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*Comment Received From: James C. Hall, Drilling & Production Co.
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Beneficial Use of Stranded Oil Field Waste Gas as a Transitional Issue

Additional submitted attachment is included below.

FROM: James C. (Chris) Hall
Drilling & Production Co.

DATE: November 11, 2019

TO: SB-100 Joint Agency

SUBJECT: Input to Agency for Their Report: Lifting of the 1 MW Export Limit to the Electrical Grid for Power Generated from Stranded Waste Gas.

As far back as 1997, members of the California oil producing industry and the California Independent Petroleum Association (CIPA) have been actively engaged in discussions with numerous California agencies and regulators as well as Federal Departments about the use of stranded oil field waste gas for beneficial purposes instead of it being vented or flared. As a result, starting in 2006 the Off-Gases project was conducted by the California Oil Producers Electric Co-op (COPE) to demonstrate the use of microturbines to generate electricity to power oil field equipment and where possible to put excess power on the grid. The project was jointly funded as a cost-share program between the producers, the California Energy Commission (CEC) and the Interstate Oil and Gas Compact Commission (IOGCC), with the later funding coming from the U.S. Department of Energy. The report to the CEC proved the efficacy of the process and the fact that while it was not a great money maker for the producers, it was a viable economic alternative to flaring the gas. The one drawback was that power could not be exported on to the electrical grid in quantities less than one megawatt due to restrictions imposed by the California Public Utilities Commission (CPUC).

During this time CIPA also worked with members of the California Legislature to draft bills that would lift the 1 MW export restriction; the latest bill was SB-682 introduced by Senator Calderon in February 18, 2011. This bill was ultimately withdrawn until such time that additional supporting information could be developed supporting the need for the legislation.

Accordingly in 2011, CIPA and several operators entered into an cooperative effort with the California Air Resources Board (CARB) to study the benefit of using of microturbine generators to generate power instead of flaring the stranded waste gas. The results of the study were published in a CARB Draft White Paper ("Potential GHG Reductions from Clean Distributed Generation Technologies at Oil and Natural Gas Facilities) dated March 7, 2012 which concluded that:

- The technology was demonstrated to be a good alternative to flaring;
- There was a net reduction in Green House Gases;
- There was a net reduction in criterial pollutants due to the turbine generators running cleaner and the flares; and
- There was a net economic benefit to the producer, the power companies and the consumers.

However, the report also concluded that there only 14 to 28 MW of power that could be generated, which in their opinion did not warrant further investigation; the draft white paper was shelved. CIPA strongly disagreed with the estimate of power that could be generated since other sources estimated the amount to be between 600 to 2000 MW of electrical power.

Today, both the South Coast Air Quality Control District (SCAQMD) and the San Joaquin Valley Air Pollution Control District (SJVAPCD) are either implementing new flare regulations or working on draft proposals that would severely limit the use of oil field and other process flares. If enacted without providing alternative means of allowing beneficial use of stranded waste gases, this would result in many production operations being impacted with some having to curtail or

even shut down operations and lay off employees. This was the very outcome that CIPA was trying to avoid during the over twenty years that they have been working on this problem. Both the SCAQMD and SJVAPCD recognize that restrictions on the export of power is a big concern.

Under SB-100, the CEC, CPUC and CARB are tasked with overseeing the implementation of the Executive Order to transition to 100% renewable power on the electric grid by 2045. We maintain the 1 MW export threshold that prevents the export of power generated from stranded oil field waste gas (albeit from hydrocarbon fuels) is a transitional issue that needs to be recognized and addressed. It is a critical issue now because of the additional air quality restrictions which will curtail the use of flares without their being an alternative means of disposing of the waste gas. Had it been addressed when the problem was raised during the past 20 years, it would not be a problem today.

We are now requesting a joint effort with the operators of oil field flares and the affected California agencies (CEC, CPUC, CARB, DOGGR to name a few) to resolve how stranded oil field waste gas can be used for power generation, and resolving discuss how to lower or remove the export limit on putting power onto the grid. Failure to do so will have a potential significant adverse impact continued production of oil and gas in the state, with a resultant negative economic impact on the communities in which they operate.