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Shale decisions

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I offer a few comments about the article entitled "Study develops decline analysis, geologic parameters for reserves, production forecast" (OGJ, Aug. 5, 2013, p. 62).

While debating about the exploitation of shale plays, especially the Barnett shale, I must salute the spirit of the true frontier venture of a single man, my mentor and pioneer, the late George Mitchell, who unlocked this vast resource for Americans and gave "how-to" to the rest of the world's explorationists.

Key drivers for decisions on such plays (also known as resource plays), as per priority, are:

(a) Economic model.

* The most important driver for any exploration/new venture project in the US onshore shale plays is price at the gas sales meter or hub price, since most wells are drilled by independents.

* The boss wants to see cash flow, revenue projections, and pay-out days; that is, production rate first, then reserves volume.

(b) Technical model (assuming familiarity with drilling and completion technologies).

* Top-down or bottom-up or side-to-side models lack assumptions that would predict reasonably well the reserves volume (free gas) or production rates per well in case of unconventional reservoirs like shale.

* A simplified 2D (at least) geological model is essential which respects porosity (known plus assumed) distribution, geomechanical properties, brittleness, sedimentological architecture, age of the targeted and overburden rocks, and depositional environment for permeability prediction, etc.

Concerning the in-place reserves (free-gas) of the Fort Worth basin, the volumetric reserves estimate mentioned (i.e., 444 tcf of natural gas over 8,000 sq miles) makes the average 0.05 tcf/sq mile of area covered by shale and is surely a respectable number. This is not the best free-gas reserves-in-place (RIP) volume in the US Lower 48 basins and shale plays that I am aware of. There is a smaller subbasin with higher free-gas RIP statistics, such as 0.25-.50 tcf/section.

I welcome the effort by the **Bureau of Economic Geology** (with Rice University) to engage in such a serious, valuable, technical, and economic conversation with the exploration and production community.

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