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**HEARING ON THE MONTREAL
PROTOCOL AND GLOBAL WARMING**

Wednesday, May 23, 2007

**House of Representatives,
Committee on Oversight and
Government Reform,
Washington, D.C.**

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Committee Hearings

of the

U.S. HOUSE OF REPRESENTATIVES



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6 | House of Representatives,

7 | Committee on Oversight and

8 | Government Reform,

9 | Washington, D.C.

10 | The committee met, pursuant to call, at 10:00 a.m. in
11 | room 2154, Rayburn House Office Building, the Honorable Henry
12 | A. Waxman [chairman of the committee] presiding.

13 | Present: Representatives Waxman, Clay, Watson, McCollum,
14 | Hodes, Sarbanes, Davis of Virginia, Mica, Platts, Issa, Foxx,
15 | Sali, and Jordan.

16 | Staff Present: Phil Barnett, Staff Director and Chief
17 | Counsel; Kristin Amerling, General Counsel; Karen Lightfoot,
18 | Communications Director and Senior Policy Advisor; Greg
19 | Dotson, Chief Environmental Counsel; Jeff Baran, Counsel;
20 | Molly Gulland, Assistant Communications Director; Earley

21 | Green, Chief Clerk; Teresa Coufal, Deputy Clerk; Caren
22 | Auchman, Press Assistant; Zhongrui ``JR`` Deng, Chief
23 | Information Officer; Leneal Scott, Information Systems
24 | Manager; Miriam Edelman, Staff Assistant; Kerry Gutknecht,
25 | Staff Assistant; David Marin, Minority Staff Director; Larry
26 | Halloran, Minority Deputy Staff Director; Jennifer Safavian,
27 | Minority Chief Counsel for Oversight and Investigations;
28 | Keith Ausbrook, Minority General Counsel; A. Brooke Bennett,
29 | Minority Counsel; Kristina Husar, Minority Professional Staff
30 | Member; Larry Brady, Minority Senior Investigator and Policy
31 | Advisor; Patrick Lyden, Minority Parliamentarian and Member
32 | Service Coordinator; Brian McNicoll, Minority Communications
33 | Director; Benjamin Chance, Minority Clerk.

34 Chairman WAXMAN. The meeting of the Committee will come
35 to order.

36 Before we proceed with today's hearing, I want to note
37 that we have a new member of the Committee with us today,
38 Representative Jim Jordan from Ohio. Mr. Jordan served for
39 over a decade in the Ohio State Legislature before his
40 election to Congress last fall.

41 Mr. Jordan, I want to welcome you to the Committee and
42 look forward to working with you.

43 Let me yield to Mr. Davis at this point to welcome our
44 new member today.

45 Mr. DAVIS OF VIRGINIA. Thank you, Mr. Chairman.

46 I am pleased to have Jim Jordan as the newest member of
47 our Committee. We look forward to his active participation
48 in our hearings and markups, although he has a markup in
49 another Committee as we speak, so he will get used to running
50 back and forth. But his experience in the Ohio State
51 Legislature is going to benefit the work we do here on
52 oversight and government reform. He represents Ohio's 4th
53 District. He understands the issues facing families in the
54 heartland of America.

55 Welcome, Jim.

56 Chairman WAXMAN. Thank you. I want to ask unanimous
57 consent that Mr. Jordan be assigned to serve as a member of
58 the Subcommittee on Federal Workforce, Postal Service, and

59 | the District of Columbia.

60 | Without objection, that will be the order.

61 | Mr. JORDAN. Thank you.

62 | Chairman WAXMAN. Thank you. Welcome to you.

63 | The purpose of today's hearing is to find out whether
64 | there are ways to use the world's most successful
65 | environmental treaty, the Montreal Protocol, to tackle one of
66 | the world's gravest threats, global warming.

67 | The public is beginning to understand the dangers of
68 | global warming. There is a growing awareness that if the
69 | Nation and the world do not act, global warming could cause
70 | more floods, more droughts, more heat waves, stronger
71 | hurricanes, the extinction of 20 to 30 percent of the world's
72 | species, the spread of diseases like malaria, the loss of our
73 | coastlines.

74 | But what few people realize is that there are simple,
75 | affordable steps that we can take now that can make a big
76 | difference. The risks are large, but the situation is far
77 | from hopeless. There are cost-effective options for tackling
78 | climate change, and we have the power to reduce the dangers
79 | of global warming if we choose to act.

80 | At today's hearing we are going to learn of one step we
81 | could take that would make a huge impact at virtually no
82 | cost. Using the Montreal Protocol, we can eliminate the
83 | equivalent of one billion tons of carbon dioxide emissions.

84 That is an enormous amount of emissions. It is equal to
85 roughly half of the total emissions reductions required under
86 the Kyoto Protocol, yet the cost could be as low as 50 cents
87 per ton, between just \$500 million and \$1.5 billion globally.

88 We can achieve half the global warming impact of Kyoto
89 at a global cost of just \$1 billion by taking one simple
90 step: accelerating the phase-out of ozone-depleting
91 hydrochlorofluorocarbons, or HCFCs. HCFCs are used in air
92 conditioners and refrigerators. There are low-cost
93 substitutes currently on the market, so banning HCFCs would
94 be inexpensive. But because HCFCs are extraordinarily potent
95 greenhouse gases, eliminating HCFCs would have the same
96 impact on global warming as removing 20 million cars from the
97 road.

98 The Montreal Protocol was negotiated 20 years ago in
99 order to stop the depletion of the stratospheric ozone layer
100 by human product chemicals such as chlorofluorocarbons and
101 hydrochlorofluorocarbons. The treaty is widely recognized as
102 a tremendous success when it comes to protecting the ozone
103 layer.

104 As a result of the Montreal Protocol's legally binding
105 controls on the production and consumption of ozone-depleting
106 substances, global emissions of these gases has dropped to a
107 small fraction of their 1990 levels. Although we still have
108 a way to go, the ozone layer is on the path to recovery.

109 At the same time, the Montreal Protocol has helped
110 protect the planet from global warming. Today we will hear
111 about a scientific paper which finds that the Montreal
112 Protocol has had the effect of delaying global warming
113 impacts by seven to twelve years. This new analysis shows
114 that the world would be a decade closer to catastrophic
115 climate change without the Montreal Protocol.

116 A new round of negotiations over the Montreal Protocol
117 is scheduled for September, yet few people are aware of the
118 role this protocol has played in slowing down global warming,
119 and virtually no one in Congress knows that by further
120 strengthening the Montreal Protocol in the upcoming
121 negotiations, we can make a major positive contribution to
122 reducing emissions of greenhouse gases.

123 Global warming is an enormous challenge. To fight
124 global warming we will need to increase energy efficiency.
125 We will have to reduce emissions from transportation and
126 electricity generation. We need to move away from the dirty
127 technologies of the past and embrace new, clean technologies.

128 But, as we will learn today, there are also simple steps
129 with dramatic effects that we can take now if we are creative
130 and listen to what scientists are saying.

131 I look forward to hearing the testimony of the witnesses
132 and I thank them for being here.

133 [Prepared statement of Chairman Waxman follows:]

134 ***** INSERT *****

135 Chairman WAXMAN. I want to recognize Mr. Davis for his
136 opening statement.

137 Mr. DAVIS OF VIRGINIA. Thank you very much, Mr.
138 Chairman, for holding today's hearing to consider the
139 achievements and the opportunities for climate protection
140 under the Montreal Protocol.

141 Climate change is a critically important issue, and as
142 policy-makers it is our job to consider all sensible options
143 to reduce the emission of greenhouse gases. I am motivated
144 to learn more about what we can do to advance the debate with
145 potential solutions, and I think this hearing can serve as an
146 example of how we, as a Committee, can work together to
147 rationally investigate the facts surrounding climate change,
148 and at the same time seek agreement on the way forward.

149 I am beginning to agree with some of the European
150 climate change scientists who object to the Hollywood-ization
151 of this issue because it further politicizes the debate and
152 it makes rational consensus building a little more difficult
153 to achieve, but while hyperbole and partisan accusations are
154 good for grabbing headlines, they are not as productive a
155 component of the deliberative process as hearings like this,
156 so I am grateful the Committee is pursuing this instructive
157 line of inquiry today.

158 Further, I think that the Montreal Protocol, itself, can
159 serve as a model for international agreement on environmental

160 | issues. In the 1980s the United States was the world's
161 | leading producer of CFCs. Even so, the Reagan Administration
162 | took the lead in negotiating an international agreement to
163 | reduce the emissions of CFCs. Ultimately, the Senate
164 | unanimously approved the Montreal Protocol. President Reagan
165 | signed the treaty saying that, "The protocol marks an
166 | important milestone for the future quality of the global
167 | environment and for the health and well-being of all peoples
168 | of the world."

169 | Since the Montreal Protocol was signed in 1987, the U.S.
170 | has achieved a 90 percent reduction in the production and
171 | consumption of ozone-depleting substances, thus ending the
172 | production and import of over 1.7 billion pounds per year of
173 | these chemicals. Between 1989 and 1995, global emissions of
174 | CFCs dropped 60 percent worldwide. The reduction in
175 | emissions has proved a measurable benefit to the global
176 | environment, and some studies have shown the depletion of the
177 | ozone layer may be slowing due to the international ban on
178 | CFCs.

179 | Today the Bush Administration is involved in
180 | international negotiations over accelerating the phase-out of
181 | HCFCs, which could have strongly beneficial results for all
182 | of us, but we need facts. One of the reasons the
183 | Administration did not wish to testify this morning is they
184 | are still trying to quantify the benefits of the changes

185 | attributable to the protocol. But I am grateful for our
186 | witnesses coming forward. I wish the Administration had come
187 | forward.

188 | I look forward to hearing the testimony of today's
189 | witnesses. I hope they can help shed some light on the
190 | benefits emanating from the Montreal Protocol to both the
191 | ozone layer and the effort to reduce greenhouse gases.

192 | Thank you.

193 | [Prepared statement of Mr. Davis of Virginia follows:]

194 | ***** INSERT *****

195 Chairman WAXMAN. Without objection, all members will
196 have an opportunity to insert an opening statement in the
197 record.

198 I would like to now proceed to our witnesses. We have
199 Dr. Guus Velders, who works at the Netherlands Environmental
200 Assessment Agency as a Senior Scientist on Ozone Layer
201 Depletion, Climate Change, and Air Quality. He was the lead
202 author of the 1998 and 2006 World Meteorological Organization
203 United Nations Environmental Program, Scientific Assessment
204 of Ozone Depletion. He is also lead coordinating author of
205 the Intergovernmental Panel on Climate Change Special Report
206 on Ozone Layer Depletion and Climate Change. Dr. Velders is
207 testifying in his individual capacity.

208 Mr. Allan Thornton is the Executive Director of the
209 Environmental Investigation Agency, a nonprofit,
210 nongovernmental organization that has extensive expertise on
211 the Montreal Protocol. In 2006, EPA awarded the organization
212 the Stratospheric Ozone Protection Award.

213 Dr. Mack McFarland is the Global Environmental Manager
214 for DuPont's chemicals businesses. Before joining DuPont in
215 1983, he was an atmospheric scientist at the National Oceanic
216 and Atmospheric Administration.

217 I want to thank you all for being here today. We look
218 forward to your testimony.

219 It is the practice of this Committee that all witnesses

220 | be sworn in, because it is the Oversight Committee, so I
221 | would like to ask you if you would please rise and raise your
222 | right hand.

223 | [Witnesses sworn.]

224 | Chairman WAXMAN. The record will indicate that each of
225 | the witnesses answered in the affirmative.

226 | Dr. Velders, why don't we start with you.

227 STATEMENTS OF GUUS VELDERS, NETHERLANDS ENVIRONMENTAL
228 ASSESSMENT AGENCY; ALLAN THORNTON, EXECUTIVE DIRECTOR,
229 ENVIRONMENTAL INVESTIGATION AGENCY; MACK MC FARLAND,
230 ENVIRONMENTAL FELLOW, DU PONT FLUOROPRODUCTS

231 STATEMENT OF GUUS VELDERS

232 Mr. VELDERS. Good morning, Chairman Waxman and members
233 of the Committee. Thank you for giving me this opportunity
234 to share the results of our research with you.

235 The 1987 Montreal Protocol restricting the production
236 and use of ozone-depleting substances has helped to both
237 reduce global warming and protect the ozone layer. Without
238 its protocol, the amount of heat trapped due to
239 ozone-depleting substances would be twice as much as it is
240 today. The benefits to climate already achieved to date by
241 the Montreal Protocol and its amendments, alone, greatly
242 exceeds the current targets of the Kyoto Protocol. Potential
243 future effects of a strengthened Montreal Protocol on climate
244 are still significant and will decrease in the future.
245 Future emission reductions of Kyoto gases will potentially
246 have a much larger effect on climate.

247 CFCs and other ozone-depleting substances are now
248 globally recognized as the main cause of the observed

249 depletion of the ozone layer. In 1974 Molina and Rowland
250 provided an early warning when they first recognized the
251 potential of CFCs to deplete stratospheric ozone. Concern
252 was further heightened in 1985 by the discovery of the ozone
253 hole over Antarctica. The 1987 Montreal Protocol on
254 Substances that Deplete the Ozone Layer formally recognized
255 the significant threat of ozone-depleting substances to the
256 ozone layer and provided a mechanism to reduce and phase out
257 global production and use of these compounds.

258 As a consequence, the production, use, and emissions of
259 the major ozone-depleting substances have decreased
260 significantly. The concentrations in the atmosphere of these
261 major ozone-depleting substances are also decreasing.

262 There is now emerging evidence that the ozone layer is
263 currently starting to recover. Full recovery is not expected
264 until the second half of this century. Future emissions of
265 ozone-depleting and climate change may delay or accelerate
266 the recovery of the ozone layer by several years.

267 Ozone-depleting also contribute to the radiative forcing
268 of climate change. Their current contribution is about 20
269 percent of that of carbon dioxide. The Kyoto Protocol of
270 1987 [sic] is a treaty for reducing the emissions of CO₂, the
271 leading greenhouse ga, and five other gases. These gases do
272 not deplete the ozone layer, but include hydrofluorocarbons,
273 HFCs, which are produced as alternatives for ozone-depleting

274 substances. The substances that do deplete the ozone layer
275 are not included in the United Nations Framework Convention
276 of Climate Change, UNFCCC, and its Kyoto Protocol, because
277 they were already covered by the Montreal Protocol.

278 The Montreal Protocol has helped both to protect the
279 ozone layer and to reduce global warming. My research shows
280 that, without reductions achieved under this protocol, the
281 amount of heat trapped due to ozone-depleting substances may
282 have been about twice as much as it is today. This is
283 equivalent to a gain of about 10 years in reductions of CO2
284 emissions.

285 The climate change benefits which have already been
286 achieved by the Montreal Protocol, alone, are, according to
287 my research, five to six times greater than the current
288 reduction targets for 2008-2012 of the Kyoto Protocol,
289 assuming full compliance. It is estimated that the Montreal
290 Protocol may have avoided emissions of about 11 billion tons
291 of CO2-equivalent by 2010. However, these benefits
292 attributed to the Montreal Protocol will decrease further and
293 further as ozone-depleting substances are being phased out
294 under the Montreal Protocol.

295 New measures under a strengthened Montreal Protocol can
296 result in additional benefits for both the ozone layer and
297 climate. The IPCC assessed the potential and
298 cost-effectiveness of such measures. Removing CFCs present

299 | in existing applications--that is refrigerators and foams,
300 | mainly--can reduce emissions by about 120 million tons of CO2
301 | per year by 2015. An accelerated phase-out of the production
302 | of HCFCs in developed and developing countries could be
303 | achieved with instruments similar to those currently in the
304 | Montreal Protocol. This can additionally reduce emissions by
305 | about 340 million tons per year of CO2 by 2015, and
306 | potentially about 800 to 900 million tons by 2030.

307 | These possible emission reductions would derive mainly
308 | from better containment in refrigeration and destruction of
309 | ozone-depleting substances present in existing refrigerators
310 | and foams. Detailed scientific and technology assessments
311 | could provide policy-makers with the information necessary to
312 | fine-tune an accelerated HCFC phase-out to allow specific
313 | uses of HCFCs. Examples are use of HCFCs as feedstock for
314 | fluoropolymers and in other applications where emissions are
315 | near zero or where overriding energy efficiency benefits
316 | exist and efficiency benefits are present.

317 | Thus, plausible scenarios that could achieve reductions
318 | in CO2-equivalent emissions of ozone-depleting substances and
319 | alternative gases both exist and have been considered. These
320 | reductions are comparable to the reduction target of the
321 | first commitment period of the Kyoto Protocol, but relatively
322 | small compared to the current global CO2 emissions.

323 | It is widely acknowledged that emission reductions

324 | exceeding those laid down for the first commitment period of
325 | the Kyoto Protocol will be needed to achieve the UNFCCC
326 | objective, namely, stabilization of greenhouse gases
327 | concentrations in the atmosphere at a level that would
328 | prevent dangerous anthropogenic interference with the climate
329 | system. While emissions reductions under the Montreal
330 | Protocol have played an important role in the past, future
331 | amendments can still have additional benefits for climate,
332 | reductions of greenhouse gases not covered by the Montreal
333 | Protocol have a potentially much larger effect on climate.

334 | In conclusion, I think the success of the Montreal
335 | Protocol is also important, for it shows the effectiveness of
336 | an international agreement.

337 | Chairman Waxman, thank you.

338 | [Prepared statement of Mr. Velders follows:]

339 | ***** INSERT *****

340 Chairman WAXMAN. Thank you very much, Dr. Velders.
341 Mr. Thornton, we would like to hear from you.

342 STATEMENT OF ALLAN THORNTON

343 Mr. THORNTON. Thank you, Mr. Chairman and distinguished
344 members of the Committee, for the opportunity to address you
345 today, and thank you very much for having this very important
346 hearing.

347 The Environmental Investigation Agency is a nonprofit
348 organization. We investigate environmental crime all over
349 the world, and we promote practical solutions to remedy such
350 issues. We work with government enforcement agencies on all
351 continents around the world to promote compliance with the
352 Montreal Protocol and other international environmental
353 agreements.

354 The Montreal Protocol is aptly regarded as the world's
355 most successful environmental agreement, having phased out
356 about 95 percent of ozone-depleting substances in developed
357 countries, and around 50 to 75 percent in developing
358 countries.

359 Because many ozone-depleting chemicals are also potent
360 greenhouse gases, the Montreal Protocol's successful
361 phase-out of CFCs and other ozone-depleting substances has

362 | also made it the world's most effective climate treaty.
363 | While it is true that the phase-out of CFCs has spared the
364 | atmosphere some billions of tons of greenhouse emissions, it
365 | also contains a cautionary tale of the consequences of not
366 | actively considering the impacts, particularly on the
367 | climate, of actions taken under the Ozone Layer Treaty.

368 | In the early 1990s, HCFCs became the first generation of
369 | substitute chemicals for ozone-layer-destroying CFCs. It was
370 | recognized by the protocol that these chemicals had value as
371 | transitional substances to facilitate the prompt phase-out of
372 | CFCs; however, the exponential growth in the demand for
373 | refrigerant gases worldwide resulted in unchecked and
374 | extremely excessive production of HCFCs. HCFCs contribute
375 | significantly to global warming, and the Montreal Protocol
376 | has, thus, inadvertently created a new additional significant
377 | source of greenhouse gases.

378 | The phase-out of HCFCs in developing countries is not
379 | due until 2040, and no caps will be required until 2015.
380 | With countries such as China and India set to potentially
381 | produce millions of tons of HCFCs over the next 10 to 20
382 | years, and with the currently agreed Montreal Protocol
383 | phase-out decades off, this unhindered growth in HCFC
384 | production will severely undermine the international
385 | community's efforts to address climate change.

386 | The good news is that, by accelerating the phase-out

387 | schedule for HCFCs under the Montreal Protocol, the
388 | international community has a huge opportunity to make a
389 | significant contribution to the global effort to mitigate
390 | climate change.

391 | An unprecedented nine parties to the Montreal Protocol,
392 | including the United States, have recognized this opportunity
393 | and recently submitted proposals to accelerate the HCFC
394 | phase-out. These proposals will be considered at the next
395 | meeting of the parties of the Montreal Protocol in September.

396 | As the U.S. considers these proposals, we would like to
397 | take the opportunity to highlight what EIA feels are key
398 | elements of what any final decision should look like on
399 | accelerated HCFC phase-out.

400 | First, any decision must include an earlier freeze date
401 | for the production of HCFCs. Many proposals are suggesting a
402 | freeze of 2010, but an earlier freeze date, such as 2007,
403 | would prevent additional excessive production of HCFCs by
404 | cutting off this very rapid growth in the production of these
405 | chemicals.

406 | Secondly, proposals should contain additional reduction
407 | steps to lower the production and consumption of HCFCs.
408 | These additional reduction steps are important because they
409 | offer greater climate and ozone layer benefits and would
410 | provide measurable benchmarks and compliance targets.

411 | Third, proposals must contain the commitment for

412 funding. A fully funded phase-out of HCFCs ensures continuity
413 of resources for the protocol's multilateral fund, allowing
414 the fund to complete its important and highly cost effective
415 work in protecting the ozone layer and the global climate.

416 Fourth, proposals must ensure the widespread adoption of
417 climate-friendly replacement for HCFCs. While
418 ozone-layer-friendly substitutes exist for virtually all
419 current uses of HCFCs, many of these gases are just as bad,
420 if not worse, in terms of climate impact. Thus, in order to
421 realize the full climate benefits offered by an accelerated
422 phase-out, any decision to adjust the phase-out schedule must
423 include provisions that favor the adoption of
424 climate-friendly alternatives to HCFCs.

425 Finally, concerted action to improve cooperation between
426 the ozone layer and climate treaties is vital to the
427 continued success of an accelerated phase-out of HCFCs.
428 Specifically, parties to those two treaties must act urgently
429 to address the perverse incentive that exists for the
430 production of HCFC-22, which has been created through the
431 Kyoto Protocol's clean development mechanism.

432 Now, HFCs, an even more potent greenhouse gases, are
433 produced as a byproduct in the manufacture of HCFCs, and the
434 HFCs are falling under the clean development mechanism of the
435 Kyoto Protocol. Currently, the clean development mechanism
436 is committing billions of dollars to capture and destroy the

437 HFCs as they are produced as byproducts to HCFCs, even though
438 there is no cap or commitment to cap HCFC production by the
439 major producers, such as China and India.

440 While concerted international action to address the
441 emissions of carbon dioxide is essential, we would be remiss,
442 negligent even, not to seize upon all available opportunities
443 to reduce the emission of greenhouse gases. The Montreal
444 Protocol has a proven track record of success. With
445 appropriate policy adjustments now, this landmark agreement
446 has the potential to further deliver critical and cost
447 effective climate protection in the near term.

448 On behalf of the Environmental Investigation Agency, I
449 urge the U.S. Government to immediately and aggressively
450 pursue an adjustment to the Montreal Protocol that includes
451 measures to support the adoption of climate friendly
452 alternatives to HCFCs in order to seize upon this historic
453 opportunity to further mitigate climate change.

454 Thank you, Mr. Chairman.

455 [Prepared statement of Mr. Thornton follows:]

456 ***** INSERT *****

457 Chairman WAXMAN. Thank you very much, Mr. Thornton.
458 Dr. McFarland?

459 STATEMENT OF MACK MCFARLAND

460 Mr. MCFARLAND. Good morning, Chairman Waxman, Mr. Davis,
461 and members of the Committee. My name is Mack McFarland, and
462 I am the Global Environmental Manager for DuPont's
463 Fluorochemical Business. I appreciate this opportunity to
464 speak with you regarding stratospheric ozone and climate
465 protection. In my testimony I will discuss DuPont's
466 experiences, our views of the effectiveness of the Montreal
467 Protocol, and suggest ways in which the protocol can be
468 enhanced, and, as focus shifts specifically to climate
469 protection, how national implementation can be improved.

470 DuPont is a science-driven company with a commitment to
471 safety, health, and environmental protection. We strive for
472 sustainable growth that benefits our shareholders, the
473 societies in which we operate, and the global environment.
474 It was our vision of sustainable growth that led us to set
475 aggressive, voluntary goals and reduce our global greenhouse
476 gas emissions. It is also this vision that led us to
477 co-found the U.S. Climate Action Partnership and call for
478 U.S. leadership on reducing greenhouse gases emissions.

479 We believe that with a properly designed, mandatory
480 program the power of the market can be harnessed to achieve
481 environmentally effective and economically sustainable
482 greenhouse gas emission reductions.

483 DuPont introduced the first fluorochemical refrigerant
484 gases, chlorofluorocarbons, or CFCs, in the 1930s, as safer
485 alternatives to the more dangerous refrigerants then in use,
486 such as ammonia. In 1988, based on the emerging scientific
487 consensus, we voluntarily committed to phase out CFCs. We
488 also used our science capabilities to lead in the development
489 of alternative products to meet the growing societal need for
490 air conditioning and refrigeration. This experience with CFC
491 ozone issue provided us with a keen understanding of the
492 implication of environmental issues that are global in scope
493 and decades to centuries in duration.

494 The Montreal Protocol is widely recognized as a model
495 for addressing global environmental issues. Progress has
496 been rapid. The actions under the protocol have led to
497 significant reductions in the current and future risks of
498 both ozone depletion and climate change, while allowing the
499 market to bring forward safe, efficient, and cost-effective
500 substitutes with lower or no ozone-depleting potential.

501 We would like to recognize the tremendous leadership
502 that both the Department of State and the Environmental
503 Protection Agency have shown in developing, implementing, and

504 | improving the protocol.

505 | We have continued to provide a broad range of
506 | non-ozone-depleting fluorochemicals to meet market needs. In
507 | February of 2006 we announced that we had identified
508 | low-global-warming-potential, non-ozone-depleting
509 | alternatives for automotive air conditioning, with leading
510 | candidates that have global warming potentials only about 3
511 | percent that of current products. It is our intent to apply
512 | these non-ozone-depleting, low-global-warming-potential
513 | technologies to other applications, as well.

514 | While the Montreal Protocol has been a clear success, we
515 | believe it can be improved. At the international level, we
516 | believe the phase-out schedule for HCFCs should be
517 | accelerated in developing countries, as the U.S. Government
518 | has proposed. We also believe that the U.S. and other
519 | developed countries can and should accelerate their phase-out
520 | schedule.

521 | At the National level, we believe implementation can be
522 | enhanced through more reliance on market-based mechanism.

523 | Looking forward to regimes for climate protection, we
524 | suggest two potential market-based regulatory approaches for
525 | improving stewardship of HFCs.

526 | Congress could establish a cap based on carbon
527 | equivalency, specifically on HFCs placed on the market, as
528 | was done on ozone-depleting equivalency for CFCs, halons, and

529 HCFCs. This could be combined with appropriate market-based
530 incentives for capture and destruction of the material at the
531 end of its useful life.

532 Alternative, HFCs could be included in a broader cap on
533 greenhouse gas emissions. In this case, carbon-equivalent
534 allowances would be required to be surrendered to place these
535 compounds on the market, and carbon-equivalent credits would
536 be granted for their destruction, creating market incentives
537 for improved stewardship.

538 In summary, the Montreal Protocol has been an
539 unprecedented success, protecting both stratospheric ozone
540 and the global climate system. That success could be
541 enhanced through an acceleration of the current HCFC
542 phase-out schedule in both developed and developing
543 countries.

544 Domestically, increased use of market-based systems for
545 the fluorochemical gases under any climate change legislation
546 could create cost-effective market incentives for more
547 effective stewardship.

548 Thank you for the opportunity to share our thoughts on
549 this important subject with the Committee. I look forward to
550 your questions.

551 [Prepared statement of Mr. McFarland follows:]

552 ***** INSERT *****

553 Chairman WAXMAN. Thank you very much, Dr. McFarland.

554 I am going to start the questioning by indicating that
555 the three of you in the 1980s up to 1990, when the Clean Air
556 Act was adopted, one of the major issues in the legislation
557 was the depletion of the ozone layer by CFCs and other
558 manufactured chemicals. When we tried to tackle this
559 problem, industry told us that it would cause severe economic
560 and social disruption.

561 At a January, 1990, hearing, the Air Conditioning and
562 Refrigeration Institute testified that it was certain that
563 ``We will see shut-downs of refrigeration equipment in
564 supermarkets, we will see shutdowns of chiller machines which
565 cool our large office buildings, our hotels, and hospitals.``
566 That is a direct quote from their testimony.

567 But instead of listening to these predictions of doom
568 from the industry, we listened to the scientists who said
569 that the action was urgently needed if we are going to
570 reverse the damage and stop further damage to the
571 stratospheric ozone. We passed legislation to cut emissions
572 of ozone-depleting chemicals in the United States by 90
573 percent, and, of course, the supermarkets and hospitals
574 weren't first to close their doors. We also passed that
575 legislation before the Montreal Protocol was agreed to,
576 because we felt that we needed to be the leaders by doing
577 action here at home that was necessary while we advanced an

578 international agreement.

579 Well, in a similar situation today with global warming,
580 industry is telling us that controlling global warming
581 pollution would be an economic disaster, but scientists tell
582 us that we must act, that there are a variety of
583 cost-effective steps that can be taken.

584 In fact, I believe that there are steps that we could
585 take now that would make a big difference in slowing climate
586 change and wouldn't break the economy, and one of these is
587 the point that the three of you are making at this hearing,
588 that is maximizing the potential of the Montreal Protocol to
589 tackle global warming.

590 One class of ozone-depleting substances regulated by
591 that protocol is HCFCs, and some HCFCs are also powerful
592 greenhouse gases, in addition to affecting the ozone
593 depletion.

594 Now, the protocol currently requires developed countries
595 to phase out HCFCs by 2030 and developing countries to phase
596 them out by 2040. Several countries, including the United
597 States, have proposed speeding up the phase-out schedule in
598 order to protect the ozone layer and climate.

599 Dr. Velders, your paper examined the potential climate
600 benefits of an accelerated phase-out of HCFCs. If the
601 phase-out were sped up and banks of existing ozone-depleting
602 chemicals were addressed, what kind of drop in greenhouse gas

603 | emissions would you expect?

604 | Mr. VELDERS. Mr. Chairman, our study shows that, based
605 | on a mitigation scenario from IPC, which is based on
606 | potential cost-effective measures which can be taken now,
607 | that it can be reduction of about 800 or 900 million tons of
608 | CO2 equivalent emissions by 2015, emissions reductions per
609 | year. The potential after that is even larger. So those are
610 | significant reductions, and they will help both for the ozone
611 | layer and it will help climate change.

612 | Chairman WAXMAN. How would that reduction in greenhouse
613 | gases, compared to the reductions required by the Kyoto
614 | Protocol?

615 | Mr. VELDERS. The Kyoto Protocol requires reduction by
616 | 2008, 2012, compared to 1990, of about two giga-tons, so two
617 | billion tons. So this is about half, which can reach by what
618 | the Kyoto Protocol is.

619 | Chairman WAXMAN. These are enormous emissions
620 | reductions. By accelerating the Montreal Protocol, we could
621 | get some climate benefits, as half of Kyoto, that is
622 | equivalent, I understand, to 20 million cars off the road.
623 | Is that your understanding, as well?

624 | Mr. VELDERS. I haven't done the climate change.

625 | Chairman WAXMAN. Mr. Thornton, have you heard any
626 | estimates of how much an accelerated phase-out would cost?

627 | Mr. THORNTON. There have been some very rough ballpark

628 | figures put out in the order under the Montreal Protocol in
629 | the order of about \$500 million to \$1.5 billion, but I think
630 | that is a very general figure, but it is also dependent on
631 | knowing exactly how much HCFC is being produced in China
632 | right now, which is having an explosive growth in HCFC
633 | production, substantially motivated by this perverse
634 | incentive under clean development mechanism for HFC--

635 | Chairman WAXMAN. Would this be equivalent to \$5 per ton
636 | of carbon dioxide? As I understand it, these emission
637 | reductions under the Montreal Protocol would be as cheap as
638 | 50 cents per ton. Mr. Thornton, would the United States have
639 | to pay the entire cost of an accelerated phase-out?

640 | Mr. THORNTON. No. The way the Montreal Protocol works
641 | is that the U.S. contributes to the multilateral fund, and
642 | the other parties to it would also contribute. I believe the
643 | U.S. contribution is at the U.N. scale, which I think is in
644 | the order of 23 to 25 percent of that amount. But, Mr.
645 | Chairman, I just have to say that, in terms of protecting the
646 | climate, this is the best bang for the buck that can be found
647 | in the world today. This is the most cost effective, most
648 | efficient, most achievable program that can be done in the
649 | near term that doesn't have the same complexities as the sort
650 | of larger greenhouse gas emissions, so it is a can-do program
651 | that the international community could achieve and get done
652 | and have a huge victory over the next years.

653 Chairman WAXMAN. Thank you.

654 Mr. Davis?

655 Mr. DAVIS OF VIRGINIA. I am going to let Mr. Issa go
656 first.

657 Mr. ISSA. Thank you. Thank you, Mr. Chairman.

658 Dr. Velders, I guess my first question would be: when
659 Europeans come to us on Kyoto, we often say how settled is
660 the science. Turning that around, when we go out to sell,
661 particularly to Africa, South America, China, other
662 developing nations, how settled is the science? How are we
663 going to be viewed when we say, okay, we will move this up to
664 2020, maybe even 2018; we want you to move up to 10 years
665 after us, particularly when you look at figures that say
666 Kyoto was a fraud, Kyoto wasn't going to save as much, in
667 many ways as moving this up would save, but we're arriving
668 eight years after we walked away from Kyoto. How is that
669 going to be received? And I am all for it, but how settled
670 is the science?

671 Mr. VELDERS. I think the science, sir, on the ozone
672 layer is well established. The report says no doubt that the
673 CFCs are the main cause of the ozone depletion. Also, if you
674 look at the force of the climate system, of the CFCs, and of
675 the HCFCs in the affirmative gases, its force is well
676 understood. So the force on the climate system is well
677 known. The effects from the forcing temperature change and

678 | wind pattern change to the climate change, there is more
679 | debate about that. That is more uncertain. But the forcing
680 | of the climate system, of the CFCs, and the affirmatives is
681 | similar to forcing of CO2.

682 | Mr. ISSA. So, sort of reading that back to you, from a
683 | standpoint of ozone depletion and in closing the ozone hole,
684 | we will consider that settled science, but from the
685 | standpoint of, as I think you said, that by 2010 we will have
686 | avoided somewhere in the range of 10 to 12 billion tons of
687 | carbon dioxide equivalents, versus Kyoto targets by 2012,
688 | would have only avoided two billion. I am going to be in
689 | Berlin later this year meeting with our European partners
690 | again. It is a regular subject. Are they going to agree
691 | with these numbers? And how do I convince them, if they
692 | don't, that these numbers, that we need to push not just
693 | ourselves but the third world to meet new targets?

694 | Mr. VELDERS. The number of the 10 to 12 billion tons
695 | avoided of emissions of course have been somewhat of a
696 | scenario issue, what would have happened without Montreal
697 | Protocol. We showed in our study 2 to 3 percent growth in
698 | the CFCs without the Montreal Protocol, which can be
699 | considered a rather conservative growth if you look at the
700 | growth figures which were in the 1970s and 1980s, which were
701 | much more than the 2 to 3 percent we considered.

702 | So I think that number might not be 10 to 12, it could

703 | be 8 or 9, but I think people will not question it. It is
704 | significantly larger than the Kyoto target.

705 | Mr. ISSA. Very good.

706 | Dr. McFarland, I guess I will come back to you with the
707 | same sort of point, particularly since the name DuPont
708 | usually represents breakthroughs in science, it also
709 | represents a little higher price. I am glad you smiled at
710 | that. What is the ballpark cost if we were to move up by 10
711 | years? I am assuming at that point you can pretty well
712 | decide what all the alternatives are if, let's say, ten years
713 | from now we are going to be completely phased out. You
714 | pretty well know what is available. We are not talking about
715 | breakthrough science, so--well, we are talking some
716 | breakthroughs. What will be the cost? Particularly when we
717 | look at methylbromide, which is continuing to live on, one of
718 | the ozone-depleting substances that we are still using even
719 | in the U.S.?

720 | Mr. MCFARLAND. Well, I don't have any figures better
721 | than what Mr. Thornton put out of half a billion to
722 | one-and-a-half billion. I can--

723 | Mr. ISSA. Which is cheap. Let's be honest. When we
724 | look at other alternatives, there is nothing that is in
725 | those. We are looking at \$350 trillion to get to a zero
726 | carbon footprint, so this is a rounding area to that.

727 | Mr. MCFARLAND. It is a very cost-effective way to both

728 | protect climate and ozone. In more general terms,
729 | accelerating a phase-out to some extent in the developed
730 | world, and specifically in the U.S., shouldn't cost anything
731 | or be very cost effective because the existing laws on the
732 | books already are phasing out the equipment made with HCFCs
733 | in a couple of years.

734 | For developing countries it is a very different
735 | situation than we faced during the CFC phase-out. When the
736 | CFC phase-out was started we didn't have the alternatives, we
737 | didn't know what they were, they weren't deployed. Now the
738 | alternatives to HCFCs exist. They exist in the developing
739 | world and, in fact, major developing countries like China are
740 | actually producing goods with the alternatives that are being
741 | sold in the United States, Europe, and Japan. So it is a
742 | very different situation, and the new equipment that is being
743 | made with these alternatives is more efficient, so there are
744 | benefits of moving away from HCFCs and into alternatives, so
745 | it should be a very cost-effective move.

746 | Mr. ISSA. Thank you. Ten more questions, no more time.
747 | Thank you, Mr. Chairman.

748 | Chairman WAXMAN. Thank you very much.

749 | Ms. McCollum?

750 | Ms. MCCOLLUM. Thank you, Mr. Chairman. Thank you,
751 | gentlemen.

752 | So a problem is identified in the ozone layer. Action

753 | was taken. We had 191 countries join together in the Kyoto
754 | Protocol. Average Americans understood that there was a
755 | problem and that there was action to be taken, and that they
756 | wanted to be part of protecting the ozone layer. People who
757 | sold the products for the most part, they understood there
758 | was a problem. They wanted to know what they could do in
759 | making people be aware and have confidence in the new
760 | products that were coming online, refrigerators and air
761 | conditioners and that, although the industry did fight it.

762 | The ozone layer has been protected from getting much
763 | larger, but really has not gotten smaller, so the success is
764 | there was a problem, it was identified, people came together,
765 | they did something about it, and what we have done is we have
766 | just stayed somewhat neutral in our battle against the ozone
767 | hole becoming larger.

768 | So now we know that there is a problem with the
769 | chemicals that we are currently using, and we have to do
770 | something about that, but what I am hearing with the
771 | discussion going on down there is a couple of different
772 | things.

773 | One, Mr. McFarland, DuPont has something that can come
774 | online. You are working very hard on it. I commend DuPont
775 | for doing that, but the problem in the developing countries,
776 | I want to go back to a little bit about what I am thinking I
777 | am hearing what is going on in the developing countries.

778 Are we still having a black market in which the banned
779 chemical is being used? And if we don't address the CFCs and
780 the black market that is going on there, what prevents us
781 from being able to address a black market with the HCFCs,
782 because if we don't address that and figure a way in which to
783 make a black market not profitable, we will never get to the
784 point where we want to with fully protecting and decreasing
785 the hole in the ozone layer.

786 If you gentlemen could kind of, from your perspectives,
787 say what we can do together to stop black markets from
788 occurring.

789 Mr. THORNTON. Thank you. EIA has done extensive work on
790 legal trade in CFCs and halons and have worked in close
791 cooperation with the National CFC Task Force here in the
792 U.S., which is chaired by the Environmental Crimes Unit of
793 the Justice Department and includes all the other main
794 agencies working on this issue. There has been substantial
795 improvement both in the United States and worldwide on
796 significant reduction on illegal CFC trade due to
797 identification of the problem areas; additional restrictions,
798 both in the U.S. and Europe and in other countries, to
799 respond to that; and the substantive increase in capacity
800 building and training of enforcement authorities all over the
801 world. My organization has taken part in about 20 regional
802 training seminars, even to the point where Chinese Customs

803 | uses EIA's video on how to detect illegal CFC smuggling to
804 | train their own Customs personnel. So that has been a very
805 | big success.

806 | In terms of how to prevent it from happening with HCFCs,
807 | bringing forward the phase-out, stepping up the phase-out,
808 | and adding these reduction steps would be a very positive
809 | measure because it does give a monitorable and achievable
810 | goal and benchmarks that we can ascertain compliance, and it
811 | doesn't have a very big production at the end of the period
812 | of when they should stop to bring to a very rapid halt so
813 | that it is being stepped down and phased down over time, and
814 | it would allow the international community to better monitor
815 | and to detect any diversion of illicit material.

816 | That said, there are certainly indications and some
817 | evidence already that there is an illegal trade in HCFCs even
818 | coming into the United States. China does have an explosive
819 | growth in HCFCs occurring now, and much of that is coming
820 | back into the United States. There are six or seven million
821 | air conditioning units being brought into the U.S.

822 | Chairman WAXMAN. Thank you.

823 | Mr. Davis?

824 | Mr. DAVIS OF VIRGINIA. We have recently requested that
825 | the GAO conduct a study of the emissions offset programs
826 | because the companies that sell carbon offsets to U.S.
827 | consumers operate under virtually no standards. Furthermore,

828 | there are numerous efforts by States and the Federal
829 | Government to be carbon neutral, in part by purchasing these
830 | offsets.

831 | Now, your testimony today regarding China's attempt to
832 | gain the system by emitting unchecked and excessive
833 | production of HCFCs in order to receive credits under the
834 | Kyoto Protocols certified emission reduction credit system is
835 | disturbing. Does this manipulation of carbon credits by China
836 | impact the system of carbon credits that is currently so in
837 | vogue?

838 | Mr. THORNTON. Well, the clean development mechanism is a
839 | work in progress, and it is just starting now. From EIA's
840 | point of view the whole situation and system would be a lot
841 | better if the United States was in there contributing to it,
842 | because the U.S. has enormous technical resources and
843 | expertise to help make the system work better. So some of
844 | these big projects are just getting up and running, but there
845 | is a significant commitment to take out HFC production, which
846 | is the chemical that produces the by-product--

847 | Mr. DAVIS OF VIRGINIA. I have got a follow-up, but let
848 | me ask Dr. McFarland, do you want to comment on that?

849 | Mr. MCFARLAND. Yes. I would like to separate two
850 | things. One is under the current clean development
851 | mechanism, projects, HCFC-22 plants that were in operation as
852 | of January 1, 2001, are allowed to participate under CDM.

853 | The current debate is about HCFC-22 plants that have come
854 | online since then. There is a significant issue there.
855 | Because of the value of those carbon credits, it is possible
856 | that the HFC-23 destruction CDM project could become the
857 | product and the HCFC-22 could become the by-product, because
858 | the 23 credits would be worth more than the 22 production.

859 | So there is a significant issue there, and it is
860 | currently being debated under the framework convention on
861 | climate change and how to manage it there, but it is also
862 | here is the opportunity under the Montreal Protocol to begin
863 | to deal with the issue by accelerating the phase-out of HCFCs
864 | in developing countries.

865 | Mr. DAVIS OF VIRGINIA. But don't you think then--I mean,
866 | Mr. Thornton said it is in its infancy in terms of
867 | understanding it--that Congress should continue to conduct
868 | more oversight into these carbon trading markets and get a
869 | better understanding?

870 | Mr. THORNTON. I think the system could definitely be
871 | more robust. again, we very much welcome the U.S. input to
872 | it and we think there are achievable solutions that could
873 | address the HFC issue in the clean development mechanism, for
874 | instance, by requiring a freeze on HCFC production for any
875 | country that is receiving HFC projects from CDM would be a
876 | simple way to further reinforce or freeze the HCFC
877 | production.

878 Mr. DAVIS OF VIRGINIA. All right. I will yield to Mr.
879 Issa.

880 Mr. ISSA. Thank you, Mr. Davis.

881 I would like to ask unanimous consent to have Greener
882 Computing placed in the record as a part of this question.

883 Chairman WAXMAN. Without objection.

884 [The information follows:]

885 ***** COMMITTEE INSERT *****

886 Mr. ISSA. Mr. Thornton, let me understand this
887 correctly. China is, in fact, gaming the system today as we
888 speak by producing harmful HCFC-22 for the sole reason of
889 destroying HCF-23 by-product, and we are allowing it to go on
890 and, in fact, the Department of Justice should be
891 investigating this and taking action. We should be, in fact,
892 placing moratoriums on by-product imports so that we are not,
893 in fact, providing the dollars for the very activity that we
894 object to. Isn't that really the case, that we are giving
895 China a pass today? It is like watching something, like
896 watching a house be robbed and saying we need a stronger
897 police force, isn't it?

898 Mr. THORNTON. Well, there is no law being broken, and
899 that is the problem, because there is a disconnect between
900 the Montreal Protocol regulating HCFC and the Kyoto
901 regulating HFC, and what we are trying to do is to marry the
902 two policies of the two treaties together to fast-track HCFC
903 phase-out, at the same time cap, reduce, and stop the HFC.

904 Mr. ISSA. Well, I appreciate that, but I come from a
905 State where right now we are about to stop bringing in
906 coal-fired-produced electricity because we finally woke up
907 and said we won't allow coal fire in California, but we're
908 willing to energy launder or greenhouse launder or whatever
909 you want to call it in California. California has taken the
910 response. Shouldn't this Oversight Committee and this

911 Congress take steps to stop the importation and financial
912 gain of by-products which are, in fact, damaging our
913 environment, something we could do today by not providing the
914 avenue for those tens of millions of refrigerators and other
915 items made, in fact, in a way that we would not allow them to
916 be done under our protocol?

917 Mr. THORNTON. Yes. We think it would be a very good
918 thing if the U.S. would stop import of equipment with HCFC in
919 them, because the U.S. is a huge market and that would send a
920 huge signal to the market and would have a very positive,
921 very beneficial effect, with almost immediate impact.

922 Mr. ISSA. Mr. Chairman, although we don't have WTO
923 experts here, I would appreciate it if we could look into it
924 as a Committee of whether or not we could do that without
925 violating the WTO rules. Thank you. I yield back.

926 Chairman WAXMAN. Thank you very much. That is an
927 excellent question. Let's see if we can get an answer to it.

928 Mr. Hodes?

929 Mr. HODES. Thank you, Mr. Chairman.

930 I want to thank the witnesses for appearing.

931 One question that I had when reading the written
932 testimony of Dr. Velders and Mr. Thornton was the following:
933 Dr. Velders, you wrote, "there is emerging evidence that the
934 ozone layer is currently starting to recover. Full recovery
935 is expected around 2050 to 2075." Mr. Thornton, you wrote,

936 | ``While significant progress has been made to reduce the
937 | atmospheric concentration of ozone-layer-destroying
938 | chemicals, there is no definitive evidence demonstrating that
939 | the ozone layer has started to recover.`` Would you
940 | gentlemen explain to me whether there is a disagreement over
941 | whether or not the ozone layer has, in fact, started to
942 | recover, and, if so, how might that be resolved?

943 | Mr. VELDERS. I don't think there is that much
944 | disagreement. In the last ozone assessment in June we talked
945 | a lot about what is recovery. What do you mean recovery? Do
946 | you want to have the situation back as it was before, let's
947 | say, the 1960s? Or do you want to see it not getting worse
948 | any more? What we now see, it is not getting worse any more,
949 | so we say, well, there are signals that it is not getting
950 | worse. And the theory says, well, in about 50 years or a bit
951 | more we should have a recovered ozone layer, so it is the
952 | start of the ozone getting better. I think that is what it
953 | is. We are not there yet. It will take at least another 50
954 | years, and there are factors which could influence that. But
955 | it is not getting worse, so we can say it is the onset of
956 | recovery.

957 | Mr. HODES. Do you agree, Mr. Thornton?

958 | Mr. THORNTON. We concur with the scientific assessment.
959 | There are many other factors that come into play on this.
960 | For instance, President Reagan agreed on a phase-out schedule

961 | for methylbromide that should have ended two years ago
962 | production and use in the U.S., and yet the U.S. is still
963 | producing and using millions of pounds of methylbromide,
964 | which is undercutting the alternative markets worldwide in
965 | developing countries that have already bitten the bullet and
966 | done that.

967 | So there are all these other impacts that go along with,
968 | like, not full compliance with the requirements of Montreal
969 | Protocol. So there are other things that are causing
970 | unanticipated impacts because of there not being full
971 | compliance.

972 | Mr. HODES. I want to follow up on some of the questions
973 | about the perverse incentives to produce the HCFC-22 in order
974 | to gain the carbon trading credits of the HFC-23. What
975 | impact does the failure of the United States to be part of
976 | the Kyoto Protocol have on our ability to deal with this
977 | problem?

978 | Mr. THORNTON. Well, from the point of view of the
979 | Environmental Investigation Agency, I mean, the U.S. has
980 | always been a leader in Montreal Protocol. It has had a
981 | historical leadership. It has been bipartisan. It is the
982 | biggest economy in the world. It is the most influential
983 | economy in the world. Not having the U.S. in Kyoto means
984 | that the U.S.'s vast experience, resources, and economic
985 | influence isn't being brought to bear, say, in the clean

986 development mechanism, where you could have a huge impact
987 fairly immediately. We think there is very forward-looking
988 policy analysis occurring within different departments, and I
989 think a huge contribution could and should be made. So, of
990 course, we would like to see the U.S. in Kyoto. Whether it
991 is not perfect or not, it would be a lot better if the U.S.
992 was in there participating and inputting.

993 Mr. HODES. So that, while we have an opportunity to
994 solve the problem under the Montreal Protocol, in terms of
995 accelerating the elimination of HCFC-22, if we were part of
996 Kyoto we would have much more ability to deal with the issue
997 of this perverse incentive?

998 Mr. THORNTON. Yes.

999 Mr. HODES. Given that we are not in Kyoto, is there
1000 anything else that can be done in addition to the elimination
1001 of the HCFC-22 under Kyoto? Should we push somehow for
1002 HFC-23 to be removed from the carbon trading scheme?

1003 Mr. THORNTON. I think that is a rather complex question
1004 which I would be happy to follow up in a written response,
1005 but, as imperfect as the scheme might be now, this is
1006 starting to build something that--I mean, clearly it is
1007 better that the HFC is not going in the atmosphere. Clearly,
1008 it would be preferable for the international community not to
1009 have to spend billions of dollars to achieve that when we
1010 could spend a lot less in Montreal Protocol to achieve a

1011 | phase-out. Clearly, a clean development mechanism should
1012 | require a cap on HCFC production of any country that is
1013 | receiving HFC phase-out funding. So there are things that
1014 | could be done.

1015 | And certainly we would very much like to see the U.S.
1016 | stop imports of air conditioners and other equipment from
1017 | China, et cetera, with HCFCs because it is a huge market and
1018 | it is a huge contributing factor.

1019 | Mr. HODES. Thank you.

1020 | Chairman WAXMAN. Dr. McFarland, you wanted to add
1021 | something to that?

1022 | Mr. MCFARLAND. Yes. A couple of things I may like to
1023 | clarify that I possibly didn't in my written or oral
1024 | testimony. One is that the issue is around HCFC-22 plants
1025 | that have started up since January 1, 2001, and it is these
1026 | new plants, and currently they are not allowed, under the
1027 | clean development mechanism, and there is a significant
1028 | debate under the Kyoto Protocol and the Framework Convention
1029 | as to whether they should. The question is, how do you
1030 | manage that going forward? To my knowledge, that is strictly
1031 | an issue of China, because I know of no plants outside of
1032 | China that have begun an operation since January 1, 2001.

1033 | The second issue about this, whether WTO rules, you
1034 | would violate WTO rules by banning the import, Europe is
1035 | already banning the import of equipment containing HCFCs, so,

1036 | I mean, if it doesn't violate there it shouldn't here,
1037 | either.

1038 | Chairman WAXMAN. That is a very good point.

1039 | In September there is going to be a meeting to mark the
1040 | 20th anniversary of the Montreal Protocol and they will
1041 | discuss a number of ideas to modify the treaty in order to
1042 | accelerate the phase-out of HCFCs. I would like to ask this
1043 | panel about the proposals from the United States, which has
1044 | four elements.

1045 | First, the Administration has proposed moving up the
1046 | HCFC phase-out dates by ten years for both developed and
1047 | developing countries. Do you think this is a good idea from
1048 | a global warming perspective? Dr. Velders?

1049 | Mr. VELDERS. Yes. I think if you forward the date of
1050 | the total phase-out it will avoid additional emissions,
1051 | especially after 2030, in developing countries, and it will
1052 | be both the ozone layer and for climate change beneficial.

1053 | Chairman WAXMAN. Do you agree with that, Dr. McFarland
1054 | and Mr. Thornton?

1055 | Mr. MCFARLAND. Yes.

1056 | Mr. THORNTON. EIA would recommend a more aggressive
1057 | phase-out because we think it could be brought forward to
1058 | 2007, or very soon thereafter. We don't think we should have
1059 | to wait until 2010, as is said in the U.S. proposal, because
1060 | the current HCFC production in China is very big and growing

1061 | very quickly.

1062 | Chairman WAXMAN. You would support the U.S. proposal,
1063 | but you would go further than the U.S. proposal?

1064 | Mr. THORNTON. Yes.

1065 | Chairman WAXMAN. Okay. The United States has proposed
1066 | adding intermediate HCFC phase-out steps for developing
1067 | countries. Would this change to the Montreal Protocol also
1068 | be beneficial? Dr. Velders?

1069 | Mr. VELDERS. Yes. I think the intermediate steps are
1070 | more important even than the base year, because they really
1071 | bring down the future production. I have estimated, based on
1072 | the total scheme for the U.S. proposal, by around 2030 it can
1073 | avoid 600 to 700 million tons per year of CO2 equivalents of
1074 | greenhouse gases.

1075 | Chairman WAXMAN. Do you both agree, Dr. McFarland and
1076 | Mr. Thornton?

1077 | Mr. MCFARLAND. And additionally it makes economic sense,
1078 | because if you have a sudden drop to zero you have got a lot
1079 | of equipment out there that you have got to service, so it
1080 | makes both sense from the environmental and the economic
1081 | standpoint.

1082 | Chairman WAXMAN. Thirdly, the Administration has
1083 | suggested setting an earlier baseline date of 2010 instead of
1084 | 2015 for developing countries. This is a fairly technical
1085 | change, Can any of you explain what impact this would have

1086 | on greenhouse gas emissions?

1087 | Mr. VELDERS. If you set out a cap, like now is 2015, set
1088 | a new cap for next 25 years, we don't know what will happen
1089 | until 2015, like strong economic growth now in China and
1090 | India is likely to increase. So bringing that date forward
1091 | will reduce that cap and will affect a whole period of the
1092 | future emissions and production. It will definitely have
1093 | beneficial for both again ozone layer and climate.

1094 | Chairman WAXMAN. And, finally, the United States has
1095 | proposed phasing out the worst ozone-depleting chemicals
1096 | first. Do you all support that approach?

1097 | Mr. THORNTON. Yes, Mr. Chairman. Could I also just say
1098 | to the last point that EIA also favors bringing the baseline
1099 | forward, because if we wait until 2010 for Article 5, again,
1100 | talking about China, we just have more explosive growth for
1101 | the next three years, and probably they will rush to expand
1102 | it so that the base will be at a very high level. We should
1103 | get in as quick as possible to get that base set as soon as
1104 | possible at the lowest possible level because, again, we will
1105 | just be buying greater protection for the climate by having
1106 | capped HCFC production at a lower level. So time is of the
1107 | essence.

1108 | Chairman WAXMAN. Yes.

1109 | Let me ask this panel this question. Modifying the
1110 | Montreal Protocol to speed up the phase-out of HCFCs wouldn't

1111 solve the global warming problem. We will need to do much
1112 more. I assume you all agree with that statement?

1113 Mr. VELDERS. Yes.

1114 Mr. THORNTON. Yes.

1115 Mr. MCFARLAND. Yes.

1116 Chairman WAXMAN. You all believe that speeding up the
1117 phase-out of HCFCs is an important step that is worth taking
1118 if we want to seriously address global warming, so there is a
1119 lot of work to be done and, even if we don't do anything
1120 else, we will at least have made an important accomplishment
1121 if we speed up this reduction of HCFCs.

1122 Mr. VELDERS. Yes.

1123 Mr. THORNTON. Yes.

1124 Mr. MCFARLAND. Yes.

1125 Chairman WAXMAN. Mr. Issa?

1126 Mr. DAVIS OF VIRGINIA. I will yield my five minutes to
1127 Mr. Issa.

1128 Mr. ISSA. Thank you, Mr. Davis, and thank you, Mr.
1129 Chairman.

1130 Mr. Thornton, can you name some of the companies that
1131 are essentially pollution laundering by producing in China
1132 these air conditioners and refrigerators?

1133 Mr. THORNTON. There are quite a number of companies. I
1134 would have to go back and check our notes. I would be happy
1135 to follow up with you and write to you following this

1136 hearing.

1137 Mr. ISSA. Well, isn't it true that many of them are
1138 household word names that previously manufactured in
1139 countries where they would not have been able to produce this
1140 refrigerant? I am thinking of countries like America and
1141 Japan.

1142 Mr. THORNTON. They are primarily Chinese companies.

1143 Mr. ISSA. They are primarily Chinese companies?

1144 Mr. THORNTON. Yes.

1145 Mr. ISSA. And under what trade names, though? Under
1146 Chinese trade names?

1147 Mr. THORNTON. They will come in under a wide variety of
1148 names, either Chinese names, or they could be produced for
1149 many other companies.

1150 Mr. ISSA. Let me maybe give you some names in order for
1151 full disclosure. Sanyo, Panasonic, General Electric--these
1152 are names that they may be coming in under, plus some of
1153 well-known air conditioning names, wouldn't it be?

1154 Mr. THORNTON. I am sorry? Are you talking about the
1155 actual air conditioning units?

1156 Mr. ISSA. Air conditioners and refrigerators, yes.

1157 Mr. THORNTON. Well, in the air conditioning you can go
1158 out to any WalMart, Sears, or anywhere and they're all
1159 stacked up and everything is made in China, so there are
1160 extensive household names.

1161 Mr. ISSA. So I think full disclosure for us in the
1162 American audience, what we are doing is taking products
1163 previously made in America under agreements in which we would
1164 not be producing them the way they are producing them in
1165 China, we have shifted off-shore the production, but we have
1166 also shifted off-shore the pollution around the very
1167 agreements we signed. Isn't that a fair statement?

1168 Mr. THORNTON. That is generally correct.

1169 Mr. ISSA. Because at the time of the signing, these
1170 products were in much greater numbers made in America, along
1171 with the refrigerant. Dr. McFarland, pretty well correct?

1172 Mr. MCFARLAND. Yes.

1173 Mr. ISSA. I wanted those head shaking, because it is
1174 important for people to understand that in an effort to be a
1175 good steward of the environment we have to look to countries
1176 like China that, in fact, we have shifted our pollution to,
1177 and, in full disclosure, India, Brazil, also the case. The
1178 Europeans, would it be fair to say that they have gone to
1179 Africa in the case of some of theirs, like their growing of
1180 orchids and flowers, things we are not talking about as much
1181 today. I will take that as a yes.

1182 Chairman WAXMAN. Is that an affirmative answer to his
1183 statement?

1184 Mr. THORNTON. I am sorry. I don't know about the
1185 orchids and flowers. I am not knowledgeable.

1186 Mr. ISSA. As a strawberry producing State, California,
1187 we look at lot at where the methylbromide was used, and what
1188 we found is each of us moved it to countries outside of the
1189 protocol.

1190 It is not good to give answers when you are up here. I
1191 should give questions only.

1192 This will be my exit question, because it is an area of
1193 frustration. If China is cheating, call it whatever you
1194 want, and Brazil and India perhaps, not being mentioned as
1195 much today but major industrial producers, if they are
1196 cheating today and we need to bring them under the Montreal
1197 Protocol sooner and the Kyoto agreement, if it is to be
1198 effective worldwide, how do you best recommend that we come
1199 up with a strategy to stop cheating? You have given us one,
1200 which is stop importing products that essentially are
1201 laundering of these items which we could not produce here any
1202 longer, and I think that is an extremely good one, even
1203 though I am a free trader and it sounds protectionist. We
1204 are only talking about the pollution.

1205 What other steps can we take to ensure that, for
1206 example, China--and I will just give you the best example.
1207 You mentioned the higher base level. They are producing,
1208 about every eight days, a new coal-fired power generation
1209 plant. they are producing them with technology that is
1210 several generations older than anything being used in the

1211 United States, so they are, in fact, accelerating pollution
1212 faster than we are cleaning up. How do we, in fact, stop
1213 that behavior in the best way, in your opinion?

1214 Mr. THORNTON. Well, in terms of this particular issue
1215 with the HCFCs and HFCs, clearly better cooperation between
1216 the two treaties would yield huge improvements. In terms of
1217 HCFCs, we generally support the direction the Administration
1218 is going in, but, again, we think there should be a more
1219 aggressive target, because those targets will, in effect,
1220 apply controls under the internationally agreed convention to
1221 China, and China will be bound to comply with them. There
1222 are substantive compliance mechanisms available to achieve
1223 that.

1224 Mr. ISSA. Last, but not--

1225 Mr. THORNTON. Organizations like ourselves as well.

1226 Mr. ISSA. I have used up the time once again. Thank
1227 you, Mr. Chairman.

1228 Chairman WAXMAN. Thank you very much.

1229 Ms. McCollum? Well, Mr. Clay hasn't had his first round
1230 of questions, so I will let him go first.

1231 Mr. CLAY. I thank you, Mr. Chairman, and I thank the
1232 panel for being here today.

1233 One question that I don't think has been asked is,
1234 gentlemen, 12 States have acted to regulate greenhouse gas
1235 emissions from automobiles. Earlier this week a new report

1236 | by the U.S. Public Interest Research Group found that these
1237 | tailpipe standards would reduce carbon dioxide emissions by
1238 | nearly 400 million tons by 2020. That is a major reduction
1239 | and a major achievement, yet those emissions reductions could
1240 | be negated by the chemicals out there right now in
1241 | refrigerators and air conditioners. These banks of CFCs and
1242 | HCFCs are a serious threat to our climate, aren't they, and
1243 | clearly we need to address this looming problem.

1244 | I would like to ask each of the panelists, what are your
1245 | recommendations for dealing with the threat posed by banks of
1246 | ozone-depleting substances? Dr. Velders, we will start with
1247 | you.

1248 | Mr. VELDERS. Yes, you raise a very good point. The
1249 | banks of CFCs currently in existing applications like
1250 | refrigerators, but also in foams, the CFCs in there, they
1251 | will, if you don't do anything, will get out into the
1252 | atmosphere, and especially in refrigeration it will take
1253 | about ten years and in foams it will take much longer. But
1254 | especially in refrigeration the sooner you can take some
1255 | action to recollect the CFCs in refrigerators, mobile and
1256 | stationary, and destroy them so that they don't get into the
1257 | atmosphere, the sooner the better, because in five years time
1258 | about half of it will be out in the atmosphere. The faster
1259 | the action on the banks, the better, both for the ozone layer
1260 | and for climate.

1261 Where you should take those actions, there are no
1262 provisions in the Montreal Protocol to do this, but there
1263 might be other incentives that you can facilitate.

1264 Mr. CLAY. Thank you.

1265 Mr. THORNTON. The Environmental Investigation Agency
1266 thinks we should address the banks with better economic
1267 incentives to remove them. It won't be easy. It will be
1268 difficult. However, we believe the greatest lesson we can
1269 learn from the history of banks is to stop the banks from
1270 getting bigger. Because, again, every day that passes,
1271 every month, every year, there are millions of air
1272 conditioners being imported into the United States from
1273 China, each with a few kilos of HCFCs, and they are going to
1274 have to be addressed.

1275 Because if eventually all those millions of units and
1276 all that HCFC is lost into the atmosphere, there is just a
1277 kind of time bomb waiting to happen, and to further have a
1278 negative impact on the climate. So that is why we have
1279 stressed with the U.S. proposal to the Montreal Protocol to
1280 be more aggressive at bringing the phase-out dates forward to
1281 set the cap as early as 2007 to prevent future growth in HCFC
1282 and the expansion of this industry.

1283 Mr. CLAY. And I guess simultaneously we should also be
1284 addressing the smokestack issue also, the emission from the
1285 smokestack, or do you think that would negate it, too? Even

1286 | if we reduce tailpipe emission, will the smokestack offset?

1287 | Mr. THORNTON. For me personally, Congressman, yes, I
1288 | believe we should be doing all that we can wherever the
1289 | carbon emissions are coming from, whether they are
1290 | smokestacks, tail pipes, or from staying in the shower too
1291 | long in the morning, but we all have to do our little bit to
1292 | reduce our carbon footprints.

1293 | Mr. CLAY. Thank you. Dr. McFarland, please?

1294 | Mr. MCFARLAND. Congressman, you bring up a very good
1295 | point. The CFCs and halons have been phased out of
1296 | production and consumption in the United States, and if we
1297 | don't act soon it is going to be an opportunity lost, because
1298 | these things are continuously being emitted in the
1299 | atmosphere.

1300 | The Montreal Protocol was a protocol that limited the
1301 | amount that could be put into this equipment and on the
1302 | market. It did not control the end of life us of the
1303 | compounds. So it is probably too late to control them under
1304 | an ozone regime; however, there may be an opportunity under a
1305 | climate regime, because they are significant greenhouse
1306 | gases. You might be able to allow some sort of a carbon
1307 | credit for their capture and destruction and provide the
1308 | financial incentive to get them out of the atmosphere, but
1309 | every day we wait that one-time opportunity of destroying
1310 | these things gets smaller and smaller.

1311 Mr. CLAY. And let me real quickly ask how important is
1312 it for the Montreal Protocol to explicitly recognize the dual
1313 aims of protecting the ozone layer and combatting global
1314 warming? Anyone on the panel can venture.

1315 Mr. THORNTON. Well, we believe that it is very
1316 important. In the past the Montreal Protocol has not taken
1317 sufficient account of the climate impacts of
1318 ozone-layer-depleting chemicals. We believe that this should
1319 be the basis of policy decisions in the future based on the
1320 scientific experience and evidence we have, and so we agree
1321 that the protocol should make its decisions fully cognizant
1322 of the impact of the climate emissions or carbon emissions,
1323 CO2 equivalent emissions from these greenhouse gases that are
1324 also ozone depleters.

1325 Mr. CLAY. Thank you for your responses.

1326 Mr. Chairman, I yield back. Thank you.

1327 Chairman WAXMAN. Thank you very much, Mr. Clay.

1328 Ms. McCollum, do you wish to ask further questions?

1329 Ms. MCCOLLUM. I just want to kind of follow up. We have
1330 talked about the loophole that China has and the concerns
1331 about the black market, the role of Kyoto and Montreal in
1332 making for a healthier climate. Mr. Clay was talking about
1333 capturing the chemicals that are out there. But maybe we
1334 could hear a little more, especially from you, Mr. McFarland,
1335 about the alternatives that are out there for the HCFCs

1336 | today, the cost of shifting to those alternatives, because 20
1337 | years ago, quite frankly, people screamed the sky was falling
1338 | on industry if we did anything, and we found out quite the
1339 | opposite. We survived and we stayed neutral with the ozone
1340 | hole getting much larger. We have seen it get a little
1341 | larger in 2005, but for the most part we stayed steady.

1342 | We need to improve. We need to raise up the standard
1343 | from just staying neutral to moving forward. What kind of
1344 | role do you see out there with industries such as DuPont who
1345 | are working very much through research to do something about
1346 | this?

1347 | Mr. MCFARLAND. Well, for the phase-out of HCFCs,
1348 | alternatives exist today. You can buy the products with
1349 | alternative compounds. They are on the market. The clock is
1350 | ticking until the phase-out, for example, of HCFC-22
1351 | equipment that can be produced in the United States will be
1352 | illegal. As of January 1, 2010, according to the laws that
1353 | are on the books today. it will be illegal to use newly
1354 | produced 22 in equipment produced after 1/1/2010. Mr.
1355 | Thornton has raised the issue of right now there is no law on
1356 | the books that would prohibit the import of equipment
1357 | containing 22, and that is something that needs to be worked
1358 | on to close that so that it is a competitive issue for U.S.
1359 | industry as well as an environmental issue.

1360 | So for the phase-out of HCFCs, the compounds exist

1361 | today. In addition, we are looking toward the next generation
1362 | of products. You may know that the European Union has passed
1363 | an F-gas directive that will phase out the use of R-134A or
1364 | HFC-134A in mobile air conditioning in new cars beginning in
1365 | 2011. Over a year ago we announced that we had identified
1366 | several candidate refrigerants that have only about 3 percent
1367 | of the global warming potential of HCF-134A, and we are
1368 | looking to apply that technology to other markets, as well.
1369 | So we are optimistic as we go forward that we can provide
1370 | continuously more sustainable solutions to meet the growing
1371 | needs of the global refrigeration and air conditioning
1372 | industry.

1373 | Mr. THORNTON. Well, EIA endorses the point of view that
1374 | preference should be given to using cooling gases that have
1375 | the lowest possible global warming potential. We don't want
1376 | to have another transition chemical situation like HCFCs
1377 | [sic] that has a lesser global warming potential compared to,
1378 | say, HCFCs, but is still a significantly global warming
1379 | potential when the chemical is mass produced, so we should be
1380 | aiming for the lowest possible and then giving preference to
1381 | encouraging those technologies.

1382 | Ms. MCCOLLUM. How difficult is it, if you have an older
1383 | refrigeration unit? I know that recyclers are supposed to be
1384 | on the watch, trying to not release these chemicals into the
1385 | air. I know the automotive dealers were working very hard

1386 | with refrigeration units in the cars when the switch was made
1387 | not to release the chemicals. Is there anything that
1388 | industry can do better?

1389 | Mr. MCFARLAND. This is why we are proposing more
1390 | reliance on market-based mechanisms that provide the
1391 | financial incentives for all of the technicians throughout
1392 | the value chain to prevent emissions into the atmosphere.
1393 | Right now the data shows that, of the R-134A, HFC-134A, for
1394 | example, that is used in automotive air conditioning and
1395 | other refrigeration systems, of the amount that is contained
1396 | out there in equipment, about 20 percent gets into the
1397 | atmosphere every year, either through leaks, poor service
1398 | practices, end of life.

1399 | The same is true for HCFC-22 that is used in air
1400 | conditioning and refrigeration systems, for example, your
1401 | home air conditioner and supermarkets. And you are dealing
1402 | with literally tens of millions of potential sources out
1403 | there and tens of thousands of technicians that are going out
1404 | there to work on those systems.

1405 | What you need is a market-based system that provides a
1406 | financial incentive for them to recover it, so it is more
1407 | cost effective for them to recover it than it is to allow it
1408 | to escape into the atmosphere, and to maintain it in the
1409 | equipment. So that is the basis for our suggestions that
1410 | moving forward the implementation of agreements to improve

1411 environmental performance could be much more effective with
1412 market-based mechanisms rather than command and control
1413 systems that just say, Technicians, you cannot emit this into
1414 the atmosphere.

1415 Chairman WAXMAN. Thank you very much, Ms. McCollum.

1416 I want to thank the three of you very much for your
1417 presentation to us. I think this hearing has set a record
1418 that I think will be important for Congress as we consider
1419 the problems of the upper ozone, as well as the climate
1420 change matters. I hope this will also encourage the
1421 Administration to push forward at the September meeting even
1422 more aggressively than they already are proposing, but they
1423 are proposing some good ideas and we want to commend them for
1424 that.

1425 Thank you very much. That concludes our business for
1426 today. We stand adjourned.

1427 [Whereupon, at 11:30 a.m., the committee was adjourned.]

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