AMERICAN STATISTICAL ASSOCIATION
(ASA)

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COMMITTEE ON ENERGY STATISTICS

MEETING WITH THE
ENERGY INFORMATION ADMINISTRATION (EIA)

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FRIDAY
APRIL 3, 2009

The meeting convened at 9:00 a.m.
in Room 8E-089 of the James Forrestal
Building, 1000 Independence Avenue, S.W.,
Washington, D.C., Edward Blair, Chair,
presiding.

COMMITTEE MEMBERS PRESENT:

EDWARD BLAIR, Chair
STEVE BROWN
BARBARA FORSYTH
WALTER HILL

VINCENT IANNACCHIONE
NANCY KIRKENDALL
EDWARD KOKKELENBERG
ISRAEL MELENDEZ
MICHAEL TOMAN
JOHN WEYANT
EIA STAFF PRESENT:
STEPHANIE BROWN, Designated Federal Official, Director, Statistics and Methods Group (SMG)
JAMES BERRY
CAROL JOYCE BLUMBERG
TINA BOWERS
JAKE BOURNAZIAN, SMG
EUGENE BURNS
MICHAEL COLE, Office of Integrated Analysis and Forecasting (OIAF)
JOHN CONTI
BRENDA COX, SRA
RAMESH DANDEKAR, SMG
JOHN PAUL DELEY, OIT
DEAN FENNELL
STAN FREEDMAN
CAROL FRENCH, OOG
ADRIAN GEAGLA, OIAF
LYNN GEISERT
MARK GIELECKI, Office of Coal, Nuclear, Electricity, and Alternate Fuels (CNEAF)
HOWARD GRUENSPECHT, Deputy Administrator, EIA
LOUISE GUEY-LEE, CNEAF
STEVE HARVEY, Director, Office of Oil and Gas Use (EMEU)
TYLER HODGE, Office of Energy Markets and End Use (EMEU)
PATRICIA HUTCHINS, CNEAF
ALETHEA JENNINGS
KATIE JOSEPH
FRED JOUTZ
MARY JOYCE, CNEAF
JAMES KENDELL
BOB KING
ANDY KYDES
TOM LECKEY
JANICE LENT, SMG
BARBARA MARINER-VOLPE
PAULA MASON, OOG
FRED MAYES
PRESTON McDOWNEY, SMG
RENEE MILLER
EIA STAFF PRESENT (CONTINUED):

EILEEN O'BRIEN, Consumption Data Management Team, Office of Energy Markets and End Use (EMEU)

KOBI PLATT

ANTHONY RADICH, CNEAF

MICHAEL SCHAAL, OIAF

ELIZABETH SENDICH, OIAF

SCOTT SITZER

HOWARD STONE, CNEAF

GRACE SUTHERLAND, SMG

EDDIE THOMAS

PHILLIP TSENG, SMG

SHAWNA WAUGH

ALEX WOOD

JASON WORRALL

BIN ZHANG, OOG
A-G-E-N-D-A

Open Meeting. ......................... 5
  Ed Blair, ASA Committee Chair

STEEO Oil and Gas Price Forecasts, ........... 6
  Tyler Hodge, Office of Energy Markets
  and End Use (EMEU) EIA

ASA Discussant: Vincent Iannacchione. .... 28

ASA Discussant: Ed Kokkelenberg .......... 36

Additional Committee Discussion .......... 41

Re-Labeling Price Data as Nominal, ........ 61
  Jacob Bournazian, SMG, EIA

ASA Discussant: Walter Hill ............. 79

Committee Discussion ................... 81

Summary of Stakeholders' Issues
  and Questions: Andy Kydes,
  Office of Integrated Analysis
  and Forecasting, EIA. ............... 95

Liquid Fuels Market Methodology: .......... 119
  ASA Review Coordinator: Michael Toman

Additional Committee Discussion .......... 136

Committee Suggestions for Topics/Dates. .... 190
  for the Fall 2009 Meeting

Invitation for Public Comments .............

Adjourn the ASA Spring 2009 Meeting with ... 
  EIA, Ed Blair, ASA Committee Chair

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9:04 a.m.

DR. BLAIR: Okay. We're going to call the meeting to order.

To start, anybody in the audience who did not identify themselves yesterday, if you could please come to the microphone and identify yourself? If you were not here yesterday, if you did not already identify yourself.

MS. BROWN: I hope the microphone is connected today. Kobi, I think that's as good as it gets.

MR. PLATT: I'm Kobi Platt. I work in the Office of Energy Markets and End Use and helped out actually this analysis here with Tyler and Alex.

MS. GEISERT: I'm Lynn Geisert.

I'm a contractor.

MS. BLUMBERG: Carol Blumberg,

Office of Oil and Gas.

MR. KING: Alex King, EMEU.
DR. BLAIR: Any others who have not signed in?

MS. BROWN: Jim.

MR. KENDELL: I'm Jim Kendell.

DR. BLAIR: Our first session this morning is STEO, Oil and Gas Price Forecasts, Tyler Hodge.

MR. HODGE: Okay. Well, thank you. It's good to see everyone this morning.

The reason I'm here is to present some of our research and findings on work we've been doing regarding trying to model uncertainty in our Short-Term Energy Outlook or STEO. And I've been working on this project with Kobi Platt and Alex King who are there in the audience.

And the whole reason we've been working on this project is because, as you are all aware, the rapid rise in crude oil prices since 2007 through the first half of last year plus the even faster decline in prices up to the present has really made it difficult for
us to kind of fix a good price path for our
short-term outlook.

And even within the last six
months, especially within the last six months,
it is not unusual to see a day-to-day
fluctuation in prices of like five or ten
percent. I think even yesterday I think the
crude oil price was up eight percent or so.

So, you know, based on this
heavily volatility in the prices, we've found
ourselves recently in our short-term energy
outlook discussing or actually highlighting
some of the uncertainty around our price
forecasts and we've also been trying to
address some of the economic and market issues
that impact that uncertainty.

But what we're hoping to do, what
our goal is is to actually find a way to
characterize or quantify that uncertainty so
we can better discuss or frame our discussion
of our price forecasts, and specifically the
uncertainty around our price forecasts.
And for this presentation, what we're going to do is we're going to highlight one widely used measure of uncertainty that's frequently cited within other financial analysis reports. And that's the implied volatility of NYMEX options contracts.

And what we're hoping to do today is to get some insight and input from the Committee about the best way to apply this volatility measure to our STEO forecasts.

So this will start off just sort of discussing in a general way what implied volatility is and also if you guys have any, you know, simple questions or clarification questions, feel free to bring that up. But if you have any more substantial comments, maybe we can just hold that until the end just to make sure I get through the presentation.

But in terms of volatility, you know, generally when people think of volatility, they think of past changes -- or changes in prices of a certain asset over
time. And it is easy to measure historical volatility by just, you know, taking a day-to-day percentage change in past prices.

But what we're trying to do is actually use information from current market activity to sort of gauge or measure the expected uncertainty among market participants. And one way to do that is using the implied volatility measure.

And by definition, implied volatility for an options contract is the uncertainty or the risk that is implicit within an options market premium. And, of course, you have to have some sort of assumption of an option pricing model.

And an important point about this is that the implied volatility measure is a forward-looking measure of markets uncertainty as opposed to just measuring historical volatility.

So before I get into more detail about the mechanics of implied volatility,
I'll just illustrate some other ways that other financial analysts use this measure to represent or illustrate uncertainty. And first we've got a couple of charts here from the Federal Reserve. I'm not exactly sure what official report this is from. I think it is just for internal use.

But you can see two different ways of using this implied volatility measure. On the left, what they do is they just simply track the implied volatility measure over time. In this case for three different futures contracts.

And it is interesting. You can actually see how the volatility has increased from 2007 through the latter part of 2008. So that's one helpful way of actually illustrating uncertainty.

A little bit more complex way of illustrating uncertainty is to actually take the options for a single fixed contract, in this case for the December 2008 contract. And
what they do is they plot the futures price over time. And then in addition to that, they create a confidence interval around the futures price that they construct using the implied volatility within the options on those futures contracts.

And you can see, obviously, that as you get closer and closer to December 2008, the confidence interval of the range of expected prices is actually converging even though over time the implied volatility has gone up.

So there's two important factors impacting the range of expected prices. There is the expected uncertainty around the future price fluctuations and then, of course, as you get closer to the forecast, you usually have a lower or a narrower range of expected prices.

So another financial analysis report from Deutsche Bank actually creates a much more complex use of the implied
volatility measure. And with that, they actually create a probability distribution curve around what they expect the prices to be.

And you can see here that they actually used two different pricing models, the Black-Scholes model in the red and a skew surface model. They're pretty similar. But what are the benefits of presenting implied volatility this way? It gives you a sort of a visual interpretation of different probabilities, prices.

And you can see that based on the area under the curve, they are pretty much 100 percent certain that the price will fall between say 25 dollars and 100 dollars. Of course, that's a pretty wide range, you know. There's not very much information in that.

But from the probability distribution curve, you can actually create even narrower ranges or more customized ranges of different prices. And this is a table that
Deutsche Bank presents along with their probability distribution curve.

And it shows the probabilities of the June 2009 crude oil contract, you know, the prices in June falling below certain levels for prices or falling above certain levels of prices.

And based on this table, you could actually create you own little confidence interval. For example, let's see the probability that prices will be below 80 dollars is 94 percent. If you combine that with the probability that prices will be above 60 dollars, if you find the difference between there, that translates to, you know, a confidence interval of 63 percent probability that that price will be between 60 and 80 dollars.

So that's a narrower range. But we're still talking about a 67 percent level of -- or 63 percent level of confidence. So, you know, on a statistical basis, that
obviously is a pretty low level of confidence.
But at least it illustrates the uncertainty around their price forecasts for the future price levels here.
So I guess I'll go ahead and just start talking about some of the fundamental basics behind options and the implied volatility level. And we'll start off just introducing some basic options terms for those who are unfamiliar with them.

There's two basic types of options that can be traded in the market. A call option gives the holder of the option the right to buy an asset at some time in the future but note, it's not an obligation to buy in the future. And on the other hand, a put option gives the holder the right to sell the asset in the future.

And each specific options contract has two important terms within the contract.
First there's the strike price, which is the agreed-upon price that the parties agree
either to purchase, in the case of a call
option, or sell the asset in the future.

And then, of course, the other
important terms of the contract is the
expiration date. And that's the last date
that the option can be exercised by the holder
or the date that the settlement takes place if
they don't actually trade before the
expiration date.

And like any other type of
financial or physical asset, options are
traded in the market. And the market trading
determines a level of value for that specific
asset. And that's what the option premium
represents. That's the price of actually
purchasing the options contract itself.

So as you can imagine, there's a
variety of different variables or factors that
impact the option premium or the value that
the market places on any given option
contract. And, you know, accurately modeling
the market's behavior and how it values these
options has really kind of fascinated
financial economists over the last couple
generations.

And one of the most important or
well-known options models was formed by two
economists. One was Myron Scholes and Fischer
Black. This was back in the 1970s. And the
mathematics behind this is extremely
complicated and I won't pretend to understand
the derivation of this model.

In fact, I think it was -- yes,
Fischer Black and Robert Merton, they won the
Nobel Prize for developing this model back in
1997. But, you know, even given the basic
mathematics, you can see that there are a
couple of important structures behind this
model.

First, you can see that the model
is a random function of certain variables,
specifically, I guess, these two types of
variables here, the option premium, and the
current price of the actual underlying asset,
those variables you can actually directly observe within the market.

And then the other two variables here, the strike price of the option and the time to expiration are defined within the terms of the contract itself.

And then if you make an assumption about what the risk-free interest rate is, usually like a 30-day Treasury bill rate, the only other parameter variable that you don't know in this model is the sigma value. And that's what we call the implied volatility of the option. You can actually solve this model for sigma to determine an implied volatility.

And one other thing I should note about this is that you might be able to tell from some of the functional form of the model that what they assume is that price levels are logged normally distributed or in other words, the daily rate of return is normally distributed. That's an important assumption behind this model.
And also note that you can actually calculate implied volatility measures for any of the strike price levels for a given option, like for a June contract, you know, there's maybe 30 or 40 different possible options contracts for each specific strike price.

And for our purposes, what we're going to do is we're going to just focus on the implied volatility for the options contract whose strike price is closest to the futures price for that day. The volatilities, you know, there can be different — theoretically they should be the same for all levels of strike prices but in practice, there is some difference between the different volatilities and different strike prices.

But we're just going to focus on what is called the at-the-money option, which is where the strike price is equal or closest to the futures price.

So based on that Black-Scholes
1 model, there's a couple different possible
2 methods we could actually use the implied
3 volatility measure from that model to
4 illustrate uncertainty. We could either
5 create a confidence interval for the futures
6 prices in any given month. Or we could create
7 a probability distribution function like
8 Deutsche Bank does.
9 You know fortunately, you know, we
10 don't have to worry too much about the
11 mathematics behind implied volatility.
12 Fortunately there's a lot of organizations
13 that actually calculate those values for you.
14 We've collected a big database of
15 implied volatilities from the CME Group, which
16 is affiliated with NYMEX. And we've been able
17 to obtain some spreadsheets also from the
18 Federal Reserve and we were able to uncover
19 this function for calculating confidence
20 intervals around the expected price in any
21 given month.
22 Unfortunately, we don't totally
understand the mechanics behind that. Carol Blumberg, she was nice enough to help us deconstruct that a bit so we could see some of the assumptions behind this confidence interval.

But at least you can see that the confidence interval is a function of these four different variables. It's obviously a function of the current price, the implied uncertainty or volatility around those futures prices.

It's a function of the time to expiration. And, of course, you have to set up an assumed level of confidence.

And similarly, we can use the futures price and the implied volatility, along with the assumption that the prices are log normally distributed, to create an entire futures price probability distribution curve.

And one thing to keep in mind for either the confidence level or the probability distribution function curve is that these are
all derived from NYMEX prices and NYMEX trading.

They don't necessarily represent the STEO uncertainty. But at least we can show where the STEO forecast falls either within the confidence interval or on the probability distribution curve. And with the probability distribution curve, we can also possibly compare how the uncertainty has changed from month to month.

First, I'll just show you an illustration of an example of how we applied the implied volatility measure for futures prices on March 6th to the futures price curve on that date. And March 6th was actually the date that we last finalized our most recent STEO.

But you can see here that even for NYMEX futures prices, there is a wide range of possible expectations for future price levels. And you can see that the uncertainty actually gets wider and wider the farther out you go.
through the end of 2010.

And what we could do is we could actually just put a log -- or insert our STEO price forecast to show how our price forecast compares to the NYMEX futures price curve.

And one thing I should note that in the later months, it looks like our price forecasts for March actually pretty much coincided with what the NYMEX futures price curve was. But I just want to warn you that that is usually not the case because the expectations that we have in deriving our STEO price forecasts are almost always different from what the NYMEX market is expecting.

For example, in these early months, we're generally using -- or we are using macroeconomic forecasts for our model that are from Global Insight. And it is generally accepted that as of right now, Global Insight is considered one of the most pessimistic macroeconomic forecasts.

But that's what we've
traditionally been using. So that's one
explanation why our current price forecast is
below the NYMEX market expectations. So one
benefit of this chart is that it allows the
STE0 reader to sort of compare how our price
forecast compares to the NYMEX price
expectations. And it also shows some of the
uncertainty around those prices.

So in addition to just graphing
certainty intervals around the price curve,
we could actually present those intervals
numerically in a table. One benefit of this,
obviously, is that you can see, you know,
values behind the various ranges of possible
prices in the future.

And if we decide to go ahead and
decide to publish this information, we could
probably set up some sort of dynamic web page
similar to our STE0 query system where the
user could actually customize the table to get
whatever information they are looking for in
a simple manner. That's a bit more difficult
to do graphically.

Let's see. Okay. Besides the confidence interval, we could also just plot a probability distribution curve for any given month to show the full spread, sort of illustrate the uncertainty around both the NYMEX futures price and our STEO price forecasts.

The 45.52 is the futures price back on March 6th and the 40 dollars is the June price that we were forecasting in our latest STEO.

It's hard to see but you can see the gray lines here illustrate a 67 percent confidence interval, which is just a general one standard deviation confidence interval. And you can see that our STEO actually falls pretty close to the lower bound on that confidence interval around the NYMEX futures price.

So I just want to show this graph to show another way of possibly comparing the
uncertainty from month to month.

These two curves show a one month ahead futures price probability distribution curves. Specifically, in the red it shows the probability distribution curve for the March contract calculated back in early February. And then the blue shows the probability distribution curve for April prices based on options contracts from March 6th.

And you can see that from the shape of the curve that the implied volatility of the April curve, the blue curve, is higher than it is for the March contract. And the shape is less peaked, I guess. It is more spread out. I guess you could say in statistical terms, it's more leptokurtic, I think.

But you can see just based on how spread out it is compared to the red curve, that there is more uncertainty in April than there was in March or in March compared to February -- I'm sorry. So that's just one
possible way we could actually show the
collection of uncertainty from month to month.

And let's see here, what we could
do is we could also just create a table from
those probability distribution curves to
illustrate numerically the different
probabilities of various ranges of prices.
One benefit of going with this approach is
that it allows the reader to create their own
levels of confidence.

For example, if, you know, they
wanted a 99 -- a 98 percent confidence
interval, they could say that prices are
likely to be between 30 and 70 dollars. But
personally, that doesn't offer much
information for me. But you can create more
narrow bands of ranges, if you want, using the
various probabilities.

And I show, of course, how the
futures price in our STEO forecasts fall
within that table. It is probably easier to
illustrate that graphically than in a table.
So I just want to wrap up here by just asking the Committee about a few questions regarding our approach to modeling uncertainty here.

The first one, as I mentioned, what we're doing is we're calculating the confidence intervals and the probability distribution curves based purely on NYMEX data. And I guess we'd like to know whether it's really appropriate to compare EIA STEO forecasts with information about uncertainty in the NYMEX future options market.

And if so, do confidence intervals or the probability distribution charts, which of those is probably the best way to actually illustrate the uncertainty? And if, you know, is it better to actually present the uncertainty information graphically? Or in tables? Or in some combination of the two?

So with that, I guess I'll turn it over to questions and Committee discussion.

DR. BLAIR: Our first discussant
MR. IANNACCHIONE: Thank you, Ed.

First of all, this is a very interesting topic and one that kind of hit me in the face last night as I was reading the paper where the Dow is back up around 8,000 or so, which means I may be able to retire a couple of months earlier.

(Laughter.)

MR. IANNACCHIONE: But apparently gas prices are up too so I'm going to have to pay more for gas. So anyway --

MR. KOKKELENBERG: Not all of your income goes to gasoline, I hope.

MR. IANNACCHIONE: Anyway, I'm a statistician and not an economist. And I'm going to defer to our other discussant Ed for some comments on the modeling schemes like the Black-Scholes and that.

I see this, as a statistician, volatility I equate with variance, of course, and you have a sigma there in one of your
formulas. And to go right to your first
question there, STEO and the NYMEX, is it
appropriate? Well, I think it really --
certainly it is appropriate. And I know you
want to look into the future for the forecast
not in the past.

But I think at some point, you
have to be measuring how did it do in the past
because if you can't rely at all on the past,
then I don't see how you can predict in the
future.

Unfortunately, this is a very
volatile time. And I think -- I notice that
you have 67 percent confidence intervals,
which aren't very confident frankly.

MR. HODGE: Yes, exactly, it just
illustrated the uncertainty.

MR. IANNACCHIONE: It's one
standard error. And that means -- and even at
that, the confidence intervals were very wide.
One of your graphics had -- I just did a
little looking at one of them there, the
dollars per barrel sitting at 50 dollars a barrel, plus or minus about 20.

MR. HODGE: Yes.

MR. IANNACCHIONE: How useful is that? I mean at some point, you may -- the inherent volatility may be such that you really have to say we can't give you a very accurate estimate.

MR. HODGE: Yes, that's true.

We're kind of hoping in addition to this, we can kind of compare how the volatility has changed over time. So even though we might have wide bands, maybe you'll have less wide bands next month or something.

MR. IANNACCHIONE: Well, I think we're all hoping for less wide bands --

MR. HODGE: Exactly.

MR. IANNACCHIONE: -- in the future. That's for sure.

One thing that occurred to me that I think ideally you'd want the forecasts internally based on here's what was going on
in the prior months on the STEO forecasts. So we're going to kind of base it -- the forecast just on that.

And I wonder if you could consider some replication methods that statisticians use to estimate variance. In particular, there are jackknife variance estimation methods where you could basically if you have these for weeks or even daily, if you have these measures, you could delete one and see what the forecast is without that week. And then delete another one. And just kind of randomly bounce around and see how much that deletion effects the volatility.

That's a --

MR. HODGE: Okay.

MR. IANNACCHIONE: -- pretty effective technique that survey statisticians use because there's complex sample design to generate -- it makes the estimation of variances kind of difficult. And I get the feeling that you're kind of in the same boat
here.

MR. HODGE: Exactly.

MR. IANNACCHIONE: So that's one suggestion.

On your second point, do confidence intervals and/or PDF charts adequately illustrate uncertainty, well the short answer is yes. I think they do.

You may be saying well, which one should we go with. And I think that depends on the audience. Who you are trying to communicate this information to.

At some level, confidence intervals are more direct. The real value is somewhere between that lower bound and the upper bound. Or at least we're 95 confident or we're 67 percent confident. Whatever it is, the reader can tap right into that.

MR. HODGE: It's more intuitive, I guess.

MR. IANNACCHIONE: It's very intuitive, yes. And you're kind of setting
the confidence level.

MR. HODGE: Yes.

MR. IANNACCHIONE: I mean there's -- with the PDFs, you had mentioned that they enable custom confidence levels to be made.

And they do. And that one, PDFs might be more difficult to understand because the reader can go in and may be confused. Or they're not really setting the confidence level.

I mean it is there. But they may not fully appreciate it where with -- if you set it, then that's what it is. Now obviously you could have, just on this graphic here, you could have different levels. That could be a 67 percent, a 95 percent would probably be maybe --

MR. HODGE: Yes, off the scale.

MR. IANNACCHIONE: -- off the scale there but still you could have different gradations or shades --

MR. HODGE: Well, that's true.

MR. IANNACCHIONE: -- to
illustrate how the confidence interval expands
or contracts depending on what level of
confidence you have.

So as far as the third question, should it be graphics or tables, I think in
general all of us would probably say give me
a graphic. I can deal with a picture a lot
easier.

With something like this,
especially with a confidence interval
approach, I think you could have tables for
someone who wants some more exact measures.
They could be in a supplement or something
like this. But that's where your main source
of communication would be, right with the
graphics.

Or if you're going with PDFs, and
there's no reason why, by the way, you can't
display both, I mean you could have,
especially on a website where for users who
want to look at PDFs, they could, it seemed
like in the curves, those bell-shaped curves,
I found myself looking at the labels. I mean I know that if it is a fatter curve that there's more variance there. But I don't know how much more variance there is. I mean I just know that it is kind of an ordinal-type scale.

MR. HODGE: Okay.

MR. IANNACCHIONE: So maybe the tables would be more appropriate there. Or you could get creative and maybe a graphics artist could help display that in a graphical way as well. But it seemed to me that the tables work better for the PDF.

MR. HODGE: You mean there's probably more room for misinterpretation on a graphical PDF like that?

MR. IANNACCHIONE: Well, I think misinterpretation or just lack of understanding.

MR. HODGE: Oh, okay.

MR. IANNACCHIONE: You know -- and, again, this all kind of gets back to who

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is your audience here.

MR. HODGE: Yes, exactly.

MR. IANNACCHIONE: If the people in this room are your audience, then yes, you could go more upscale as far as the technical level goes. But if you are putting it out on a website for general consumption, you may want to avoid that.

MR. HODGE: Yes, exactly. Okay, well, thanks.

DR. BLAIR: Ed Kokkelegenberg?

MR. KOKKELENGERN: I want to compliment Tyler and company. They've done a lot of work here. And they really poked around in this issue of trying to forecast volatility.

My comments probably raise more questions than answers. I've already communicated rough answers to Tyler by e-mail and they were pretty consistent with what Vince has just outlined.

But here's some comments for what
they're worth. First of all, the real issue is can you get a precise forecast of the point value. I mean if you could do that, you could care less about the variance, right?

But the second moment becomes valuable, the variance, when the time period for which you are forecasting is rather wide. For example, you're forecasting for 2010

MR. HODGE: Yes.

MR. KOKKELENBERG: -- and that price may vary within that 2010. And that's where the second moment becomes important. So you want to know the limits of this price.

I teach -- when I teach forecasting, I often use an example called Mr. Tux. Mr. Tux has got a tuxedo rental place. He's thinking of building a second operation on the other side of town. And he has to sign a five-year lease.

So he calculates the volatility of his tux sales, which are highly seasonal -- or tux rentals. And so I ask students well, why
1 do you care about the volatility. He's got a
2 point estimate for each year.
3 And they think about this for a
4 while. And the brighter ones say because he
5 has a monthly lease payment he has to make.
6 And he wants to be able to cover that in the
7 worst month of his sales, right? Right.
8 Okay. So it depends on your
9 audience. If somebody really is taking market
10 positions in this for contracts that are
11 futures contracts, they are going to want to
12 know fairly precisely but they want to know
13 what kind of volatility that they can expect
14 within that time period.
15 But if you're talking about long-
16 run forecasts for people who are considering
17 building power plants or refineries 20 years
18 from now or 10 years from now, that volatility
19 may not be quite as important.
20 Having said all of that, it really
21 depends on your audience. Now the estimates
22 of the volatility are best made if the time
series is stationary. And I don't think the
time series is stationary at all in terms of
covariants or main. Yet the past is the only
thing you have got to work with as you've
said. And so you've got that. And if you
don't have -- if that isn't going to help you
forecast, then you're totally out at sea.

So I come to this jackknife
question. I like the idea. But I'm a little
concerned that what you are going to do is
identify a few time periods in which that
price really jumped around. And then you're
going to have to answer the question should I
eliminate that or leave it in?

And as somebody on this Committee
years ago said, you should cherish those
observations because they fall outside of your
model. That means your model isn't able to
handle that. And you should be at least aware
of that when you're using that model.

And so you're going to come to
that question if you use jackknife. But I
like the idea to help identify problems.

Now the futures contract volatility represents only the market players' uncertainty. And as you notice, that got narrow when you got toward the date, the expiration date on the contract because their uncertainty collapses to a point estimate ultimately.

MR. HODGE: Yes.

MR. KOKKELENBERG: But you're standing there looking at the point and looking into the future. So that's why you get these expanding bands of confidence. And eventually after you get a few periods out, a time series thing becomes mechanical.

And so those bands don't bounce around nor do your point estimates bounce around. They're just kind of projections of uncertainty that lies within the model itself -- the statistics of the model. As you get more observations, the variance grows.

MR. HODGE: I think, you know, the
confidence intervals are based both on the volatility and the timed expiration. So --

MR. KOKKELENBERG: Right.

MR. HODGE: -- you know, one is offsetting the other. So I think that's why it just sort of can get constant after a while.

MR. KOKKELENBERG: Yes, but when you make the forecast, your comb expands as does the Bank of England's or anybody who is doing these forecasts because the volatility, the second moment essentially goes up --

MR. HODGE: Yes.

MR. KOKKELENBERG: -- as you go off into the future. And it makes intuitive sense because you're extending yourself beyond your experience.

MR. HODGE: Yes.

MR. KOKKELENBERG: Okay. The question I have is would you propose that EIA do something like your third chart, which was that one -- I thought I drank all that coffee
1 -- your Figure One, the probability
distribution. Go back a few more -- keep
going -- keep going. No, you're going the
other way. Reverse yourself. Continue.

MR. HODGE: Is it a probability
distribution?

MR. IANNACCHIONE: Well, I was
thinking it was like this one -- the
probability density function that the Bank of
England had or whoever this was -- Deutsche
Bank. That, yes.

Now would you propose that the EIA
do that? And here's the problem I have with
that, I think that's great. The Deutsche Bank
and British Petroleum, and Enron, and formerly
Merrill Lynch -- I don't know who does this
now -- used to do this repetitively.

They may have done this, with the
computing capacity they have, ten times an
hour to help their market players understand
what the range of uncertainty is. And that
implies a fleetness of foot that is rather
daunting for an agency that takes two and a half years to get a form change.

MR. HODGE: Yes, we're just talking about monthly forecasts.

MR. IANNACCHIONE: I know, I know.

MR. HODGE: And that's a short time period.

MR. KOKKELENBERG: Yes, for the short-term energy outlook, this might not be a bad thing to do though because you can do this every month.

MR. HODGE: Yes.

MR. KOKKELENBERG: Now the other thing is that using Black -- another point -- totally different point -- Black Scholes implies that the market has got it right.

MR. HODGE: Yes, there's a lot of assumptions there.

MR. KOKKELENBERG: And that is questionable for 2008 but it may have been good for almost every other time, right? And perhaps Black-Scholes is more important over
the long run rather than a very short run thing. Over a ten-year span or a 20-year span, Black-Scholes works.

MR. HODGE: Yes.

MR. KOKKELENBERG: Over a one year or one-month span, Black-Scholes depends on things not changing. And basically things changed in 2008 dramatically. And I'm not sure the Agency could have picked those things up even if it was doing monthly forecasting.

The market didn't pick up and these guys have millions of billions of dollars invested in it. So I wouldn't feel bad if you don't outdistance the forecast that they do. The problem is that you have Congress asking you why can't you forecast better.

So as I say, I have more questions than answers. But I really appreciate what you did here. And I thought it was a real good crunch into the problem.

MR. HODGE: Okay.
DR. BLAIR: Steve, in that case,
we'll go to questions and comments.

MR. HODGE: Oh, sure.

MR. BROWN: I have a couple of
comments. First of all, for those of you who
are new to the Committee, I thought it would
be kind of useful to share but I think as the
genesis of this, which is that, you know, six
months ago, Congress was sort of demanding --
or a group of five Senators was kind of
demanding to know why could EIA get its short-
term energy outlooks and long-term energy
outlooks right.

So I think part of the response is
to really try to explain how much uncertainty
there is in any kind of outlook, even in a
market outlook.

MR. HODGE: Yes, I think they were
specifically pointing to, I think, a forecast
by Goldman Sachs. But the problem is Goldman
Sachs projects a range not an expected level.
So obviously with a range --
MR. BROWN: Well, and Goldman Sachs also did a super-spiked outlook. And what they do, they create these funny scenarios like super-spike outlooks and stuff like that. And they say well this only has a one percent probability of happening. But if it happens then they look really smart or something.

Could you go forward a couple of charts?

MR. HODGE: Sure.

MR. BROWN: It's the one that has your forecast in with -- that one.

MR. HODGE: Okay.

MR. BROWN: I would have, you know, let's say I was kind of running through the STEO and I came to this chart online. And I didn't have a big text to tell me what I'm supposed to think here.

And I would really -- what I would sort of look at in this chart is I would really say well, how does the STEO compare
with the NYMEX is what I would get out of this. I wouldn't get the sort of distribution unless you really did something to emphasize the distribution. And I would --

MR. HODGE: You could send a background kind of the ranges.

MR. BROWN: Well, and maybe if you did what Vincent suggested and kind of had more shading to emphasize the confidence bands. But I would recognize that the confidence bands were really about the NYMEX thing.

And I would then be sort of saying oh, it's not statistically different than the NYMEX forecast even though it's different, that's kind of what I would -- my take-away from it without a big text explaining it to me, is well, it's not really statistically significantly different than the NYMEX.

And I'm not sure that that's what you want to accomplish.

MR. HODGE: Yes, I didn't think
about viewing it that way. But I can see what you're saying.

MR. BROWN: But that's -- I mean that's how I look at it as a sort of like -- just looking at the picture, I have no context. That's the immediate thing that jumps out to me is oh, it's not really statistically significantly different than the NYMEX.

And the other question that that sort raised for me is particularly since you explained why the STEO is a little bit lower than NYMEX is are you really comfortable at this point in time with the STEO forecasts?

You know you were sort of explaining why you're low, you know, sort of like well the macro thing that we're forced to use is something that is lower than everybody else's. And --

MR. HODGE: Well, I could explain it just the opposite, that they're higher than us, you know.
MR. BROWN: Well, but either way, I mean it's sort of -- you know, it's sort of you're going to be explaining why you are different from the market if you have a chart like this. And is that what you want to do? I'm asking that as a question. I don't have the answer to that.

MR. HODGE: Yes, we usually don't highlight the differences between the NYMEX and the STEO. I just thought that since we're presenting this chart, there might be questions.

MR. BROWN: No, but if you have this chart on the STEO page --

MR. HODGE: Yes.

MR. BROWN: -- in the EIA website, people are going to be asking this question.

MR. HODGE: Yes, we would definitely need to have a lot of explanation behind it.

MR. BROWN: And would you want to answer that question? You may not want to
answer that question. In which case you may
not want this chart.

MR. IANNACCHIONE: Wouldn't it be
the next one that you would have on the
website? The one after?

MR. HODGE: The -- oh, wait -- the
one before?

MR. BROWN: The one before it.

MR. HODGE: Yes, that? Yes,
that's another possible way to go. We
actually had a workshop about a month ago
called Relationship Between Financial and
Physical Markets. And we kind of went over
this presentation. And it seemed like a lot
of the audience seemed to prefer, you know,
showing the two together.

So I don't know -- of course, like
you said, it depends on who your audience is.

MR. BROWN: Well, it depends on
who your audience is and what you're trying to
accomplish.

MR. HODGE: Yes.
MR. BROWN: I'm assuming your audience, kind of from the point of view of the questions I'm asking right now, are the five Senators in some sense.

MR. HODGE: Yes, I mean obviously there's --

MR. BROWN: Do you want to get them off your back? And in which case I think you'd want to have the 95 percent confidence band up there.

MR. HODGE: Maybe just to be safe.

MR. BROWN: To be safe and well, to have it shaded a different color something like that.

But I do have one question. This is really going far afield about the STEO now, which is in general, it is very hard to outperform auto-regressive models. And you're STEO model is more complex than that.

And I'm wondering how long it's actually been since the STEO itself was examined to see how well it performs versus an
auto-regressive model.

And I'm also wondering if there
are confidence bands on the STEO forecast
itself, constructed from the statistics of the
STE0.

MR. HODGE: Well, that's an
important point I should mention is that we
don't -- the WTI crude oil prices, one of the
only variables that we don't explicitly model
in our STEO outlook -- our STEO we formally
model in our model, we developed that forecast
through, you know, a consensus of opinions in
our meetings while discussing, of course, all
the variables and stuff.

So -- but obviously if we had an
econometric equation for WTI that performed
reasonably well, you know, we could develop
forecast errors from that equation. I think
that that would probably be the ideal way to
go.

But using the NYMEX futures also
allows us to sort of look forward instead of
just sort of looking back at how well we've performed. So but I mean they're both valid ways to, you know, look at forecasts.

MR. BROWN: So the STEO is more of a -- there's some judgment in there as well as some kind of formal model.

MR. HODGE: Yes, yes, especially with the WTI crude oil price, there's more judgment involved. Of course, we look at all the factors like, you know, the international supply balance and macroeconomic factors and stuff like that.

So -- but we don't formally model that so that adds a whole other level of difficulty in trying to, you know, gauge our past efforts and how our forecast error is derived.

DR. BLAIR: We're a couple of minutes over time but we'll borrow a couple of minutes from the next section to pick up John, and Mike, and Barb, were you going to say something?
MR. WEYANT: Okay. To catch up on all these great comments, I do think that this is a very important area to push further. And you've made a lot of progress on it.

I used to teach Black-Scholes. There's a lot of assumptions involved in it. You should kind of -- even without going through the derivation, which isn't actually that hard, you should go through those just to familiarize yourself with it because if you're going to use that methodology, people will start asking you about, you know, zero transaction costs.

And the one I think is particularly good and relates to something Steve kind of got into is that has been a lot of work on this stochastic properties that best fit energy products, natural gas, electricity, gasoline, crude oil. I think Steve has actually done some work in that regard. So there's just a little bit of literature out there.
And, therefore you might want to modify the basic set up a little bit in Black-Scholes. And the people who do that, do that second step as well.

Secondly on this, I think it is important if you're going to practice -- to get across that there is variance and it's kind of in the real world -- it's not stationary.

So every time I hear an industry person say we need certainty in future carbon prices, oil prices, I just go oh, my God, if I was in the IT industry and I tried to do that 20 years ago, people would have put me in the loony bin.

So my interpretation of this, which may be just totally idiosyncratic is, I say well, your mean projection is kind of like NYMEX. You didn't give me any other way to think about uncertainty. I'm trying to actually, you know, manage stockholder funds. I'm going to actually graft on that as the
uncertainty band around the mean forecast.

So this gives me at least a rough idea how likely it is that it is off and how far that being off might be.

MR. WEYANT: By the way, do you know what the current futures price is?

MR. HODGE: I think it was like 52 dollars.

MR. WEYANT: So it's definitely over 50 now. So that comes to the last thing. I think Ed clicked this in my head. I think it would be useful because you have this short time horizon, kind of monthly things, if you buy my argument or have some way of doing uncertainty to kind of collect that data so that the decision theory guys have this really neat concept called calibrated experts.

So if I was saying okay, EIA, you're not responsible for all the uncertainty in the world. But if you're going to show me these, you know, two-thirds of the time they should be in there, I'm going to collect these
for two or three years and say two-thirds of
the time, were you within that one standard
deviation or whatever the number is?

I think that -- to me, that would
build some credibility as you go to have you
kind of be --

MR. HODGE: That's true.

MR. WEYANT: -- so you're not
responsible for solving the problem of massive
uncertainty in the world like who is going to
be the next President or who is going to be in
the next Congress, et cetera.

MR. HODGE: Yes, we have the past
data to reconstruct, you know, these bands
historically and see how well we did. So
that's definitely a good idea.

MR. WEYANT: Yes, that on this
kind of big number crunching computer thing is
something, you know, you're kind of already
doing that. This is just not just doing the
means but these ranges. And that, if you
don't want to buy into this being a measure of
the uncertainty in your conception of this,
you could at least critique the use of this methodology which other people have tried to use. But kind of using the NYMEX kind of standard Black-Scholes options, could spread future price, just as you've done it. And say this is the methodology we're putting forward here and it is based on somebody else's model and somebody else's thinking. But we either have more or less confidence over time based on how the numbers turn out over time.

DR. BLAIR: Mike, are you withdrawing your comment?

MR. WEYANT: I'm just going to make a quick footnote because it is about what John said but it was something very specific. I would assume there's a -- I don't know if this is transactions cost or something -- that when the folks that purportedly regulate futures transactions raise margin requirements, that would be an example of something that, you know, may have changed
over the last few years.

And I would assume that before and after things like that, there could be differences in price behavior. So it would be one more thing to think about. The institutional backdrop is not always being held constant.

MR. HODGE: That's true.

DR. BLAIR: And Barb?

MS. FORSYTH: The point that I would make is only that you can also encode expert judgments. So you don't have to rely just on historical data.

But you can formally encode expert judgments to measure their uncertainty values and explicitly reflect them so that you could get it not just from the historical data but, in fact, you could assess the uncertainty about the historical data from experts and map those probabilities --

MR. HODGE: Okay.

MS. FORSYTH: -- as well. So --
MR. WEYANT: So this is almost moving towards a full update where you start with priors and --

MS. FORSYTH: I didn't want to say that but yes.

DR. BLAIR: And Ed, if you don't mind, I'm going to ask that we go offline with your comments so we can finish the session and move on to the next one because we're over time.

MR. KOKKELENBERG: No, I only have about a two sentence comment. So I would prefer to offer that.

DR. BLAIR: Okay, go ahead.

MR. KOKKELENBERG: And be online.

And the online comment is that somewhat similar to what they're saying but for future forecasting you really should employ a suite of models, not just one model. That's it.

DR. BLAIR: Okay. Thank you.

MR. HODGE: Okay, I appreciate all the comments. Thanks again.
MS. BROWN: We're not done.

DR. BLAIR: Oh, I'm sorry. Was there a comment from the audience? I'm sorry.

MR. HODGE: Okay. Well, thanks again.

DR. BLAIR: Our next session, Re-Labeling Price Data as Nominal, Jake Bournazian.

MR. BOURNAZIAN: Thank you, Ed. Good morning, Committee members and EIA staff and the audience. Today's presentation is about how our agency delivers price data to our customers.

Now we release a great deal of price information. In fact, in just the area of petroleum and natural gas alone, we release approximately 16,000 different price data series from our website.

When I add in electric power and coal and the other fuel groups, we're releasing approximately 20,000 different price data series from that website. So there's a
lot of quantity behind this information.

But there's something else besides quantity and that's popularity because price statistics are always unique more than any other because it is that unique moment when the supply and demand curve intersect and we have a point of measurement where the market is cleared -- for a day, a week, a month, a year, they cleared on that measurement.

And that's why price statistics are so popular. It's the best way to measure market conditions.

And it shows back on our price data because two surveys, retail motor gasoline, and retail diesel fuel price survey soak up about ten percent of the traffic from our website. We have two-and-a-half million visits per month on our website and these two surveys take up about ten percent of that.

So it is something to keep in mind that this is always going to be with us, right? Price statistics will always be very
popular -- tomorrow when you wake up, ten
years from now -- and we have a great deal of
information.

And so that means managing traffic
is going to be a consideration that kind of
overarches this entire presentation and how we
do that. Now you see the word nominal and
let's get on the same page of what that means
because the word nominal means different
things depending on your educational
background.

If you have a scientific
engineering background, I'd like you to leave
it at the door because nominal for those
technical people means a value that
approximates the actual. So if I say I have
a truckload of dimensional lumber out back
versus I have a truckload of two by fours.
One is real, the other is nominal.

Now we're all going to be
economists today. And so nominal and real, in
the context that I'm speaking, refers to
purchasing power.

And I'm going to keep it really simple just for discussion purposes. I'm sure you could have a more sophisticated definition but when I'm talking about real and nominal distinction, what I'm referring to is if the rate of change in the money supply does not equal the rate of change of goods and services in the economy, then the purchasing power in the future time period may not be the same as the purchasing power in the current. And the same thing applies to the past.

Now let's take a look at what we do here at the agency. And what I want you to pay attention to is the bread crumbs in the upper left-hand corner.

We release real price information and we do have a pretty clear navigational path -- home page, forecast and analysis, short-term energy outlook, real petroleum prices. So a user will find it -- and, again, we're managing traffic when we're designing
and releasing this price information.

And when you're at this page,
you'll see graphs on diesel fuel, heating oil,
crude oil, one of my favorite graphs on this
page is gasoline. A couple reasons I like
this graph because it does show that your
grandparents 90 years ago paid through the
nose for gasoline, just like you and I are
doing today. So not a lot has changed in 90
years.

Second usefulness for this graph
is it does show what the current practices are
here at the agency. A nominal referencing of
real price series graph.

Let me describe that. What our
current business practice is is that if you
show real price data reference the reported
values as nominal. And if you're just showing
your actual reported prices, you don't use the
word nominal. Pretty much a general practice
across the agency.

But no story would be interesting
this morning if we didn't have any exceptions.

And we have some exceptions. I'm not just

singling out this one publication. Last

summer you may remember that crude oil went up
to about 140 dollars a barrel.

And whenever prices spike, you're
going to see media interest on measuring that
price spike. Is that a record in real dollar
terms? They want to look at purchasing power.

It happens in other fuel groups, too.

Well, the manager of this

publication changed all the price tables and
labeled them as nominal retail prices. And

very knowledgeable manager, very experienced -

-- in fact they won the EIA Administrators

Award for Employee of the Year just a couple

of days ago.

So what were they thinking?

Because they didn't get the award for doing

this re-labeling. Now they're just doing

their job as a manager, right? Because

customers call in and they're asking. Is that
nominal prices that I see up there on your website?

Now if you're a manager and you hear that same question four or five times, do you need to hear it six, seven, eight, nine? No, you're going to solve the problem. And this manager did. He solved the problem and changed the titles on that section of the pub.

Now I told you, I have plenty of other examples. About five years ago, electric prices spiked. The Midwest and northeast lost power.

Well, the manager of the Electric Power Monthly was getting questions, once again, from customers. Is that nominal? Now they took a different approach. They changed the text in the footnote to read that monetary values shown are nominal.

So we live in an economy that basically is balancing by bringing in imports. And so any time you see a supply disruption, if we have a hurricane four or five months
from now, any kind of supply disruption most
likely will yield price spikes.

And we can rely on that or plan
for that in the future regardless of what fuel
group, except for maybe liquid petroleum
fuels, which we'll hear about shortly, they
don't need imports.

Now whenever you see an
inconsistency in an agency, it is always nice
to go look at our cousins and say what's going
on with the other federal statistical
agencies? How are they handling the issue?

Now I picked these agencies
because they are the only ones that release
business information just like we do. And so
at the Bureau of Economic Analysis, they don't
use the word nominal. They use the word
current.

And so when they release
information on disposable income, you get to
see the flavors as current disposable income
and changed. Now because they're not using
nominal, I think BEA believes that engineers outnumber economists in our society. And they may be right.

But they come back when they're releasing real personal -- personal disposable income, they'll call it current and real. So real does come back when we're talking about personal disposable income. Now we're on the same page. We're talking about purchasing power because that's what we're trying to measure.

Bureau of Labor Statistics releases a lot of price data, price series. They only use the word nominal when releasing real price data. And they don't use it -- if you download any data from BLS, you won't see the word nominal.

And same with National Agricultural Statistics Service. It follows the same general pattern. Only use the word nominal when you are releasing real price data.
Same with the Census Bureau. They release more sales and revenue data though rather than prices.

Now has everyone here heard of this website fedstats.gov? Okay. I think I see some heads nodding. But what I want to see a show of hands on is who has actually downloaded any energy data from fedstats.gov? Raise your hand. Okay. I stumped everybody on that question. It's like nobody raised their hand there.

Well, let's go to fedstats.gov. I just want to show you something real quick. This is their homepage. And I'm going to pick off some energy data. And so at this website, you just click on your subject matter and hit submit.

And when you do that, you get this list of categories. It's a pretty comprehensive type of categories -- a little blurry -- but what I'm going to point out is that when you click on gasoline prices or
1 diesel prices, you go right to the gasoline
2 and diesel level two pages on our website.
3 And that's where you will find the retail
4 price data.
5
6 If a user clicks on prices
7 monthly, all sources, direct link to the
8 Monthly Energy Review. Wait a second. Wasn't
9 that one of the anomalies I was talking about
10 on our current business practice? So
11 depending on where the user has been or is
12 going, they're going to get the same product
13 but labeled differently.
14
15 So what we have here is within our
16 agency and also vis-a-vis other federal
17 agencies. Because I told you, the Bureau of
19 They release retail motor gasoline prices on
20 20 major cities.
21
22 We only release it for ten. But
23 within our website, we now are showing price
24 data as nominal retail prices without any real
25 data going along with that.
Now another huge concept underlying the information we release is data integration. And we have more and more coming out is information products that draw across fuel groups. Okay. So I'll have state energy profiles, state energy database.

I think Howard Gruenspecht mentioned the state data initiatives. So now I'm grabbing coal, petroleum, natural gas data and I want it all together. Well that -- fundamentally in your file specification, you need standardization if you're pulling in data from different fuel groups because what they're doing now is you're taking data from production environments that is being released on the web and you're repackaging it.

And when you repackage it, it is important to pay attention to what label you're using. Once again, once the whack a mole game is getting to be played and the bricks loosen in the wall, we're going to see some charts and tables popping up once in a
while in info products that say hey, I have nominal prices here on this graph.

Also, it goes off because sometimes our file formatting can make a difference. I'll refer to that later.

Well, when you get into this area, you have a lot of related issues. These are not all the related issues. I just picked off a few, some of the more interesting ones.

Has anyone ever used the term nominal spot price? Once again, no hands out there. Same here. I've never used that either because no one speaks that way. But we're going to have to take a look at that in talking about certain types of wholesale markets.

File format matter, well in the Natural Gas Monthly, if you click on a table and you click on a PDF file, the label in the PDF file says Nominal Retail Prices.

But if I click on an html file, or an xls file for this same exact table, it
doesn't say nominal. Hmm, easy fix. Just change all the other file formats to show nominal, right? We want to be consistent one way or the other.

And, of course, I gave you a couple of anecdotes where one project manager re-labeled the titles. And no customers called back with any questions. Another project manager changed a footnote and, once again, no users called with any questions. A couple of ways to do that.

Now you don't have to worry, Committee members, about any of these related issues because fortunately the Statistics and Methods Group climbed up on their white horse, rode through the hallways, and decided to fix this problem. And they did that by using a very special tool, one of the statistical standards.

Now I have a copy of that statistical standard in your -- in the paper as an exhibit. Also the proposed revised
standard is in there as an exhibit.

Now you know you're working with the right tool if it yields the right benefits. And let me just confirm with you, we are using the right tool to fix this problem. Because one, when you apply required actions to a statistical standard, you are going to get standardization of common business practice. Same data now will look and appear the same way, regardless of where you find it on the website.

Now I mentioned earlier about fedstats and how fedstats has these cross-links and one is going to go to the Monthly Energy Review and somewhere else goes to a low gas page and we have different labels.

Now let me ask you -- if I asked any one of the Committee members if you would like some Coke and you aren't thirsty, you are going to ignore me because you're not thirsty. But if you are thirsty and I say, "Would you like some Coke," you're still not confused
because you're going to answer me yes or no.

You may look at this bottle and say, "That's exactly what I was looking for,"
or "That really wasn't what I'm looking for but it will do for me."

But if I ask you if you're thirsty, would you like to access some Coke and you say, "Yes," and then I say, "Well then I have some Coke for you," now I've confused you because now you are wondering is the Coke in this bottle the same as the Coke in this bottle.

And yes, it is. But that's still not good enough for you because you have past experiences. You have a preconceived image in your head. When I said, "Would you like some Coke to drink," you already had an image. And so you're going to choose one of these that more resembles your image in your head.

Something that you were used to looking at.

That's the confusion I'm talking about here because it's not that people aren't
using fedstats. There is traffic going through fedstats. And if you're looking for something and you find it, there's no confusion. All right?

You only get confused if you find the same data across different web pages on our website and it looks differently each time you're accessing it.

So back to data integration being a huge problem here -- or not a problem, it's just an underlying principle we have to plan for. In the last two years, we've come up with five info products that have built across fuel groups.

And, of course, all statistical standards arose out of OMB's statistical standards in 2002 which, again, it's always interesting. When Statistics Netherlands speaks, they speak with one voice. Statistics Canada, Statistics New Zealand -- but when the federal government speaks, we have many voices.
And so one overarching objective with OMB is trying to get the federal agencies to speak with one voice.

I have some questions and get some feedback but I want to tell you a little something about these questions. First, first question here, keep in mind that when you respond to this question, it is subject matter dependent and I need you to be wearing your data user hat. Okay?

That's different than the second question which is subject matter independent. And you can choose when responding -- keep that data user hat on or wear the data producer hat.

Because I'm sure as economists, at some point in your career -- many times you've worked with price data. And you either had to evaluate do I need to make an adjustment for inflation?

And then whatever you did, you presented your results. So you were a
producer at that point. And you chose an appropriate label.

So we have these two questions and then feel free to borrow from my analogy because, of course, everything goes better with Coke.

(Laughter.)

MR. BOURNAZIAN: Mr. Chair, let's turn it back over to you.

DR. BLAIR: Walter?

MR. HILL: I guess I don't have many comments. You are quite right. It is confusing to work with price data. Sometimes, of course, there are other data out there like kilowatt hours that are pretty consistent if you're looking at 1990 data or 2009 data.

Typically, you can tell whether or not the data are adjusted or not adjusted although you can't always. The term that I've used in class all the time, I tend to use current and constant dollars rather than nominal.
And it turns out I use the word nominal in a different sense -- nominal, ordinal, interval ratio, which maybe is also confusing when I look at the title though from the context, again, it is clear what you mean by that.

My first question, I'll preface it, it would be good for the data to be labeled one way or the other -- good to have a consistent label. And often you can possibly tell.

I even use things like data from -- pre-World War I data. So clearly you're looking at military spending that are in the hundreds of millions of dollars it turns out. So you know that it's a different -- completely different frame of reference than the hundreds of billions of dollars that we are using now.

In your segment on the label, it will save a few minutes here and there typically if you're going back to look at the
data. Typically you can tell, I think. In fact when I've used the data, you can typically go back and tell.

But it will save like five minutes or so trying to figure out which one -- if you're actually using nominal or real data.

MR. BOURNAZIAN: Maybe at the end of this discussion, I'd like to poll the Committee because we're thinking about what this is looking like. But let's first get the comments.

DR. BLAIR: I'd like to ask a clarifying question. Included in the text material was a current standard 202.14 and a revised standard and the revised standard speaks to when you would say real and when you would say nominal.

So this would seem to resolve the matter in a sense. Is the question whether we agree with this?

MR. BOURNAZIAN: No, that's not the question. You're correct. The revision
to the statistical standard intends to resolve these issues. And the agency in the last month is going through internal deliberations. They are certainly being commented on right now.

What we're interested in, though, from the Committee, because it's unique, I have a specialized, sophisticated group here in this room. And so just like I asked, you don't have a preconceived image. When you're accessing price data, how do you like to view it?

Just like you have a label in your mind when you think about Coca-Cola, if you don't see the label you're expecting, something is awry. You've got to realign your expectations.

And so when you're accessing price data as users, does the word nominal help you out? Or does it get in the way? And also releases. Okay, it looks like the Chairman has a comment.
DR. BLAIR: Well, just as a follow-up -- again, a clarifying question -- if I read the proposed standard correctly, any time dollar figures were real have been adjusted, they would be labeled as real.

MR. BOURNAZIAN: Correct.

DR. BLAIR: If in the same table there are dollar figures that are nominal, they would be labeled as nominal.

MR. BOURNAZIAN: Right.

DR. BLAIR: But if a table was purely nominal data, they would not be labeled as nominal.

MR. BOURNAZIAN: Correct.

DR. BLAIR: The nominal label would only be used to distinguish those numbers from real numbers when real numbers were used.

MR. BOURNAZIAN: That's correct.

DR. BLAIR: So that the default, if you didn't know anything else, the default would be that the data were nominal.
MR. BOURNAZIAN: Correct.

DR. BLAIR: And then it would seem that the problem is that the user doesn't know your default. So, you know, once the -- after a while, they could kind of figure out ah hah, you know, apparently --

MR. BROWN: But if two tables were in the same publication and one only had nominal and one had real and nominal, the second table would not be labeled nominal even though it was in the same publication.

DR. BLAIR: That's the way --

MR. BOURNAZIAN: Yes, that's correct.

DR. BLAIR: -- that's the way I read it. And so it would seem that the sensible answer is that you would -- if it's nominal, you would say nominal and if it's real, you would say real. Always.

MR. BOURNAZIAN: Now the question is are you a sensible person --

(Laughter.)
MR. BOURNAZIAN: -- because I want to know your view.

DR. BLAIR: Regrettably no.

(Laughter.)

MR. KOKKELENBERG: I have a basic question. First of all, there's no reason why you couldn't prominently display a statement of what nominal prices are and what real prices are. You don't have to put it on every table. But you could have it early in the material you do display.

Now when you do web page things, that's a little bit more. But you might have a footnote that says for definitions of real and nominal, go see or click here.

The second thing is what the heck do you mean by real? This chart is terrible because it says they're real prices. Oh, well what does that mean?

Well, as an economist, I would say they've probably been adjusted it for inflation. But what index is used to adjust
them for inflation? Is it the Consumer Price
Index for all Urban Consumers? Is it an index
that says whatever price of gasoline existing
in 2008 was the real price and I'm going to
call that equal to 100 and then do that?

And, you know, your common garden
variety user isn't go to go that far, right?

And the other question is well
maybe it was the producer's price index. Or
maybe it was a composite market basket of
gasoline prices.

MR. BOURNAZIAN: Well, it's fair
to say if you flip the page prior to that
draft, you'll see all the methodology. But I
didn't --

MR. KOKKELENBERG: Oh, okay. All
right.

MR. BOURNAZIAN: It does say --

MR. KOKKELENBERG: Well, wait a
minute. Real petroleum prices --

MR. BOURNAZIAN: Your comment is
still very much on point.
MR. KOKKELENBERG: -- okay, fine.
All right. You did use the CPI here. But what's the base period? It says in some base period.
MR. BOURNAZIAN: Right.
MR. KOKKELENBERG: Okay?
MR. BOURNAZIAN: You rest your case.
MR. KOKKELENBERG: I rest my case.
(Laughter.)
MR. KOKKELENBERG: Right. Also, I have this problem that I was on a committee that was advising our university library about how to set up many of its web pages.
And one of the problems are that -- quickly identified that users of search engines take the first two or three hits.
They don't go any deeper. You could have 250,000 hits and they won't drill down past the first page.
So when you're doing this and you get different ways to look at the numbers,
you've got real problems. The consistency
ing that you're asking for or seeking is, I
think, very important simply because of that
tendency of people to grab the first number
they see. So --

MS. KIRKENDALL: Consistency is
wonderful but I'd prefer current dollars and
constant dollars.

MR. BOURNAZIAN: Expert
terminology?

MS. KIRKENDALL: Yes. I don't
like nominal. Ah, what's nominal?

(Laughter.)

MR. BOURNAZIAN: We've got two
votes for current so far.

MR. MELENDEZ: My suggestion has
nothing to do with real or nominal but perhaps
in getting more advice. This is -- reaching
out to this group is great. You have an
opportunity next week at the Energy Conference
to perhaps pulse folks that are users of your
website. You said two-and-a-half million hits
a day?

MR. BOURNAZIAN: Per month.

MR. MELENDEZ: Oh, per month. I'd go and seek some more -- you know from real users who are big users of your data. Just a suggestion.

MR. BOURNAZIAN: That's a good suggestion, too. I think we may want to have some targeted focus groups and media people, some heavy data users like you just outlined. And see what they say.

DR. BLAIR: Other comments?

MS. BROWN: I'll just add this one comment is that we -- this is Stephanie -- this has been a topic of discussion internally with the office directors and staff here trying to get consensus on how we're going to move forward. It isn't just with this group.

We sort of -- and Jake's been leading this effort -- trying to get people to think about it and come up with a workable solution for everybody. So thank you for the
suggestion of taking it outside to the Energy
Conference also.

MR. COHEN: He said he was going
to have a show of hands or something.

DR. BLAIR: Yes, that's right.

Or, you know, we could do a quick
questionnaire here, write one up. Would you
care to poll the group in some fashion?

MR. BOURNAZIAN: Yes, I would.

And the question I'd like you to respond to is
when viewing energy price statistics, do you
prefer to see the term nominal in the title?
So it's nominal wholesale prices, nominal
retails.

I'd like to see a show of hands.

How many people would prefer that labeling?

MS. BROWN: As opposed to?

MR. BOURNAZIAN: The current
default practice which is to not have the word
nominal in there.

MR. KOKKELENBERG: I'd prefer
that. I think Nancy's point might be well
considered in that. But given that variability of whether it's nominal or current or something like that, yes.

MR. BOURNAZIAN: Your preference would be to see the word nominal? So I have one, two, three, four, five, six, seven, eight.

MS. BROWN: Is it -- let me -- Stephanie -- clarify, are you asking the word nominal versus nothing? Or some word versus nothing? Because that would take into account like Nancy said.

MR. BOURNAZIAN: I'm asking the word nominal or something substantially similar, you know, whether you pick Nancy's word or, you know, whatever is helpful.

MS. BROWN: Something versus nothing.

MR. BOURNAZIAN: Whether it's current, nominal --

MS. BROWN: Okay.

MR. BOURNAZIAN: -- but basically
the decision would -- or the comparison is against our default current practice which is to not use any labeling on that. So I believe that eight Committee members responded affirmatively.

But there was actually one that did not. Might I hear your --

MR. IANNACCHIONE: I actually did.

MR. BOURNAZIAN: Oh, okay.

MR. IANNACCHIONE: I would say that this group, with all due respect, is not very representative of --

MR. BOURNAZIAN: Right.

MR. IANNACCHIONE: -- your user group. And I wonder, to expand on Izzy's suggestion, why don't you put this question out on the web and let people respond to it?

MR. BOURNAZIAN: That's another way to solicit feedback. Okay.

PARTICIPANT: I think some places use it -- sorry -- put it in parenthesis rather than in the title, right, if you put
like current dollars in parenthesis under the title. So you'd say, you know, sales of gasoline (current dollars).

MR. HILL: This is Walter Hill.

Just someplace on the page. I would not necessarily want it in the title but a footnote so you see it on the page rather than trying to guess.

MR. BROWN: And I prefer current dollars.

MR. HILL: Yes, I prefer current. I use current and constant is what I use.

PARTICIPANT: I'd like, as a user of data, I often don't read beginning caveats or instructions of a document that has lots of data. I sometimes go and flip through the pages that give me the information that I think I want.

And if, in fact, there's no labeling of what that data -- price data represents, whether it's real 2000 dollars -- year 2000 dollars or nominal, I get confused.
And, in fact, it forces me to spend a lot more
time trying to figure out what that is.

I personally would prefer to see
it in either parenthetically somewhere in the
title or in a footnote or something because,
you know, I don't just systematically go
through a document and read all of the
directions to see whether, in fact, it is
going to be nominal or real and what are your
dollars.

MR. BOURNAZIAN: Okay.

DR. BLAIR: Other comments or
questions? Do you want to poll us on that
one?

MR. BOURNAZIAN: No, because it's
more broad and open ended for you to give
comments on. More or less, you know, what
have you done in the past or outside of
energy.

DR. BLAIR: In that case, thank
you very much, Jake.

MR. BOURNAZIAN: Thanks.
DR. BLAIR: And we have a break.

(Whereupon, the foregoing matter went off the record at 10:38 a.m. and resumed at 10:57 a.m.)

DR. BLAIR: Well, we'll go ahead and reconvene. And in this session, we have Liquid Fuels Market Model. Andy Kydes is going to start us off.

MR. KYDES: Okay. Good morning and welcome. I'm happy to be here and -- at least I am now.

What I want to do is give you a brief overview and status report on our new model development effort on the liquid fuel market model, LFMM, and I really twist over that. So let's just call it the LFM so that I don't get too confused and use too many words here.

After we go through the quick overview of the status, we're going to go to the summary of the stakeholder inputs that we've gotten and that we've prioritized at
this point with the review Board for this
project.

So basically what I'm going to
talk about is why did we do that? Why did we
undertake this project? What are, you know,
what is the process that we're using? Where
are we? And where are we headed? And what's
the approximate schedule that we're going to -
- we think we're going to be done at with?

And then we're going to talk about
the stakeholder issues and questions. And I
say prioritize because they are prioritized
actually by EIA, the OIAF group, not by the
stakeholders. We did ask for prioritizations
but unfortunately almost all of the
prioritizations we got were either critical or
very high.

So it was difficult to get a
spread, a meaningful spread in terms of
priorities. So we had to go through and do
that ourselves.

Okay. So why did we do this? And
the critical point is number three, which is
to correct deficiencies and add some new
capabilities that we thought we needed within
this particular model system.

And just to be clear on what this
modeling system or component is, it's going to
replace the petroleum market model. It's
going to replace the International Energy
Market Module, again, NEMS. And it's also
going to take a whole bunch of satellite
modules that produce liquids for transport
fuels primarily and basically put them in a
consistent framework that allows these
technologies in fuels to compete against each
other in the U.S.

And then, again, we're going --
and this project is part of the new NEM
development. We didn't formally -- though we
asked for some 10, 12 million dollars two or
three years ago, we didn't quite get that. So
instead, because of the priorities, at least
this office has, with regard to what needs to
really get done, we decided to try and squeeze
apart some money, start this process going
because we thought it was very important to
actually get this new modeling system in place
given the interest in liquids today.

To be more specific, what am I
talking about with regard to improvements?
Well, we want a model that is easier to update
than the current model -- use and maintain.
We want less analyst intervention necessary
before we, you know, before we find a
converged solution that we believe.

We want, to the extent possible, a
seamless integration between the domestic
liquid market and the international market.
There are the usual things of technology
assessment, the ability to analyze complex
policies related particularly to carbon, cap
and trade, and, of course, the new low carbon
fuel standard that we haven't integrated yet
even in the current system.

There are -- obviously we have had
some -- because we have so much analyst intervention, this is a big issue for us, the issue of contents in the liquid products and prices -- prices and margins that we've had. We've had to work on, I think, too much. But not that we don't, in the end, have confidence in what we put out but it took us too long to get there. So that's something we want to change. We want to increase model transparency and frankly we thought it was time to reevaluate, you know, the level of technological detail.

The refinery has lots of processes in place. We really don't care about most of those. We care about some of them. Whereas coal to liquids or other synfuels, liquids, biomass to liquids, in fact, have sort of a greater level of aggregation.

So we want to revisit that particular aspect of how we do that modeling to make sure that we get that right and that we either have more detail on the synfuels or
less on the refinery. But in any case, there's now a difference, a major difference between the two.

Of course the other thing is that we keep on getting suggestions on is that we really need to make sure that we build in the flexibility to do uncertainty analysis. And this means uncertainty in key inputs and distributions of them, how they effect the distributions of the output.

And there are a lot of other things that would be considered. But that's one of them.

What's the process we're using? We're going through a formal project management process.

This is new to me in the sense of EIA because while I've done project management before, this is actually a formula process you go through in some detail, lots of checks, reviews, to make sure you're on schedule. There's lots of measurements to make sure
that, in fact, you are not exceeding costs.

You're not too late. And so on.

So we're going through this process. We have a formal project review Board which is composed of the office director, who is the sponsor of this project, four division directors, and I meet with them once a month, and I meet with the sponsor once every two weeks. So we've got this communication that's pretty tight with regard to where we are and where we're headed.

The major deliverable for this part of the project is the organization and development of the technical workshop, which we hope to have by the end of June of this year. Given contracting vagaries, it may spill over into July. I'm hoping no later than that.

But basically this workshop will take the stakeholder inputs, the prioritizations, our views on what's necessary, what's not, along with the
stakeholder views of what's important and what's less important.

And try and address, okay, the modeling types of questions. What do we need? To what kind of structure can best serve the issues that need to be addressed and the questions that need to be answered?

And this includes a lot of questions that need to be answered. This is just a partial list. But how complex should the model be? Should it be simple? Should it be very complex? There's no unanimity of thought on this, by the way, among the stakeholders' responses that we did get, originality, the kind of structure.

Certainly the optimization frameworks have gotten advanced enough so that we can now consider nonlinear if it turned out to be the appropriate method to use.

And, of course, there's simulation and then what level of product detail, what are the data requirements? You can build a
fantastic model but if you can't support with
data, there's no point in building it,
platform, and so on. All of these things are
on the table when we describe or try and
discuss the technical aspects of the modeling
building this summer.

This is the process, the design
and development process that we've used so
far. We've developed a list of what we think
are representative stakeholders for this
project. Many of them have been outside of
the government. Some of them have been inside
the government.

And we ask essentially the
question what are the key issues and questions
that this new model should be able to address
in the next five to ten years. So this is the
form of the question. And we have, in fact,
provided a five-page writeup that has more
detail. And at the end, a number of
questions.

But the central or key question is
what are the issues and questions this model has to be able to answer reliably? We developed that list, the initial list by December. We sent out the request for information or feedback.

We subsequently added through inputs by various people within our organization and outside of our organization some additional stakeholders which we then continued to send letters to and requests for.

At that point we continued to get their inputs. All but one of the inputs, in fact, have been incorporated in our prioritized list of these dates. Because of the formality of the process, I needed help.

So we developed a core team to help me through getting through Phase One, which is the completion of the technical workshop organizing that, getting the summaries and so on.

And Susan Holte, Phil Tseng, and Randy Cook are the three members of this team.
that I want to thank. One of them, at least, is here. But I want to acknowledge their help. They've been very helpful in pushing the process along and keeping it close to being on time or a little behind.

There were more than 70 individual suggestions made by the stakeholders, not including this group. Again, I mentioned the issue with the prioritization. So we coalesced these 70 or more than 70 into a smaller set.

We presented it to the Review Board and we said okay, since, you know, there's not good information or good enough information to really create a separation between these, you guys go ahead and measure it and prioritize these. And so we ended up with a prioritized list. And I'll show you some of that at the end of this thing.

We've also gone through the process of trying to get the list of technical experts, modeling experts knowledgeable in the
liquid market area. And we were looking for up to about 20, 25 suggestions from which we'll pick four to write white papers on technical aspects of developing this model, given the information from the stakeholders and from basically our needs and priorities and information that must be exchanged between various modules.

So the key deliverable is right here, the June or July time frame for the workshop.

And I would invite the members of this committee, if you have suggestions toward technical experts in this area, please, please send them to me. I will take them and I will definitely use them in this thought process and in this selection process.

I'd like to have them before the end of next week. So you have, you know, several working days maybe to come up with names and e-mail addresses and telephone numbers.
Okay, the next steps. After we complete this workshop, we're going to have two independent expert groups develop component design reports which basically lays out the critical issues, the data availability, and the model structures they recommend.

And then some of the equations that are characteristic in developing this kind of model. It's not enough to build a model but it's a good place to start.

EIA is going to take those reviews and develop its own, taking as many of the good ideas as we can identify them and combining those where it's possible. But in any case, we'll have our own so we'll own it.

Then we'll have an independent review. So there's lots of reviews in this process of project management.

Once the independent expert reviewers complete their work and we've incorporated their comments, the next step is
to develop the full mathematical specification. That's in March.

The next one is to -- from March through July -- to produce a pilot model that stands alone using something that's quick and easy. Think of MetLab that's going through part of NEMS initially but something that we can fully test, put it through its paces.

Once we've got that and obviously we're going to be modifying the representation because we're going to learn some things in the process, once we think we've learned enough, we're going to present it to the IER and get some feedback there.

Once we've basically addressed those hurdles or those issues, we'll be then starting the full model implementation within NEMS. Then do the testing and the documentation. And be ready for use for AEO2012.

This is a long cycle. And it's a long cycle because we're trying to do it
right, in a sense. We've adopted the project management approach with feedback.

It's going to be cut off at any stage where we think it's really the wrong way to go or, you know, the wrong thing to do.

Now let's get to the categories of stakeholder interests or inputs. And this is the, if you want, the buckets in terms of which the suggestions and questions could fall in to within the areas of markets -- of prices and margins, technology assessments, lot of these.

The key ones that I think occurred pretty often were the prices and margins, for example, type assessment, competition, international here, and policy analysis. There are all sorts of policy analysis. This model should be able to do lots of different types of policy analysis including the low carbon fuel standard for the U.S.

There were -- there was one mention of security. Externalities here
refers to water and land competition, energy crops versus food primarily, and, of course, a few of us picked up on the fact that the current model doesn't really represent a vintage representation of capacity so you really have a tough time trying to figure out what the investments to make to meet the new changing mix of outputs -- petroleum product outputs or liquids -- given new, for example, ARCA standards, less gasoline, for example, possibly more diesel, the refineries, all the refineries can't meet that.

And so you either have to invest so that they can change their mix or you have to retire them. And we have to provide enough details so that we can make that decision within the model.

Now these are, in fact, the suggestions that were provided. And these are, remember, coalesced suggestions. So we've taken some liberties to reduce the number from 70 to -- I don't know -- about 45
or 50. And even that's too large. But there's still some development in this here. But the main point here is that many of these suggestions were not in the form of questions or issues to be addressed. They were in the form of how to address some unspoken set of issues and questions. That isn't bad because we're smart enough to be able to backtrack and figure out what we think they were. But in terms of being sort of transparent and honest, we simply put them down in the form we got them. So this is the form we got them. And so you can see number one priority of those that we have is fuel prices by market segment and disaggregated by margins, disaggregated by product and region. Lots of times, you have a recurrent theme for policy analysis of environmental issues, carbon cap-and-trade. Also tax policies, tax incentives. These are listed several times, as you'll see, in these
handouts.

Some of the ones that occurred very often, they wanted to make sure that we incorporated alternate fuel supplies for liquids. That is bio liquids of all sorts including ethanol liquids, gas liquids, bio mass liquids, ethanol. They want all this to be done on a level playing field. And the competition should be correctly represented.

And, of course, they wanted market behavior included in there. And, of course, they wanted, again, more policies that they wanted us to be able to address.

Some more, there were some very specific suggestions. Make sure you can address the impact of an ethanol tariff. Well, okay, we do that. And that was nice. But also we'll be moving it.

But there were, again, the recurrent themes, potential to analyze taxes, tax incentives, constraints on the kinds of liquids you can use and their content, carbon
content or particulate content, or sulfur content, and their impact on liquid prices and environmental emissions.

And also on investments. A key point. They continually, particularly the oil and gas industry, stressed make sure you include the costs and benefits -- not just the benefits -- of forcing a particular policy on the system because they feared that we would be under representing the cost of the industry in trying to push a particular policy for using fuel that would lower the carbon for example.

There was one strong request to -- more than one but one very strong one to make sure that we broke up the liquids production between refinery gate, transportation, distribution, and dispensing in order to be able to identify the bottlenecks for particularly new products.

So, you know, there's a whole slew of these. Again, include the non-petroleum
feedstocks so you can do that. Make sure --
so you can represent correctly. Fairly, I
think the word fairly was used a number of
times. The competition that has to go on
between the petroleum source, liquids, and
conventional liquids, for example.

And make sure that you show -- I
don't see it here but it's somewhere in here --
- the competition between the uses for bio
fuels.

That is bio fuels used for energy
production versus bio fuels used for liquids,
bio fuels used for generation in bio mass
generation versus bio fuels used for liquids
in transport fuels. And so that was
repeatedly stated a number of times.

And then finally, realistic
representation of market adoption for new
technologies.

I'm happy to give this group the
full list, all 70-plus of them on a
spreadsheet with attribution. I will take the
names of the individuals who suggested a particular item off so that -- so there's no issue related to attribution.

The one thing I want to say is that I put out the original list to the stakeholders on -- I think it was December 31st or 30th. And one of your ASA members sent me his responses on January 1st. I was impressed. I was truly impressed. Thank you, John.

(Laughter.)

MS. BROWN: And identified.

MR. KYDES: And with that, because there were so many individual suggestions, I've given you just the highlights of the top roughly 30. But I didn't want to go through all of them because there's no time. But you can view them yourselves. And I would be happy to send them to you.

At this point, are there any questions?

MR. BROWN: You are not required
to represent the production of crude oil for this, right?

MR. KYDES: No. We're not required to represent the production of crude oil except that it is an important component of the turbine and crude oil prices.

MR. BROWN: Okay. You demand crude oil.

MR. KYDES: I demand crude oil. I demand the correct price relationship with supply availability.

MR. BROWN: Okay.

MR. KYDES: Right.

MR. WEYANT: Can you describe exactly how the oil price directories and NEMS are developed because it looks like they're kind of -- they're not in this module, I guess, at least part of the determinants are.

Then there's the international energy model. But it almost seems like a lot of what matters are in the inputs to that. Is that a correct interpretation?
So the question is how do you get those, you know, the 200, 110, 70 --

MR. KYDES: Okay. To be completely above Board, those are done through a Delphi method in terms of selecting the initial low, medium references and high. We really don't have a model per se that can produce for us a particular price trajectory.

MR. WEYANT: I understand. The people who do that are, we think, are well aware of the numbers and behavior of the different modules in terms of, you know, how big a deal is bio fuels, unconventional versus conventional. You'll probably have to have some.

MR. KYDES: Yes. When I mentioned the -- first you have the gross assumption on prices. Then you have the external analysis of what the aggregate demand is by product, again.

But then the supply of crude oil is really identified by -- it has to be
identified and is identified by at this point
five different crude types from regions.

And those then -- there's actually
a simple model of supply and demand and
involve the crude types and some refinery
representation. That feeds into currently the
international energy model, which is then used
by the rest of the NEMS.

PARTICIPANT: Can I make a
statement just about the oil prices? Is this
a good time to try and address that? Or is
this not the right time?

MR. KYDES: Yes.

PARTICIPANT: And so the oil price
is -- you take an oil price trajectory and
then we run it through WEPS+ to see what the
demand for total liquids are. And then we
have a model called GWAD where we try and meet
that demand.

And so then what develops is you
find that certain oil prices you need more oil
than you think is reasonable to produce or you
have an increased demand for OPEC crude or whatever. So it is an iterative process. But it's not a model iterative process. There is human intervention that way.

DR. BLAIR: Are you going to get Mike up next?

MR. KYDES: I think we are, yes.

So Mike Toman is going to give Market Behavior Response.

MR. TOMAN: Thank you, Andy. It's always a little disconcerting when you learn more from the prelude presentation than you knew when you were preparing your comments. So we'll have to play a little catch up on this.

But also I should say what I want to do here, per Ed's request, is provide somewhat an organized synthesis of comments that John Weyant had produced which I saw yesterday, things that Steve Brown produced, which I saw about a week ago, and my own. And I'll invite both Steve and
John to, you know, quickly and mercilessly correct me if I forget anything or get anything wrong.

We haven't gotten Cutler's comments, to my knowledge yet, unless they came in very early this morning and I didn't see them.

DR. BLAIR: Oh, here they are. Can you integrate them please?

MR. TOMAN: Oh, sure, okay. (Laughter.)

MR. TOMAN: I'll be happy to do that tomorrow.

Well, let me get to it so we have more time for discussion. I think that the list that Andy showed us of the different kinds of stakeholder requests, preferences, goals, is helpful. And it does show that people are thinking about this effort in multiple ways.

They're thinking about how to build the model, the kinds of things they want
the model to produce, and then the kinds of
questions they want the model to answer. We
were asked to comment on that last category.
But I want to share -- because they were part
of the overall feedback of the three of us --
a few observations as well on the approaches
and the nature of the outputs.

On the approaches, I think -- and
I don't think any of this, with perhaps one
exception, is not already covered in the
comments that you have, Andy. So these are
more in the way of endorsements.

I think the ability to do -- we
think the ability to do uncertainty analyses,
sensitivity analyses is obviously crucial.
But particularly in this case when so many of
the alternative fuel technologies remain so
profoundly uncertain, it's going to require a
great deal of, I think, even offline work to
think through the range of reasonable
parameters to be putting in for describing
supply behavior on several of these
alternatives.

And I think with that would come the virtue of modularity. You mentioned that this replaces several different components. And I'm hopeful that as the architecture of the model itself develops, one would be able to build it and then snap on additional pieces as they became available with relative ease.

And example might be that it's very difficult now, at least in my view, to have any solid judgment about the economics of production of liquids from oil shale with in situ technology. You could build that module now but it would sort of sit there idle.

If you build it later and snapped it in and didn't have to redo the model, that would be a good thing. And presumably you've already been, you know, thinking that through.

One point that John particularly emphasized but I would certainly agree with is the ability to capture some form of forward-looking investment behavior, to not have
investment be myopic or recursive but to try
to have investment based on some notion of
expected long-run returns to that investment
and not just, you know, conditions of that
moment.

That obviously makes the model
harder to do but I think when we're talking
about the kind of investments that we're
considering here, that would be a high bar
well worth aiming for.

Now Steve mentioned in his
comments the question of seasonality. And I
actually don't know what the time steps in
this would be because as a consumer of the
products, I tend to look at, you know, mostly
the annual results, in fact.

So I don't know to what extent the
model needs to be given extra work or
adjustment to deal with the realities of the
seasonal behavior of the markets. Presumably
you've already figured out what you want to do
on that. But it's clearly important.
One question that you asked and I have a thought on it, perhaps a naive one, and John and Steve can weigh in on this, too, as well as others, is this idea of having one model that can be used for both the domestic application and a direct feed to the international application or possibly two models.

One model seems like a good idea but I don't know enough about the nature of the non-U.S. data to know how well that works. If the non-U.S. data are very coarse and you'd have to coarsen up the U.S. data as a consequence to make it work, it may be worthwhile to have separate models rather than a one size fits two purposes.

But, again, that reflects ignorance and naivete on my part about the data. And so that's more like a point for thought rather than any kind of serious recommendation at least now.

Another area where I at least have
an opinion and others may or may not agree is
I think that this is an area in which less can
be more. I applaud the desire to move away
from a detailed process refining model of
which there is exactly one in each pad. That
strikes me as a really good idea.

But I know from some of the work
that I've been involved with looking at
specific energy types because of the
uncertainties about them and then often the
heterogeneities of the supply conditions, a
very elaborate model that includes a lot of
that may end up simply making it harder to
detect the effects of changes in parameters
that you are trying to do in a policy
analysis.

So there's a trade off here. But
I would at least tend to say something along,
you know, to caricature more along the lines
of, you know, simple supply curves or with
multi product, you know, outputs, cost curves
plus product trade offs, you know obviously
the real model would be a little more jazzed up than that but I think in particular the idea of hanging on to a separate, really detailed model, I'm not sure I see the virtue in that. But then, again, I don't work for EIA and you may have strong reasons to do that.

For the purposes that the request letter laid out, I think it would be good to move to a much more transparent framework that would make it easier to use and easier to see what's driving what.

Okay, so a couple of quick comments on the outputs, I mean a lot of that, I guess, is pretty much what one would expect. And your stakeholders have identified, you know, a lot of the obvious things that you'd certainly want a model to do.

One thing that I think will be important to think through is that when you are wanting to do costs and benefits, what would be your device for measuring costs and
If this is a model, as I understand it, that sort of takes a menu of demands for liquid fuels and then works out how to supply them, you can certainly work out the supply side cost impacts. If they make fuel more expensive, there's going to be losses in consumer surplus and so on.

So presumably to do complete welfare analysis of the policies and not just increased costs of production, you'd want to have some ability to deal with larger economic effects than just movements in the supply relationships and the associated costs.

I'm not sure how inter-fuel competition will be represented -- one of the questions that was raised in the annex -- and I'm also not sure how important it is. So I should say that.

To the extent that the fuels are not actually, you know, homogeneous goods, just liquids that are basically all the same
except maybe there's a different thermal content per volume, then presumably there is some kind of imperfect competition or different goods competition that's going on that may be important to represent more explicitly in the cases where that's important so that you're getting a competition among the attributes of goods and not just among different energy forums.

That may end up being more relevant in dealing with the vehicle side, which is not in the model, you know the old story of everybody buy compressed natural gas vehicles so they didn't lose the whole trunk to the tank. So maybe that shows up elsewhere in the overall modeling system.

But if the fuels are different, then I think those differences need to be retained if they're different in an economically significant way.

I think more than anything else, at least my own opinion, the ability to talk
about, as an output of the model, what the
model means for the consumption and cost of
bio feed stocks is just huge. And I think
it's the area in which we absolutely know the
very least of any of the things that are being
addressed in this kind of modeling effort.

That also then refers, you know,
of course to important applications. But
trying to construct supply curves for bio feed
stocks is a pretty difficult exercise. And I
think it is something that really warrants a
pretty significant investment of effort
amongst the different things you'll have to be
investing in to get the new framework up and
running.

And that would include then, in
the larger application, the point that you
made in the overhead about potential other
sources of demand for feedstocks and what
competition between bio electric and bio fuel,
for example, might turn out to look like.

In the applications -- and also
then sort of the consequences for the modeling itself, to come back briefly to that -- it seems like it is possible perhaps to compress that still-large set of different interests that you have a little bit.

And they all seem to involve things, which, again, speaking in simple-minded terms -- that's my comparative advantage -- you have to have the ability to show how changes in the overall supply side, you know, the availability of more fuels of different types, if that's changing the share of conventional refined petroleum products in the market or the mix, you know, we need to be able to look at the refining cost implications of that, for example.

So there has to be the ability to tie together from the overall product slate back to the individual refining unit or set of refining units. And basically there has to be some way to manipulate the parameters of these supply relationships because a lot of the
policy interventions that will be considered won't be, I think, just output-based standards or, you know, pricing policies.

    There's still, in my view at least, continued relevance in the ability to describe things that actually move the supply curve around -- technology-based, you know, regulation.

    If the current Administration decides to revisit standards for air toxics, for example, this could certainly change the nature of refining technology and what gets snapped on to the building. It's not just a cap-and-trade for a pollutant.

    So it seems like the categories that we can distill out of interest are first, just what happens if alternate fuels start taking on a larger share of the market? Whether that's driven by improvement in their cost structures or the various policy levers that you've already identified. So that would be one application.
You know if you're working backwards from the question to the model, that seems like something you'd really want to be able to do.

Another category in your note, you said define energy security if you dare to mention the phrase. And so to me, not everything that mean when they ask this but sort of the most interesting and sensible questions that are brought to mind is if you've got policies that are either trying to restrict overall use of liquid fuels or policies on the supply side that try to torque the mix in different ways, tax preferences, investment tax credits, efficiency standards on the demand side, you know you want to be able to deploy in the model a good suite of different policy options and trace those through.

And again, some of those may involve changing the composition of demand for different fuels. Some of them may involve,
you know, actually changing the relative costs of the different fuel types. So we've got kind of alternate fuels as a market or policy phenomenon themselves. Energy security is something that links to alternate fuels but also to the demand side. How well will the model run globally? Or even taking in global inputs and run domestically, how well will it be able to capture the way investment response to rising global demand, you know, the talk that has gone on for some years now about the rapid and even unexpected growth and demand in China and other rapidly-growing developing countries, will the model be able to give good insights because policy makers, I think, will continue to be asking those questions. And then I've already mentioned the ability to look at feedstocks for biofuels. So the flip side of being able to model it well and reflect the uncertainties is
then to be able to look at different policy
approaches toward expanding bio fuel feedstock
availability. Are we going to sort of dismiss
the conservation reservation and turn it into
a feedstock farm or something like that?

The environmental area,

obviously, is important. That could include,
as Steve pointed out in one of his comments,
the effects on investment of constrained
sighting or lags in permitting. Certainly it
will involve carbon pricing.

But as I mentioned, it could also
involved technology approaches. And
presumably the model will also be able to give
some insights into what the differentiated
fuel recipes mean for pricing in local markets
for like gasoline where you can't really trade
across price differences without violating,
you know, local air quality standards.

Now the last thing that was
mentioned, and John particularly called this
out, but then I think the Q&A may have taken
us a little further on that is the question of using the model to explore market power. And it may be that there are important instances of downstream market power, at least in the short run, that one could explore.

Maybe there are certain markets that are kind of captive to a few refineries, I don't hear much about that so I kind of assume at this point that isn't a major issue in the market.

The concern is usually with crude oil behavior, supply and pricing behavior, and presumably that's outside the model, this model, so I don't know whether it's possible to get traction on this issue in this modeling effort. Or whether that's part of the larger suite of efforts that EIA might be considering.

You know my view, having thought about this a little bit over a few years, is that it's very interesting and very tough. So I'm not sure I would necessarily put it at the
In fact I'm sure I would not put it at the top of my priority list given all the other things you have to do. But it ultimately would be useful to be able to help policymakers think that through as well.

Now can I turn it directly back to Steve and John to see if there's anything that they either want to contradict or add before we open it up?

MR. BROWN: It seemed like a very comprehensive list to me.

MR. WEYANT: Well, I have some general comments just learning from, you know, the real time problem during our discussion here and your comments but I can do those another time.

So this will seem like partly a summary but in many ways a reinforcement and modest elaboration of what Mike has already said to kind of take Mike as a spokesman for our group any time is the optimal strategy.

So one thing to keep in mind, I
guess I view this, particularly in EIA, this
opportunity to kind of think about models from
the ground up, as a real kind of precious, you
know, much more valuable than oil or good old,
probably like diamonds, or maybe even
dilithium crystals. Because I think you guys
don't get many opportunities to do this.

I actually remember the whole NEMS
debate. And there was going to be new model
development. But there were a hundred
different directions to go and lots of
reports, special reports, and regular reports.
So I think it is a very unique and valuable
opportunity.

But -- so I always start with --
some people asked me what -- is this a good
model or is that a good model? So I have this
kind of snide way of just getting people to
think more broadly and I think you are well on
your way to doing this.

So I guess I find in a lot of
applications, you know, one percent of
formulation is worth about 99 percent of, you know, model other than design computations and stuff but particularly at points like this.

So the snide response I have to -- the question of -- I'm always asked what makes a good scenario, what makes a good model, what makes a good approach to uncertainty, what makes a good approach to model assessment?

And my answer is always it all depends on the question. So Mike actually started with questions as your survey did. But I think you need to continue to push in that direction.

So I like Mike's idea because one thing I jotted down right as he was starting there is you could do -- and he did start and Andy started and your committee started on market segmentation kinds of things.

I guess I do worry that you'll get pulled into -- and this is just an occupational hazard here at EIA -- into a model that does everything.
But if you think about it, would a
model that does, you know, the U.S. version of
a whale oil market for the purpose of
projecting oil prices be different or similar
to some, you know, corn ethanol guy who really
wants to know exactly what his product is
going to be worth versus another one. Or --
I don't know -- electric -- I actually had
some neat course projects, as I mentioned
before, electric cars.

You say well, it's hard to use
NEMS to do, you know, the better price model
of electric cars. But you're asked to do all
of these kinds of things. So I think market
segmentation might be good.

And I always come back and I know
you've heard this before, but here again, Mike
did a very good job of arguing for modularity.
That you might be able to prune it down to
three, four, five, six categories. I had a
list of three.

He had a list of six or seven that
I think, you know, you could probably refine it. But boy, for off the top of your head, that was a pretty good one.

And then you -- but are we really -- just because it's just design phase and not implementation phase, think through, as you do on the NEMS documentation, all the linkages with all the other modules and what those would entail.

And how much you would be able to do with the existing architecture, just for a few specific examples that I think are hard that I've thought a little bit about is on the bio fuels because I've been through this with the global models, kind of right in the middle of the -- well, let's just put it bio fuels technology in. Maybe we couple it to carbon capture and sequestration. Boy, that could do negative emissions. It wouldn't be cool.

So there actually was a bunch of groups that put that out. Then the negotiators wanted this to be kind of a main
scenario. And people said well, we didn't
really look at that. And who knows if there's
enough land to do this. And whether it's onmarginal lands, national park lands, or we're
taking ag land away from starving people in
the developing world.

So you will have to, at some
point, I think in doing this market
segmentation and modularity, think how to
confront some of those problems. But I think
if you get it down to five or six potential
main uses as opposed to all 70, I think that's
possible.

And there are kind of specific
things. The other one that I hadn't thought
about but should have is this Clean Air Act
amendment overlay when you're talking about
refineries and bio fuels and greenhouse gases.

The other big one on the biofuels
was if you're not careful, the way to get
stuff to grow fast in a small amount of land
is to dose it pretty heavily with nitrogen
fertilizer, which produces nitrous oxide, which is almost a perfect substitute for carbon dioxide as a radiative-forcing agent. So -- actually when I think that community, you know well some of the people in the U.S. can help thinking about that. But the Clean Air Act probably -- I just -- don't ask me why I read the whole, you know, American Bar Association overhead on the Clean Air Act and there is a lot of -- Mike probably knows better than some other people here do -- things that are coming along. But if you're talking about refineries and citing refineries and what constraints there might be on them and biofuels plants and I guess the other big one that wasn't explicitly mentioned but it's really prominent in the current projections of liquid fuels is the non-conventionals. So I guess I got from the last couple of meetings that peak oil is kind of not completely out of the cards for conventional oil, even a clean
EIA, but the big issue is how much, I guess, tar sands are now heavy, heavy. Do I have that right? Heavy, heavy oil or heavy, heavy, heavy oil.

All those categories, I just talked to somebody who was just up in Alberta and they're planning on exporting five-ten million barrels a day to the U.S.

So I don't know what all -- I think it just means to proceed along the path that Andy described that Mike augmented. But to do as much of this -- actually take some lessons from marketing to do kind of even more intense focus groups and I guess the one thing that popped into my mind when Mike was speaking was this idea of market segmentation, that you could group this.

And I guess you already tried some consolidation. But then I guess the next step would be to kind of run that through a more full preliminary design thing in terms of what that is going to mean in terms of information
from other modules, information provided to other modules, and so on.

I know you hear this all the time but if this is one of the few times where I think you've really had the chance in the last 10, 15 years anyway to rethink kind of the design at that level as opposed to improving one or another of the individual modules.

MR. BROWN: One environmental issue that John's comments just refreshed in my mind is that the carbon content of some of our imported liquids, such as the tar sands oil from Canada, is a little bit different than let's say domestically produced light crudes.

And I know that's something that the current NEMS model does not take into account. We don't import any of the carbon that -- you know, the carbon content that is produced overseas, we don't import that so that we don't actually get to see kind of the net carbon contribution of our consumption
activity.

And that may be something that even if you don't want to answer, someone might want to have answered not too far down the road.

MR. KOKKELENBERG: I'm simply going to underscore Steve's comment, to some extent here. Congress apparently has, and society has two objectives. One is to minimize the importation of crude oil from the Middle East or other unstable areas. And the other is carbon dioxide control.

And the models and the development I'm sure are serving both of those. But those two aspects are probably going to be the ones where you get questions in the near-term future anyway.

And so issues like Steve just pointed out about the carbon content of various sources as well as the BTU content and -- because bio fuels might be great for crude oil substitute. But they certainly are no
panacea for carbon dioxide.

DR. BLAIR: Other comments?

Questions?

(No response.)

DR. BLAIR: Did anybody in the audience want to make a comment or question on this subject?

Going once -- Andy, did you want to say anything?

MR. SCHAAI: I'm Michael Schaal. I'm the Director of the Oil and Gas Division within Integrated Analysis and Forecasting. And I very much appreciate your comments and suggestions that I've heard here today. And I'd like to underline one issue that I think comes out of the discussions here, one of which is this is an excellent opportunity to take what we have and make it simple within the context of what we want to do in terms of policy analysis. But also towards the end of this conversation, I'm struck by the number of
issues that are new and arising that are potentially complex and have a degree of uncertainty which come in to some conflict with the idea of keeping the modeling approach simple.

So I think that's one of the key tension points that we're going to face in discussing what this new module looks like going forward. And I think that's one of the observations that I get out of observing the conversation and the feedback that we've gotten here today.

Thank you.

MR. TOMAN: Just a -- I think you make a very good point. So maybe five seconds on that.

To the extent that you have the ability to modularize so that a lot of uncertainties can be dealt with in a satellite place and then pretty simple representations of what is driving policy get brought in, it seems like you sort of -- you know, you build
some flood walls to prevent uncertainty in one place from swamping you in another place.

So I was thinking when I made my first comments about that kind of modularity in addition to, you know, modularity just in terms of technology or fuel price.

DR. BLAIR: Andy?

MR. KYDES: Just a minor response here.

The low carbon fuel standard is going to require the full life cycle analysis that you're talking about with regard to tar sands.

For example, and that's one of the items -- that's one of the policies that I think we have to be able to incorporate within the new structure, in fact, we'll probably have to do it before the new structure because I think that there's a legislation that is coming along that we are going to be asked to evaluate.

And that legislation is the Waxman
Bill, which has that among three other items.
And so I agree with you that that's, in fact,
one of the capabilities we're going to have to
build into the model when we're designing and
building it. So I think that's a very good
suggestion.

MR. TOMAN: So, Andy, on that
point, is there a thought to have Argonne redo
the GREET model or somebody else redo
something like that? A new round of analysis?
Some life cycle carbon calculations?

MR. KYDES: We may do that. The
only reason I'm hedging is because of the fact
that you're too early in the process to be
able to identify, you know, what needs to be
done. But I think if it is a necessary part
of what we need to do, then we'll be doing it.

MR. TOMAN: Okay. Well, maybe
this is a side point to the main discussion
and it's just one person's opinion but I think
that the GREET results need to be freshened up
and tightened up. I think it is important if
we're going to go down the road of trying to
do the life cycle carbon calcs for the reasons
you and Steve mentioned, to take a free look
at the measurement of that.

I think there's been a lot learned
since those calculations were done. And it
would be a good time to freshen that up.

MR. WHEYANT: Actually back to your
other point though, which I think is
generalizable, is I think that using that and
other life cycle cost systems and getting as
much as you possibly can out of that in
looking at how you might be able to graft
those as sources of inputs and destinations
for outputs would be a good idea.

I guess one thing I implied before
is you could use the kind of global integrated
assessment models as a source of insights
about, you know, international trade and land
use change and things like that. Again, it's
maintaining the ability to deal with
complexity but not making it part of the core
modeling system if I interpreted that correctly.

So that's generalizable. So this specific Greek case, which is, you know, a good start at start at that. I know there are tree or four groups that have tied to do that, none of which I actually think are completely up to date.

But then you could actually leverage off them and get them to update their thing and take advantage of that rather than trying to do the whole enchilada.

So we're trying to coordinate socioeconomic modeling with the climate models for the next quasi-IPPC round so one issue is land use. Land use submissions, greenhouse gases, mitigation, projections, all that stuff.

So I naively thought about 15, 16 months ago that one group or the other kind of had this virtually figured out, how do to land use. So we had a meeting. It was actually
back here a year ago February. And the conclusion was neither side really knew what the heck they were doing.

So fortunately there were a couple of land use experts there and said well, we've been working on this. And we're not really sure. But if we work together for a while, we might be able to come up with some reasonable numbers.

So the prescription there for this broad a initiative is just to figure out a few groups you could leverage off of to provide detailed information that might cover some of the complexities that will relieve you of the responsibility of doing all that complexity in one single model.

And then, you know, if you really don't like their module at the end, the other alternative, which Mike kind of touched on, is just like you could have a really detailed refinery model and do reduced form kind of vectors or surfaces from that.
You explicitly mentioned this at one point. You could actually build your own, you know, complex life cycle cosmos that you like better but that doesn't mean that that has to reside as a, you know, hard-wired module in the model.

You could then take -- I guess I'm still in OR -- I hardly can take kind of extreme points in vectors out of that. You know this is part of that.

MR. KYDES: This is, in fact, one of the options I think that should or could come out of the technical workshop. In fact, it is one of the options that we considered.

The plus side is that you have presumably a very, very good detailed refinery model that has lots of different levels of complexity for the refineries that you can then run through and test out.

And then, of course, there are a well-known number of different ways to be able to generate a pseudo model or small model that
represents it. The problem is that then you
have to maintain essentially the large model
and then make sure that the algorithms work.

And so then when you get some
silliness, you have to then figure out what to
do about it.

MR. WEYANT: Yes, it's not kind of
throwing the information over the fence and
forgetting about it. And then if they update
it, you want to update it. It would be nice
to have somebody else do that. But --

MR. KYDES: Right. Well, I agree.
I think that is potentially a very good option
if we could find somebody who has a very good
model that we could use in that regard.

I wanted to mention one of the
things in the white paper that we will be
sending out to this technical group,
discussants and authors, we'll have a section
that identifies the information required by
the rest of the NEMS --

MR. WEYANT: So it's just parallel
1 to the current NEMS document?

2 MR. KYDES: To the current, yes.

3 MR. WEYANT: That's great.

4 MR. KYDES: And then it will also

5 identify the information the LFM model

6 requires from other sources, not only from the

7 rest of NEMS but from the IEO component as

8 well --

9 MR. WEYANT: That's great.

10 MR. KYDES: -- the international

11 component. Okay. So I think many of the

12 suggestions you've made, in fact probably all

13 of them with one exception, I think we agree

14 with. At least I personally agree with.

15 MR. WEYANT: Which ones didn't you

16 agree?

17 (Laughter.)

18 MR. KYDES: Forward looking, I

19 agree with how you formed that is really the

20 problem.

21 MR. WEYANT: It was his

22 suggestion. So Don will tell you how to do
MR. KYDES: And fundamentally, I do believe that every decision that you make that has to do with opportunity, the question is how you formulate that so that it actually simulates it.

MR. BROWN: But the only information they have, of course, is from the past.

MR. WEYANT: Well, not the procedures. I guess I was hoping there might be a way to do kind of what is done in the electric utility sector. To look at some simple way for people who making these big investments in refineries or bio fuel plants to have some maybe simplistic way of -- yes, I definitely believe a 30-year foresight alone, both the primo and deal path is a little bit -- it's kind of like well, the stock market didn't work last year so --

But I think from the business people I know, which is probably less than
you're exposed to, that, you know, some kind of, you know, three-, four-, five-year trend extrapolation or, you know, a STEO, somebody who looks at STEO, you know, a few years out into the future.

What we're finding on the consumer demand side is most people who make energy efficiency investments either don't look out at all -- you can actually do this by simple questionnaires -- even the auto industry has this thing -- that even the people who do only go about three years. Three, maybe four at the outside.

So nobody actually does life cycle costs. Now that suggests a whole different set of policies you might or might not be willing to do. And some complicated Welker economics. That's another question.

But just it's something other than using current conditions as future --

MR. KYDES: Absolutely.

MR. WEYANT: -- like it's done in
the electric sector. So I was -- I think Mike responded correctly.

MR. KYDES: I have to agree. Myopic expectations are wrong.

MR. WEYANT: But which is more unrealistic? Completely myopic or 30-year, 50-year foresight?

MR. KYDES: I don't know the answer to that.

MR. WEYANT: It's a fool's game to actually even ask that question. So I think you get it.

MR. KYDES: Yes. I do appreciate the Committee's recommendations. I know many of you and I appreciate meeting you again.

DR. BLAIR: And I'd particularly like to thank Mike for his work in coordinating this and giving the response.

MR. TOMAN: It was a labor of love.

DR. BLAIR: That brings us to Committee suggestions for topics or dates --
and/or dates for the fall 2009 meeting.

MS. BROWN: I have the dates, potential dates, just to make your job easier here. I looked in my trusty little Blackberry. If we keep it Thursday and Friday, I assume that's probably what people prefer.

And we'll still -- unless I hear differently and Ed and I discuss differently -- we'll go with the day-and-a-half format. There's five potential dates. October -- first, second, eighth, ninth, 15th, 16th, 22nd, 23rd, 29th, and 30th. So there are five dates.

I don't know if anybody has any preferences. But those are the five Thursday/Friday dates.

(Off-mic comment.)

MS. BROWN: I'm sorry. I'm missing this.

MR. TOMAN: I was asking John if there was anything we already knew on the
calendar due to the climate change
negotiations where at least he may be yanked
out of the country.

MR. WEYANT: It all peaks at the
end of the year in Copenhagen. So there's
supposedly -- nobody really has anything
scheduled.

MS. BROWN: So is earlier in
October better than later?

MR. WEYANT: Probably, yes. I
just -- the other thought I had is just to
pick some dates and I can probably defend
them.

MS. BROWN: Well, why don't we go
with the first and second? How is that? Want
me to get it on your calendar?

MR. WEYANT: Yes.

MS. BROWN: You know, we'll kick
it around here at the EIA to make sure that
there's no conflicts here. I haven't looked
that up. But let's all tentatively go with
the first and the second.
MR. TOMAN: The first day of your new fiscal year. And that's okay?

MS. BROWN: Yes, there you go.

MR. TOMAN: You'll be able to cover travel expenses the first day of the fiscal year.

DR. BLAIR: How about topics for the next meeting?

MR. BROWN: One topic that I want to raise, and I don't want to discuss it in great detail today, is whether this Committee ought to remain affiliated with the ASA. I actually found Ron's remarks to be out of touch and defensive. And I think they provide a terrible service on travel.

And, you know, in keeping us informed even of the dates when I was a new member. And I got much better service on National Academy panels that I've been on. And I don't know what the cost is, ASA versus National Academy panels. But --

MS. KIRKENDALL: It's a lot more.
MR. BROWN: They're a lot more?

MS. KIRKENDALL: Yes.

MR. BROWN: Okay.

MS. BROWN: Maybe you and I and Ed can talk about what it is that you don't like about it. And we can work through ASA to try to improve what the process is.

MR. BROWN: Okay.

MR. KOKKELENBERG: Can I join in on this? I think that Steve is right. The support that ASA has -- and years ago the support that they gave this panel was very much at arms' length, which didn't bother me so much. But if it is impeding the work of the panel or making it difficult to do planning, maybe those are issues we can address with ASA.

Alternatively, there may be other affiliations that might make more sense. And I think it is a good idea to at least think about this problem.

MS. BROWN: I think this is
something we have to think about internally at EIA.

MR. KOKKELENBERG: Oh, yes.

MS. BROWN: And I will bring this up with the other senior management here about your concerns. But it's not a decision --

MS. BROWN: No.

MS. KIRKENDALL: -- that I think the Committee should be making. This is probably an EIA decision, okay?

MS. BROWN: Probably. We offer you some kind of cover with the ASA emblem, right?

MS. KIRKENDALL: Yes.

MS. BROWN: The seal of approval. And without that, it has to be somebody who is equivalent like the National Academy. And they may not want to touch us.

MS. BROWN: That's not what ASA gets to do this.

MR. KOKKELENBERG: Pardon?

MS. KIRKENDALL: They wouldn't
touch it for the amount of money that ASA gets to do this.

MR. KOKKELENBERG: Well, that may be a good reason to stay with ASA.

MS. KIRKENDALL: Oh, I don't think he was really complaining. I think he was offering alternatives.

MR. BROWN: Well, he actually suggested that we stop being affiliated with EIA, which is odd because I mean it is sort of like to me we'd be more affiliated with EIA than ASA.

MS. KIRKENDALL: Well, and see it's -- this has always been kind of funny. I was on the ASA Committee on Committees that he talked about at one time. At one time the Board of Directors of ASA actually considered getting rid of this committee until I pointed out that there was a grant that came into ASA that they might like to keep.

It's just people -- you know, it's kind of a funny committee from the point of
view of ASA. And they're happy to continue it. But we really just don't fit the mold. They've been quite adaptable in many ways. They don't require that everybody be members which is great because most of you aren't members. None of the modelers are probably. I mean --

MR. WEYANT: I used to be. I used to be. I'm actually not sure if I am.

MR. KOKKELENBERG: Well, that can be readily enforced. Ed can say look, we want to hire Stephanie to be a member of the committee but we'd like you to become a member of the ASA.

MS. BROWN: But they didn't require that. But when I solicited new people for the committee, that wasn't the deal breaker. Being a member of the committee is not a deal breaker.

MR. WEYANT: Well, it was when I was chair. It was a deal breaker. I just said very strongly you will become a member of
ASA. I mean big deal. What's so hard about that?

But the point I think that Steve is right. ASA, at least in Ron's remarks, sounded like they were woefully out of touch with this committee.

DR. BLAIR: Well, let me try to move into topics.

MR. WEYANT: I guess in general it will be interesting because I know there is now a plan at EIA to do this NEM model. So it would be useful. I guess I personally wouldn't want to do things that were totally off that track.

But the three big things I see -- and this is partly just what I'm concerned about right now and also the new Administration -- would be things like behavior on the demand side, kind of energy efficiency behavior.

Or maybe something even more pragmatic like the stimulus stuff. I still
think I would rather have the Administration
come talk to EIA and a couple of other groups
that actually have looked at these sectors,
about where to park all that money.

I don't know if that's beneath the
modeling level or even based on NEMS runs, you
could do subsidies and stuff right within the
current structure.

And the third one with Steve Chu
and John Holderman around would be kind of
advanced energy technology assessment and
things. At least thinking that through.

I guess is the -- what's the
status of the horizon for the models now?
That NEM is going to go out to 2030 or any --
if you're going to do climate stuff, you
probably have to have 2050 even for the
current bill?

(Off-mic comment.)

MR. WEYANT: For the AEO? But if
you were asked to do a McCain Lieberman Boxer
make up your names, do they let you just use
1 the current version of NEMS? Or do they try
2 to get you to extend it out?
3 These are just ideas but those are
4 the three that I like.
5 MS. BROWN: John --
6 MR. CONTI: Well, I'll try and
7 address some of John's questions.
8 MS. BROWN: Just speak loud.
9 MR. CONTI: First of all, as you
10 know, as part of the EMF, when it comes to all
11 of the modelers around in terms of the end-use
12 models, we typically have more information
13 than anybody else. So we're not going to get
14 a lot of insight from anybody in terms of how
15 subsidies or legislation is done.
16 MR. WEYANT: No, but I was talking
17 about you guys providing insights to the
18 people putting together the stimulus money.
19 MR. CONTI: And we do.
20 MR. WEYANT: You do?
21 MR. CONTI: And we do, and we do.
22 One way or another, we do.
And when it comes to how stimulus money is spent at least within the Department, we're pretty much in touch with that. A lot of times, it is very hard to connect the expenditures with how they actually will effect reductions in energy use. And I'm sure -- you know, that's a constant struggle.

I'd like to have some distinction between the National Energy Model and our current National Energy Modeling System. We are certainly updating a number of our modules in the current system. And we might assume them lock, stock, and barrel in a new National Energy Model.

But what we have today is not what is going to be a National Energy Model. We are definitely rethinking the whole structure.

MR. WEYANT: Is there one after the liquid fuels that is next in the queue so far? Or is that still in debate?

MR. CONTI: Well, I guess the first one in the queue is the OLOGS model.
And we're starting to implement that now for the upcoming AEO.

   And then there's the liquid fuels module. And we really haven't gotten past that because we have to deal with a lot of -- first of all, in spite of thinking we had the money, we never really had the money -- we didn't start receiving some of these funds up until a week ago. We actually don't even have it yet. They said that we had but we really still don't have it.

   MS. BROWN: We really haven't see it.

   MR. CONTI: They said yes, you have the money but it's not really in your accounts yet. So we really don't have the money.

   And then we've run into some procurement issues as to what we could do with this money. And I'm sure you guys -- a lot of you are familiar with how to try and do contracts within the federal government.
But I do foresee us doing a new National Energy Model. And Howard keeps on mentioning it even though we never really have the personnel that are devoted to doing it, which I think is absolutely required.

And you might be able to help us sort of at a very high level saying, okay, if you're going to do a new National Energy Model, at the module level, I'm very comfortable that we have a lot of experts that know how to model individual sectors very well.

I think maybe what we don't have is some of that insight at the very highest level of putting together this as a system. And start thinking of it from even maybe from different computer-type of platforms or computer-type of systems that might, you know, make it easier to maintain and to use because that's what -- our current system is ultimately flexible. But you pay a big price for that.
You know it's not particularly easy to use. But we can do just about anything that anyone asks us to do with it, given enough time.

MR. WEYANT: Well, again, is that a possible -- maybe it takes three months to decide this -- a possible agenda item? Where you guys could say here's what we're thinking. What do you think? Is that too early? Too late? Just, you know --

MR. CONTI: No, I don't think it is too late to start thinking about it. I think we really do -- and we do need to start at the high level and figure out, you know, where they might connect.

Yes, Mike?

MR. TOMAN: Well, John, I hear your points clearly enough. I'm still not clear though on one, which is John Weyant's suggestion that since I understand, I just found this out at the break, that you'll be doing another round on AEO sort of to look at
MR. CONTI: We will not be doing another round of the AEO. We will, as a part of any service request that is forthcoming, we will update our reference case assumptions.

MR. TOMAN: Okay.

MR. CONTI: And they will include a representation of the stimulus package.

MR. TOMAN: I thought you already had a service request in hand that was going to be asking you to do another round of outputs.

MR. CONTI: We do have one -- yes, we do have one in hand.

MR. TOMAN: Okay.

MR. CONTI: But we're not -- I'd like to differentiate between a full AEO --

MR. TOMAN: No, I agree. I was --

MR. CONTI: Yes, we'll update the reference case. And we'll update a number of parameters.

MR. TOMAN: Okay.
MR. CONTI: We're not going to update all of the parameters we do annually because first of all, a lot of that data is not even available.

MR. TOMAN: Since at least for a long time it seems, we've talked about the way that different macro level influences effect energy and how energy effects macro level issues, and you're going to be doing this service report. Does it makes sense?

I would say I agree with John Weyant. I would like to see something about the energy economy, public expenditure linkage be on the agenda in the fall.

I'd like to hear more about what you were having to do with the service report, compliance, and what issues that raised. And is there anything the Committee can do to be, you know, helpful in exploring things that are tough or endorsing what you're doing. Is that totally off map for you?

MR. CONTI: No, we sort of touched
on this the other day. There was another
comment that came up yesterday morning. And
looking at -- or maybe it was at lunch -- in
terms of the interaction with the economy,
most of you know we use the -- now the IHS
Global Insight model. First it was DRI, then
it was WEFA DRI. Then it was Global Insight.
And now it is IHS Global. IHS, I think, is
beginning to own most of the energy consulting
industry in the United States.

And so that's the model we use.

So in terms of how -- what are the
interactions between the energy and the macro,
it is the interactions between NEMS and the
Global Insight model.

Now we can certainly look at that
a bit. I don't think we have alternatives to
that connection in any type of a near-term
framework. Maybe, you know, if you want to
start looking at it today to see what you
might be able to do in a NEMS development
setting --
MR. TOMAN: I think given the current debate, I mentioned that. But I'd actually be more interested in the other direction. We have some share of the 800 billion that's going into energy-related activities. I know you know how much that is and how it will be spent.

MR. CONTI: Right.

MR. TOMAN: But what effect it has on the larger economy does seem to be very interesting as well as estimates that are made from it about, you know, how this will change long run as well as short run carbon trajectories.

MR. CONTI: Right.

MR. WEYANT: Just how you do it would be an interesting starting point.

MR. CONTI: Well, you know, in that case --

MR. WEYANT: It's going to be better than anything else.

MR. CONTI: -- in that case -- but
I think most of that is done internally to the Global Insight model. We certainly have the energy component of how that affects the energy sector. But in terms of how it effects the whole U.S. sector, I don't think EIA is an expert in how --

MR. WEYANT: Would it be totally out of bounds to ask them to come talk to this group?

MS. FORSYTH: We talked about this. Didn't Stephanie talk about it yesterday as bringing in outside speakers?

MR. WEYANT: Could that be done?

MR. CONTI: We could explore that, I think.

DR. BLAIR: We can certainly take it as a suggestion for a topic.

MS. BROWN: Why don't John and I work together over the next, you know, couple of weeks to see what we can do. I think you've got a sense of what it is they'd like to see. Who would do it is -- you know,
bringing in someone from outside -- this is
the forum to bring in people from outside. So
that's fine if we can do it.

MR. CONTI: We can discuss it.

MS. BROWN: Okay.

DR. BLAIR: Any other suggested
topics?

MR. KOKKELENBERG: Yes, something
I've mentioned in different ways. The
policies are changing and they're changing
fairly rapidly. And the economics last year
was a really shocking set of changes in prices
among other things.

The ability of the agency to move
rapidly and address questions like the
Senators provided and like the ones that Mike
and John were just talking about is well,
okay, how are things going to interact, is an
issue that is bothering me.

How -- could the department
consider -- could the agency consider how --
what are the bottlenecks of making it fleet of
foot to be responsive and adjust things? I mean the stimulus is known, to some extent.

And the AEO that was just published is totally out of date. Well, that happens.

How fast does it take them to respond? And is there ways to make that response faster? To make the agency more relevant to the people who are asking it questions, whether they be Congress or the public?

That would be a topic -- I would have no way --

MS. KIRKENDALL: Are you talking about the forecasting piece or the data piece?

MR. KOKKELENBERG: Either -- both -- I don't care.

MS. KIRKENDALL: I think the data piece actually keeps up pretty well.

MR. KOKKELENBERG: All right.

Then the forecasting piece or the implications piece. The data piece might keep up well but the first session I came to, years ago you
were presenting how we were trying to make the
data up to current by essentially using time
series analysis of past data because we had no
idea what was happening right now.

MS. KIRKENDALL: They do use that
for some imputations. But they also have real
survey data that come in at that same time.

MR. KOKKELENBERG: No, I
understand that. I'm saying maybe this is a
topic for next session, okay.

Then I have one other one that is
interrelated again to John and Mike. If there
is going to be pressure on carbon issues,
there's going to be questions about nuclear.
And I don't think the Committee has looked at
nuclear for some times.

Years ago, there was a question
about capacity utilization rates in nuclear
power plants. And there were studies that the
Committee did or ancillary groups did about --

MR. WEYANT: Life extensions.

MR. KOKKELENBERG: Yes, life
extensions. And is there a statistical or modeling issue there that the Committee might be useful to the agency on? Maybe next time, maybe a year from now? That's the issue there.

MS. BROWN: Okay.

DR. BLAIR: Barb?

MS. FORSYTH: I heard in a lot of different talks this time questions about assessing uncertainty. And I'm wondering if there is an interest in either talking about standard approaches that EIA uses to assess uncertainty or to present uncertainty information to users.

And I'm also wondering whether there's a need to educate users about uncertainties. So kind of a -- I don't know if there is a general interest in that. But it sounds like there are very different estimation contexts.

And the specifics of the approaches could be very different. But maybe
there is a framework.

MR. BROWN: One thing that I think would be helpful both to the EIA and the Committee would be to have sort of a plan on presenting one part of the STEO every time. And give us a chance to look at, you know, and actually kind of have a list of where we're headed in terms of the STEO.

Because I know in some cases, some of the STEO stuff is legacy rather than, you know, being pretty current. Some of it is pretty current. And it would be good to know kind of where the STEO stands and what pieces, you know, might need a little bit more work, et cetera.

MS. BROWN: One from me? Just in line with one of the things that Ron had mentioned and we talked about yesterday.

If you have work that you are doing related to the work that we do, and some of you think that's a stretch because you are sampler or in industry or whatever, but I
think if you really think about it, there
probably are things that you have that are
relevant to what we do.

And if you want to talk to us
about what it is that you're doing, that would
be very valuable to us.

And I think, John, you mentioned
that you have a graduate student working on
something with NEMS?

MR. WEYANT: I have a bunch of
them.

MS. BROWN: A bunch of them. I
mean if you wanted to maybe bring them in or
one of them in to summarize to us what they're
doing, I think the NEMS groups might be
interested in seeing what graduate students
are working on. That's always a fresh
approach.

MR. WEYANT: Sure.

MS. BROWN: So I want each of you,
if you wouldn't mind, to be thinking about
that. If you are working on something, please
contact either Ed or myself and let us know what it is so we can get it on the agenda.

DR. BLAIR: Nancy?

MS. KIRKENDALL: Steve Harvey talked about the two new initiatives to evaluate the Petroleum Statistics Report and the Natural Gas Monthly. And I think that a number of us on the Committee will be real interested in that.

MS. BROWN: Actually there will be follow ups on a couple of the items. That's one of them. And Steve had mentioned in his presentation that he'll be doing more in the fall.

I would guess that the liquid fuels, you might be doing an update on what you find from your workshop? I don't know. We'll have to talk about it.

But I think there are some natural add ons. And the other thing that I hope that we'll implement is -- I don't remember -- it was either Izzy or Vince that suggested the
spreadsheet that talks about what the
recommendations are from the Committee so we
can follow up on what we've done.

MR. WEYANT: And the other one
like that was the Coal Group -- I think
Phillip and others said that they might -- I
don't know if it's next time or the time
after, just that one way to think about it is
it was mostly focused on supply and not on
transportation.

So if there is new work on
transportation bottlenecks, that could be a
good one.

MS. BROWN: I'm sure Phillip and
Jason will be interested in talking more about
where they're going with their work. That
will be good.

MR. TSENG: Yes, actually for the
coal, we do have a very rich dataset. We have
the distribution information as well for each
year. So we'll be looking into the
transportation part.
And we probably can provide kind of maybe two papers. One is addressing some of the issues we presented this time and we got feedback. And the other part is if we have the transportation information, who do we present it in a modeling framework so we can actually simulate effect of different transportation bottlenecks on coal production and consumption.

I have one more comment, kind of going back to Mike's comment about the stimulus package. It is related to, I think it's energy technology assessment because I know for sure the energy efficiency in the Renewable Energy Office, the Biomass Program receive 800 million dollars additional money besides their regular budget.

And so the question will be what's the new tact on technical progress. And that's going to be a very challenging issue. But if it accelerates the technology, development, and the penetration, I think in
a modeling framework, that's almost like another challenge for EIA.

MR. TOMAN: Phil?

MR. TSENG: Yes?

MR. TOMAN: When you do the AEO, you have --

MR. TSENG: No, I don't do that AEO.

MR. TOMAN: -- no when the agency does the AEO, it has -- I forget what it is called -- the high technology, the more rapid technical advance scenarios, things of that type -- would it be possible in that set up since, you know, not in my lifetime are we ever going to have a good equation that relates expenditures to research outcomes -- can you essentially study the question you just posed by, you know, what if it accelerates, you know, this much, is it possible to get definition of a few key scenarios that would allow that kind, you know, of exploration? And it's still going to
be a judgment call ultimately for the decision makers.

MR. TSENG: I'm not in a position to answer that.

MS. BROWN: But John --

MR. CONTI: I think I want to answer it definitely in the sense that the GPRA analysis or the analysis that the specific programs do should do exactly that.

I was in a meeting yesterday --

MR. TOMAN: That's true.

MR. CONTI: -- where we were talking about how we are going to evaluate this because they're going to get, like he says, you know, a few hundred million there, a couple of billion here.

And they have to figure out how that will increase, you know, the effectiveness of their programs. And so I don't want EIA to really do it. If they had - - if they come out with a report that says as a result of this, it is going to advance, you
know, the technology two years. Then we could clearly run a scenario that does that.

We might include it in our op tech co-authorization.

MR. TOMAN: Right. No, that's not inconsistent, John, with what I was saying.

MR. CONTI: Yes.

MR. TOMAN: It's not that you would have to take ownership of the two years, five years, whatever. But you work with the relevant lab and others to, you know, have them tell you well, we think it could be this or this. And then you could look at each set of consequences.

MR. CONTI: And I think we do try and do that. The problem is we get into the number of technologies modeled in NEMS. And so we package them all up and we put them into one scenario.

What you're suggesting is you want to look at them sort of one-off. I don't think we have --
MR. TOMAN: At least a few.

MR. CONTI: Who gets to determine which --

MR. TOMAN: Mr. Chu, Mr. Secretary.

DR. BLAIR: Any other suggested topics?

(No response.)

DR. BLAIR: We'll invite public comment at this time. Would anybody from the public care to make a comment?

MR. CONTI: I'll reiterate one thing I said yesterday. Three-quarters of our budget or more is spent on the data programs. And we spend a lot of time in these meetings talking about the analysis and modeling.

DR. BLAIR: Any other comments?

(No response.)

DR. BLAIR: We stand adjourned.

Thank you.

(Whereupon, the above-entitled meeting was concluded at 12:26 p.m.)
A
ability 98:17
121:13,14 122:21
127:12 128:22
130:9,17 131:5
133:20 147:18
150:21 178:14
able 17:16 19:16,18
28:7 38:6 39:18
103:16 104:2
109:18 111:9
112:13 113:19
122:6 130:15
132:4,17 133:10
133:16,21 134:1
134:14 136:4
139:19 140:10
148:16 149:15
150:13 152:8
153:21 161:4
171:6 175:21
above-entitled
190:21
absolutely 129:4
157:21 171:5
Academy 161:19
161:21 163:17
accelerates 186:21
187:19
accepted 22:19
access 76:7
accessing 77:8
82:11,18
accomplish 47:21
50:21
account 91:11
144:18
accounts 170:16
accurate 30:8
accurately 15:21
acknowledge 105:2
Act 141:16 142:7
142:10
actions 75:7
activities 176:6
activity 9:6 145:1
actual 16:22 63:16
65:19
adaptable 165:3
add 61:19 89:13
97:2 136:8 184:20
added 104:6
addition 11:2 23:9
30:10 148:5
additional 4:8,18
104:9 122:7
186:16
address 7:15 102:3
103:16 111:6
112:13,16 118:11
162:17 168:7
178:15
addressed 102:6
108:15 111:5
129:6
addresses 106:21
addressing 186:2
adds 53:14
adequately 32:7
Adjourn 4:22
adjourned 190:19
adjust 85:22 179:1
adjusted 79:18,18
83:5 85:21
adjustment 78:19
123:19
Administration 1:5
131:9 166:18
167:1
Administrator 2:14
Administrators 66:15
adopted 109:1
adoption 114:18
ADRIAN 2:12
advance 187:12
188:22
advanced 102:17
167:11
advantage 130:9
151:11
advice 88:18
advising 87:13
AEO 167:20 170:2
172:22 173:3,17
179:3 187:5,8,10
AEO2012 108:20
affiliated 19:16
161:12 164:9,11
affiliations 162:19
affirmatively 92:5
afield 51:16
ag 141:5
agencies 68:12,13
71:15 78:2
agency 43:1 44:9
61:12 64:14 65:13
65:21 68:9 71:14
82:2 178:14,21
179:7 181:3 187:9
agenda 172:7
174:14 184:2
agent 142:3
aggregate 117:19
aggregation 99:18
ago 39:16 45:9
50:11 55:14 65:7
66:17 67:10 97:20
119:21 151:20
152:1 162:11
170:9 179:22
180:17
agree 14:22 81:20
122:20 125:1
149:2 154:12
155:13,14,16,19
158:3 173:18
174:11
agreed-upon 14:22
Agricultural 69:19
ah 84:5 88:12
ahead 14:5 23:16
25:3 60:14 95:5
105:16
aiming 123:10
air 131:10 134:19
141:16 142:7,10
Alberta 143:6
ALETHEA 2:17
Alex 3:20 5:17,22
6:15
algorithms 154:3
allow 187:21
allows 23:4 26:9
52:22 97:13
alternate 2:13
112:4 131:17
133:3,6
alternative 121:17
152:19
Alternatively 162:18
alternatives 122:1
164:7 175:17
amend 141:17
American 1:1
142:9
amount 141:21
164:1
agency 79:4
analyses 121:14,15
analysis 2:6 4:14
5:16 8:5 11:20
64:19 68:16 100:7
109:16,17,19
111:19 117:18
125:16 127:10
146:12,20 148:11
149:10 180:3
188:8,8 190:16
analyst 98:10 99:1
analysts 10:2
analyze 98:17
112:20
ancillary 180:20
Andy 2:21 4:14
95:7 119:10
120:16 121:11
138:17 143:11
146:8 148:7 149:7
and/or 32:6 159:1
anecdotes 74:6
annex 127:17
annual 123:16
annually 174:2
anomalies 71:8
answer 32:8 39:13
49:7,22 50:1 76:1
84:17 104:2 121:2
138:9 145:3 158:9
188:4,7
answered 102:7,9
145:4
answers 36:18,19
44:19
ANTHONY 3:10
anybody 5:5 41:10
146:5 159:15
168:13,14 190:10
anyway 28:12,15
144:6 145:17
apart 98:2
apparently 28:10
84:6 145:8
appear 75:10
applaud 125:3
application 124:6,7
129:17 131:22
applications 129:8
129:22 137:22
applied 21:12
applies 64:12
apply 8:9 75:6
appreciate 33:11
44:19 60:21
146:13 158:13,15
approach 26:8 27:3
34:11 67:16 109:2
138:7,8 147:4
183:18
approaches 121:6
121:8 134:2,13
181:12,22
appropriate 27:10
29:3,4 35:9 79:2
102:19
approval 163:15
approximate 96:8
approximately 61:17,21
approximates 63:16
April 1:8 25:8,12
25:20
| 1997 16:14 | 6 |
| 2 | 6 4:4 |
| 71:18 106:2 | 25:9 |
| 20,000 61:21 | 60 13:14,17 |
| 20-year 44:2 | 61 4:9 |
| 200 117:2 | 63 13:16,21 |
| 2002 77:17 | 29:14 32:17 33:15 |
| 2007 6:20 10:16 | 70 26:14 105:6,10 |
| 2008 10:16,22 11:8 | 105:10 110:22 |
| 43:20 44:8 86:4 | 117:2 141:12 |
| 2009 1:8 4:19,22 | 70-plus 114:21 |
| 13:4 79:16 159:1 | 79 4:11 |
| 2010 22:1 37:8,11 | 8 |
| 202.14 81:14 | 8E-089 1:10 |
| 2030 167:15 | 8,000 28:6 |
| 2050 167:17 | 80 13:11,17 |
| 22nd 159:13 | 800 176:4 186:16 |
| 23rd 159:13 | 81 4:12 |
| 25 12:16 106:2 | 9 |
| 250,000 87:19 | 9:00 1:9 |
| 28 4:6 | 9:04 5:2 |
| 29th 159:13 | 90 65:7,9 |
| 3 1:8 | 94 13:12 |
| 30 18:5 26:14 | 95 4:15 32:16 33:15 |
| 115:16 | 51:9 |
| 30th 115:7 159:13 | 98 26:12 |
| 30-day 17:9 | 99 26:12 138:1 |
| 30-year 156:17 | 158:6 |
| 31st 115:7 | 34 |
| 36 4:7 | 13 |
| 40 18:5 24:10 | 15 |
| 41 4:8 | 34 |
| 45 110:22 | 36 |
| 45.52 24:9 | 38 |
| 5 4:2 | 39 |
| 50 30:1 56:10 111:1 | 40 |
| 50-year 158:7 | 41 |
| 52 56:7 | 42 |