

Natural Gas Access in The Rockies: Answer to the RAND Paper

*A Response to The RAND Issue Paper Comments
on
The National Petroleum Council's 1999 Study on Natural Gas*

March 28, 2002

Recently, the RAND Corporation published an Issue Paper* on the subject of industry access to undeveloped gas resources in the Rocky Mountain Region. The RAND paper is critical of the 1999 National Petroleum Council report titled "Meeting the Challenges of the Nation's Growing Natural Gas Demand" (the NPC Study). The NPC Study and other recent work have shown that access restrictions in the Rockies and elsewhere are a major and growing obstacle to meeting our nation's growing demand for natural gas. The NPC Study further showed the large favorable impact on future gas production and prices that would result from improving access to undeveloped resources.

After consultation with members of the supply team that conducted the NPC study, we have concluded that the RAND Issue Paper makes a number of misleading, out of context, and untrue statements about the NPC Study. The paper reflects several misunderstandings regarding both the approach and conclusions of the NPC Rocky Mountain access study.

It should also be noted that the RAND paper was based on an incomplete study, by RAND's own admission. The authors of the RAND paper have so far only reviewed the work of others on the subject. Because of this, it is misleading to publish conclusions and commentary on land access issues in a manner that suggests that new ground has been broken and that they are offering new information.

**The rebuttals to the points that RAND makes
on page 3 of its paper are as follows:**

Point 1

RAND Statement

“The studies should consider the restricted portion of only the economically viable resource. It is the viable resource that is relevant to understanding the amount of resource that would be produced in the absence of access restrictions”.

Point 1

NPC Response

The NPC study did evaluate both technically recoverable and economic resources. In various scenarios evaluated in the study, NPC found that a high percentage of the assessed undiscovered resource base in the Rockies is either economic now or will become economic through 2015. This conclusion has been verified by the current high level of industry interest in the region and the region's growing gas production. While the NPC Study did not publish price-supply curves, the study used economic viability of new prospects as the primary determinant of future industry activity, reserve additions and production. The NPC study showed that most of the assessed Rocky Mountain volumes are economic to develop, either now or in the near future, and that a large volume of these resources is likely to be in areas where industry access is restricted.

Point 1

NPC Response - *continued*

NPC evaluated the impact on future activity of increasing industry access and found that greater access and reduced regulatory costs will result in significantly higher gas production. The NPC Increased Access Case used the same economic and financial assumptions as the NPC Reference Case. As shown on Figure S-5, page S-26 of Volume II of the NPC Study, Lower 48 gas production in 2015 would be approximately 1.5 TCF greater with less access restrictions. Regarding the Rockies, gas production in the Rockies Foreland would be 800 BCF greater in 2015 with less access restrictions. To put this in context, this incremental Rockies production would satisfy approximately one-quarter of California gas demand in 2015.

Point 2

RAND Statement

"The NPC Study failed to include proved reserves in the resource base".

NPC Response

The NPC Study does include the entire resource base, including proved reserves. As shown on Table S-2, page S-11 of Volume II of the NPC study, the NPC estimates that the Rockies resource base is 382 TCF. Of this amount, 36 TCF is proven. However, of the total resource base in the Rockies, 137 TCF is subject to some form of access restriction. The restricted portion of the resource base is a very high percentage of the undeveloped resource base. A large portion of this is completely off limits to exploration.

Point 3

RAND Statement

"The study should account for the fact that access restrictions are sometimes waived. The studies find that three common lease stipulations are waived in 20 - 30 percent of the time, but the study fails to account for this finding in its preliminary analysis".

Point 3

NPC Response

It should be noted for the record that the NPC Study did not make the above statement regarding lease stipulations being waived 20 - 30 percent of the time, and to state otherwise is completely untrue. It is our understanding that this statement was made in the other study cited in the Rand Issue Paper. The NPC Study was a landmark report in quantifying the effects of access restrictions in Rockies. Based on detailed analysis of six calibration areas in the Rockies, the NPC Study arrived at three lease classifications and its percentages:

Lease Type	Percentage
Off Limits	9%
Higher Costs Due to Access Issues	32%
Standard Lease Terms	59%

Point 3

NPC Response - *continued*

Those areas under Standard Lease Terms were not subject to any access restrictions. Those areas with higher costs were subject to increased drilling costs and drilling delays. The cost penalty was computed as a weighted average of the types of restrictions and mitigation measures that were expected to be encountered in the high cost areas.

While it may be true that access restrictions are sometimes waived, it is often the case that new restrictions are placed on "standard lease terms" and other areas as approvals for drilling are reviewed and granted. The net effect could well be a greater cost penalty than the values used in the NPC Study.

Point 4

RAND Statement

"The study should account for access restrictions that could restrict pipeline and road development outside the potential drilling areas. These may preclude development even in areas where drilling is otherwise permitted".

NPC Response

It is unclear what is being asserted because it sounds as though RAND is saying that access to Rocky Mountain resources is even lower than what NPC has evaluated. The NPC Study does consider pipeline and other infrastructure costs. These are accounted for in the model. The model solves for lower wellhead prices in remote areas, to reflect higher transportation costs.

In both the Reference Case and the Increased Access Case, the NPC Study assumes that favorable economics for pipeline augmentation must exist for at least three years before a given pipeline corridor is expanded. This factor was decided upon after consideration of several issues including right-of-way access. In other words it would take time to work out access related right-of-way issues. It should be noted that Rockies gas production in both the Reference and Increased Access Cases is constrained due to limited pipeline capacity.

Point 5

RAND Statement

"The study should factor in that restrictions on timing apply to drilling only (i.e., drilling permitted only in certain months). Once a well is drilled, there are no restrictions on production or maintenance. Thus normally inaccessible resources can be developed via multiple season drilling and produced year round".

NPC Response

This is precisely what the NPC Study assumes in "High Cost Areas."

As noted above in Point 3, the NPC analysis concluded that 32% of the Rockies is subject to conditions mentioned in the above statement. As discussed in detail on page S-21 of Volume II of the NPC Study, the condition cited above was subject to drilling delays and higher costs.

Concluding Comments

One of the most important conclusions in the NPC study was that the Rocky Mountain region will supply a growing amount of the country's natural gas needs. Therefore, policy makers should weigh carefully the economic and environmental benefits of this growing gas supply against policies that might restrict access to the region's important natural gas resources. We see no new information in the RAND report that rebuts or even challenges this conclusion.

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