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**“RISING RISK: Improving Methane Disclosure in the Oil and Gas Industry” - Summary**

The purpose of this note is to summarize the EDF report “RISING RISK: Improving Methane Disclosure in the Oil and Gas Industry”

**EDF Report Summary**

In this report, EDF claims that disclosure of methane emissions by oil and gas companies is not adequate and that the lack of disclosure could constitute a material risk for investors. Excerpts from the report, EDF press release, and EDF website that highlight this claim:

*“A first-of-its-kind report by Environmental Defense Fund shows that **leading oil and gas companies are putting themselves and their investors at financial and reputational risk by failing to adequately disclose meaningful information on emissions of methane.**”*

*“Voluntary reporting on methane emissions by the oil and gas industry is poor ~~—less than a third of reviewed companies report emissions and zero companies disclose emissions reduction targets [...]~~ making it challenging for investors to effectively gauge materiality, assess performance and manage risk.”*

*“A new report by Environmental Defense Fund finds that **none of the 65 market leaders reviewed in the production and midstream segments disclose targets to reduce methane emissions and less than a third report such emissions via accessible, investor-facing data sources.**”*

The report attributes this risk to three factors

1. Economic Risk: Poor disclosure hinders investor understanding of the amount of saleable product being wasted.
2. Regulatory Risk: Current and future regulations to minimize emissions have potential financial and operational impacts.
3. Reputational Risk: Methane emissions threaten natural gas’ legitimacy in the transition to a cleaner energy economy, potentially jeopardizing “social license to operate,” and limiting demand

The report recommends four standardized metrics for companies to adopt in their reporting: emission rate, reduction targets, LDAR protocol and economic value of methane emissions. These metrics are discussed in a later section of this paper.

1. Emission Rate — Emission rate refers to the percentage of total methane volume which is being lost as a function of production or throughput — a single methane

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~~intensity figure. By reporting emissions as a percentage, the resulting data becomes comparable between companies, regardless of size, and over time, as a given company's operations evolve. (Note this is % of methane produced not % of gas produced). Reporting of absolute methane emissions is also recommended.~~

- ~~2. Reduction Targets — Goal setting is the most basic and effective management device for improving performance. Emission reduction goals and timelines provide actionable information about management commitment to reduce emissions.~~
  - ~~3. LDAR Protocol — Operators should report the frequency, methodology and scope of their leak detection and repair (LDAR) programs. LDAR is one of the most important ways for a company to reduce emissions, so understanding how a company approaches LDAR can help investors gauge how effectively a company is reducing emissions.~~
  - ~~4. Economic Value of Methane Emissions — Expressing methane emissions as a dollar value allows investors to easily understand the potential financial impact of wasted natural gas.~~
- ~~— The report also recommends that companies should utilize direct measurement of emissions, particularly for fugitive emissions (equipment leaks) rather than estimates of emissions.~~

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The report urges 1

- ~~1. — Investors to put pressure on companies to improve disclosure and adopt the metrics recommended in the EDF report.~~
- ~~2. Existing disclosure platforms/organizations should identify how they can improve methane disclosure and encourage companies to use these platforms to disclose their methane emissions. CDP, SASB, GRI, and IPIECA are specifically mentioned.~~

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### **General Issues**

This section addresses some of the general issues in the paper. ~~The and the~~ suggested metrics are considered individually.

The EDF paper is based on US data only but suggests that these methodologies should be used globally. The paper states that there are affordable solutions to mitigating methane emissions, but, as discussed in the economic value metric below, does not consider the cost of mitigating measures in regions where there is no market for natural gas.

Although less emphasized than in other EDF funded works, the concept of “super emitters” is mentioned in this paper. Other works have characterized intermittent gas production site activities as “super emitters” that account for the majority of the emissions incorrectly suggesting that these are both continuous and available for elimination. In reality, these emissions tend to be intermittent in nature and are sometimes an inherent part of equipment intended design.

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The paper also calls for increased quantitative measurement, especially around fugitive emissions. The type of measurement described is usually very costly and would not help inform any more than an effectively run leak detection and repair program.

### **Proposed Metrics**

Each of the recommended metrics will be addressed separately in this section, but generally, all these metrics suggest a level of disclosure beyond what is currently included in the Sustainability and Annual reports. This additional disclosure would have to be agreed at the leadership level.

The following discussion is intended to address:

- The form of the metric;
- The feasibility of producing the metric with available data and;
- The issues and implications of the metric

#### **Emission Rate – Form of Metric**

Emission Rate —As described in the EDF paper, the standard emission rate is calculated by dividing methane emissions by methane production or throughput – a single methane intensity figure. Companies should use average methane composition to determine methane production.

Emission rate refers to the percentage of total methane volume which is being lost as a function of production or throughput – a single methane intensity figure. By reporting emissions as a percentage, the resulting data becomes comparable between companies, regardless of size, and over time, as a given company's operations evolve. (Note this is % of methane produced not % of gas produced)–Reporting of absolute methane emissions is also recommended.

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#### **Emission Rate – Feasibility**

BP currently reports its methane emissions internally per asset in the GHG reports. The environmental report also has total hydrocarbons per asset. However, it should be noted that these production figures are aggregate of oil and gas and that the gross gas volumes are not currently collected (they are provided on an equity share basis and there is no breakdown of gas). BP does not currently collect all the data necessary to produce this metric.

In order to produce an accurate metric as described in the EDF paper (methane emitted to methane produced) an asset by asset evaluation would be required annually.

Additionally, as mentioned previously, the information currently collected is on the basis of natural gas. The reports recommends the metric to be on the basis of methane produced which means that a representative natural gas composition would have to be

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developed for each reporting unit. Depending on reservoir variability, this could require composition data from each relevant basin to also be collected.

#### **Emission Rate – Implications**

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~~Additionally, as mentioned previously, the information currently collected is on the basis of natural gas. The reports recommends the metric to be on the basis of methane produced which means that a representative natural gas composition would have to be developed for each reporting unit. Depending on reservoir variability, this could require composition data from each relevant basin to also be collected.~~ Depending on how this metric is interpreted, i.e. whether or not 'methane production' includes gas handled but not marketed as is the case in our operations that involve reinjection, it might cause some assets to appear overly disadvantaged.

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If BP decided to develop its own metric for this, it would have to accommodate for regions without a gas market.

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#### **Reduction Target – Form of Metric**

5- In the description of the reduction target metric, EDF says companies can set targets based on either or both absolute emissions and emissions intensity. Goal setting is the most basic and effective management device for improving performance. Emission reduction goals and timelines provide transparent and actionable information about management commitment to reduce emissions.

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#### **Reduction Target – Feasibility**

In the Sustainability Report, emissions targets are addressed as follows:

"A company's GHG emissions can be influenced by a variety of factors that may result from shifts in business activity, production or assets. This makes it difficult to establish an appropriate GHG target that can be cascaded throughout the organization with the objective of achieving cost-effective emission reductions. For these reasons, BP – like some of our peers – does not set enterprise-wide GHG targets and instead requires performance management at a local level through our operating management system."

BP (and our peers) will be reporting progress in the external initiatives which we have joined. The Climate and Clean Air Coalition (CCAC), which BP signed onto in October 2015 has methane as one of its focus areas.

#### **Reduction Target – Implications**

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The EDF paper states that companies can choose to set their emission targets on either or both absolute emissions and emissions intensity. Setting companywide targets on either bases is inappropriate as stated in the sustainability report quoted above.

Industry is addressing ways to evaluate and execute emissions reductions through organizations like the CCAC and believe that initiatives such as these are the most effective way to ultimately reduce emissions. BP (and our peers) will be reporting progress in the external initiatives which we have joined. Industry believes that initiatives such as these are the most effective way to ultimately reduce emissions. Many of the currently existing reporting frameworks are a result of collaborative industry activities and the resulting metrics take into consideration this consensus on drivers such as information availability, regulatory and disclosure constraints. Accepting the reduction target described in the paper undermines collective industrial efforts.

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#### LDAR Protocol – Form of Metric

LDAR is one of the most important ways for a company to reduce emissions, so understanding how a company approaches LDAR can help investors gauge how effectively a company is reducing emissions.

Operators should report the frequency, methodology and scope of their LDAR programs. For upstream companies, the paper defines coverage as percentage of well sites covered by LDAR. If a company inspects assets with various frequency rates, then it should seek to provide a breakdown by frequency, and the percentage of assets covered under each frequency bucket.

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#### LDAR Protocol – Feasibility

Industry recognizes the importance of leak detection and BP has plans in place to expand the current LDAR efforts.

The majority of BP upstream operated assets have OGI camera technology and the plan is to expand to all producing sites eventually. These programs will evolve over time and at variable frequencies. Leak detection information will be available mostly at a regional level unless compliance with regulations requires more granular information. The metric above suggests that coverage must be determined on a percent well basis.

Frequency is established on a site by site basis and depends on several prioritizing factors such as facility enclosure, leak history of the process area proximity of high vibration equipment that can exacerbate the conditions for leaks to develop, and regulatory drivers. Sites in the United States are approaching LDAR from a regulative perspective.

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Although current LDAR programs do not quantify the leak volumes, repair of leaks is prioritized based on severity and other factors such as proximity to other process equipment and feasibility of repair during uptime. Leaks that are not severe and cannot be repaired when the equipment is online will be prioritized for the next available turnaround. For this reason, it is irrelevant to quantify the volume of the leak since it will be repaired independent of it.

#### ***LDAR Protocol – Implications***

Because of the different drivers and leak detection survey frequencies in each region, this metric could lead to erroneous conclusions about leaks among the different regions and companies even when using the “buckets” approach for different frequencies as frequencies can vary within even a region.

#### ***Economic Value of Emissions – Form of Metric***

The EDF paper says this metric should be developed by multiplying the average sale price of gas (expressed as \$/Mcf) by the total Mcf of gas production for the year. Expressing methane emissions as a dollar value allows investors to easily understand the potential financial impact of wasted natural gas.

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#### ***Economic Value of Emissions – Feasibility***

Similar to the methane emission rate metric, quantifying the financial impact of methane emissions would require an appropriate price for each region to be applied to the emission estimates reported internally. Where there is a value for gas, this would require an asset by asset evaluation to determine the appropriate net back value to be applied. For regions without a gas market, this value would be zero.

#### ***Economic Value of Emissions – Implications***

It appears from the wording of the paper that EDF has not considered the fact that some regions outside the US do not have a market for gas. Although setting the price as zero for these regions is a defensible position, industry should be prepared for resistance to this practice. Where there is no value for the gas, companies do not claim a value for it.

Using an average price of gas (Henry Hub, for example) overlooks several important details such as export agreements with national companies, taxation structures, and commercial agreements that affect the local price of gas. Without the appropriate level of detail, this metric provides investors with little meaningful information.

The paper also seems to overlook the fact that some sources may not be able to be mitigated to zero emissions. For example, fugitives can be minimized with effectively run LDAR programs, but not totally eliminated.

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