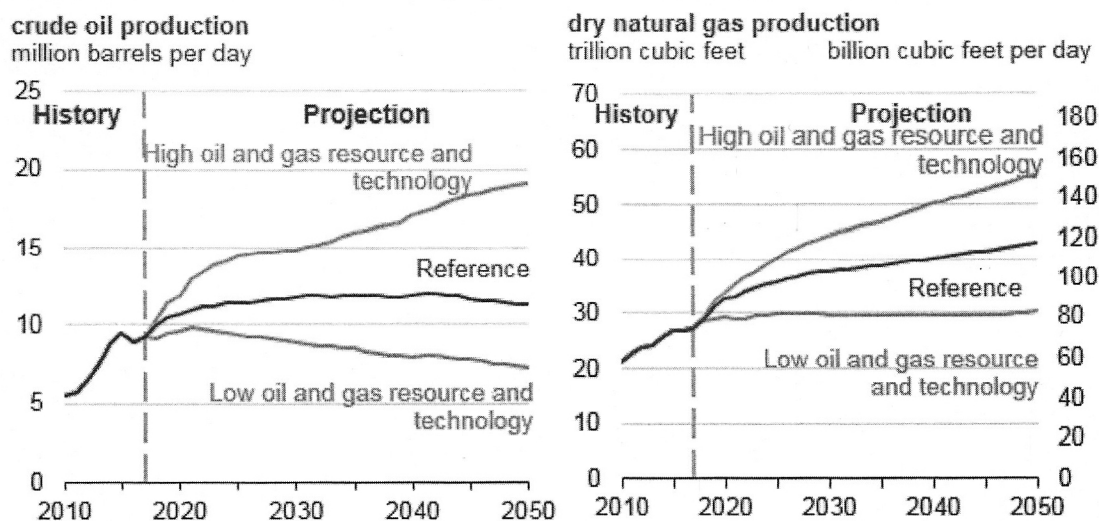


Figure 6. U.S. crude oil and dry natural gas production in three cases, 2010-2050

Source: U.S. Energy Information Administration, *Annual Energy Outlook 2018*

The difference in overall production across cases mostly reflects differences in tight oil and shale gas production. In the High Oil and Gas Resource and Technology case, higher well productivity reduces development and production costs per unit, which results in more and earlier development of tight oil and shale gas resources than in the Reference case. From 2017 through 2050, cumulative tight oil production in the High Oil and Gas Resource and Technology case is about 139 billion barrels, compared with about 93 billion barrels in the Reference Case, and cumulative shale gas production is about 1,109 Tcf in the High Oil and Gas Resource and Technology case, compared with 909 Tcf in the Reference case.

In the Low Oil and Gas Resource and Technology case, lower well productivity and rates of technological progress result in U.S. crude oil and dry natural gas production profiles that grow more slowly and result in lower levels in 2050 compared with the Reference case. Tight oil production peaks at 5.6 million b/d in 2021 and then declines through 2050. Cumulative tight oil production from 2017 through 2050 is about 63 billion barrels in the Low Oil and Gas Resource case, or 32% less than in the Reference Case. Shale gas production increase through 2050 but only reaches 22.1 Tcf in 2050 in the Low Oil and Gas Resource and Technology case compared with 32.7 Tcf in the Reference case. Cumulative shale gas production is about 663 Tcf in the Low Oil and Gas Resource and Technology case, or 27% less than in the Reference case.

Impact on spot prices

As a result of higher volumes of lower cost crude oil and natural gas supply in the High Oil and Gas Resource and Technology case, U.S. crude oil and natural gas spot prices are lower than in the Reference case (Figure 7). The West Texas Intermediate (WTI) spot price averages \$86 per barrel (2017 dollars) in 2050 in the High Oil and Gas Resource and Technology case, compared with \$110 per barrel in the Reference case. The Henry Hub spot price for natural gas remains relatively flat throughout the projection period, averaging \$3 per million British thermal units (MMBtu) from 2017–2050.