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LEI Lead Economist examines R&D spending of major oil companies

BOSTON, MA, December 27, 2019 - On December 24, 2019, London Economics International ("LEI") Lead Economist Marie Fagan and co-author Robert Kleinberg of Columbia University released a report examining research and development ("R&D") efforts and results for the major oil companies.

The authors found that upstream (oil and gas exploration, development, and production) R&D spending (R&D efforts) tracked the boom and bust cycle of oil global prices. In contrast, the authors' detailed case studies showed that the time needed for development and widespread adoption of important upstream technologies (R&D results) can be even longer than the oil price cycle, and are often driven by innovations that arise independently of the oil price cycle. This suggests that industry participants who expect to commercialize major technological or industry-changing innovations should reject a boom-and-bust approach in favor of supporting R&D through oil price cycles.

Why should energy companies care? The potential for declining oil-intensity of global GDP could lead to a long-term secular slowdown in growth of oil demand. Major oil companies are positioning themselves in a variety of ways to cope with this. One strategy appears to be a doubling-down on upstream oil, requiring ongoing low-cost production while at the same time growing the upstream portfolio. Another strategy requires development of complex and potentially costly technologies such as carbon capture combined with usage or sequestration. Both strategies depend on an intensified focus on creating impactful innovation. Such companies need to see themselves as technology-driven, not commodity price-driven. This change in perspective should engender longer-term strategies with respect to R&D and innovation, rather than relying on innovation efforts tied to the cycle of oil prices.

The report, *Business Cycles and Innovation Cycles in the US Upstream Oil & Gas Industry,* is available from the United States Association for Energy Economics/International Association for Energy Economics ("USAEE/IAEE") Working Paper Series, Social Science Research Network ("SSRN") found at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3508466

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