
IX. Summary and Conclusions

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Dark-colored shales of Devonian age (termed Brown shale) which are present beneath the Appalachian Basin are known to contain large amounts of natural gas. Gas production from the shale is greatest from much-fractured zones; initial production from Brown shale wells is relatively high, but while the rate decreases steadily the life of production is normally 15 to 50 years. Estimates of the total amount of gas in the Brown shale of the Appalachian Basin range up to many hundreds of Tcf.

It appears that gas production from Brown shale can be increased using existing technology. The recoverable gas potential of the Brown shale depends on the (1) wellhead price and production costs and; (2) extent of the commercially producible Brown shale resource. It is likely that the Brown shale of the Appalachian Basin contains as much as 15 to 25 Tcf of gas readily recoverable in 15 to 20 years at wellhead prices of \$2.00 to \$3.00 per Mcf. Production of gas from the Brown shale will come from many wells producing at low rates scattered over extensive

areas, thus resulting in a relatively slow pace of development. Construction of pipeline gathering systems coupled with the need to drill a great number of wells in the Appalachian Basin will retard the rapid development of Brown shale gas even if adequate economic incentives are made available. It is prudent to expect that development of a 1.0 Tcf per year production potential will require at least 15 to 20 years. Improvements in drilling and stimulation technology and economic incentives could reduce the timelag.

Available policies which could encourage the development of shale gas production include:

1. Price or tax incentives for gas from the Brown shale;
2. Expanded research and development to define the resource and, develop more efficient drilling and stimulation technology; and,
3. Collection and dissemination of results of research, development, and actual field operating experience.