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January 3, 2019

Commissioner Andrew McAllister
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Re: California Energy Commission Proposed Rules Governing Energy Efficiency of Rotary Air Compressors
Docket No.18-AAER-05

Dear Commissioner McAllister:

This letter is submitted in connection with today's public hearing regarding the above-referenced proposed rule. This letter responds to proposals made in section 2.4 of the December 31, 2018 Comments by the California Investor Owned Utilities (IOUs) to expand the proposed rules to require the testing and listing of additional categories of air compressors including:

- Reciprocating compressors between one and 500 horsepower (hp);
- Non-lubricated compressors between one and 500 hp;
- Rotary lubricated compressors between one and 10 hp;
- Rotary lubricated compressors between 200 and 500 hp.

I. Reciprocating Compressors.

Quincy Compressor responded in its December 31, 2018 comments to address the reciprocating compressor proposal, and to explain the significant problems with that approach.

II. Very Large, Very Small Reciprocating Compressors.

Atlas Copco's December 21, 2018 comments address the testing problems arising from imposing separate California test requirements for rotary air compressors. In its final rulemaking notice for the efficiency rule, DOE stated that:

> DOE agrees that inclusion of small (less than 10 nominal hp) and larger (greater than 200 nominal hp) rotary compressors could create a competitive disadvantage for manufacturers of rotary compressors. . . . The costs associated with regulation may give manufacturers of unregulated equipment (e.g. centrifugal, scroll, reciprocating) a competitive advantage and allow them to incentivize end users to switch from a regulated (rotary) to an unregulated compressor, diminishing the impact of the proposed standard.

Pp 55-56. This same set of competitive problems arises from imposing unique California test-and-list requirements on these small and very large units. The DOE rulemaking record does not support such imposition, which would require the California Energy Commission to compile its own significant rulemaking record before proceeding with any such proposal.

III. Non-Lubricated (aka Oil-Free) Compressors.

The proposal to test and list non-lubricated compressors was raised in the December 31, 2018 comments by the California IOUs.

Non-lubricated (also known as oil-free) rotary compressors and the applications for these machines are quite different than for oil-injected rotary compressors. Oil-free compressors serve customers which require high purity, extremely reliable supplies of air and other gasses for applications such as:

- Hospital and medical facilities
- Pharmaceutical manufacturing
- Breweries
- Semiconductor manufacturing
- Aerospace applications
- Automotive applications

Unlike oil-injected rotary compressors, where the lubricant helps cool the machine, the cooling system and lubrication systems of the oil-free compressors are quite different. In many cases, the compression system is a two-stage system; lubricants for bearings are specially sealed to prevent contamination of the compressed air; and cooling may be by water jacket. In general, these machines are more complex than oil-injected machines of the same horsepower.

These special applications – hospitals, pharmaceutical, food, semiconductors – can also be served by turbo compressors. Turbo compressors, however, cannot be reliably tested through ISO1217:2009 testing nor by the DOE test method based on ISO1217:2009.

As a consequence, if a test-and-list requirement is imposed on oil-free rotary air compressors, that requirement will create a serious competitive disadvantage for the makers of oil-free rotary compressors, and result in an unfair advantage in California for the makers of turbo compressors. This situation will also create problems for California businesses seeking such equipment without improving energy efficiency.

DOE declined to regulate oil-free rotary air compressors because of concerns about substitution of unregulated equipment using different compression methods. In its Technical Support Document (TSD), DOE noted that it had initially proposed regulation of such equipment as a separate class. TSD, Section 3.3.6, p. 3-10. DOE went on to state that:

> In the test procedure final rule, DOE excluded lubricant-free compressors from the scope of test procedures based on three general reasons: (1) the lack of applicability of the test method and metric proposed in the test procedure NOPR; (2) the desire to retain the opportunity for harmonization with the European Union (EU) regulatory process for the benefit of manufacturers and consumers; and (3) to avoid creating an incentive to substitute unregulated technologies (such as dynamic [aka turbo]) for regulated lubricant-free compressors.

Id. Because of such substitution problems and because DOE's rulemaking record does NOT support their addition to testing requirements, the Commission should decline to impose any test-and-list requirement on oil-free rotary compressors.

Respectfully submitted,

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