

EIA's Proposed NGL Realignment Statement

Over the past five years, liquids produced by natural gas processing plants (Natural Gas Plant Liquids, NGPL) and the gas liquids produced in refineries (Liquefied Refinery Gases, LRG) have increased by more than 20 percent. These increases resulted from the development of shale gas and tight oil, as well as growth in production of liquids-rich natural gas, driven by relatively high oil prices.

This growth in supply of NGPL and LRG has focused attention on the use of market terms such as natural gas liquids (NGL) and liquefied petroleum gases (LPG). In a recent review of these terms and more than a dozen related definitions, the Energy Information Administration (EIA) found a variety of ways of looking at NGL. Traditionally, EIA—with its many surveys of energy suppliers—has looked at lease condensate, NGPL, propane, etc., from a supply or producer point of view. Equally valid is the market or consumer point of view, which is primarily concerned with the use of commodities derived from natural gas processing and crude oil refining. Marketers tend to focus on the physical and/or chemical properties of products, regardless of where they come from, while suppliers are also concerned with the source and process origin of a product. Energy analysts and accountants are also concerned with tracking each unit of energy from production to consumption.

By far, the biggest divide was between the supply and market point of view. In an effort to unify these conflicting points of view, EIA proposes the creation of a neutral term—hydrocarbon gas liquids (HGL) – at the boundary between the supply and market terms. On the supply side NGPL plus LRG will equal HGL; on the market side NGL plus olefins will equal HGL:

$$\text{NGPL} + \text{LRG} = \text{HGL} = \text{NGL} + \text{olefins}$$

On the supply side, the definition of NGPL is not proposed to be changed. NGPL continues to include ethane, propane, butane, isobutane, and pentanes plus. Likewise, LRG is not proposed to be changed. LRG continues to include ethane, propane, butane, and isobutane, as well as their olefinic counterparts, ethylene, propylene, butylene, and isobutylene. LRG also includes pentanes plus, but all ethane and pentanes plus are assumed consumed as net inputs to the refinery.

One difference is in the proposed definition of LPG. EIA currently includes ethane and olefins in its definition of LPG. However, EIA proposes that LPG include only propane, butane, and isobutane. This will bring the proposed LPG definition into conformity with most other definitions in the world and recognize that olefins are in a different market than propane and butane. Olefins are always man-made, not natural, and are always marketed as basic chemical commodities rather than fuels.

On the market side, the biggest change is our proposal to redefine NGL as a market term, rather than as a mix of supply and market terms. Our review of the EIA glossary identified current NGL definitions to include both NGPL and lease condensate. EIA proposes that NGL will include only ethane, propane, normal butane, isobutane, and pentanes plus from both natural gas processing plants and from refineries. In other words, we propose that NGL will no longer include lease condensate and olefins. The proposed definition for NGL will include only paraffinic hydrocarbons.

EIA, for the most part, accounts for lease condensate as part of the crude oil stream, since it is produced as a liquid from lease separators or field facilities at the well and normally enters the crude stream soon after production. EIA proposes to define lease condensate as a supply term and no longer permit its inclusion as an NGL. Lease condensate is mostly pentanes and heavier hydrocarbons.

Not to be confused with lease condensate, plant condensate is the output of inlet separators or scrubbers in natural gas processing plants. Plant condensate is also a supply term. Like lease condensate, plant condensate is mostly pentanes and heavier hydrocarbons, but since it came out of the ground as a gas and does not tend to move back into the crude stream, it is treated as an NGPL. Plant condensate largely consists of pentanes plus; natural gasoline is the largest component of pentanes plus.

The proposed definitional changes will require a variety of changes in EIA's tables and figures. Some of these include:

- NGPL is proposed to no longer be considered field production.
- The extraction loss label in the natural gas production tables is proposed to be changed to NGPL Production.
- The NGL composite spot price is proposed to become the NGPL composite spot price since the weighting algorithm only considers NGPL production.
- The Dry Natural Gas Proved Reserves and NGPL Proved Reserves tables in the U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Proved Reserves report are proposed to be replaced with a new table showing Expected Production from Total Natural Gas Proved Reserves.

The new proposed HGL term unifies the supply and market points of view. It also focuses attention on the new definitions. It alerts specialists that lease condensate is proposed to only be part of crude oil; that LPG is proposed to include propane and butanes and exclude olefins and ethane; and that NGL is proposed to exclude lease condensate and olefins. This will allow EIA to more concisely describe the supply and demand of HGL products.

It should be noted, however, that HGL does not cover quite everything. Liquefied natural gas (LNG) and part of gas-to-liquids (GTL) output are excluded from HGL. LNG is methane that has been cooled to -260°F to form a liquid at atmospheric pressure. GTL is a process that combines the carbon and hydrogen elements in natural gas molecules to produce a slate of synthetic liquid petroleum products, including LPG, naphtha, diesel, and jet fuel. Only the propane and butane (LPG) produced at GTL facilities would be included in HGL.

These proposals to realign NGL data and related terminology are currently being reviewed by industry stakeholders. Implementation of any of these proposals would take considerable time. The glossary would need to be changed. All the tables, graphs, and footnotes would need to be assessed. EIA would need to revise and review select historical series and legacy web pages. Rollout of proposed changes to EIA publications and EIA survey forms would likely proceed on a staggered schedule, with more outreach required to explain these changes to the public.