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UNITED STATES OF AMERICA

BEFORE FEDERAL TRADE COMMISSION

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In the Matter of

Union Oil Company of California, Docket No. 9305
a corporation.

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DEPOSITION OF CARL SHAPIRO

VOLUME II, PAGES 236 - 400

October 18, 2003

(The following is the continued deposition
of CARL SHAPIRO, taken pursuant to Notice of Taking
Deposition, via videotape, at the offices of Law &
Economics Consulting Group, 2000 Powell Street, Suite
600, Emeryville, California, commencing at
approximately 8:37 o'clock a.m., October 18, 2003.)

APPEARANCES:

On Behalf of Union Oil Company of California:

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11:31:31 1 the pieces as an economist and tell you the effect.

11:31:35 2 And, you know, it's sort of -- it's -- it's not a

11:31:39 3 standard situation I guess. I mean it's amenable to

11:31:42 4 analysis, but it's not a standard situation in terms

11:31:44 5 of was there -- how does one characterize that power.

11:31:47 6 Q. Okay. Now you have opined in your report

11:32:04 7 that CARB is locked in; is that right?

11:32:06 8 A. Yes.

11:32:09 9 Q. And can you briefly describe for me why you

11:32:12 10 think CARB is locked in? Well let me start -- step

11:32:15 11 back.

11:32:16 12 Can you give me a short definition of what

11:32:18 13 an economist thinks of as lock-in?

11:32:24 14 A. Well I think what I've tended to write and

11:32:27 15 say in my book with Hal Varian, for example, is

11:32:31 16 lock-in is really just a little more graphic word for

11:32:35 17 talking about switching costs, okay, significant

11:32:41 18 switching costs, and that's -- that's kind of a

11:32:45 19 language thing I guess. And then it also has

11:32:48 20 inherent in it -- well often has built into it the

11:32:53 21 notion that one had choices ex ante. You made a

11:32:56 22 choice and now it's kind of -- you're sort of stuck

11:33:01 23 with that in some sense in the sense of stranded

11:33:04 24 costs, in the sense of it's hard to switch, in the

11:33:06 25 sense of your options are reduced in comparison to

11:33:09 1 what they were earlier, reduced or less attractive in
11:33:12 2 some way. So it has a notion of -- sort of a
11:33:15 3 temporal notion, I guess. And if you look at my
11:33:18 4 book, we talk about -- the lock-in cycle has that
11:33:22 5 temporal notion very much part of it.

11:33:26 6 Q. Okay. So back to the question I started to
11:33:28 7 ask, and that is: Describe for me why you think CARB
11:33:31 8 is locked in.

11:33:35 9 A. Well, you know, what I --
11:33:38 10 I can go look at the report. I mean I -- I
11:33:43 11 just -- that's why I write these reports, so I can
11:33:46 12 have it be more precise rather than just wing it. I
11:33:53 13 guess if we look at page 26 of my report, "Regulatory
11:33:56 14 Lock-In at CARB," you can look at the subsections
11:34:00 15 here. So these would be the main elements that I
11:34:05 16 focus on: specific investments by refineries, State
11:34:11 17 Implementation Plan, coordination, and reputational
11:34:13 18 costs.

11:34:13 19 Q. Okay.

11:34:14 20 A. And we can -- obviously, if you want, we
11:34:16 21 can go into that in detail. But there's my statement
11:34:20 22 of this on these pages 26 through 29 of my report.

11:34:24 23 Q. Okay. Would you agree that if CARB is not
11:34:38 24 locked in, that that has implications for how one
11:34:43 25 should define the relevant technology market?