

**UNITED STATES DEPARTMENT OF THE INTERIOR  
MINERALS MANAGEMENT SERVICE  
GULF OF MEXICO OCS REGION**

NTL No. 99-G06  
Effective Date: May 1, 1999

**NOTICE TO LESSEES AND OPERATORS OF FEDERAL OIL AND GAS LEASES  
ON THE OUTER CONTINENTAL SHELF, GULF OF MEXICO OCS REGION**

**Economic Assumptions for RSVP Deepwater Royalty Relief Model**

This Notice to Lessees and Operators (NTL) supersedes NTL 99-G02 and updates the economic assumptions published in it. These new economic assumptions update Section b of the Economic Viability and Relief Justification Report. We require the applicant (you) to use these assumptions when applying for deepwater royalty relief. Together with these new assumptions, you must use a new version of the economic model, as specified in the table below, for applications submitted after the effective date of this NTL (until future updates, see below).

Significant recent fluctuations in oil prices have prompted us to update starting prices for RSVP frequently over the past several months. We have modified the way the RSVP accepts starting oil and gas prices by giving starting prices and effective date 1 year into the future. Since expectations of prices 1 year out are much more stable than day-to-day price expectations, this change reduces the need to change starting prices as frequently and is justified since we expect that applications for royalty relief will not show royalty production in the application year anyway. We have made special provisions for those applications that do.

We have established a regular quarterly schedule to address necessary changes to these prices.

Starting prices should be more stable with this change of effective starting date and any changes to prices at these quarterly intervals should be predictable.

**Notice of future updates** — We may update these assumptions quarterly, that is, in July and October of 1999 and in January and April of 2000, and so on, until further notice. *Future updates to price assumptions will not be disseminated by NTL, instead they will be posted on MMS internet sites.* You may access the updates at [www.mms.gov/econ/](http://www.mms.gov/econ/) or [www.gomr.mms.gov/homepg/offshore/royrelief.html](http://www.gomr.mms.gov/homepg/offshore/royrelief.html).

If you lack access to internet, call the Economics Division, (703) 787-1536, or the Gulf of Mexico Region, (504) 736-2675. We will make available an informational sheet explaining any updates to prices and any revisions to the RSVP model. Applicants must use the current prices and the current RSVP model, as of the date of their application.

Price updates, other than January, will generally affect only the initial prices and first scenario of growth rates. In January, other growth rates may be revised as well. Other technical changes to the RSVP model may occur in any update.

Parameter	Minimum	Most Likely	Maximum	Dependency
Version of RSVP		2.13		
Year of Initial Oil Price		2000		
Initial Oil Price (\$/bbl)	\$11.44	\$15.59	\$19.98	
Real Oil Price Growth Rate 1	4.0%	4.1%	4.7%	
Year Second Oil Scenario Starts		2005		
Real Oil Price Growth Rate 2	0.0%	1.8%	2.1%	
Year Third Oil Scenario Starts		2011		
Real Oil Price Growth Rate 3	0.0%	0.7%	0.8%	
Year of Initial Gas Price		2000		
Initial Gas Price (\$/Mcf)	\$2.05	\$2.16	\$2.27	+1 with Oil Start Price

Real Gas Price Growth Rate 1	1.9%	2.3%	2.7%	+1 with Oil Growth Rate 1
Year Second Gas Scenario Starts		2005		
Real Gas Price Growth Rate 2	0.6%	1.0%	1.3%	+1 with Oil Growth Rate 2
Year Third Gas Scenario Starts		2013		
Real Gas Price Growth Rate 3	0.0%	0.7%	1.4%	+1 with Oil Growth Rate 3
Federal Income Tax Rate		35%		
Base Year for Discounted Cash Flow		Application date year		
Discount Rate Range	10%		15%	
Random Number Seed		104		
Overhead Cost Allowance		5%		

**Year of Initial Oil and Gas Prices** — Initial prices of the price forecasts are for next year, not the current year of your application date (except in January before the update - e.g., an application on January 5, 2000, would have an initial price year of 2000). However, note that your cash flow analysis has your application date year as its base year for discounting.

We expect that applications for royalty relief will not show royalty production in the current application year, so current year prices are not needed. If your application shows royalty production in the current application year, please contact the Minerals Management Service staff responsible for royalty relief at the phone numbers given above, and they will provide an RSVP model with the needed prices.

**Initial Prices** — For the year of initial prices, the RSVP model selects initial oil and gas prices for each trial from triangular distributions with the parameters shown above. As previously, we based oil prices primarily on data published by US Department of Energy (DOE) for the US and for Petroleum Administration for Defense District (PADD)-III refiner's acquisition cost (RAC) of imported oil and the wellhead prices of gas. We set most likely oil and gas prices from the Energy Information Agency (EIA) *Short-Term Energy Outlook* (STEO) published in April 1999. The STEO forecast at that time is:

<b>Source: EIA</b>		<b>2000</b>
Imported Crude Oil (dollars per barrel US RAC)		\$16.24
Natural Gas Wellhead (dollars per thousand cubic feet US wellhead)		\$2.16

The triangular distributions around the most likely initial prices are based on EIA *Annual Energy Outlook* low, reference, and high scenarios for the year of initial prices.

The price for crude oil, defined by EIA in STEO as the US average RAC for imported crude, is adjusted to a regional basis, the PADD-III average RAC for imported crude, by a factor of 96%, which is the 1990-96 average ratio of the two prices.

We specify a direct dependency of the initial gas price on the initial oil price that RSVP selects on each trial.

**Price Adjustments** — Our initial oil prices apply to 30° API gravity crude oil. Our initial gas prices apply to 1,028 British Thermal Units (BTU) per cubic foot of gas. You may specify gravity differences or hydrocarbon content differences for your field. You must certify that such quality differences exist and provide complete justification for the amount you specify.

The RSVP model computes oil quality price adjustments for each trial from the 30° API basis, using the following table:

RSVP Viability Module Oil Quality Adjustment Table

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API Gravity	Price Adjustment
65.0°	(\$2.13)
45.0°	\$0.87
41.0°	\$0.87
35.0°	\$0.75
30.0°	\$0.00
0.0°	(\$4.50)

The model interpolates the price adjustment it uses for gravity values between those in the table. For example, if your crude oil has an API gravity of 37.6° on a trial, then the interpolation between price adjustment values \$0.75 and \$0.87 uses the following equation:

$$(((37.6 - 35)/(41 - 35)) * (0.87 - 0.75)) + 0.75 = \$0.802$$

The model would increase whatever initial oil price it picked on that trial by \$0.802.

The RSVP also increases or decreases the initial gas prices for BTU content above or below the standard 1,028 BTU per cubic foot of gas. The size of the adjustment on each trial depends on the price and Btu content sampled. For example, if the model picks a BTU content of 950 BTU/cf together with an initial gas price of \$2.00/mcf, it adjusts the initial price actually used on that trial by the ratio of trial-specific BTU content to standard BTU content (950/1,028). The resulting initial gas price used on this trial would be \$1.85, i.e., \$2.00 \* (950/1,028).

**Real Price Growth Rates** — We estimated these annual rates from the long-run price forecasts published in the *Annual Energy Outlook, 1999* (AEO). The estimation method involves merging the AEO long run forecast, which EIA publishes in December only, and the STEO short-term forecast, which EIA publishes monthly. The main steps followed are:

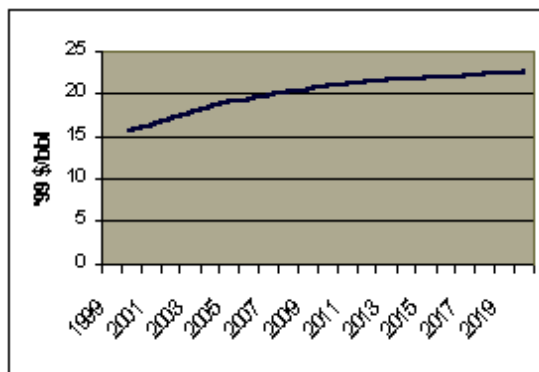
1. Obtain the annual AEO long-run forecasts for the high, reference, and low world oil price cases for oil and the analogous cases for gas. Convert the AEO constant dollar figures to our base year. Put the AEO figures on a PADD-III basis.
2. The year in which the second scenario begins is five years from the year of initial prices. Compute annual growth rates connecting the initial prices and the AEO prices in given years. These are the scenario 1 growth rates.
3. Identify an appropriate year for the start of the third growth scenarios. Compute annual growth rates connecting the AEO prices for the start of the second growth scenario and for the start of the third growth scenario. Do the same for annual growth rates connecting the AEO prices for the start of the third growth scenario and the final year covered by AEO. These are the scenario 2 and 3 growth rates, respectively.

The numbers derived from AEO's reference case, which we used to calculate most likely growth rates, are:

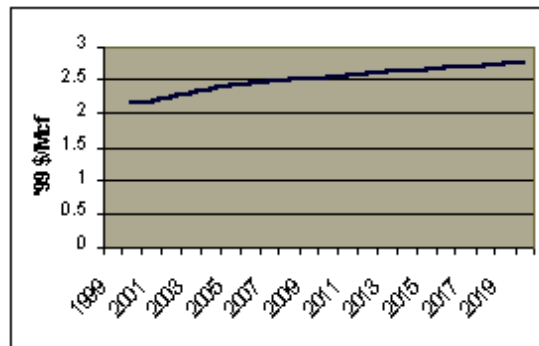
Year for oil	Oil (PADD-III RAC basis, '99 \$/bbl)	Year for gas	Gas (US wellhead, '99 \$/bbl)
2005	\$19.04	2005	\$2.42
2011	\$21.20	2013	\$2.63
2020	\$22.48	2020	\$2.76

The real gas price growth rate 1 (RIGP) has a direct dependency on the real oil price growth rate 1 (RIOP). The RIOP2 has a direct dependency on RIOP, and RIGP2 has a direct dependency on RIOP2.

Price forecasts made using mode initial prices and mode growth rates appear as follows:



**Figure 1. Most likely oil price forecast**



**Figure 2. Most likely gas price forecast**

**Discount Rate Range** — We offer a range of annual real, before tax, rates from which an applicant can choose a value for the purposes of this report. The value you chose must be used for all other analyses performed in connection with the application.

**Tax Rate** — We use the Federal income tax rate in determining after-tax sunk costs.

**Random Number Seed** — This is a seed number used to start the random number generator in the model.

**Overhead Cost Allowance** — An overhead allowance rate that you may use for certain joint costs which you are unable to allocate clearly to your particular field. The cost categories included are: Labor, Material, Abandonment, and Other Costs, as defined in the [Appendix I to NTL No. 99-N04: \(or superseding updates\) Revised Guidelines for Royalty Relief](#), under 30 CFR Part 203, March 5, 1999.

**Paperwork Reduction Act of 1995 Statement:** Any collection of information that we mention in this NTL provides clarification, description, or interpretation of requirements contained in 30 CFR part 203. The Office of Management and Budget has approved our collection of information required by these regulations and assigned OMB Control Number 1010-0071. This NTL does not impose additional information collection requirements that would be subject to the Paperwork Reduction Act of 1995.

If you have any questions on this NTL, you may contact either of the offices mentioned above at the phone number provided.

Chris C. Oynes,  
Regional Director  
Gulf of Mexico Region