IES
Independent Energy Standards Corporation

Independent, Private Sector Ratings for Risk and Responsibility

Presented By: Jory Caulkins, CEO

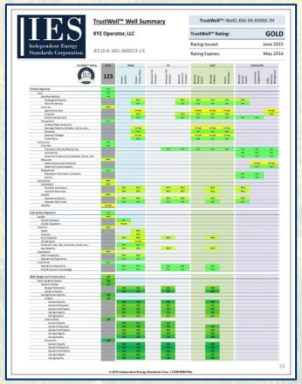
Presented To: IOGCC

Oklahoma City, OK

September 29, 2015

Executive Summary

- IES is an independent ratings company…
- … for risk, best practices and responsibility in oil & gas
- High credibility leadership team and product
- Customers include operators, insurance, and investors
- CO, PA, ND, TX, WY and beyond

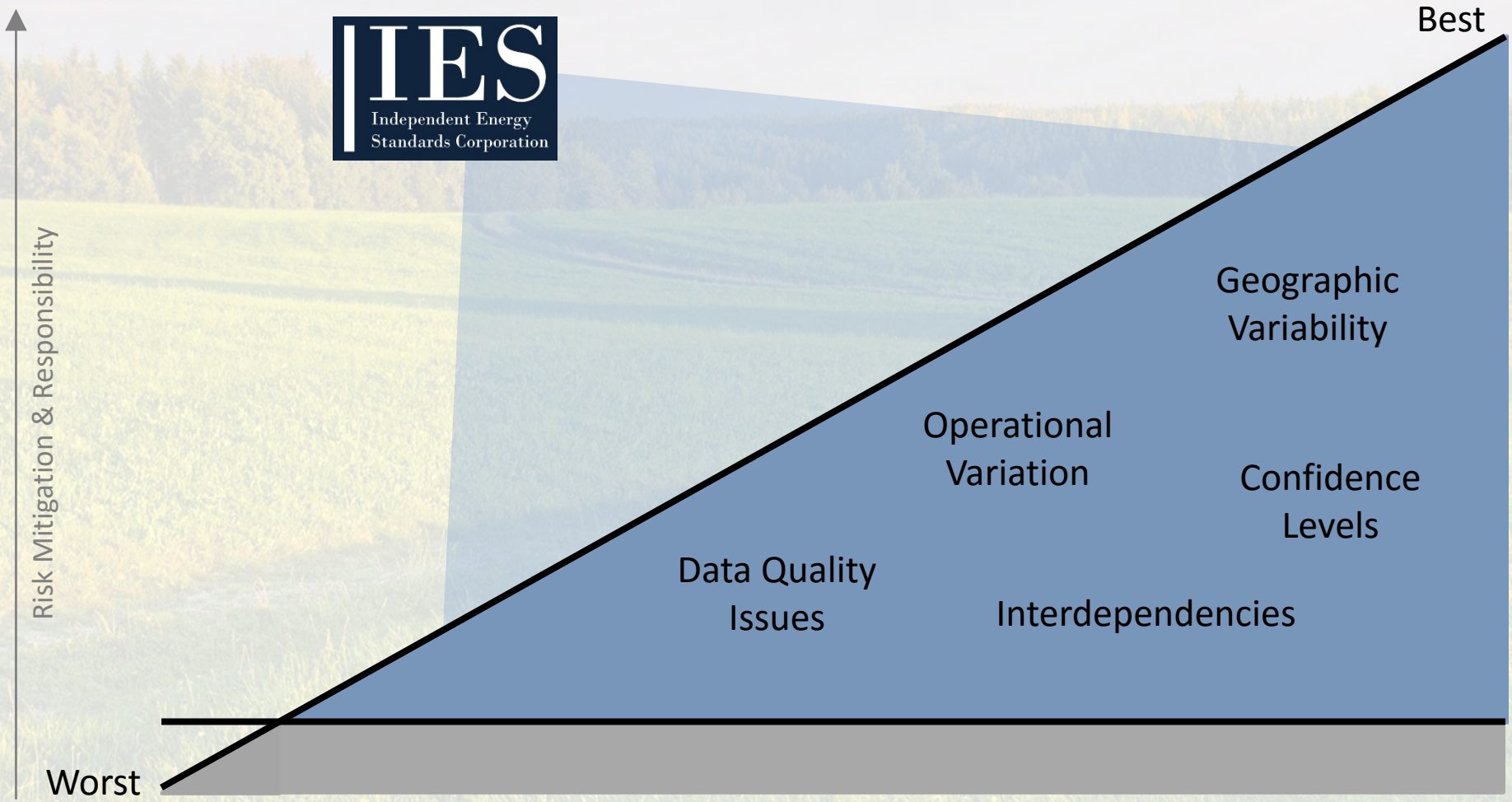


Background

"We're investing significant time, effort and money in mitigating risks to the environment, communities and people, but have **no way to differentiate and get credit** for it… Plus the idiot down the road is saying the same things, while cutting corners and introducing real risks to themselves, us and the industry!"

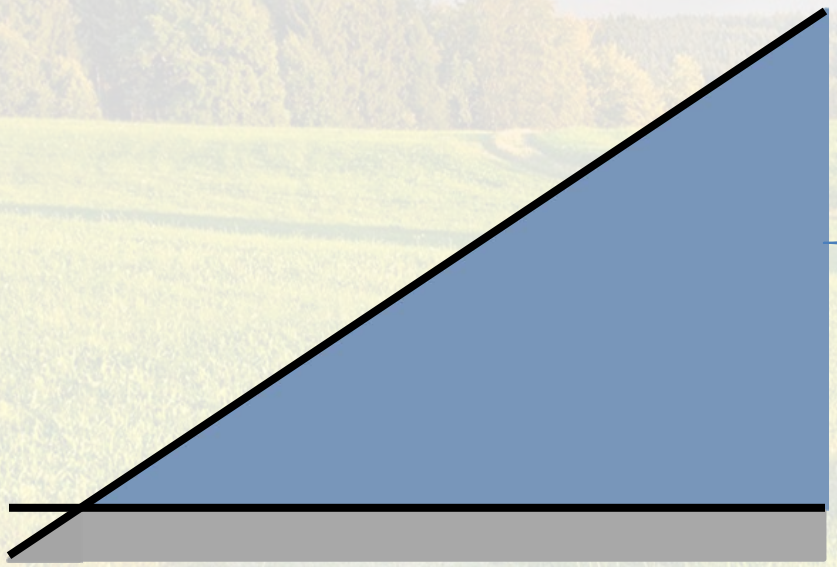
- Oil & Gas CEO

High Complexity Challenge



Important Stakeholders Care More and More

Provide transparency, reward responsibility, drive continuous improvement



- Insurance
- Investors
- Customers
- NGOs
- Landowners
- Communities
- Public
- Regulators

How: Identify and Prioritize

Identify Impacts
Key Categories

Prioritize Based on Hazards
By Relevance and Magnitude

Water
- Aquifers
- Surface Water

Air
- Air Quality
- GHG Impact

Land
- Land Development
- Surface Pollution

Comm.
- Resource Use
- Operations Activities

Development
- Emissions
- Resource usage
- Land development
- Noise, light, dust
- Etc…

Preventable
- Loss of well control
- Aquifer contamination
- Gas migration
- Spills/leaks
- Etc…

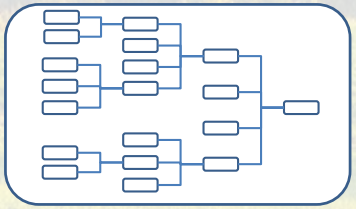
How: Model and Quantify

Structured Risk & Impact Framework

Mathematically Distill Complexity

Interdependence

Incorporate full picture

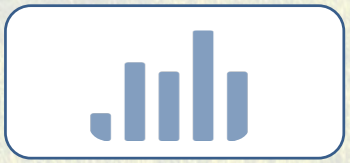


Exposure

Adjust for Variability

Stochastics

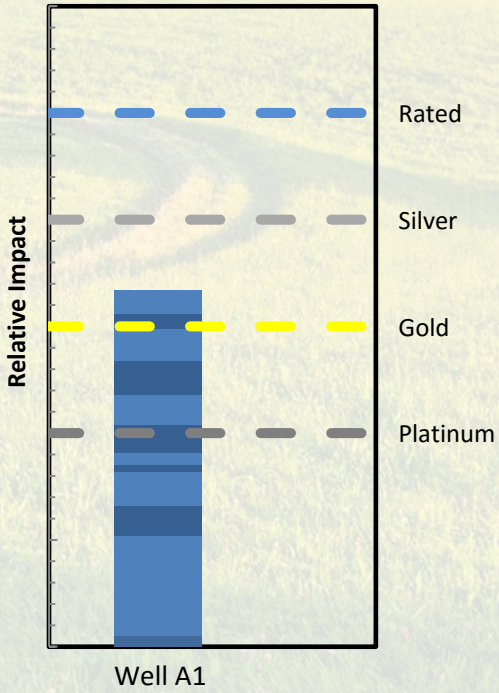
Statistically quantify unknowns



Confidence

Quantify uncertainty

Intelligent Model



TrustWell™ Ratings

Independently, Robust and Credibly Risk Mitigation and Responsibility Ratings by IES

XYZ Operator, LLC
Well1 XXX-XX-XXXXX-7H

Rated Asset ID #: *000001-US*
IES ID #: *001-000013-US*

TrustWell™ Rating:	**GOLD**
RiskView™ Score:	**123.3**
Rating Issued:	June 2015
Rating Expires:	May 2016

Water	**122**
Aquifer Protection	118
Surface Water Protection	127
Air	**118**
Minimize Carbon Dioxide (CO2) Emissions	125
Minimize Methane (CH3) Emissions	100
Minimize Hazardous Emissions	129
Land	**127**
Minimize Physical Impact	111
Minimize Surface Pollution	120
Ensure Restoration	150
Community	**127**
Minimize Operations Impact	142
Community Engagement	129
Public Resource Management	108

	Signature	Date
IES Head of Operations:		6/8/2015
IES Head of Products & Strategy:		6/8/2015

19

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Example: Value Proposition for Operators

Economic and **Intangible Value** for Responsibility

↓ Risks, Liabilities

Example: Risk Reduction

~1,000+ Well Operator in 5+ states,
12 discrete risk reduction
recommendations from IES

Risk Reduction Recommendations	
Implemented Immediately	5
Implement/Review Over Time	3
Not Implemented	4
Total Recommendations	**12**

Risk Reduced in Areas of:
Zonal Isolation, Well Control & Integrity, Change Mgmt, Aquifer Contamination

↓ Insurance Costs

Example: Insurance Cost Reduction

Medium/large operator,
major insurance carrier,
RiskView™ Score from IES

Initial Cost Savings on a Single Policy	
Annual Premiums	$500k+
Initial Reduction w/ IES	↓ 5%
Initial Annual Savings	$25k+
Years in Effect	10 yrs+
Lifetime Value	$250k+

↑ Access to Capital

Example: Access to Capital

Small Marcellus operator,
major endowment,
TrustWell™ Ratings from IES

Attractiveness to Capital Providers

- Major LP Intro'ed IES to CEO
- Expressed attractiveness of IES TrustWell™ Ratings to them, other LPs
- CEO saw value with LP and 2 other key investor groups
- CEO also saw value in ↓ insurance cost and community engagement

↑ Community, Stakeholder Support

Example: Stakeholder Engagement

Major environmental NGO,
TrustWell™ Ratings from IES

Differentiation with Landowners

"Reducing risks to public health and the environment from unconventional oil and gas development requires strong government regulation and full industry engagement. IES is helping to uphold industry's side of the bargain with an innovative private sector approach to minimizing risk and promoting continuous improvement."

EDF ENVIRONMENTAL DEFENSE FUND
Finding the ways that work

Mark Brownstein
Vice President, Climate & Energy Program

Value for Public (Regulators & Governors)

CARROT

Incentivize and reward risk mitigation and responsibility

Supporting Stakeholders Program

Formalizing Support of IES with Key Thought Leaders

Quotes of Support from Thought Leaders

"Reducing risks to public health and the environment from unconventional oil and gas development requires strong government regulation and full industry engagement. **IES is helping to uphold industry's side of the bargain with an innovative private sector approach to minimizing risk and promoting continuous improvement**."

Mark Brownstein
Vice President
Climate & Energy Program

"IES' tools **encourage good actors**, and provide a strong complement to the work of regulators."

John Baza
Head of Utah DNR

"Transparency is a powerful tool to assess and drive best practices, and **IES provides a compelling solution** to help with this important work."

Mike Paque
Executive Director

Formalizing in Supporting Stakeholders Program

- Annual Meeting
  - Review
  - Stats and data
  - Provide feedback

Questions?

Jory Caulkins
CEO of IES
JCaulkins@IndependentEnergyStandards.com

Appendices

Management and Leadership Team

Includes Top Experts; Combining Oil & Gas Technical, Risk /Data and Impact Expertise

Jory Caulkins *CEO*

- Background in business strategy, growth and finance
  - Bain Capital - Private Equity; Morgan Stanley - M&A Investment Banking
  - Stanford, MBA
  - Georgetown, BS in Biology (Valedictorian for BS recipients)
- Founder & CEO, Nexodex (acq 2011)

Scott Mathes *Head of Operations*

- Prior to IES, worldwide Head of Drilling & Completions: Health, Environment and Safety at Marathon Oil
- 30+ years in various upstream engineering and operations roles including Sr. Management positions in Drilling & Completions, Production, HSE, onshore & offshore, domestic USA & int'l

Mark Zoback *Board of Directors*

- Benjamin M. Page Professor of Geophysics at Stanford University
- Founder, Chrmn of GeoMechanics International (acq. in '08 by Baker Hughes)
- Mbr, US Sec. of Energy Adv. Board (SEAB) on Shale Gas Development ('11-'12)
- Member, NAE Cmte. Investigating Deepwater Horizon Accident ('10-'12)

John Deutch *Board of Directors*

- Well respected former high level government figure (Head of CIA, DoE, State Dept.)
- Chair, US Sec. of Energy Adv. Board (SEAB) on Shale Gas Development ('11-'12)
- Current / Former Board: Schlumberger, Citigroup, Cheniere, Raytheon, Cummins, Resources for Future
- Institute Professor at MIT

Steven Chu *Board of Directors*

- Former US Secretary of Energy (January 2009 – April 2013)
- Nobel prize winning scientist who has devoted his recent scientific career to searching for new solutions to our country's energy challenges
- William R. Kenan, Jr. Professor of Physics and Professor of Molecular and Cellular Physiology at Stanford University

Devin Luquist *Head of Products & Strategy*

- Prior to IES, Shell Exploration and Production Company
  - Strategy and Risk Manager
  - Production, Operations Engineer
- MIT, BS in Chemical Engineering

Ron Sweatman *Head of Engineering*

- Prior to IES, ~20 yrs at Halliburton as the Chief Technical Professional
- 40+ years in industry, passionate about doing things right
- Chrmn. of API Cmt. on Well Integrity and Cementing >10 yrs
- Co-authored numerous well construction standards, including those for API, IADC and CSA

Tisha Schuller *Head, Founding Partners Program*

- Prior to IES, President & CEO of Colorado Oil & Gas Association
- Powerful force for responsible oil & gas development in CO and beyond
- Rocky Mountain Energy Summit Chair
- 15 yrs as Principal, VP at Tetra Tech (environmental consultant / engineer)
- Stanford, BS in Earth Systems with an emphasis on Geology

Goutham Seshadri *Data & Analytics*

- Highly experienced data scientist with background in energy
- Principal Data Scientist, Utility Cloud Analytics at Oracle
- Analytics consultant at DataRaker; Associate at DC Energy
- Harvard, BA in Mathematics

Abe Othman *Advisor, Environmental Scoring*

- LEED Program - Designed next generation performance scoring system for LEED. Experienced expert in scoring and ratings systems.
- Co-founder, Building Robotics, Inc.
- Carnegie Mellon, PhD in Computer Science
- Harvard, AB in Applied Mathematics

Carlos Cabrera *Advisor, Risk Modeling*

- Lead Catastrophe Risk Modeler - Risk Management Solutions ("RMS")
- Associate at Redstone Strategy Group, environmental impact consulting
- Stanford, MBA, MS in Structural Engineering, BS in Environmental and Civil Engineering

RiskView™ Risk Scoring Heatmaps

Assess Risks and Benchmark Operations in a Cost-Effective Manner (via Sampling & Stats)

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RiskView™ Performance Matrix: North Dakota

XYZ Operator, LLC

IES™ ID #: *001-000013-US*

RiskView™: North Dakota Assets	
RiskView™ Score:	**122.2**
Score Issued:	June 2016
Score Expires:	May 2016

	RiskView™ Score	Water		Air			Land			Community		
	122.2	Aquifer Protection	Surface Water Protection	Minimize Carbon Dioxide (CO2) Emissions	Minimize Methane (CH3) Emissions	Minimize Hazardous Emissions	Minimize Physical Impact	Minimize Surface Pollution	Ensure Restoration	Minimize Operations Impact	Community Engagement	Public Resource Management
Well Design and Construction												
Zonal Isolation Design		146			145			145				
Well Structural Integrity		139	140		137			137				
Cement Quality and Placement		130	131		128			128				
Final Barriers and Verification			135		133			133				
Drilling and Hydraulic Fracturing Operations												
Well Control			118		115			115				
Fracture Propagation & Monitoring		122	141		121			121				
Fracture Pressure Management			132		138	138		139				
Drilling and Hydraulic Fracturing Impact												
Emissions				125	119	101						
Spills/Leaks			123		120			121				
Site Development							109					
Site Reclamation									146			
Public Resource Management												107
Construction Impact (Noise, Dust, Light etc.)										138		
Public Engagement											125	
Waste Management								122				
Production Phase Impact												
Surveillance		99	112		103			105				
Emissions				117	109	132						
Maintenance & Cleanliness			138					132				
Waste Disposal		134	134									

11

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What We Believe

- **We believe....** that oil & gas is a critical component of the world's energy picture for years to come, and can and should be developed responsibly
- **We believe....** that stakeholders that are impacted more and more, want to be involved more and more, and are becoming more and more concerned
- **We believe....** that there is a distribution of companies out there, and that those committed to being best-in-class should be differentiated both economically and intangibly
- **We believe....** that there is a huge and growing need for a credible, independent tool to evaluate environmental and operational risks, provide transparency, reward responsibility and drive continuous improvement
- **This is IES**... this is the core of what we are building at IES