

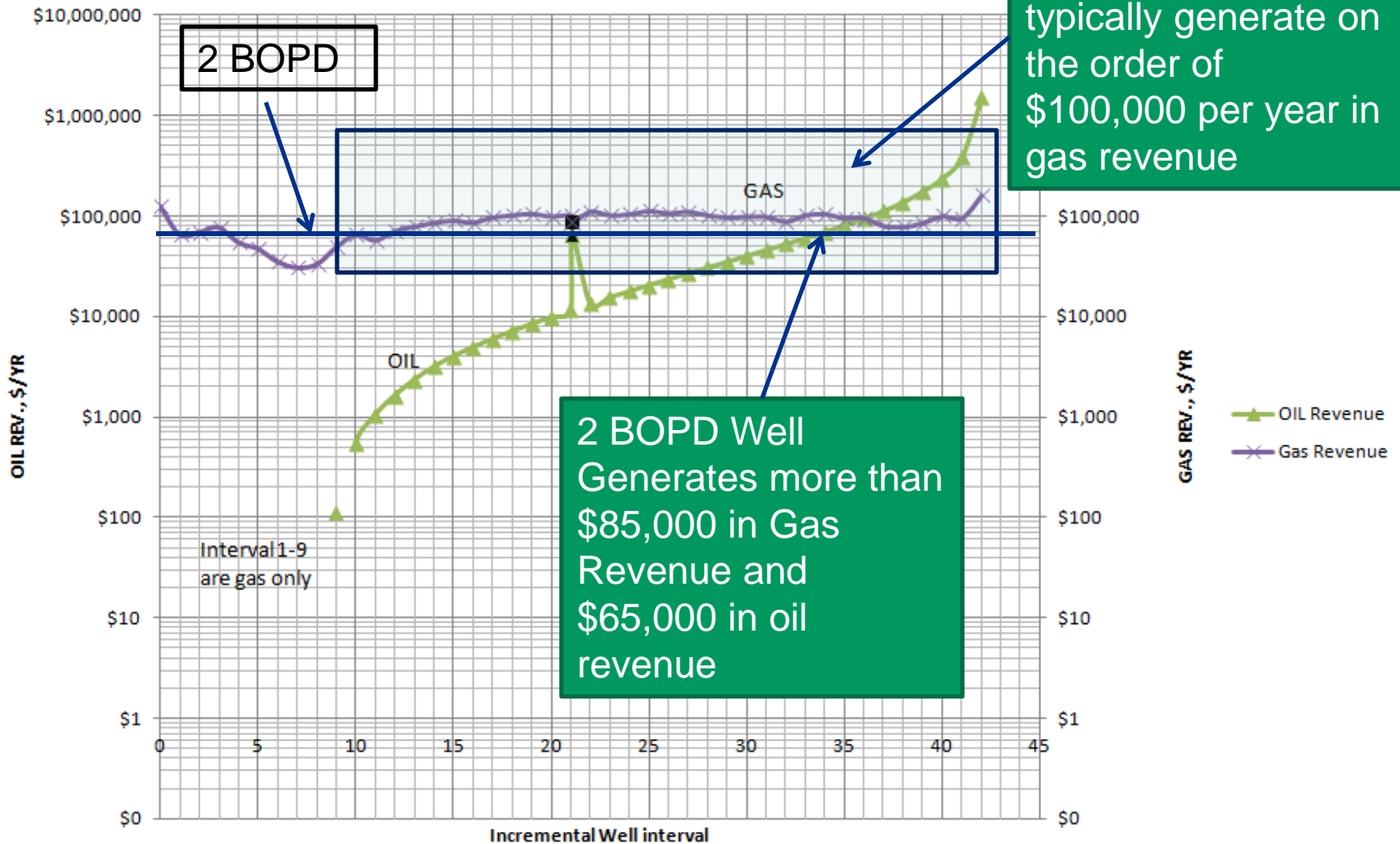
EDF Rebuttal Presentation in Support of the APCD's Proposed Rule



Marginal Wells

- CBM and other low VOC wells subject to least costly requirements:
 - STEM Requirements: Not Applicable
 - Flare Requirements: Not Applicable
 - Auto Igniter Requirements: Not Applicable
 - LDAR:
 - Only subject to 1 x instrument based inspections
 - JIWG witness testimony -- one time instrument-based inspection would not cause shut down
 - AVO: Operators already visit site on regular basis, so costs will be minimal
 - Well maintenance is flexible and only requires operator “minimize” emissions

2012 Annual Oil and Gas Well Revenue (Grouped in incremental intervals of 100 wells)



Rebuttal Berger Well Shut-In Claim

- Failed to consider associated gas production in economic analysis
 - Gas revenues are higher than liquid revenues for the majority of wells in Colorado
 - Fails to consider that as production goes down, requirements go away (no STEM, LDAR requirements go away, so costs go down – again, ignored by Berger)
 - No Reservoir evaluation elements were considered

Reality Check on Berger Shut-in Analysis

- Assumptions
 - 25,463 Wells producing 2 BOPD
 - Grossly inflated cost estimate of Berger
 - Berger decline curve and other cost assumptions
 - Sixty year time horizon as assumed by Berger
 - **Only change from Berger: \$85,000 per year in gas (typical 2 BOPD well generates \$85,000 in gas)**

Effect of Including Gas in Berger Shut-in Analysis	
	Value of oil and gas Left in Ground
Ignoring Gas Revenue	\$11,300,000,000
Including Gas Revenue	Zero dollars (over 60 years)

Berger NPV Analysis is Flawed

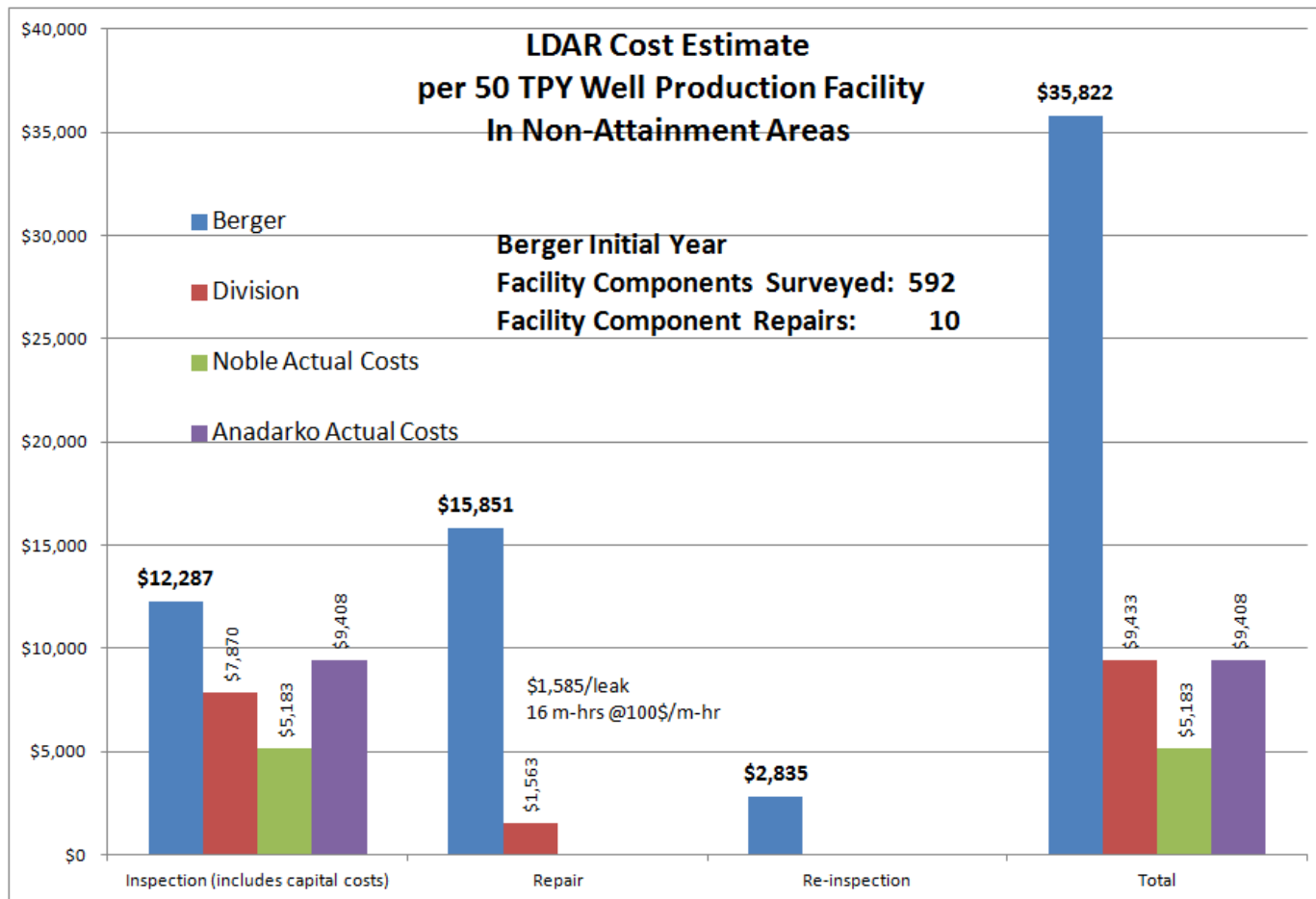
- Berger assumes large future loss spread out evenly over every year for entire period of analysis
 - Berger assumes \$11.3 billion worth of oil will be left in the ground
 - Per Berger calculation method, first shut-in would not occur for decades (approximately year 39)
 - **Berger assumes 1/60 of \$11.3 billion occurs each year for 60 years and takes NPV of that value.**
 - **This is improper and leads to yet another gross overstatement and misrepresentation of losses**

	Cash Flow for Wells Claimed to be Shut-in Due to New Regulation (Berger Shut-in Analysis)	NPV of Hydrocarbons Left in Ground due to Shut-In	NPV of Lost Severance Tax over 60 Years (Berger Shut-in Analysis)
Berger Shut-in Analysis	\$11.3 billion due to wells being shut in at year 39		
Berger NPV (per Berger EIA)	\$187,629,518 each year for 60 years (\$11.3 billion/60)	\$1.87 Billion	\$80 Million
Correct NPV Calculation (but using flawed Berger Shut-In Analysis)	\$11.3 billion at year 39	\$274 Million	\$13,7 Million (worst case – loss in first year)

Berger Claim	Reality
All Wells that Produce less than 2 BOPD are Marginal Wells	False. Gas wells can have low or no liquid production and high rates of gas production. Such wells are not marginal. Colorado is primarily a gas play state.
Wells Below 0.43 BOPB are uneconomic and should be shut in or abandoned	Not based on reality of production in Colorado. In fact, Berger Analysis implies that 58% of wells should be shut in today (less than 0.43 BOPD) (even without new rule)
Rule will impose burden on marginal wells	Rule imposes at most a minimal burden on marginal wells, minor reporting obligations beyond standard practices

Berger Claim	Reality
Uncontrolled Actual Emissions from tanks not related to rate of oil production	Rate of oil production is the key factor in determining uncontrolled actual emissions from tanks. Shows Berger Group has a limited understanding of oil and gas emission issues, and how emissions change as production goes down
Operators would shut in 50,000 TPY sites due to proposed regulations	Operators would not shut in these large sites as they are highly productive. If production goes down, program burdens would go down as well.
Well sites will not change tiers as production goes down	As production goes down, site moves to lower tier and costs go down

Berger Group : Estimate Not consistent with Actual Data



Commission Should Reject Berger Group Analysis

- The Berger Group Shut-In Well analysis contains numerous flaws, each of which warrants rejection of the analysis
- Berger Group cost analysis grossly overstates costs
 - Overstates costs of particular elements (hourly rates, cost of equipment, maintenance costs)
 - Compounds errors by double counting, assuming higher frequency of events, etc.
 - Includes things already required by law or not required by new rules

Mischaracterization of EDF/UT Production Study

Testimony of Industry Workgroup	Reality
<p>Total estimated CH4 emissions are comparable to EPA estimates</p>	<p>Equipment leaks were found to be 38 percent higher than EPA estimates nation wide.</p> <p>Pneumatic emissions were 63% higher</p> <p>Chemical injection pumps were 100% higher</p>
<p>Well completion testing demonstrated emissions were lower than EPA estimates</p>	<p>This is due to compliance with the NSPS reduced emission completion requirement. Uncontrolled wells were low producing wells with low emissions potential</p>

Impact of future production and emission controls

Claim by Opponent to Rule	Reality
Production will decline everywhere except the D.J.	<ul style="list-style-type: none">-Fails to account for fluctuations in oil and gas prices-Based solely on last 2 years of data-DGS study still shows more wells and equipment by 2018, so future emissions will be higher than current emissions
NSPS will address hydrocarbons	<ul style="list-style-type: none">-Does not apply to existing, non-modified sources-Does not apply to new or existing equipment leaks, venting due to inefficient tank capture or well maintenance
NESHAPs will address small dehydrators	Does not apply to small “area” source dehydrators

LDAR should not include skip monitoring

Claim by those Seeking Skip Monitoring	Reality
Rewards good behavior	Provides incentive to do poor monitoring. Programs that allow skip monitoring are coupled with specific requirements to deter such actions and significant recordkeeping and reporting
Leaks decrease over time	<p>Brian Ross testimony: reason operators find fewer leaks over time is because they are looking for them</p> <p>WZI testimony: not the case in their professional judgment. LDAR works because the program fits into normal repair and maintenance cycles. Extra burdens of such programs offset potential benefits, and this is particularly true for a program structured like the one proposed by CDPHE</p> <p>Programs with step down do not include frequent leakers</p>
Will Reduce Costs to Operators/Division	Tiered Program already cost effective, and skip monitoring does not reduce costs to operators or division. Will increase burden on division and make enforcement difficult.

Proposed Rules Make Sense for Colorado

- Highly cost effective
 - Division estimate in line with actual costs of operators and expert testimony of WZI
 - “Skip Monitoring” would reduce effectiveness with no demonstrated cost savings to operators.
 - Berger analysis has no probative value and should be rejected
 - Discredited
 - Operator testimony from Industry Workgroup shows rules do not impose an undue burden
- Rule is carefully tailored – will not impose a burden on small or large operators – Commission should reject request to exempt lower VOC sites
- Rule will lead to significant benefits to Colorado, has wide support and should be adopted
- Ensures Colorado continues tradition as national leader in clean air measures

QUESTIONS?

