PROCEEDINGS

"Geothermal Energy and the Utility Market - The Opportunities and Challenges for Expanding Geothermal Energy in a Competitive Supply Market"

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OPTIONS IN THE ELEVENTH YEAR 
FOR INTERIM STANDARD OFFER NUMBER FOUR CONTRACTS

Thomas C. Hinrichs
Magma Power Company
San Diego, CA

The Interim Standard Offer Number Four Contracts (ISO4), under which most of the geothermal industry is selling power (outside of The Geysers), has an initial ten year period of known fixed energy payments. In the eleventh year, the price goes to the Avoided Cost of the buying utility. The specific contract language is "Seller will be paid at a rate equal to the utilities' published avoided cost of energy as updated and authorized by the Commission (CPUC)".

The first geothermal contract will reach the end of the initial 10 year period in early 1994, a few will end in 1995 and 1996, and the majority will end in the 1997-2000 period. This is beginning to be focused upon by the utilities, lenders and, of course, the operators themselves. The prime reason for focusing on the issue is that avoided costs of the utilities directly track the delivered cost of the natural gas, and most forecasts are showing that the price of gas in the eleventh year of the contracts will be significantly lower than the last year of the fixed period of energy payments.

There are many forums in which the predication of natural gas prices are discussed. In the State of California, the agency responsible for the official forecast is the California Energy Commission.

Every two years, the CEC holds hearings for input into its biennial Fuels Report (FR) which establishes the forecast of natural gas prices in addition to other parameters which are used in the planning process. The attached Exhibit I is an excerpt out of the 1991 Fuels Report (FR91). Figure 1 compares the forecast of FR89 and FR91 for the Utility Electric Generation (UEG) in PG&E's service area, and Figure 2, the forecast in the SOCAL service area. The FR91 SOCAL service area forecast indicates a bottoming of the gas price in 1994 at $2.50/mmbtu. Recent prices in 1992 are already at these levels. Converting this to an avoided energy cost brings about a price of 2 to 2-1/2 Cents/kWh. The 1992 energy price in the ISO4 contract is 9.3 Cents/kWh.

Decisions on the course of action, relative to the eleventh year potential drop off in energy price, will be based on the seller's belief of:

1. What the avoided costs will actually be in the future, and
2. What, if any, options the seller has on modifying the contract.

A discussion within our industry on these two issues is appropriate and will become a major part of the industry dialogue as time passes, if the natural gas price doesn't show signs of rebounding. There are some contracts at The Geysers which are under the ISO4. All the geothermal coming out of the Imperial Valley, Coso Hot Springs. Mammoth and Dixie Valley are being sold to SCE under the ISO4 contracts.

GAS PRICE FORECASTS

In the March 16, 1992, Forbes, Frederick E. Rowe, Jr. indicates in an article on page 168 that whenever natural gas producers meet, the following joke is almost invariably told. The president of the Independent Producers Association of America asks God two questions: "Will the natural gas surplus ever dissipate and, if so, when?" God replies: "The answer to your first question is probably; and, the answer to your second question is, not in my lifetime." Rowe, apparently under the belief that this levity was not to be added to the Canon, goes on to say, "In my opinion, the free-fall in the price of natural gas is about to end. During the last decade, the spot (market) price of natural gas has fallen from more than $4 per mcf to less than $1. I am bullish on the price of natural gas and on the natural gas producing companies that survive the industries current depression. Natural gas is now a deregulated commodity. The current downturn in supply (capacity) and uptrend in demand (consumption) will produce a predictable result -a dramatic rise in natural gas prices that should occur next winter."

There are many things that have contributed to the natural gas supply glut. The very high price in the middle 80's created a major surge in exploration, and we are now producing that gas at very disappointing prices for those who did the drilling in anticipation of the 80's prices holding. Tax incentives approved by Congress on drilling for coal seam gas makes those gas sales profitable even if the price drops below $1. A recent New York Times article indicates that several large companies have kept gas flowing at high rates to generate cash from domestic gas fields, to invest into more promising fields abroad. In that same article, Andarko Petroleum was quoted as saying they are cutting back on their gas sales in March by nearly half. I would anticipate that all producers who can shut in their production will be doing so.
Last year, Magma, under the auspices of the Geothermal Resources Association, retained a consultant from Dallas to provide a view of the Independent Producers in the informational hearings of the CE 1991 Fuels Report. He has been involved in gas operations since the late forties and provided a number of statistics about the business over the years. The number of drilling rigs in operation, the price of gas, reserves to production ratios, reserves per well and the life of wells all give evidence that gas prices have a high potential of having step functions in pricing. The smooth curves associated with projections as developed in the Fuels Report are not the norm when looking at history. The consultant intimated that there are a lot of producers laying behind logs in the gas fields with large clubs in their hands, ready to strike with higher prices at any instance that provides the opportunity.

What can a person wanting to know the facts conclude from all of this about the future of natural gas prices, and, therefore, what the utilities’ avoided costs are going to be for the last 20 years of the contract? Southern California Edison has recently presented their view of the future. Exhibit II indicates the avoided cost to be at 4 cents/kWh in 2000 and 8 cents in 2010. With this projection, the drop in annual revenue for a 50-megawatt plant will be approximately 40 million dollars between the tenth and eleventh years. Exhibit III is a composite graph showing the SCE actual avoided costs from 1980 through 1991, ISO4 prices from 1983 through 1999, and the SCE projection avoided cost from 1992 through 2010. This gives a good historical perspective and shows that, from a historical context, the future avoided costs should be greater than the SCE projection. My own view is that the next two years will be needed to provide a shake out in the impact of the current abnormally low price in the long term. In that time, we in the geothermal business need to become very knowledgeable about the factors going on in the gas business and the impact that they will have on future price.

MODIFYING THE CONTRACT

Modifying the contract will require the agreement of the purchasing utility and likely the CPUC. For some time, SCE has been expressing their concern as to the viability of the QF power after the initial 10-year period and have suggested the idea of a QF being willing to drop the price in the initial 10 years, for some certainty on price following the first period. The QF component of power is a significant portion of the utility power supply. The utilities will want to have assurance that the supply is going to continue to be viable after the tenth year.

The "Amendment" paragraph in ISO4 reads as follows: "If at any time during the term of the Agreement, a change in circumstances, not anticipated at the time this Agreement was executed, significantly alters the rights or obligations of either Party, the terms of the Agreement which are directly affected by the change shall be amended by mutual agreement." I don’t believe anyone anticipated that in absolute, non inflation adjusted prices, avoided costs which are being projected in the year 2000 will be the same as those of 1980 - twenty years previous.

CONCLUSION

To my knowledge, there has not been any modification of contracts. A problem, which many in the QF industry faces, is the obligation to lenders on their projects who are looking to the first ten-year cash flow for assurance of repayment of debt. Another difficulty is that the time period involved is twenty years, and that is too long a period to forecast what the avoided costs are going to be. Reason indicates that with a natural resource, presently being priced as a commodity, there will be some major increases in prices with a twenty year period. As long as there is an impression that gas may take a major step increase between now and the end of the ten year period, it will be very difficult for QFs to reduce their anticipated revenue in the short term to gain greater certainty in the long term. I can see lots of spread sheet scenarios being developed to address this and decision analysis programs being marketed to the QF industry.

I have a few recommendations:

1. Discuss this issue with your lenders and the purchasing utility.
2. Become knowledgeable about what is going on in the natural gas industry.
3. Become familiar with how the avoided cost of your buyer is determined and participate in the regulatory arena where that is done.
4. Be prepared within the next one to two years to make a conscious decision on a course of action, and finally, since resource developers have a great deal in common with farmers, "lay up in the good times for the droughts are always going to come!".
Natural gas price forecast, Fuels Planning Committee Workshop, 9/18/91, page 9

EXHIBIT I
Forecast & Posted Avoided Cost

Based on SRI Spot Glut Forecast

EXHIBIT II

EXHIBIT III