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Environment Performance in the Oil & Gas E&P Industry: Assessment and Challenges

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Society of Petroleum Engineers
Distinguished Lecturer Program
www.spe.org/dl
Outline

- Introduction
- Lessons learned from 10 years of environmental reporting
  - Data collection and quality
  - What the data reveal
- Challenges
  - Improved data
  - Additional lagging indicators
  - Leading indicators
- Conclusions
Environmental indicators are “measures that track environmental conditions over time”

(US EPA)
Companies collect and report EPIs for various reasons:

- Regulations (OSPAR, US EPA,...)
- Stakeholders’ expectations (GRI, ISO 14031,...)
- Other requirements (IFC, OGP,...)
- Data collected/reported

Management of Activities
Introduction (2/2)

- Collection of data significantly increased during past decade

- Expectations from stakeholders increased
  - types of data
  - quality of data

- Efforts towards harmonization
  - internal
  - external
Data collected

- Process management
- Regulatory requirements at national level
  - discharges
  - spillages
  - use of resources
  - land use/ reclamation
- Regional requirements
  - a subset of national data
- Collection of data by Industry
  - at national level
  - at global level
Lessons learned: What the data reveal

Emissions to air from E&P activities (1/3)

No reduction in CO2 emissions nor in global Greenhouse gases... so far

Source: OGP 2009
A reduction in venting? – or a better efficiency?

Emissions to air from E&P activities (2/3)

Source: OGP (2009)
Emissions to air per thousands tonne production (nmVOCs)

Source: OGP 2009
A continuous improvement in the quality of produced water discharged

Quality of the Produced Water discharged (1/2)

Source: OGP (2009)
Quality of the Produced Water discharged (2/2)

Regional analysis shows slight discrepancies between regions of the world

Source: OGP Environmental Performance Report for 2005
Quantity of hazardous chemicals used and discharged offshore (OSPAR)

A significant reduction of the most hazardous chemicals discharged offshore

Source: OSPAR (2009)
Oil spillages

Number of oil spills > 1 bbl per million tonnes of hydrocarbon production

Quantity of oil spilled
Tonnes per million tonnes of HC production

A complex set of data

Source: OGP 2009
Energy consumption

Energy consumed per unit of HC production

GigaJoules per tonne

Source: OGP 2009

A mature enough measurement?
Energy consumption per unit of HC production – by region

GigaJoules per tonne

Source: OGP 2009

A set of data reflecting fields maturity
Lessons learned: Data Quality

- Quality is currently limited by
  - lack of direct measurement
  - Use of various techniques around the world

- Quality improves because
  - Guidelines
  - Repetition
  - Exchange of information
  - Cross-checking
  - External auditing
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Challenges: Data Quality

- Need to improve the intrinsic quality of the data collected
- Need to improve interpretation of the data
- Need to improve worldwide harmonization
Current EPIs are too restrictive to accurately reflect the impact of the E&P Industry on the environment
Challenges

- Additional lagging indicators:
  - (Hazardous) waste
  - (Hazardous) chemicals
  - Use of natural resources
  - Biodiversity
  - Quality of the environment

- Leading indicators:
  - Environmental Management Systems
  - Environmental Impact Assessments
  - Environmental Baseline Surveys
  - Audit / certification
  - Training
Conclusions (1/2)

✓ A realistic snapshot of the environmental performance of the E&P activities is possible. *It shows our ability to reduce our footprint – but also the limits of the E&P Industry recent actions.*

*We still have a long way to go*

✓ Significant improvement must be achieved regarding consistency and quality of data to make the data collections more efficient. *Several initiatives are undergoing.*

✓ Dialogue with stakeholders is necessary to define the most useful performance indicators.
Conclusions (2/2)

✓ Tools exist which can help developing robust environmental performance data collection. *New tools are under development.*

✓ Some lagging indicators are still to be developed. *If industry does not develop them, stakeholders will impose their views.*

✓ Leading indicators are needed to significantly improve the environmental policies - and performance - of the E&P Industry. *A strong industry initiative is required.*
Thank you for your attention!
Your Feedback is Important

Enter your section in the DL Evaluation Contest by completing the evaluation form for this presentation or go online at:

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Back up – Acronyms used in the presentation

- OSPAR: Convention for the Protection of the North-East Atlantic
- US EPA: Environmental Protection Agency (USA)
- GRI: Global Reporting Initiative
- ISO: International Standard Organization
- ISO 14031: ISO guidelines on Environmental Performance Evaluation
- IFC: International Finance Corporation
- OGP: International Association of Oil and Gas Producers
- API: American Petroleum Industry
- IPIECA: International Petroleum Industry Environmental Conservation Association
- EU (ETS): Emissions Trading Scheme (European Union)
- Oil&GasUK: UK Offshore Industry Oil and Gas Association
- E&P: Exploration and Production
- EPI: Environmental performance Indicators
- CO2: Carbon Dioxide
- GHG: Greenhouse Gas
- PW: Produced Water