2130 not be very long, but it could be downward potential, and  
2131 that would cause something like a coal-to-liquids plant to be  
2132 a disaster. And that is why we are talking about--in our  
2133 analysis we looked at incentives that the government could

2134 provide that would be applicable to the first few plants. We  
2135 don't like subsidizing production. We do think that there is  
2136 a government role in promoting early commercial experience,  
2137 and coal-to-liquids is one of those, coal and biomass to  
2138 liquids. That is environmentally clean is one of those  
2139 applications.

2140         Mr. {McKinley.} Thank you. Mr. Spencer, do you have  
2141 something you want to chime in?

2142         Mr. {Spencer.} Yeah, Congressman. I am here to talk  
2143 primarily about nuclear energy, but you have given me an  
2144 opportunity that I find hard to pass up. Given that when I  
2145 am not working on nuclear energy I work on energy subsidies  
2146 broadly, and I think the bigger issue here is what is the  
2147 role of government, and you talked about these projects that  
2148 have started and stopped. I would simply suggest that with  
2149 all due respect to all of the great men and women who have--  
2150 who work in this building and the one on the other side and  
2151 all of the great men and women and scientists who work down  
2152 at the Forsaw Building at the Department of Energy, that  
2153 ultimately it is the marketplace that is the best arbiter of  
2154 which of these technologies go forward and which ones don't.  
2155         And if coal to liquids is the way to go, then people  
2156 will invest in that and will do that. If energy prices are  
2157 going to stay high, then that creates a panoply of

2158 opportunity for biofuels, ethanol, whatever the case may be,  
2159 but we continue to use Washington and centralized control in  
2160 Washington to distort the marketplace, so we never get any of  
2161 these projects finished, rather than allowing and trusting  
2162 the marketplace. And ultimately it is the marketplace that  
2163 has given us all of the goods and services that we enjoy  
2164 today.

2165         Mr. {McKinley.} Thank you very much. I think I have  
2166 gone over my time.

2167         Mr. {Whitfield.} The gentleman from Kansas, Mr. Pompeo,  
2168 is recognized for 5 minutes.

2169         Mr. {Pompeo.} Thank you, Mr. Chairman.

2170         Mr. Auerbach, you talked about the increase in capital  
2171 flows into renewable--

2172         Mr. {Auerbach.} Yes.

2173         Mr. {Pompeo.} --energy. What drove that increase? You  
2174 said--I forgot the time period. The last couple of years?

2175         Mr. {Auerbach.} Yes. In the solar industry the last 6  
2176 years I am talking about. It was policies, government  
2177 policies around the world. Most of that actually was  
2178 happening in Europe with feed-in tariffs, the most notable of  
2179 them is in Germany, which despite its relatively poor solar  
2180 insulation conditions is the world's largest market for solar  
2181 energy. And it also resulted from improvements in

2182 technology, and several companies, many companies have  
2183 participated in that progress in the United States, in  
2184 Europe, and in China.

2185         So the cost of installed solar has dropped roughly about  
2186 75 percent over the last 5 years. When prices drop and they  
2187 are going to continue to drop, it stimulates demand, and  
2188 these feed-in tariffs which started out very, very high have  
2189 been coming down extremely quickly. I am not a personal  
2190 proponent of feed-in tariffs as the way to go because it is  
2191 another example where the government is setting the price  
2192 rather than the market, which is why I like Congressman  
2193 Nunes's reverse auction approach.

2194         But the combination of market stimulus, the price  
2195 signal, and technology progress has resulted in a  
2196 transformation of the solar industry unlike anything I have  
2197 seen in the energy industry over the course of my  
2198 involvement, and this would be for well over a decade.

2199         Mr. {Pompeo.} I appreciate that, and I, too, I think  
2200 the reverse auction is a step forward from the way we have  
2201 done business. I can't imagine putting hundreds of millions  
2202 of dollars at risk depending on us to renew a tax credit  
2203 every couple of years.

2204         Mr. {Auerbach.} It makes me nervous.

2205         Mr. {Pompeo.} Yes. I can only imagine the increase in

2206 the cost of capital that results from that.

2207 Mr. {Auerbach.} The cost of capital has gone up much  
2208 higher in the United States than anywhere else in the world  
2209 because of it.

2210 Mr. {Pompeo.} So with all of these improvements that  
2211 you described why not just say, hey, just go away? Why not  
2212 just tell us, go away, leave us alone, don't need a reverse  
2213 auction, we don't need a thing. Remove the regulatory  
2214 barriers that are in the way of all of these things whether  
2215 that is wind or solar or natural gas and coal, and we will  
2216 raise the money, and we will get it done, and we will make  
2217 money doing it. And make really happy consumers because they  
2218 will have affordable energy here in America.

2219 Mr. {Auerbach.} Okay. That is a great question, and  
2220 there are many who have suggested that. Let me in answering  
2221 that question, and I am sure my other panelists here will  
2222 have views on it. I will also touch on Mr. McKinley's point.  
2223 If you look at the history of federal expenditures in this  
2224 country, there has been an analysis actually done for the  
2225 Nuclear Energy Institute a couple of years ago. The vast  
2226 majority of federal expenditures have gone actually to fossil  
2227 fuels, something like 73 percent, including to the coal  
2228 industry.

2229 Now, I didn't do the study myself, so I can refer you to

2230 it, and so you can look at the source material I quoted in my  
2231 testimony. And so the renewable power industry is catching  
2232 up and is catching up as the chart shows at a pace that gives  
2233 us enormous confidence in the future. If you simply stop the  
2234 music and then force everyone to find their seats, it may be  
2235 that the wrong folks will not find a seat, you know, in the  
2236 room that otherwise would be the winners in a few years from  
2237 now.

2238           So what we need is smarter policies that allow market  
2239 mechanisms to work more efficiently. Stopping the music  
2240 right now and pulling all subsidies or all expenditures of  
2241 all sorts I think would increase the cost in the short term  
2242 rather than reduce the costs.

2243           So I think we need to do this in a more gradual way.

2244           Mr. {Pompeo.} I don't understand that. I don't  
2245 understand how if the government got out of the way it would  
2246 increase costs. You would still--because it would still find  
2247 the low-cost alternative, and utilities would power their  
2248 plants with the low-cost alternative, and more people would  
2249 go figure out how to make those curves come down even faster.

2250           Mr. {Auerbach.} Well, what the reverse auction does is  
2251 it actually allows the market, if the market doesn't need it,  
2252 the market will not be asking for it, and it will disappear  
2253 on its own, so it allows actually for a gradual move to full

2254 market freedom to set prices.

2255           So I think the reverse auction mechanism is the safer  
2256 way to get the same goal that I share.

2257           Mr. {Pompeo.} Yes. Very good. I yield back the  
2258 balance of my time, Mr. Chairman.

2259           Mr. {Whitfield.} Thank you. At this time I would  
2260 recognize the gentleman from Louisiana, Mr. Scalise, for 5  
2261 minutes.

2262           Mr. {Scalise.} Thank you, Mr. Chairman.

2263           I would start with Mr. Auerbach. On the reverse  
2264 auction, I know one thing that you talk about a lot of us get  
2265 frustrated with is when you see some trying to pick winners  
2266 and losers where government is trying to pick who is going to  
2267 win and who is going to lose.

2268           In a reverse auction can you maybe walk through some  
2269 things in that type of process that would prevent the Federal  
2270 Government from picking winners and losers?

2271           Mr. {Auerbach.} Okay. Yes. What the bill currently  
2272 provides is a division of regions and actually a division of  
2273 technologies. There what we are trying to do on the region  
2274 side is to allow various resources in the country to be  
2275 developed on their own. See, if you actually have one  
2276 national auction, a reverse auction, you might have South  
2277 Dakota taking all of the wind resource, but because it is a

2278 lack of transmission, you may never be able to evacuate that  
2279 power to California or New York or Chicago where you need it.

2280         And so a regional approach allows the realities of the  
2281 marketplace to work well, so I think it is a well-designed  
2282 piece of the legislation. What we also do is allow for--what  
2283 the legislation does it allow for technology limits, 60  
2284 percent, I think, to one technology, 90 percent for two, and  
2285 what that is doing there is saying that although wind today  
2286 is the cheapest form of renewable power generation,  
2287 ultimately because of these cost curves you want to induce  
2288 more competition and to see oil prices continue to come down.

2289         So the allocation of the auction among technologies I  
2290 think helps to push the price down of oil renewable power.

2291         Mr. {Scalise.} Thanks. One of the things we have been  
2292 hearing when you talk about impediments to expanding  
2293 renewable energy, it seems like some of the same things we  
2294 are hearing about impediments to developing some of our own  
2295 natural resources in America in traditional energy are  
2296 seeming to apply to renewable energy, and that is overreach  
2297 by the Environmental Protection Agency.

2298         Can you describe, especially as it relates to the long  
2299 process it takes for site selection, things like that, can  
2300 you describe what types of overreach you have seen?

2301         Mr. {Auerbach.} Yeah. Anecdotally, although I--we have

2302 a lot of development sites in California, it is well known,  
2303 for example, that it takes 2 to 3 years to actually develop a  
2304 wind farm in Texas, and it takes 5 to 8 years to develop a  
2305 wind farm in California. I don't think it is the EPA that  
2306 stands in the way. It is a lot of State environmental red  
2307 tape that delays the pace of development in California in  
2308 particular. But California has actually--recently has been  
2309 showing more progress.

2310         And so environmental red tape is actually a problem for  
2311 the renewable power industry, and so more accelerated  
2312 permitting would allow, both on federal lands and also on  
2313 private lands, would for faster deployment of renewables and  
2314 cheaper deployment of renewables.

2315         Mr. {Scalise.} Thanks. Mr. Bartis, talking about more  
2316 opportunities for permitting for natural resources, I know  
2317 one of the frustrations that we have in the Gulf Coast area  
2318 is the inability to get clear guidelines from the Department  
2319 of Interior, BOEM, to move forward but also with the  
2320 inability to get more areas opened up. When you talk to  
2321 other States, it seems like there are a number of other  
2322 States interested in getting into the game and helping  
2323 produce American energy, and you know, it surely would be my  
2324 goal to see us eliminate our dependence on Middle Eastern  
2325 oil.

2326           Clearly, we have the capacity to do that with so many  
2327 reserves that are completely shut off by federal policy, but  
2328 if you can talk maybe about some incentives that could be  
2329 provided that you know of that would encourage States to  
2330 participate where maybe they are not right now.

2331           Mr. {Bartis.} That is a tough question. There is a  
2332 lot, you know, from what we know there is a lot of offshore  
2333 oil that other States have, and the challenge is to move  
2334 forward successfully. We know we have a tremendous amount of  
2335 oil shale as addressed today, literally three times the  
2336 reserves of Saudi Arabia, that look very attractive. We need  
2337 to make some progress there. The only way to get progress is  
2338 to get some more experience, and that means we got to allow  
2339 people, give industry enough incentive, a big enough reward  
2340 so that if they go in there and figure out how to do this,  
2341 and thereby monetize this huge resource that we have as a  
2342 Nation and to our benefit, you know, they will move.

2343           Mr. {Scalise.} What is your take on increased revenue  
2344 sharing to States who want to participate?

2345           Mr. {Bartis.} The revenue sharing, I mean, I can't  
2346 comment on the revenue, I mean, the revenue sharing. I don't  
2347 want to comment on that. I think there is already revenue  
2348 sharing as you are aware, and I don't--we have not looked at  
2349 whether--

2350 Mr. {Scalise.} Well, we don't--I know in Louisiana we  
2351 don't have any revenue sharing right now. It is not until  
2352 2017, that--

2353 Mr. {Bartis.} Right.

2354 Mr. {Scalise.} --but it seems like there are a number  
2355 of other States that have--

2356 Mr. {Bartis.} It depends. Yes. Yes.

2357 Mr. {Scalise.} If revenue sharing was involved where  
2358 they can provide a stream of revenue to their State, there  
2359 would be a big stream of revenue to the Federal Government as  
2360 well, it seems like kind of a win-win to encourage more--

2361 Mr. {Bartis.} Yeah. I--we haven't looked at that, and  
2362 I shouldn't be commenting on things that we have--

2363 Mr. {Scalise.} I don't know if anybody else wants to  
2364 comment on that.

2365 All right. I yield back. Thanks.

2366 Mr. {Whitfield.} The gentleman from California, Mr.  
2367 Bilbray, is recognized for 5 minutes.

2368 Mr. {Bilbray.} Thank you. Mr. Chairman, I apologize. I  
2369 was downstairs at my other committee looking at government  
2370 regulations that are obstructing economic growth, so I think  
2371 we are sort of in a lot of ways looking at the same problems  
2372 from different angles.

2373 First of all, being a history major, I want to go back

2374 and remind all of us that the oil industry was the  
2375 environmental option to the oil, I mean, from the previous  
2376 oil was the whaling industry that provided the energy to  
2377 light our lights. And the fact that the gasoline was just a  
2378 waste product from the manufacturing of the--and so the whole  
2379 concept of driving a car that was driven by gasoline was  
2380 really just because we had all this, you know, dangerous  
2381 stuff around as a bi-product, a waste product, and develop  
2382 that.

2383         So I think it kind of tells us how innovative Americans  
2384 can be and the human mind can be confronted with an  
2385 opportunity and a problem, and now it is this huge, precious  
2386 resource rather than trash from, you know, leftovers, and how  
2387 do we move forward with it.

2388         The other assumption I want to point out is would  
2389 everybody here agree with the concept that we need a  
2390 Manhattan Project for our energy independence? We keep  
2391 hearing that. You know, my biggest frustration about it is  
2392 somebody has been in a regulatory agency one way or the other  
2393 since 1976. Manhattan Project wouldn't be legal today.  
2394 Would not be legal to do it today and every time I just ask  
2395 anybody, anybody brings that up, we need to confront that.

2396         My question is when we look at these obstructions that  
2397 the government, one way or the other, is standing in the way

2398 of, while we are talking about why aren't we doing innovative  
2399 things, the fact is we require people to stay in a box, and  
2400 we complain about them staying in a box.

2401         You mentioned California. In fact, you may want to talk  
2402 about this. We talk about how wind generation is so  
2403 efficient, but do we talk about the fact that it needs  
2404 transmission lines that are usually three times farther than  
2405 traditional power and the obstructionism and let me give you  
2406 the sun link. You know that one. It is twice to three times  
2407 as long as it would have been if the Federal Government would  
2408 have allowed the transmission lines to go over federal  
2409 jurisdiction. No Indian reservation, no national park, but  
2410 the freeways go through. Do you want to comment on the fact  
2411 that it is okay to put a freeway through federal property but  
2412 not a transmission line to get to solar power?

2413         Mr. {Auerbach.} Sure. I can't pass up that  
2414 opportunity, Congressman.

2415         I am concerned obviously. I am in the clean energy  
2416 business. I am concerned with the environment, but  
2417 ultimately everything is cost benefit, and the amount of time  
2418 and energy and money that renewable energy development teams  
2419 have to expend on figuring out how to get transmission to  
2420 load centers from the wind resource basically it prevents a  
2421 lot of renewable energy from being built that could be both

2422 environmentally beneficial and also cost effective.

2423           Mr. {Bilbray.} Give me an example. California  
2424 implemented AB 32, talked about saving the planet, thought it  
2425 was so important to be able to save the planet, but all those  
2426 regulations and all those mandates but did not exempt it from  
2427 CGWA, the California Environmental. Didn't think it was  
2428 important enough to exempt it from CGWA because, oh, they  
2429 couldn't retreat on that.

2430           At the same time my colleague from California will  
2431 remind you they did exempt the football stadium in the City  
2432 of Industry from CGWA but not the implementation of AB 32.

2433           Can we agree that we should get away from the term,  
2434 renewable, and go to clean technology or sustainable  
2435 technology? I mean, words matter, and one of the things that  
2436 frustrates me is to hear almost as if renewable is a catchy  
2437 catchword but really doesn't reflect the reality.

2438           Can we talk about the changing of those terminologies?

2439           Mr. {Auerbach.} Could I just--

2440           Mr. {Bilbray.} Go ahead.

2441           Mr. {Auerbach.} --address that quickly? Well, first of  
2442 all, the name of my firm is Hudson Clean Energy Partners. I  
2443 had the choice to name it renewable, and so I wanted a  
2444 broader platform, and so I agree with the term clean.

2445           I would like, however, to just note that renewable

2446 energy, the resources themselves are also natural resources  
2447 that are part of our national treasure. So the sun that is  
2448 shining in Southern California and the wind that is blowing  
2449 across the Plain States are natural resources for this  
2450 country that are worth trillions of dollars.

2451 Mr. {Bilbray.} Okay, but here is the point. To get  
2452 into that, when somebody talks about electric fleets, when we  
2453 talk about developing efficient wind generation, we are  
2454 talking about permanent magnet DC motors and generators.  
2455 Okay? At that time we talk about that, but we don't talk  
2456 about the fact that if we are going to go to electric system,  
2457 if we are going to have wind power, we are going to have  
2458 efficient electricity, we have got to have rare earth, 70  
2459 pounds for every Prius, and you know what your wind  
2460 generates, but we are not talking about that the Federal  
2461 Government will not allow private industry to go onto public  
2462 lands and mine the rare earth that is essential to do all the  
2463 things that everybody else--and we sit through these  
2464 committees and hear colleagues talk about all these great  
2465 plans, but they are not willing to allow the process to be  
2466 legal to reach those goals. Things like rare earth, which is  
2467 98 percent coming from China.

2468 Mr. {Auerbach.} It is only 98 percent or 95 percent of  
2469 the production, not of the resource itself. The United

2470 States has plenty of resources. I agree with what the  
2471 Congressman is saying. If we are going to develop more clean  
2472 energy and use technologies that are now commercially  
2473 available and coming down rapidly in cost like electric cars,  
2474 we need to have a resource strategy, and it has to be  
2475 domesticated more than it is today.

2476 Mr. {Bilbray.} Mr. Chairman, I appreciate that, and  
2477 just to point out that the Prius are actually, the Toyota is  
2478 actually designing now an AC motor, which is a lot less  
2479 efficient than the permanent magnet DC motor, just because of  
2480 the threat of not being able to get the rare earth material,  
2481 and we get into it.

2482 And I apologize. I didn't get a chance to get in  
2483 nuclear power. I think that we need to be looking at nuclear  
2484 power and moving it like we did on interstate freeways where  
2485 the Federal Government has engaged, and DOD should be looking  
2486 at sighting facilities so that we can get the private sector  
2487 doing what we do with freeways, not sighting, not permitting,  
2488 but building them after we go through the hoops, the  
2489 regulatory hoops, and if we are not brave enough to go  
2490 through those regulatory hoops, we should forget about the  
2491 concept of being able to tap into this clean and cost-  
2492 effective energy.

2493 Yield back, Mr. Chairman.

2494 Mr. {Whitfield.} Mr. Bilbray, I think we are going to  
2495 adopt a policy of giving you 10 minutes for your questions.

2496 Mr. {Bilbray.} I apologize.

2497 Mr. {Whitfield.} Mr. Auerbach, I noticed in your  
2498 testimony you made the comment that a focused effort should  
2499 be made on making the U.S. a more welcome home for clean  
2500 energy manufacturing, and I was just wondering what  
2501 specifically would you be referring to?

2502 Mr. {Auerbach.} Well, yes, thank you. If we would  
2503 provide longevity to the system incentivizing deployment,  
2504 manufacturing will come to roost in the United States. The  
2505 problem with the current system and my personal problem is  
2506 having to approve manufacturing facilities and generation  
2507 facilities is that we have to look at the clock, and when the  
2508 clock runs out every couple of years on the system for  
2509 providing centers at the federal level, which are still today  
2510 a necessary component but are--and through reverse auctions  
2511 will become a decreasing part of the calculus, it makes it  
2512 hard to stimulate capital deployment that needs a multi-year  
2513 payback.

2514 And so if we can have a reverse auction mechanism that  
2515 longevity and was taken out of an annual appropriations, then  
2516 capital committers around the world would look to how to  
2517 streamline the value chain to put in place in the United

2518 States those parts of the value trade that are going to  
2519 actually help lower the cost of clean energy in the United  
2520 States.

2521 Mr. {Whitfield.} So you are primarily talking about  
2522 incentives and more certainty on those types of programs?

2523 Mr. {Auerbach.} The best thing that we can do to get  
2524 more capital flowing because the private sector, we are now  
2525 in our portfolio companies building two manufacturing  
2526 facilities in the United States, and there are many other  
2527 manufacturers that would actually reopen plant for value  
2528 trade components that have actually been shuttered today--

2529 Mr. {Whitfield.} Uh-huh.

2530 Mr. {Auerbach.} --and build new ones if they knew that  
2531 this industry had a home for a multi-year period that was  
2532 more market based.

2533 Mr. {Whitfield.} And what would the impact if--Mr.  
2534 Nunes talked about the Ways and Means was looking at  
2535 eliminating all tax credits and incentives, and Mr. Pompeo  
2536 made some reference to that. If that actually happened, how  
2537 would that affect your company?

2538 Mr. {Auerbach.} As I indicated to Mr. Pompeo in--  
2539 because he asked me that in a question, my preference as a  
2540 policy matter is to see this being done carefully. Billions  
2541 and billions of dollars of capital are already at work, and

2542 hundreds of billions of dollars are also looking to be  
2543 deployed, and so I think Congress needs to move very, very  
2544 carefully, and so by making any radical move, by, for  
2545 example, terminating tax credits that have a statutory life  
2546 and terminating them early, I think that it would have a  
2547 deleterious affect on capital. It would cause the stock  
2548 prices of public companies to fall, it would strand capital  
2549 investment, it would cause loss of jobs in the United States.

2550         If we do so in a thoughtful, gradual way, as I think is  
2551 the crux of the reverse auction mechanism in H.R. 909, I  
2552 think that we will have the opposite affect of actually  
2553 encouraging more capital to come into the United States to  
2554 find it a more secure home.

2555         Mr. {Whitfield.} Do you invest in--does your venture  
2556 capital firm invest in nuclear energy?

2557         Mr. {Auerbach.} We don't. We are not prohibited from  
2558 doing so, but for reasons that are--have been made pretty  
2559 clear to capital committers it is not a very easy place to  
2560 commit capital at least for 10-year time periods.

2561         Mr. {Whitfield.} Mr. Spencer, you in your testimony  
2562 talked about Mr. Nunes's legislation providing a second  
2563 permitting mechanism for nuclear energy. Would you explain  
2564 just briefly what that is, how that would work--

2565         Mr. {Spencer.} Sure.

2566 Mr. {Whitfield.} --and why it is better?

2567 Mr. {Spencer.} Yeah. The current process allegedly  
2568 takes 4 years. It has never happened yet, and each time we  
2569 get close it seems to not happen again, but what the roadmap  
2570 does it sets up a 2-year timeframe that if the applicant  
2571 meets certain conditions, they are building on or adjacent to  
2572 an existing site, if you are--if you have a reactor that is  
2573 fully certified, and there are a number of others, then you  
2574 get to enter into this separate track that gives a more  
2575 efficient or consolidated review of the environmental and  
2576 technical aspects of the application.

2577 It is a tight time scale, but it is one that I think, a  
2578 lot of experts think is doable if we establish that path, and  
2579 that would give certainty, would allow us to get through more  
2580 applications, and quite frankly, I think provide competition  
2581 within the regulatory environment to demonstrate that you  
2582 need to start getting these things done. Otherwise we are  
2583 going to do it a different way.

2584 Mr. {Whitfield.} Now, are you optimistic about these  
2585 smaller-type nuclear plants that sometimes people refer to as  
2586 modular or whatever?

2587 Mr. {Spencer.} I think--I am optimistic that the  
2588 technology can be applied commercially in the future  
2589 extraordinarily, economically, and efficiently in all that.

2590 I am less optimistic that the policies that have been  
2591 proposed will get us there. What we see is the  
2592 Administration and proponents of small modular reactors, what  
2593 they want is a Department of Energy program where the DOE  
2594 essentially chooses the one or two technologies that go  
2595 forward to be licensed.

2596 I think that is the wrong approach frankly. You have a  
2597 lot of entrepreneurs out there spinning off technology,  
2598 spinning off commercial enterprises. What is they are not  
2599 one of the two that are chosen? I would suggest that it is--  
2600 the market is the better arbiter of that.

2601 Instead of going through the Department of Energy I  
2602 would suggest we get the Nuclear Regulatory Commission really  
2603 geared up to be able to support this sort of activity so that  
2604 if people want to go down that road, then, you know, we have  
2605 the Regulatory support to do that.

2606 Mr. {Whitfield.} Yes, and Mr. Bartis, you mentioned  
2607 Fischer-Tropsch. Other than South Africa where is the  
2608 Fischer-Tropsch technology being used today?

2609 Mr. {Bartis.} It is--the Fischer-Tropsch technology is  
2610 used in--most recently it has been built up in Qatar in the  
2611 Persian Gulf. They are going to have about 170,000 barrels  
2612 per day of production online this year. The technology is  
2613 very up to date, but that is an application to natural gas.

2614 In our country the only place that might make sense is in  
2615 Alaska because that gas in Alaska, no one is going to pipe  
2616 back to this, to the Continental--there are over 48 anymore  
2617 because of all the shale gas. So we have got stranded gas up  
2618 there.

2619 Applying it to coal is not a big deal, and we have got  
2620 one for building, scheduled to build a plant and pretty far  
2621 along in Wyoming. They are not going to be using Fischer-  
2622 Tropsch. They are going to be using a variant of Fischer-  
2623 Tropsch called--that the Mobil Oil Company invented, and--but  
2624 it is very much the same.

2625 But that is the only--and they are going to be producing  
2626 gasoline. They are not going to be producing fuels that  
2627 would be of interest to the military.

2628 Mr. {Whitfield.} Thank you. Mr. Gardner, you are  
2629 recognized for 5 minutes.

2630 Mr. {Gardner.} Thank you, Mr. Chairman. I just got  
2631 back from the hearing downstairs, so I will defer at this  
2632 point.

2633 Mr. {Whitfield.} Well, I guess that concludes today's  
2634 hearing. I want to thank the three of you for coming in and  
2635 giving us your views and opinions which we certainly will  
2636 take into consideration as we move forward, and we look  
2637 forward to working with you in the future. Thank you very

2638 much.

2639           The record will remain open for 10 days for any  
2640 additional material or testimony that anyone would like to  
2641 offer, and with that this concludes today's hearing.

2642           [Whereupon, at 11:39 a.m., the Subcommittee was  
2643 adjourned.]