

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF VERMONT

GREEN MOUNTAIN CHRYSLER- *
PLYMOUTH-DODGE, et al. *
*
THE ASSOCIATION OF *
INTERNATIONAL AUTOMOBILE *
MANUFACTURERS *
*
V *
*
GEORGE CROMBIE, Secretary *
of Vermont Agency of *
Natural Resources, et al. * Civil File No. 05-302 & 304

TRIAL BY COURT
Friday, May 4, 2007
Burlington, Vermont

WITNESSES:
Barrett Rock
John R. Christy

BEFORE:

THE HONORABLE WILLIAM K. SESSIONS III
Chief District Judge

ANNE E. NICHOLS
Registered Professional Reporter
United States District Court
Post Office Box 5633
Burlington, Vermont 05402
(802) 860-2227

APPEARANCES:

ROBERT B. HEMLEY, ESQ. and MATTHEW B. BYRNE, ESQ.,
Gravel and Shea, 76 St. Paul Street, Burlington,
Vermont; Attorneys for Plaintiffs (CV 05-302)

ANDREW B. CLUBOK, ESQ., STUART A.C. DRAKE, ESQ.,
MICHAEL E. SCOVILLE, ESQ. and STACEY BENNETT,
ESQ., Kirkland & Ellis, LLP, 655 Fifteenth
Street, N.W., Washington, D.C.; Attorneys for
Plaintiffs (CV 05-302)

DEBRA L. BOUFFARD, ESQ., Sheehey, Furlong & Behm,
P.C., 30 Main Street, Burlington, Vermont;
Attorneys for Plaintiffs (CV 05-304)

CHARLES H. HAAKE, ESQ. and RAYMOND B. LUDWISZEWSKI,
ESQ., Gibson, Dunn & Crutcher, LLP, 1050
Connecticut Avenue, NW, Washington, D.C.;
Attorneys for Plaintiffs (CV 05-304)

JULIE C. BECKER, ESQ., Alliance of Automobile
Manufacturers, 1401 Eye Street, NW, Suite 900,
Washington, D.C.; Attorneys for Alliance of
Automobile Manufacturers

SCOT L. KLINE, ESQ. and KEVIN O. LESKE, ESQ.,
Vermont Attorney General's Office, Environmental
Unit, Pavilion Office Building, 109 State
Street, Montpelier, Vermont; Attorneys for the
State of Vermont

BRADFORD W. KUSTER, ESQ., Conservation Law
Foundation, 15 East State Street, Montpelier,
Vermont; Attorney for CLF

Continued.....

ANNE E. NICHOLS
Registered Professional Reporter
United States District Court
Post Office Box 5633
Burlington, Vermont 05402
(802) 860-2227

APPEARANCES CONTINUED:

DAVID BOOKBINDER, ESQ., Sierra Club, 408 C Street,
NE, Washington, D.C.; Attorney for CLF

MATTHEW F. PAWA, ESQ., BENJAMIN A. KRASS, ESQ. and
MARK R. RIELLY, ESQ., Law Offices of Matthew F.
Pawa, P.C., 1280 Centre Street, Suite 230,
Newton Centre, Massachusetts; Attorneys for
Defendant-Intervenors

JAMES T.B. TRIPP, ESQ., Environmental Defense, 257
Park Avenue South, 17th floor, New York, New
York; Attorney for Defendant-Intervenors

*** ** ***

ANNE E. NICHOLS
Registered Professional Reporter
United States District Court
Post Office Box 5633
Burlington, Vermont 05402
(802) 860-2227

I N D E X
E X A M I N A T I O N

WITNESS NAME	PAGE	LINE
BARRETT N. ROCK		
Direct by Mr. Rielly	7	13
Cross by Mr. Byrne	39	6
Redirect by Mr. Rielly	59	12
JOHN R. CHRISTY		
Direct by Mr. Clubok	65	7
Voir Dire by Mr. Pawa	78	18
Direct by Mr. Clubok	82	4
Cross by Mr. Pawa	128	2

E X H I B I T S

DEFENDANT'S DESCRIPTION	IN EVIDENCE
2297 NERA 2001: Preparing for a Changing Climate	39
2298 NERA 2001: Preparing for a Changing Climate	39
2303 Wake report	39
PLAINTIFF'S DESCRIPTION	IN EVIDENCE
1188 Peer-review article - Christy	125
1193 Christy resume	77
1205 Peer-review article - Christy	127
1210 Peer-review article - Christy	127

I N D E X

	PLAINTIFF'S DESCRIPTION	IN EVIDENCE
118	1240 Underlying article supporting info in PX 1258	
	1251 Summary of Christy's opinions	87
	1252 Temperature change	97
103	1253 Impact of regulations on global surface temperature	
	1255 Sea level change	113
112	1256 Seasonal summer temperature in Greenland	
	1258 Antarctic ice sheet snowfall growth	118
124	1259 SE surface temperature trend 1895-2003	
	1260 Peer-review article - Christy	127
	1261 Peer-review article - Christy	127
	1262 Peer-review article - Christy	127
107	1265 Impact of regulations on global surface temperature written on in court	

1 evidence.)

2 MR. CLUBOK: And, your Honor, at this time we
3 would like to offer Dr. Christy as an expert in climate
4 science.

5 THE COURT: Any objection?

6 MR. PAWA: No. But we do contest that he
7 is -- he would be -- we think he is not an expert in
8 radiative forcing, sea level rise, and he is not a
9 climate modeler. If that's agreeable to the plaintiffs,
10 then we are okay.

11 MR. CLUBOK: I think to the extent those
12 subjects are covered by Dr. Christy's expertise in
13 climate science, then I think that will become evident
14 as we go forward.

15 MR. PAWA: I have some voir dire then.

16 THE COURT: Okay.

17 MR. CLUBOK: Okay.

18 VOIR DIRE EXAMINATION

19 BY MR. PAWA:

20 Q Dr. Christy, you are not a climate modeler, are
21 you?

22 A I do not build climate models.

23 Q And you indicated in your deposition you are not a
24 climate modeler, correct?

25 A I think the question was a climate modeling expert.

1 Q Right.

2 A Right. I said, the way I understand an expert, I
3 would not call myself a climate modeling expert.

4 Q Okay. And you also said that you are not an expert
5 in radiative forcing, correct?

6 A I don't recall that one.

7 Q All right. We are going to show you a piece of
8 your deposition, not on video but on paper.

9 THE COURT: Mr. Pawa, how long do you
10 anticipate the voir dire to go? Perhaps we should take
11 a break at this point while you are getting the
12 deposition.

13 MR. PAWA: That's fine. It would be short,
14 but that's fine.

15 THE COURT: Okay. All right. Let's take our
16 break at this point and be back in 15 minutes.

17 (Court was in recess at 10:02 a.m.)

18 (The following was held in open court at 10:20 a.m.)

19 THE COURT: Well, I'm sorry to interrupt the
20 social time. Apparently.

21 MR. CLUBOK: We are getting along better and
22 better, your Honor.

23 BY MR. PAWA:

24 Q Dr. Christy, I am going to show you your deposition
25 transcript.

1 THE COURT: That's good.

2 MR. PAWA: May I approach the witness?

3 THE COURT: Yes.

4 Q If you would please look at page 77 of your
5 deposition transcript, and you see there was a question
6 beginning on line 15?

7 A I'm sorry, you said page 77?

8 Q Yes, sir.

9 A Yes.

10 Q You with me? And your answer -- we can read the
11 question if you want, but your answer, was it not, that
12 "the radiative impact of a particular gas is not
13 specifically in my field. I do not study that
14 directly." That was part of your answer; then you
15 talked about something else. Is that right?

16 A That's my answer evidently.

17 Q And that was a true statement, was it not, Dr.
18 Christy?

19 A Yes, in the way I understand it.

20 Q All right. And look, if you would, please, at page
21 78, as well.

22 A Yes.

23 Q And if you would look at lines 10 through 16?

24 A Yes.

25 Q Okay. And read, if you would, lines 10 through 16,

1 please, the question and the answer.

2 A Question: The rate of increase in radiative
3 forcing is very likely to have been unprecedented in
4 more than 10,000 years, correct?

5 Miss Bennett: Objection as to form.

6 Answer: Again, on this statement, I do not study
7 that topic specifically. There are -- that is probably
8 true.

9 Q All right. And that was a true statement, your
10 answer?

11 A In the way I understand it, yes.

12 Q Okay. Thank you. And then one more. If you would
13 look, please, at page 88, Dr. Christy.

14 A Yes.

15 Q And directing your attention to line 15. You see,
16 you used the words "theories of which I don't keep track
17 of"?

18 A Yes.

19 Q Okay. Now there was kind of a long question and
20 answer there but that referred to theories about what
21 causes sea level rise, did it not?

22 A Yes.

23 MR. PAWA: No further voir dire, your Honor.

24 THE COURT: Okay? Do you want to respond to
25 the voir dire?

1 MR. PAWA: Yes, thank you.

2 CROSS EXAMINATION

3 BY MR. PAWA:

4 Q Hello, Dr. Christy.

5 A Hello.

6 Q When did you first become a part of the IPCC?

7 A I believe it was in about 1991. I was part of the
8 group that wrote the supplemental. It was produced in
9 1992.

10 Q And at what point did you take a lead role in the
11 IPCC?

12 A I was asked to be a lead author, I believe it was
13 1998 for the 2001 assessment.

14 Q And do you have any information about how you came
15 to have a lead role, in or about the time period of
16 2001?

17 A One of the -- the IPCC is essentially headquartered
18 in England, and that was in Bracknell at that time. The
19 IPCC had requested all the countries in the world to
20 submit names for authorship. As it turned out, the --
21 this is what I was told by one of the heads of the group
22 there; that my name was not on the list from the United
23 States, and they determined in England that they had to
24 have me on there because I was the expert, in their
25 opinion, about what upper air temperatures were and they

1 wanted to have a section in that chapter on that. So
2 the IPCC headquarters selected me to join the group.

3 Q Do you have any knowledge as to whether or not in
4 2001, Exxon Mobil advocated that you take a greater
5 leadership role in the IPCC?

6 A I remember someone sent me a memo, I think it was
7 after the IPCC was over, but I'm not sure about that.
8 It was a blank piece of paper -- well, not a blank piece
9 of paper, but there were no source of information on it.
10 And I believe my name was among some others in there
11 that said -- and I can't remember what it said actually,
12 but my name was on one of the pages.

13 Q I am showing you what's been marked as Defendants'
14 Exhibit 2710. This is a fax from Randy Randall at Exxon
15 Mobil to the counsel on environmental quality at The
16 White House. Is this the document you are referring to?

17 A I haven't found my name yet.

18 Q Last page.

19 A Yes.

20 Q Do you have any knowledge as to why, as reflected
21 on the last page of this document, Exxon Mobil was
22 recommending that you be a lead on the science for the
23 balance of the IPCC process, to The White House?

24 A I have no knowledge of where this came from.

25 Q Did you communicate with Exxon Mobil about this?

1 A Randy Randol, whom you mentioned, was from Exxon
2 Mobil? Had attended some of my presentations, and I had
3 met him at probably two or three of those, and so he
4 would know me from those presentations.

5 Q Did you communicate with him by e-mail or phone or
6 anything about this issue?

7 A No. I do not know -- in fact, I can't remember who
8 sent this to me, but I believe it was someone in the
9 government, when I saw it the first time.

10 Q All right. Do you have any idea why Exxon Mobil
11 would want you, of -- of all the scientists in the
12 world, and perhaps these other people, Dr. Lindzon, et
13 cetera, to play a more prominent role in the IPCC?

14 A They never told me.

15 Q And you don't have any information on that topic?

16 A No, I don't.

17 Q Do you know what Exxon Mobil's position is on
18 global warming?

19 A At that time, in 2001, I believe -- I can't
20 remember his name, but the president was fairly
21 outspoken about thinking climate change was a relatively
22 minor issue; you know, would threaten their business,
23 something like that.

24 Q You mentioned, Dr. --

25 THE COURT: I'm sorry, the president --

1 THE WITNESS: Of Exxon Mobil.

2 THE COURT: Oh, all right.

3 THE WITNESS: I can't remember his name, but I
4 remember seeing some OP-ED pages in magazines or
5 something where he was outspoken about global warming.

6 Q You mentioned in your direct examination by Mr.
7 Clubok, Dr. Roy Spencer, correct?

8 A Yes.

9 Q And he works for you?

10 A You need to understand how university -- I can't
11 tell anybody how to do anything at the university. He
12 is --

13 THE COURT: They have tenure, you mean?

14 THE WITNESS: He doesn't have tenure but still
15 goes.

16 A He is a principal scientist in my organization. He
17 writes his own proposals, wins his own money, and is
18 able then to function as a scientist on his own. I am
19 his supervisor in terms of director of that center.

20 Q All right. And you know that he writes articles
21 for a website called tcsdaily.com, correct?

22 A That is correct.

23 Q And you know that that is a website that's
24 sponsored in part by Exxon Mobil, correct?

25 A Yes. That's right.

1 Q And he is paid for those articles; is that right?

2 A He told me he is paid for articles that do not
3 involve the science that we do.

4 Q All right.

5 A You know, he has many opinions on a lot of
6 things -- academics do that, you know -- and so he is
7 able to write about his opinions on that website.

8 Q And is it acceptable to you, as an academic
9 researcher at a university setting, to have someone who
10 works for you moonlighting writing website articles for
11 an Exxon Mobil-sponsored website?

12 A As his director, he performs extremely well for me
13 in his job. I don't tell him what to do when he goes
14 home.

15 Q So that's acceptable?

16 A I have no other way to answer it than I have no
17 control over what he does when he goes home.

18 Q All right. You and Dr. Spencer publish articles
19 together on global warming, correct?

20 A We publish scientific papers on global warming. Or
21 observations thereof.

22 Q And tcsdaily.com expresses an industry view of the
23 topic of global warming, does it not, Dr. Christy?

24 A I agree they have an industry view.

25 Q Thank you. Dr. Christy, you have -- also did a

1 number of speaking engagements at organizations that
2 advocate a free market philosophy; is that right?

3 A Yes, that's right.

4 Q At the Center for Science and Public Policy; is
5 that right?

6 A I don't believe there's a place called the Center
7 for Science and Public Policy. They're a little
8 think-tank, and what they do is arrange for briefings on
9 the Hill for staffers, and so on, about issues that are
10 important to them.

11 Q And you have attended those meetings?

12 A I have spoken at maybe two or three.

13 Q All right. And the Competitive Enterprise
14 Institute, you have also spoken at their meetings and
15 briefings on the Hill, correct?

16 A Yes. That is correct.

17 Q And you have published a book chapter for the
18 Competitive Enterprise Institute in a book titled Global
19 Warming and Other Eco Myths, correct?

20 A Yes, that's true. It's a funny story about that
21 title.

22 Q And is global warming an eco myth?

23 A No, it's not.

24 Q You have spoken at The Independent Institute, have
25 you not?

1 A I don't know where The Independent Institute is.
2 So I have not been there. But you --

3 Q I beg your pardon. You attended a press conference
4 for The Independent Institute, correct?

5 A The Independent Institute sponsored a press
6 conference in which I presented some of my scientific
7 research.

8 Q And, for both CEI, Competitive Enterprise
9 Institute, and The Independent Institute, they are both
10 free-market type entities; is that right?

11 A Yes. In my opinion, that would be a fair
12 characterization.

13 Q All right. And your bio is available on The
14 Independent Institute's website, is it not?

15 A I don't know where The Independent Institute
16 website is. So I have never seen it.

17 Q Do you recall at your deposition I showed you a
18 copy of your bio from The Independent Institute's
19 website?

20 A Actually, I don't recall.

21 Q I am showing you what's been marked as Defendants'
22 Exhibit 2711. Dr. Christy, does this refresh your
23 recollection as to whether or not your bio appears on
24 The Independent Institute's website?

25 A It appears to have been there, yes, in 2003. They

1 put something up there.

2 Q And, you have written an article, as well, have you
3 not, for an organization called The Fraser Institute,
4 entitled Evidence from the Satellite Record?

5 A I wrote an article that -- I think appeared -- was
6 it an article or chapter, maybe, in a small book that
7 they published.

8 Q And that was a nonpeer-reviewed publication, was it
9 not?

10 A That's right.

11 Q And these organizations we have been discussing,
12 Fraser, Independent Institute, Competitive Enterprise
13 Institute, Center for Science and Public Policy, all
14 receive funding from Exxon Mobil; is that correct?

15 A I did not know that until you showed me the
16 evidence at the deposition.

17 Q And you have no reason to disbelieve that, do you?

18 A No, I don't have any reason to disbelieve that.

19 Q Now your particular area of expertise over the
20 years, and as we sit here today, has been measuring
21 temperature in the troposphere, correct?

22 A Measuring temperature in many places, but the
23 troposphere is one place.

24 Q And the troposphere is?

25 A The troposphere, strictly speaking, goes up to

1 about eight, 10 miles, but one of the products we
2 produce is a layer in the troposphere that is from the
3 surface to about five miles, or where jet aircraft fly.

4 Q All right. And you have been using satellite data
5 over the years to measure the temperature of the
6 troposphere; is that correct?

7 A That's correct.

8 Q That's your particular specialty?

9 A That's one of them, yes.

10 Q And I am going to show you a document from the
11 IPCC, the fourth assessment report, working group one:
12 Summary for Policymakers from 2007. This is document
13 Defendants' Exhibit 2712. And I am just going to read
14 to you a piece of this from page five; if you turn,
15 please, to page five.

16 Directing your attention to the first bullet point
17 on the right-hand column at the top. Would you read
18 that statement, please.

19 A Yes.

20 "New analyses of balloon-borne and satellite
21 measurements of lower- and mid-tropospheric temperature
22 show warming rates that are similar to those of surface
23 temperature record and are consistent with their
24 respective uncertainties, largely reconciling a
25 discrepancy noted in the TAR."

1 Q That was -- that's a true statement, is it not?

2 A Yes, it's a qualified statement so it can be true.

3 Q And, in your deposition, you indicated that as long
4 as we are talking about global trends, that's a true
5 statement, right?

6 A Yes, that's correct.

7 Q All right. I am going to show you another exhibit
8 this is being marked as Defendants' 2713. This is an
9 amicus brief to the U.S. Supreme Court on behalf of a
10 series of climatologists, including John R. Christy. Is
11 that you?

12 A Yes, this is me.

13 Q All right. And this was submitted in approximately
14 October of 2006?

15 A I cannot remember when I submitted my two
16 paragraphs.

17 Q Does that sound approximately correct to you?

18 A I can't say.

19 Q All right. Directing your attention to page 23.
20 Two exhibits.

21 Could you read the paragraph which is two
22 sentences, beginning with the word "but."

23 A "But the fact that the two records both show
24 warming does not automatically mean they are in
25 conflict. The most current research supports the

1 continued existence of a discrepancy and its serious
2 implications for model simulations."

3 Q All right. So, you agree with the statement in the
4 fourth --

5 THE COURT: Can I just clarify that. You
6 actually forgot the word "not" in the first sentence.
7 That is, "does not automatically mean that they are not
8 in conflict."

9 THE WITNESS: Oh, my goodness.

10 THE COURT: Is that correct?

11 THE WITNESS: It's a double negative --

12 THE COURT: It's a double negative. Did you
13 write this?

14 THE WITNESS: I submitted two paragraphs that
15 were, I think, edited a little. I don't talk like that.
16 I think a lawyer might have dealt with this.

17 MR. PAWA: Dr. Christy --

18 THE WITNESS: Let me -- let me just read it
19 again to myself, and make sure it's what I meant.

20 THE COURT: Well, you were reading it and you
21 just left out the word "not."

22 THE WITNESS: Oh, I'm sorry.

23 THE COURT: "Not conflict." And I just wanted
24 to make sure that's clear.

25 BY MR. PAWA:

1 Q Would you read that paragraph one more time into
2 the record, please Dr. Christy.

3 A "But the fact that the two records both show
4 warming does not automatically mean they are not in
5 conflict. The most current research supports the
6 continued existence of a discrepancy and its serious
7 implications for model simulations."

8 Q All right. So you agreed with me just a moment ago
9 that the fourth assessment report statement that there's
10 no discrepancy was a true statement, but then you
11 submitted a brief to the U.S. Supreme Court saying there
12 is a discrepancy between those two sets of data; is that
13 right?

14 A The discrepancy referred to in this paragraph is
15 with model simulations, the way models simulate the
16 atmosphere. The statement in the IPCC dealt with the
17 way the observations only deal with -- in other words,
18 the tropospheric surface and observations are fairly
19 close in the global average.

20 That's not the case in models. They have a faster
21 rate of warming in the global atmosphere than the
22 surface.

23 Q Could you read the sentence, then, in the amicus
24 brief prior to the one I had you read. It starts also
25 with "but," but it says "but according."

1 A "But according to the CS brief, now all available
2 data sets show that both the surface and troposphere
3 have warmed."

4 Q And the CS brief was what?

5 A I am not sure.

6 Q I will represent to you it was briefed by climate
7 scientists including Dr. Hansen; does that sound correct
8 to you?

9 A Oh, the brief that they submitted to the Supreme
10 Court. That sounds like something they would have
11 written, yes.

12 Q All right. Don't you think it was a little
13 misleading to the U.S. Supreme Court to talk about
14 surface and troposphere data and immediately say there
15 was no discrepancy, when in fact what you really believe
16 is that the fourth assessment report statement, that
17 there's no discrepancy, was true?

18 A I did not follow that. I'm sorry. Can you restate
19 is it.

20 Q Yeah. Don't you think there's a significant
21 difference between your acknowledgment that the fourth
22 assessment report statement, that there's no discrepancy
23 between the surface record and the troposphere record --
24 I lost my train of thought.

25 Don't you think that the fourth assessment reports'

1 statement, which you acknowledge was true, that there's
2 no discrepancy between the surface warming and the
3 troposphere warming, is a very different statement from
4 what you put in the U.S. Supreme Court brief, that there
5 is such a discrepancy?

6 MR. CLUBOK: Your Honor, I object to this.
7 Mr. Pawa has utterly misrepresented what page five --
8 this paragraph said and what Dr. Christy agreed to. And
9 it's one thing to try to impeach someone or to try to
10 say something; it's another thing to ask a question
11 that's misleading, and on that basis I gotta object.

12 That the paragraph that Mr. Pawa read, from IPCC,
13 page five, his first bullet point, does not say what Mr.
14 Pawa just represented it said. Nor did Dr. Christy
15 agree to what he said. But it all becomes confused as
16 part of a compound question, and I just object to that.

17 He can use the exact words, or he can ask a
18 different question, but he can't represent to Dr.
19 Christy that it said that, and that he agreed to that in
20 a question like that.

21 THE COURT: Well, maybe the best way to
22 approach this issue is to have Dr. Christy read page
23 five again to himself, read the testimony, and agree or
24 disagree as to whether there's an inconsistency between
25 the two.

1 MR. CLUBOK: Thank you, your Honor.

2 THE WITNESS: I understand both of these very
3 well.

4 THE COURT: Okay.

5 THE WITNESS: In the IPCC, the discussion
6 there is only about observations. So the question is,
7 is there a discrepancy between the tropospheric trend,
8 the rate of its warming, and the rate at which the
9 surface temperature is warming.

10 Now, what the observations for the global average
11 show is that in general, the troposphere shows a
12 slightly less warming trend than the surface. So the
13 troposphere is about like this and the surface might be
14 a little bit more going up. Those are observations.
15 But, the error bars on those two values of the trends
16 overlap, so you cannot say for certain that those trends
17 are different, you know, because we never believe data
18 is perfect.

19 BY MR. PAWA:

20 Q And, Dr. Christy, directing your attention back to
21 page 23 of the Supreme Court brief, you said, "the fact
22 that the two records." What records were you referring
23 to?

24 A These are the surface and the troposphere.

25 Q Okay. So you told the Supreme Court there was a

1 discrepancy, even though you agree that there's no
2 discrepancy between those two sets of records; isn't
3 that right?

4 A The paragraph on -- in the Supreme Court brief is
5 in the -- like model projections, as the last two
6 sentence -- words say. That is not in the IPCC chapter,
7 whatever, three, two.

8 Q The paragraph concludes that there's implications
9 for the models; that those implications, in your words,
10 in the Supreme Court brief, came from what you described
11 as a discrepancy between two sets of observational data,
12 the surface and the troposphere; is that correct?

13 A Let me make this clear.

14 Q Could you answer my question, please?

15 A I want to by making it clear.

16 This sentence right here does not say "global" in
17 the -- I am pointing to the Supreme Court brief. When
18 it says, "The most current research supports the
19 continued existence of a discrepancy and its serious
20 implications for model simulations," that does not say
21 "global." And the implication there is "tropical."

22 Q You didn't say that to the Supreme Court, did you?

23 A No. It is true. I didn't say "global" either.

24 Q All right. Dr. Christy, I am going to show you
25 another exhibit. I am going to show you the IPCC's

1 third assessment report from 2001. This is marked as
2 Defendants' 2714.

3 You recognize this document, do you not?

4 A Yes.

5 Q You were part of the IPCC in 2001, correct?

6 A Yes.

7 Q Directing your attention to page 10, please. Could
8 you read the sentence -- the two sentences that are in
9 bold, starting with the word "most."

10 A I'm afraid my copy doesn't have much in the way of
11 bold.

12 Q Okay. See the words, on page 10, that are blown up
13 and they say "most of the observed"?

14 A Oh, at the top?

15 Q It's the second paragraph.

16 A Second paragraph?

17 Q You on page 10?

18 A Yes.

19 THE COURT: We must have a different copy
20 here. I think that he is referring to the embolden at
21 the very top? "There is new and stronger evidence that
22 most of the warming" --

23 MR. PAWA: I'm sorry, I have got the fourth
24 assessment report in front of you.

25 Q Okay, look at the top of page 10, the bold

1 statement. Would you read that please?

2 A "There is new and stronger evidence that most of
3 the warming observed over the last 50 years is
4 attributable to human activities."

5 Q All right. And that was not an inaccurate
6 statement of the science at the time, correct?

7 A It's very difficult to talk about something like
8 this when we don't know from where it started. There
9 was new and stronger evidence. Is there no evidence at
10 the start? You know, it's a very simple and general
11 statement.

12 Q Did you disagree with that statement at the time it
13 was written?

14 A I actually can't answer that.

15 Q All right. Read the -- read the paragraph
16 beginning, "in light of the new evidence" on that same
17 page down below the bullet points.

18 A "In the light of new evidence and taking into
19 account the remaining uncertainties, most of the
20 observed warming over the last 50 years is likely to
21 have been due to the increase in greenhouse gas
22 concentrations."

23 Q And at the time that was written -- you were you
24 part of the IPCC -- you were mostly in agreement with
25 that statement, were you not?

1 A You know, it's a statement that has lots of
2 qualifications in it, so it's hard to disagree with.

3 Q I am going to show you a video clip of your
4 deposition. This is pages 120, line 16, through 121,
5 line five.

6 [Video deposition playing.]

7 THE COURT: We need to turn this up here. You
8 want to --

9 [The video deposition of John Christy was
10 played in open court as follows:

11 Q. ... "In the light of new evidence and taking
12 into account the remaining uncertainties, most of the
13 observed warming over the last 50 years is likely to
14 have been due to the increase in greenhouse gas
15 concentrations." In 2001, did you agree with that
16 statement?

17 A. I did not have significant concerns about that
18 statement.

19 Q. So you were mostly in agreement with it, if not
20 100 percent?

21 A. I was mostly in agreement with this statement.]

22 BY MR. PAWA:

23 Q Does that refresh your recollection as to whether
24 or not you said in your deposition you were mostly in
25 agreement with that statement at the time it was

1 written?

2 A That is --

3 MR. CLUBOK: Your Honor, I object to this.
4 This is not -- that was entirely consistent with what he
5 said. It was one thing to impeach someone with an
6 inconsistent statements. It's fine if Mr. Pawa wants to
7 use his time. But he can't imply it's somehow
8 inconsistent when it's not.

9 THE COURT: I didn't hear his answer so I
10 don't know if it's consistent or inconsistent.

11 MR. CLUBOK: Maybe he should play it again.

12 THE COURT: Go ahead and ask the question.

13 BY MR. PAWA:

14 Q Does that refresh your recollection that at the
15 time the 2001 report was issued, you were mostly in
16 agreement with that statement, that most of the observed
17 warming over the last 50 years is likely to have been
18 due to the increase in greenhouse gas concentrations?

19 A I think what I said there was I didn't have
20 significant concerns --

21 Q And then you said --

22 A -- about --

23 Q And then you said you were mostly in agreement with
24 it, right?

25 A Yes. You saw me pause a long time because -- this

1 was six years ago. And the question was about what I
2 thought six years ago.

3 Q And you are in agreement with that statement, as we
4 sit here today?

5 A As I answered here, because of the qualifications
6 in that statement, I don't have significant concerns.
7 In fact, that's what I said on Monday, I believe it was.

8 Q Right. Would you look at page nine of the Supreme
9 Court amicus brief.

10 Would you please read on page nine the -- the two
11 sentences, starting with "the notion that."

12 A "The notion that greenhouse gas emissions, mainly
13 of carbon dioxide, contribute to climate change is not
14 in dispute. But the CS brief goes on to claim that
15 human activities likely cause most of the approximately
16 00.6 degrees sea rise over the 20th century. Page 12
17 emphasis added."

18 "Most," I see. How far --

19 "This is scientifically wrong."

20 Q All right. Was that -- was this a misleading
21 statement to the U.S. Supreme Court?

22 A I had nothing to do with this statement.

23 Q Your name went on this brief and you had nothing to
24 do with that statement?

25 A That's correct.

1 Q So you don't endorse that statement?

2 A I had nothing to do with it. I want to think about
3 it.

4 (Brief pause.)

5 A Oh, I see what they're saying.

6 Q Did you review the brief before it was filed in the
7 U.S. Supreme Court?

8 A I reviewed the part that I had contributed. I
9 don't recall reviewing this part up here.

10 Q All right.

11 THE COURT: It is 12 o'clock. Is this a good
12 place to stop?

13 MR. PAWA: I believe he has a plane to catch
14 at two. I have offered to keep going to accommodate
15 them.

16 MR. CLUBOK: With the Court's indulgence, it's
17 okay with the court reporter and the Court, if we could
18 go -- I think Mr. Pawa -- I don't want to speak for him,
19 but I think he might be able to finish by 12:30 at the
20 latest and that would allow Dr. Christy to catch a plane
21 that he needs to catch, if at all possible.

22 MR. PAWA: I am going to get killed if I don't
23 finish by 1:23, so, yes, I will.

24 THE COURT: All right. Well --

25 (Brief pause.)

1 THE COURT: So let's keep going.

2 MR. PAWA: All right.

3 BY MR. PAWA:

4 Q You can put those documents aside, Dr. Christy.

5 Dr. Christy, have you published in the journal
6 Science?

7 A Yes.

8 Q In fact, I think, Mr. Clubok showed you one of your
9 own publications from Science, correct?

10 A I don't recall.

11 Q All right. Don't worry about it. It's a
12 respected, peer-reviewed publication, is it not?

13 A Well, you know, sometimes you can be upset about
14 what ends up in literature and disagree with it, but it
15 has a peer review that is typical of what I described
16 earlier that blind reviews are done on the articles.

17 Q And you are familiar with the journal Nature,
18 correct?

19 A Yes.

20 Q That's a peer-reviewed journal?

21 A Yes.

22 Q Is that a well-respected scientific journal?

23 A Well, I would say for the most part, yes.

24 Q Did you ever say that Science and Nature are
25 agenda-driven magazines and that they have decided that

1 climate change is a threat, therefore it must be dealt
2 with centrally planned solutions taking access to energy
3 away from people, passing regulations from a government
4 mandate, saying you must reduce your energy consumption.

5 Did you say that?

6 A I don't recall saying it, but I agree with, so --
7 so I am likely to have said it.

8 Q Did you tell the New York Times, in response to the
9 problem of sea level rise, "You have got 100 years to
10 move inland"?

11 A When that was brought to me, it sounded kind of
12 crass when I heard it, when it was brought to my
13 attention at the deposition. And this is, I believe, in
14 2005. And it came back to me what I was saying.

15 In the interview with -- I believe it was Andy
16 Revkin.

17 Q Dr. Christy, my only question is whether or not you
18 said it. Your attorney can ask you all about it if he
19 wants to on redirect.

20 A The context is very important, so, evidently --
21 Andy Revkin quotes fairly accurately, so I said those
22 words in that order.

23 Q All right. Now, Dr. Christy, you are not a climate
24 modeler per se; is that right?

25 A I don't build climate models.

1 Q All right. And you were here in the courtroom
2 yesterday when Dr. Hansen was testifying, correct?

3 A Yes, I was.

4 Q And your attorney, Mr. Clubok, asked you a bunch of
5 questions about whether you recalled what Dr. Hansen
6 said on the stand yesterday; is that right?

7 A That's correct.

8 Q Were you asleep for much of his testimony in the
9 back of the courtroom?

10 A Your Honor, I may have nodded off once or twice,
11 I'm sorry.

12 Q Is that why you responded -- is that why you
13 responded, in response to one of Mr. Clubok's questions
14 about Dr. Hansen's testimony, "I don't remember
15 exactly"?

16 A My memory is not perfect. I could very well have
17 been awake and not have remembered that.

18 Q Now, you have written quit a bit over the years
19 about how the climate models don't work very well, have
20 you not?

21 A Yes. That's based on the evidence we have
22 generated.

23 Q And the Eco Myths book, you wrote that model
24 projections of climate and weather are scientifically
25 crude at best, correct?

1 A That is correct.

2 Q And that's your view today, is it not?

3 A That is my view today.

4 Q All right. What's your objection to the climate
5 models?

6 A A climate model is essentially an argument from
7 authority, when you think about it philosophically.
8 Because it says, in its complicated system, we have
9 generated all the components and believe them to be so
10 accurate in all their representations of the real world,
11 they're -- and interconnected in such a way that you can
12 project them into the future and get an accurate
13 forecast.

14 When we look at climate model output and we use --
15 we built many data sets -- this is what my life was work
16 is; since I have been 12 years old I have been building
17 data sets on climate -- we find significant
18 discrepancies in fundamental parameters of the
19 atmosphere and the way the atmosphere operates and then
20 what climate model suggests the world operates under.
21 And so, my opinion is based upon direct comparisons of
22 these climate models with the observations we have
23 created.

24 THE COURT: And that is consistent with your
25 observations of the southeast study, which you talked

1 about before.

2 THE WITNESS: Yes.

3 THE COURT: Okay.

4 BY MR. PAWA:

5 Q And I am going to show you video clip from your
6 deposition where I asked you the same question.

7 MR. PAWA: 1161 pages 302, line 21 through
8 303, line four.

9 [Video deposition playing.]

10 THE COURT: You want to stop it for a second.

11 MR. PAWA: I am having a volume issue.

12 THE COURT: Is there some problem with your
13 volume?

14 MR. BOOKBINDER: I think we have found the
15 problem.

16 MR. PAWA: We moved microphone that was
17 causing a problem.

18 [Video deposition playing.]

19 MR. PAWA: I am going to read it.

20 THE COURT: Yeah, could you go through it the
21 old-fashioned way.

22 MR. PAWA: The old-fashioned was good.

23 BY MR. PAWA:

24 Q "What's your objection to the climate models?" was
25 the question.

1 And your answer was, "I have many objections to
2 climate models simply because when I go and build sets
3 to test climate models in various places of the air and
4 Earth, we don't see a very good match with what the real
5 world is doing."

6 That was your true and correct and honest answer,
7 was it not?

8 A I believe that was, yes.

9 Q And you have now described for the Court some of
10 the problems you see with the models, correct?

11 A Yes.

12 Q What was the particular tool you used in this case
13 for the core of your opinion that the AB 1493
14 regulations will have no effect on the climate?

15 You used a climate model?

16 A Oh. The -- the library of climate model
17 projections, yes. That is what I used.

18 Q MAGIC model, right? M-A-G-I-C-C.

19 A As I indicated earlier, the MAGICC is not a model.
20 It is not a climate model. It is a tool that accesses
21 this library of climate model results, and then from
22 that determines the sensitivity.

23 Q All right. And it's been called a simple model as
24 opposed to the GCM model data that went into it,
25 correct?

1 A I might have used the term model to describe it,
2 but it's really a tool.

3 Q Models are tools?

4 A This model does not -- I'm trying to think of how
5 to make this point.

6 There's a library of climate model results. So
7 they're behind this tool that accesses those results and
8 applies to them a slight perturbation that you suggest
9 through the inputs, and then creates a result to compare
10 with the original climate model result.

11 So, I think -- it's a very clever tool. I was very
12 impressed with what they did with it.

13 Q The MAGIC tool is built on global climate model
14 input, correct?

15 A The MAGICC accesses and informs us about the
16 sensitivities of climate model projections.

17 Q The ones that you think are crude at best?

18 A The ones I think are crude as best.

19 Q Now those CMS run on big super-computers, right?

20 A Yes, that's right.

21 Q Computers that are big, so big they would fill up
22 far more than this courtroom, right?

23 A No, we have the capability of running computer --
24 in fact we do, at our building, and they can fit up here
25 in this upper level where the -- the judge is.

1 Q Have you ever seen the one at the National Center
2 for Atmospheric Research looks like about 500
3 refrigerators strung together?

4 A I have been to the National Center and I have
5 actually run on that computer.

6 Q All right. MAGIC runs on a laptop, right?

7 A That is a correct statement.

8 Q And MAGIC cannot replicate all of the dynamical
9 processings and feedbacks of the actual GCMS that have
10 gone into MAGIC, correct?

11 A Because MAGIC accesses the results from the climate
12 models, all of those dynamical feedbacks that the models
13 use now. It doesn't create new ones. It uses those --
14 because those feedbacks are already built into the
15 climate model library, then they are built into the
16 MAGIC results.

17 Q But it does not rerun the GCMS?

18 A That is exactly right.

19 Q And you have never used MAGIC before your
20 involvement in this case; is that correct?

21 A I have never -- I had never run the MAGIC model
22 before this case.

23 Q All right. Now, when you first did your report,
24 you took some calculations from Tom Austin as sort of a
25 black box and you plugged his CO2 tonnage reductions

1 into MAGIC, right?

2 A I used the estimates from Tom Austin for the first
3 edit, that version one that I had shown, to run.

4 Q And you never spoke to Mr. Austin at all about
5 those calculations, correct?

6 A I had not met Mr. Austin until, I think it was -- I
7 have been everywhere. I think it was a week ago. And
8 those -- that first run had been done by that time.

9 Q You did not speak with Tom Austin about the nature
10 of his calculations at any time, correct?

11 A Not before I had run that version one.

12 Q Based on his calculations?

13 A Based on his calculations.

14 Q All right. I am going to show you a memorandum
15 that you wrote for the purposes of this case.

16 MR. PAWA: This is document 2715, Defendants'
17 2715.

18 Q This a memorandum that you wrote on or about April
19 27, 2007?

20 A Yes.

21 Q And this memorandum reflects calculations that you
22 undertook in order to try to replicate what Mr. Austin
23 had done?

24 A I did not do these to replicate what he had done.
25 I wanted to do it from scratch, to see if I could

1 reproduce for my own benefit a -- a run, and see what
2 the results were.

3 Q All right. Take a look, if you would, at page two.

4 The second paragraph, second sentence says: "The
5 ISOR indicates LDV reductions in CO2 emissions of 18
6 percent by 2020 and 27 percent by 2030 if implemented
7 and adhered to." Correct?

8 A This is the second paragraph? Oh, what page?

9 Q Two. It's numbered two.

10 A Oh. Yes.

11 Q All right. And are we to take it then -- and I
12 think you testified when Mr. Clubok was questioning you
13 to this effect -- that the ISOR is the source where you
14 got the 27 percent and the 18 percent reduction figures?

15 A That's what's stated here in the document.

16 Q And that's where you got those figures?

17 A Evidently.

18 Q All right. And that was -- those 27 and 18
19 percents were derived how?

20 A In the ISOR?

21 Q Yes.

22 A I don't know how they were derived in the ISOR.

23 Q Well, did you ever read section 8.2 of the ISOR
24 report regarding how they laid out their calculations of
25 the emissions?

1 A No, I did not read that section.

2 Q And then you applied this 18 and 27 percent to
3 national figures from the EIA baseline, correct? Energy
4 Information Administration. Correct?

5 A The same percentages were applied for the nation,
6 is that what you asked?

7 Q Yes.

8 A For the nation as a whole.

9 Q Did you ever compare the California ISOR baseline
10 with the EIA baseline?

11 A For the -- baseline of what?

12 Q Emissions increases. Base case scenario, no
13 policy.

14 A I did not compare -- I went only to the national
15 transportation fuel emissions.

16 Q So you took a percentage that was a function of the
17 ISOR baseline, and applied it to the EIA baseline?

18 A The baseline that I used was from the Energy
19 Information Administration, the 1.3 percent per year,
20 out to 2030, and then from then on, something else.

21 Q And you took 27 percent of that particular EIA
22 baseline, correct?

23 A I think I say I took 26 percent.

24 Q Okay. So you took 26 percent of that baseline,
25 correct?

1 A From the time it was -- must have been 2030.

2 Q Right.

3 A From that point on. And there was a different
4 percentage at 20 -- in the model, you have to put a -- a
5 value at every 10 years; 2020, 2030, and so on like
6 that. So at 2030, it was 26 percent. And then 2040, it
7 was 26 percent. And so on. But at 2020, I believe was
8 the 18.

9 Q Okay. I am trying to ask a much simpler question,
10 which is --

11 A Oh.

12 Q -- you took the percentage derived from the ISOR,
13 27 percent, which you knocked down to 26, all right,
14 which was a function of the EIA baseline, right?

15 That 27 percent was derived from an EIA -- I'm
16 sorry, from an ISOR California Air Resources Board
17 baseline, correct?

18 A The 27 percent came from the ISOR.

19 Q And then you applied it to a totally different
20 baseline without comparing them -- the EIA baseline --
21 right?

22 A I applied that reduction of that percentage to that
23 nation as a whole to get the national reduction.

24 Q And the EIA baseline and the CARB baseline are
25 really quite different, aren't they?

1 A I don't know what the CARB baseline is.

2 Q You didn't compare them?

3 A That's correct.

4 Q So isn't this apples and oranges?

5 A I don't think so. There is an emissions rate for
6 the country. And I used the emission rates that the
7 people who studied this stuff and published the official
8 documents on, create for the -- for the users.

9 Q Why didn't you take a calculation of exact tons, as
10 derived from the California ISOR, and then apply that
11 tonnage to the EIA baseline? Wouldn't that have been an
12 internally consistent way to do this?

13 A I did it a different way, as a test. I actually
14 did not think of what you are speaking of, using the
15 California Air Resources Board projections. I used
16 the ones -- because I was doing it for the nation, I
17 used the national estimates.

18 Q But you could have used the national estimates by
19 being internally consistent and taking a tonnage rather
20 than taking a percentage that was a function of an
21 entirely different baseline; isn't that correct?

22 A Is -- I think is the question, should I use tonnage
23 instead of percentages?

24 Q Yes. Because the 27 percent was a function of a
25 particular baseline that's different from the EIA

1 baseline, right? Or you don't know. You never
2 compared --

3 A I can't answer that.

4 Q You never compared them. And then you did it again
5 and you applied the 27 percent again to A1B, a global
6 scenario, right?

7 A Well, the -- the A1B sets the baseline of emissions
8 for the globe. And then to reduce -- to edit that file,
9 to get the reduction, you have to apply a certain kind
10 of reduction.

11 Q Did you compare the A1B global baseline to either
12 the EIA baseline or the CARB baseline?

13 A The EIA baseline and the CARB baseline are United
14 States emissions, are parts of the United States
15 emissions. The input into the MAGICC is a global value.
16 There's really no way to compare them.

17 Q You didn't compare the curves to see how they
18 compare over time in terms of percentage increases every
19 year?

20 A Oh, I saw the differences that were there.

21 Q What was the difference between the A1B baseline
22 and the CARB ISOR baseline?

23 A Oh, I don't know what the CARB baseline was.

24 Q So your analysis really mixed apples and oranges
25 and pears, did it not, Dr. Christy?

1 A I would not characterize it that way at all.

2 Q Can you take a percentage from one baseline and
3 apply it blindly to another entirely different baseline
4 and get a consistent result, Dr. Christy?

5 A I am making the assumption that what percentage
6 decrease was advocated in the California AB 1493 would
7 also apply across the country. And I think we're going
8 down a trail that is going to be talking about
9 differences in the ten thousandths of a degree mark, if
10 we would use other kinds of emissions.

11 Q This is not what I asked you, Dr. Christy.

12 MR. PAWA: One moment -- with the Court's
13 indulgence?

14 (Brief pause.)

15 Q Take a look, please, again at page two of your
16 report. You said you used a climate sensitivity of 2.6
17 percent -- 2.6 degrees Celsius, correct?

18 A That is correct. That is the climate sensitivity
19 when carbon dioxide is doubled.

20 Q All right. But you agreed with me in your
21 deposition that the best estimate was three not 2.6,
22 correct?

23 A Best estimate of what the -- the --

24 Q The climate sensitivity is.

25 A Now, there are two things. There's climate

1 sensitivity and the value of the temperature at 100
2 years. At 2100. Those are two different things.

3 Q All right. I am going to read you a question and
4 answer on page 106 of your deposition from line eight,
5 through line 16.

6 And I was talking to you about the IPCC fourth
7 assessment report, which you have in front of you. And
8 if you want, it was page 12. Second sentence of the
9 first bullet point.

10 Here's the question and the answer.

11 Question: Looking at the next page, on page 12,
12 second sentence of the first bullet point states that
13 climate sensitivity is likely to be in the range of two
14 degrees C to 4.5 C with a best estimate of about three
15 C, and is very likely -- very unlikely to be less than
16 1.5 C. Do you disagree with anything in that statement?

17 Answer: The statement that was just read is very
18 qualifying; and so in that sense, I am able to say I
19 agree with it.

20 That was your true, correct and honest answer, was
21 it not?

22 A Evidently.

23 Q Any reason you didn't use three degrees C as the
24 climate sensitivity in your analysis for the purposes of
25 this case?

1 A There is a very clear reason why I used 2.6.

2 Q And that was?

3 A That was because using the 2.6 sensitivity -- in
4 other words, how much does the -- how much does the
5 model temperature respond to CO₂, using 2.6, gave a
6 result in 2100 that was 2.8 degrees.

7 The IPCC fourth assessment says the best estimate
8 for A1B scenario is 2.8 degrees. That is why I chose
9 2.6, which also is consistent entirely with this
10 statement.

11 Q In your analysis, you assumed that the 27 percent
12 reduction continued from 2030 to the end of the century,
13 correct?

14 A That is correct.

15 Q And you accepted the ISOR's projection of an 18
16 percent reduction in emissions by 2020, correct?

17 A That is correct.

18 Q Okay. So, the emissions reductions grew over 10
19 years by about nine percent, from 2020 to 2030, correct?

20 A Yes, from 18 to 27 percent -- or 26 percent, I
21 think it was.

22 Q And then you assumed those curves instead of
23 continuing out and expanding and that nine percent
24 happening every decade, nine percent growth in emissions
25 reductions, from the CARB regulations; you just assumed

1 it was 27 percent to the end of the century, right?

2 A That is all that AB 1493 was designed to deal with.

3 Q Do you know what AB 1493 assumes in terms of
4 current technology versus future technology?

5 A No, I do not.

6 Q Do you have any understanding as to, after 2030, as
7 to whether or not it will be impossible for there to be
8 further improvements in the greenhouse gas emissions of
9 motor vehicles?

10 A The assumption that I made, and I think I explained
11 it earlier, is that I assumed there would be a reduction
12 continuing through to the end of the century, because
13 there would still be internal combustion engines
14 operating. If there were -- based upon what AB 1493
15 did.

16 There could well be all kinds of improvements in
17 the future, and the baseline scenario, against which we
18 calculated this, does assume those. So, he --

19 Q You froze it at 27 percent even though it had been
20 growing from the 10 years, from 2020 to 2030, by nine
21 percent per decade, that is the emissions reductions
22 from CARB had been growing; is that correct?

23 A That is correct. I had no information that it was
24 going to be 36 percent at --

25 Q And if it kept growing, that is the emissions

1 reduction rate from 2030 to the end of the century,
2 there would be another 56 percent in emissions
3 reductions on top of the 27 by the end of the century;
4 is that correct?

5 A Those are assumptions I was not willing to make
6 because I do not do future projections of transportation
7 infrastructure.

8 Q Now, Dr. Christy, you agree that as we sit here
9 today, anthropogenic global warming is happening from
10 the burning of fossil fuels, correct?

11 A The increase in fossil fuel -- let me back up. The
12 increase in carbon dioxide in the atmosphere is real.
13 It is due primarily to the burning of fossil fuels.
14 That changes the radiated balance of the atmosphere and
15 therefore, there is an impact on the surface temperature
16 of the planet toward a warming rate.

17 Q Is anthropogenic global warming happening as we sit
18 here today?

19 A Anthropogenic global warming, in a sense that the
20 radiative forcing has changed and increased, is
21 happening as we speak because there is an increase in
22 the carbon dioxide levels of the atmosphere.

23 Q Do you recall you gave me a very unambiguous answer
24 to that question in your deposition, Dr. Christy?

25 A I don't recall. I'm sorry.

1 Q Let me refresh your recollection. On page 90 of
2 the deposition, lines 6 through nine.

3 Question: So greenhouse-gas-induced warming from
4 the burning of fossil fuel is occurring as we sit here
5 today, correct?

6 Answer: Yes.

7 You made that statement?

8 A And that's consistent with what I just said.

9 Q That was an honest and correct answer, was it not?

10 A Yes.

11 Q Okay. And right now, the actual measured sea level
12 rise that's happening in the world is going faster than
13 the theory suggests it should be; is that right?

14 A Depends on which theory. I think you are talking
15 about. The information in -- the latest IPCC talks
16 about the different sources of sea level rise that add
17 up to something like 3.1. I don't have it offhand. And
18 theory is -- is working it out.

19 Q Dr. Christy, you recall you testified during your
20 deposition that the Eocene period, 45 million years ago,
21 was approximately three degrees Celsius warmer on global
22 average than it is today?

23 A Are you asking if I said it was three degrees
24 warmer? I made an estimate. I didn't have anything in
25 front of me, but --

1 Q And at that time --

2 A I estimated it.

3 Q And at that time there were crocodiles at the North
4 Pole; is that right?

5 A There were crocodiles at the North Pole.

6 Q All right. And if we had a four and a half degree
7 Celsius warming this century, that would be
8 approximately the same difference, that global average
9 temperature today, than the global average temperature
10 20,000 years ago at the depths of the last ice age; is
11 that right?

12 A I'm sorry, repeat that, please.

13 Q If we had a 4.5 degree Celsius warming from now to
14 the end of the century, you would agree, would you not,
15 that that would be approximately the same difference in
16 global average temperature as between now and 20,000
17 years ago at the depths of the last ice age, correct?

18 A There would not be too much difference between
19 those numbers. 4.5 C is a very extreme rate of warming.
20 Certainly not occurring now.

21 Q Do you believe 4.5 degrees Celsius warming would be
22 harmful to human beings?

23 A 4.5 C is a fairly strong warming, and there would
24 be some significant adaptation required.

25 Q Did you say in response to that question at your

1 deposition, "The honest answer is, I don't know"?

2 A I suspect I did.

3 Q Did you write an article in a theological journal
4 called Bridges about global warming?

5 A Yes, I wrote an article in Bridges.

6 Q Did you say something to the effect that "I believe
7 the Earth is fairly resilient and that CO2-induced
8 climate change produces consequences that are relatively
9 benign, or to which straightforward adaptation is
10 possible"?

11 A The question here is -- is going astray. He is
12 assuming a 4.5 degree C change in the --

13 Q I left that topic.

14 THE COURT: Right. We're talking -- this is a
15 different topic.

16 A Okay. This topic, what I am referring to, is a
17 smaller rate of warming. And therefore, adaptation to
18 it, then, is fairly easy.

19 MR. PAWA: I am getting in trouble; I am going
20 so late. I am going to wrap up fairly soon.

21 Q I am going to show you a document that's being
22 marked as Exhibit 2716.

23 Is this a portion of the National Academy of
24 Sciences report on abrupt climate change? And I direct
25 your attention to page Roman numeral little five.

1 And directing your attention in particular to the
2 sentence beginning "just as," which is the third
3 sentence of the second paragraph.

4 Could you read that sentence that says "just as."
5 A Yes.

6 THE COURT: I am confused where you are here.

7 MR. PAWA: Roman numeral little five. It's
8 the first page of the preface, your Honor.

9 THE COURT: Okay. Okay.

10 A "Just as the slowly increasing pressure of a finger
11 eventually flips a switch and turns on a light, the slow
12 effects of drifting continents or wobbling orbits or
13 changing atmospheric composition may switch the climate
14 to a new state."

15 Q And could you read the next sentence as well,
16 please.

17 A "And, just as a moving hand is more likely than a
18 stationary one to encounter and flip a switch, faster
19 earth-system changes -- whether natural or
20 human-caused -- are likely to increase the probability
21 of encountering a threshold that triggers a still faster
22 climate shift."

23 Q Do you disagree with those two sentences?

24 A That's a description, a simple description of a
25 nonlinear response, where a steady forcing might be able

1 to push something until it breaks.

2 Q The climate is a nonlinear system, correct?

3 A Climate is a nonlinear system, correct.

4 Q And it can move rapidly from one steady state to
5 another when pushed too far; that's correct, is it not?

6 A I don't know what you mean by rapidly, or from what
7 two states you are referring.

8 Q Is that a true statement in general, Dr. Christy?

9 A What's that?

10 Q Is that a true statement in general, Dr. Christy?

11 A There are very few examples of rapid climate
12 changes in the historical record. We know very little
13 about them, and so their causes are uncertain, and
14 knowing what caused them, in terms of was it a slow
15 force that suddenly got to a point of breaking, or was
16 it a fast force that came and did something to cause a
17 change, or a change in state.

18 Q Could you read the first sentence of the preface,
19 please, Dr. Christy.

20 A "Large, abrupt climate changes have repeatedly
21 affected much or all of the earth, locally reaching as
22 much as 10 degrees C change in 10 years."

23 Q Do you disagree with that statement?

24 A If I knew exactly what these folks were referring
25 to, I would have a better understanding of and be able

1 to agree with it or not. It is very qualifying.

2 Q You haven't read the National Academy of Sciences
3 on Abrupt Climate Change, though?

4 A I haven't read all this report.

5 Q And, Dr. Christy, it's true that an abrupt climate
6 change would cause a much greater impact on both human
7 society and ecosystems than a gradual one; that's true,
8 correct?

9 A I think it's common sense that something happens
10 rapidly to a system, it's harder for humans or whatever
11 to adapt. It's sudden.

12 Q Dr. Christy, as a general proposition, more
13 greenhouse gases means more warming; less greenhouse
14 gases means less warming. Correct?

15 A Correct.

16 Q And any level of emissions reductions are going to
17 have some effect on the radiative forcing of the planet,
18 correct?

19 A The effect is going to be proportional to the
20 amount of reduction.

21 Q So any level will have at least some effect on the
22 radiative forcing of the climate, correct?

23 A Yes.

24 Q Do you often refer to CO₂ as plant food?

25 A I accurately refer to CO₂ as plant food.

1 Q When you do so, do you reveal the fact that carbon
2 dioxide causes weeds to grow faster disproportionately to
3 crops?

4 A I am dealing with poison ivy on my legs right now
5 because I was not very smart when I was clearing some
6 brush last week. But, I know how to kill poison ivy.
7 And, I think what I say is, in the context in which we
8 live, where the alarmism focuses on the poison ivies of
9 the world, I like to focus on the fact plant food
10 production has increased 16 percent solely because of
11 the extra CO2 we have put back into the atmosphere. And
12 that's a benefit I think people need to know about.

13 Q Last exhibit. I'm showing you what's being marked
14 as Exhibit 2717.

15 This appears to be a study by Lobell and Field from
16 2007. Are you familiar with this study, Dr. Christy?

17 A Um, I am not sure about -- I can't say.

18 Q Were you aware that there was a peer-reviewed study
19 showing that there had been \$5 billion of damage to
20 crops as a result of global warming in the last 25 years
21 or so?

22 A That's a result I would disagree with. And now
23 something comes to mind.

24 This was discussed in our USDA -- I'm on a USDA
25 contract with Florida State, University of Florida, and

1 Georgia, and there was a considerable disagreement and
2 concern about this paper.

3 Q Have you looked at any of the regional down-scaling
4 that's ever been done or the statistical down-scaling
5 that's ever been done for the northeastern part of the
6 United States to determine whether or not global climate
7 models for this region are accurately able to reproduce
8 the 20th century climate?

9 A I have looked at the one that were in the national
10 assessment, the New England national assessment.

11 Q Are you familiar with the Union of Concerned
12 Scientist study doing exactly that?

13 A I have heard about the Union of Concerned
14 Scientists. I would have my doubts about what they
15 produce.

16 Q Are you aware that some of that study has made its
17 way into the peer-reviewed literature?

18 A It's possible.

19 Q And are you aware that that literature shows that
20 the GCMs are able to accurately represent the 20th
21 century climate in New England?

22 A That's a statement I'd rather believe after I saw
23 it.

24 MR. PAWA: No further questions.

25 THE COURT: Okay. All right?

1 MR. CLUBOK: Just one question.

2 (Brief pause.)

3 MR. CLUBOK: Okay, your Honor, we just
4 agreed -- I forgot to enter Plaintiffs' Exhibit 1199,
5 which is one of the articles -- it's an article by Dr.
6 Wigley -- that supports Dr. Christy's methodology in the
7 use of the Wigley Equation, and I think Mr. Pawa has
8 agreed to stipulate to its admission.

9 MR. PAWA: I have, and I would like to -- are
10 you done?

11 MR. CLUBOK: I am done.

12 MR. PAWA: And I would like to ask him to read
13 the last sentence and ask him if he agrees with it, and
14 then I am done.

15 MR. CLUBOK: I am done.

16 THE COURT: All right, that's fine.

17 CONTINUED CROSS EXAMINATION

18 BY MR. PAWA:

19 Q Do you have the Wigley document in front of you,
20 Dr. Christy?

21 A It's possible.

22 Q I am just going to give it to you. We will cut to
23 the chase here.

24 A Ah.

25 Q Will you just read the last sentence and tell the

1 Court, please, whether you agree with the last sentence?

2 A Prior to the acknowledgements?

3 Q Yes, sir.

4 A "Finally, reduction in temperature and sea level
5 rise under the protocol and the extensions considered
6 here are relatively small but nonetheless important as a
7 first step towards stabilizing the climate system."

8 Q Disagree with that?

9 A I would disagree with the notion of stabilizing the
10 climate system. To a climate scientist, that should
11 be a -- a red flag, because, the climate system is never
12 in equilibrium. It's always fighting amongst forces
13 within the system, and because it's a nonlinear
14 dynamical system, what you see today has never before
15 been observed because it's never exactly the same as it
16 goes through this chaotic formulation of solving where
17 the energy is distributed around the atmosphere.

18 So, that's an odd choice of words that someone
19 could stabilize the climate system.

20 MR. PAWA: No further questions.

21 A That would be my concern.

22 MR. PAWA: No further questions, your Honor.

23 THE COURT: Okay. All right. Thank you, Dr.
24 Christy.

25 (Witness excused.)