



# URTeC Plenary Session Panel: Shaping the Future

Leen Weijers | June 9, 2025

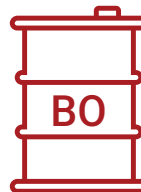
# “There’s a Fine Line Between Numerator & Denominator”

-Yogi Berra



## D&C Cost

Technology  
Efficiency Gains



## 365-Day Production

Frac Design Changes  
Changing Geology  
Well Interference



## Outcome

Minimize the  
cost to produce  
a barrel of oil







# Shale Revolution Frac Trends: It's About Plumbing...

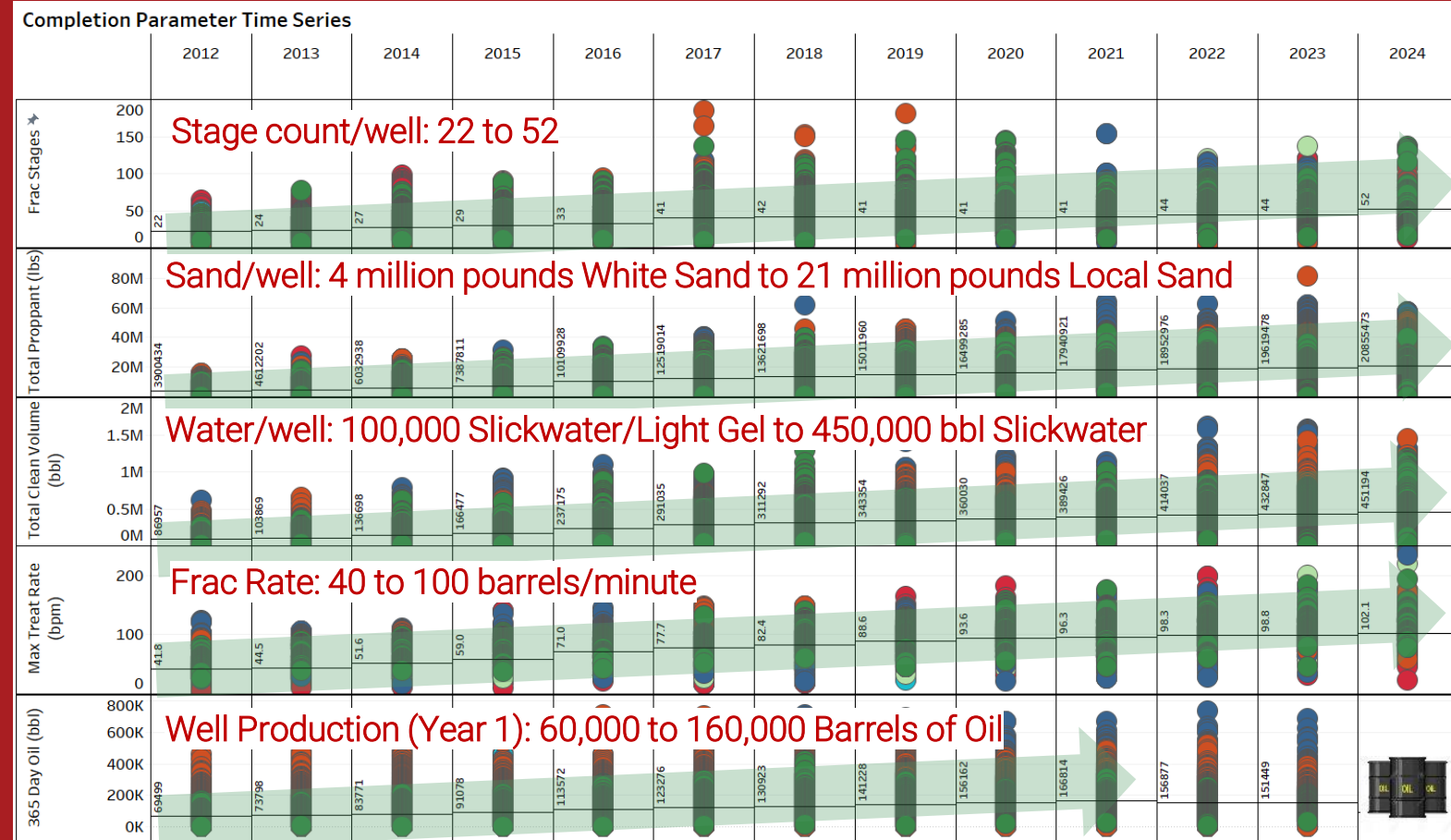
...with rising stage, proppant,  
fluid & rate intensity (per foot)

## Larger Fracture Network

- Horizontal wells
- Longer laterals
- Increase in proppant mass
- Increase in fluid volume

## Denser Fracture Distribution

- Higher stage count
- Higher pump rate
- Changes in perf clustering







# Modern & Efficient Frac Operations

Environmental, Social &  
Governance Progress—Mostly  
Driven by Competition

- Smaller Footprint
- Better Neighbor
- Made for Purpose
- Redundancy
- Efficient Delivery
- Extended Equipment Life
- Reduced Fuel and Emissions



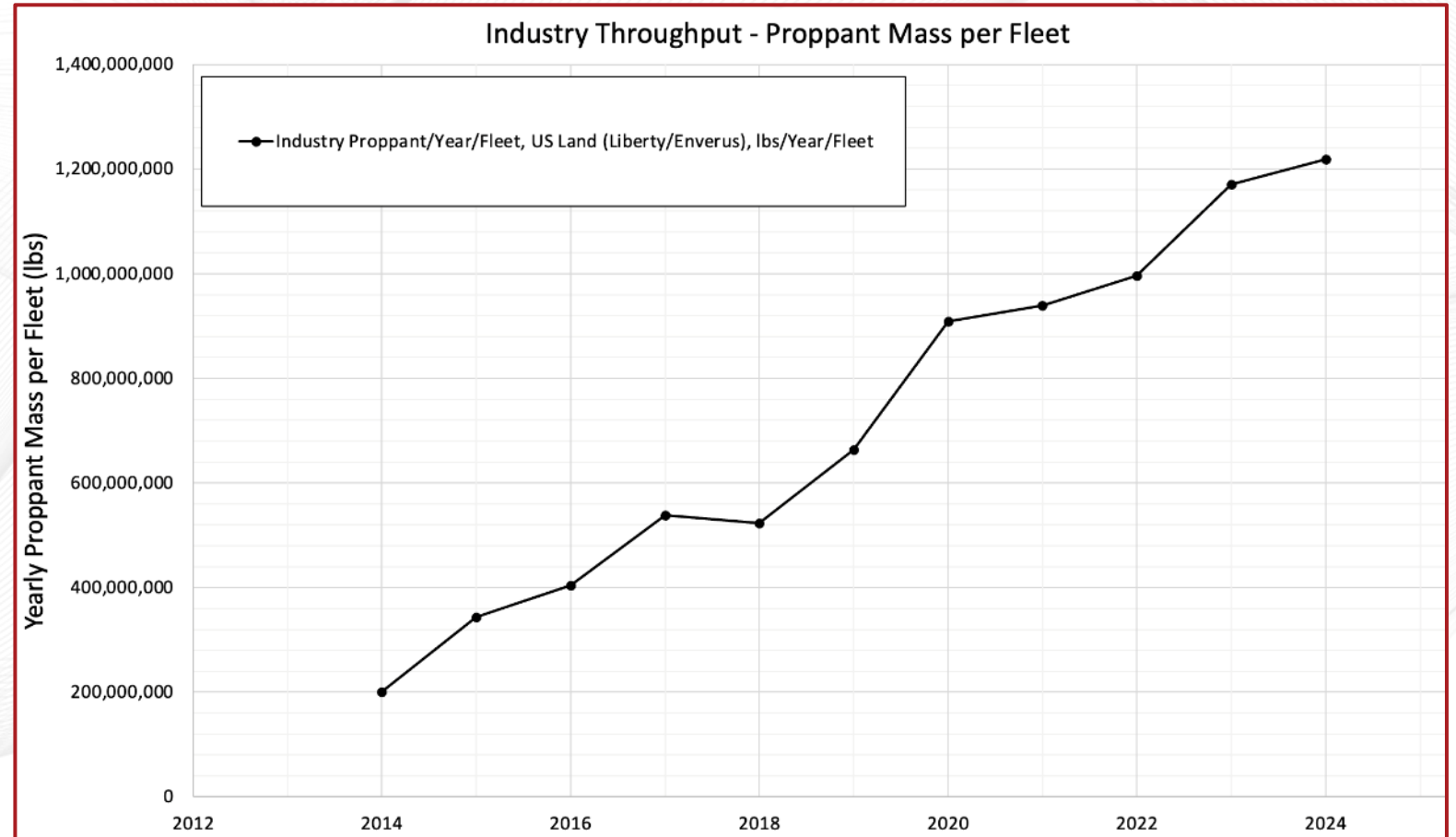




# Modern & Efficient Frac Operations

## Example 5: Proppant Use and Delivery Evolution (Separate Tracks)

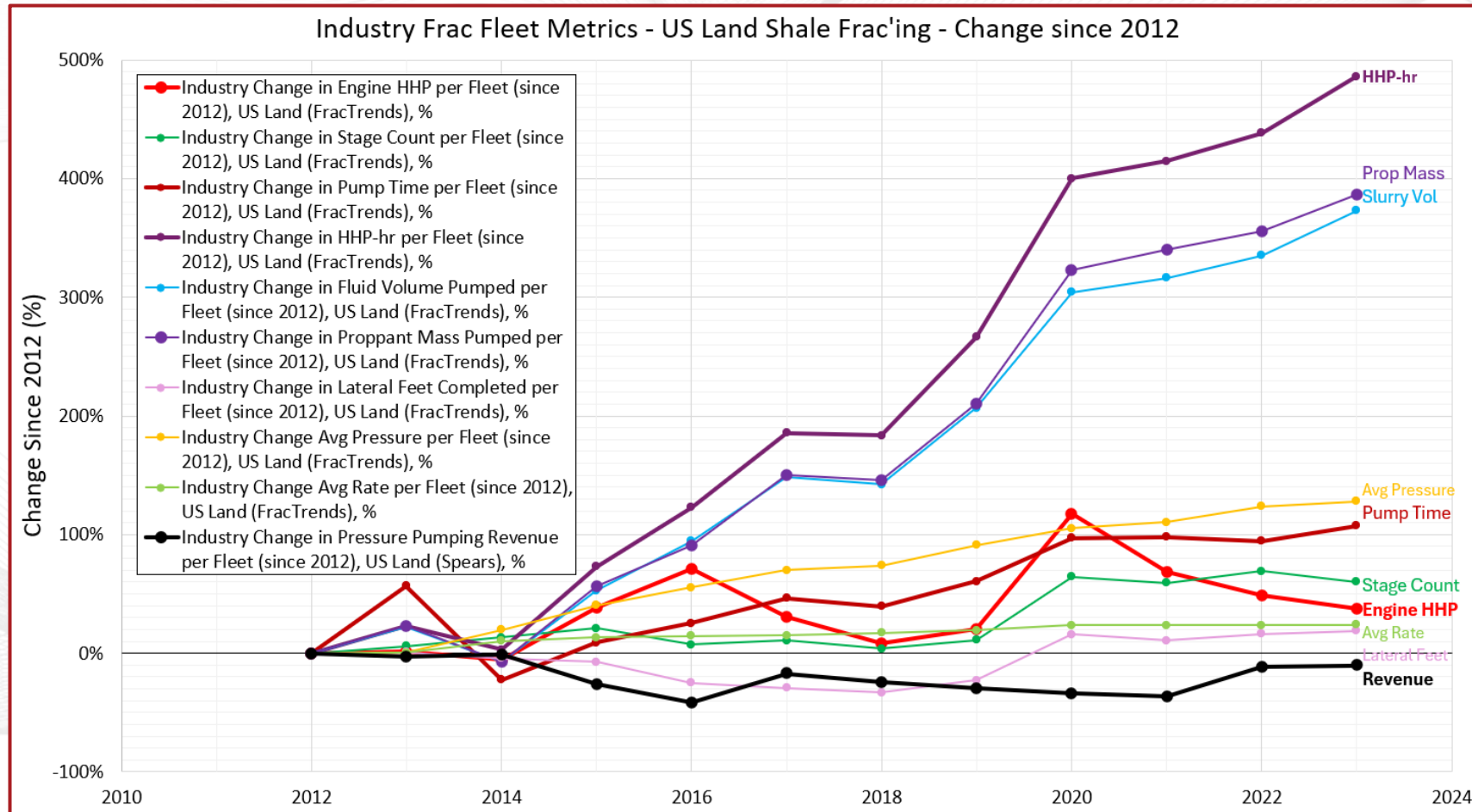
	Origin	Proppant/Mesh	Last Mile Delivery / Storage	Benefit
15 Years of Progress	Wisconsin	20/40 White	Pneumatic Trailers	Eliminating Ships
	China	20/40 Ceramic	Containers	Reducing Dust/Noise
	Texas	40/70 Brady	Wet Sand Handling	Eliminating Drying
	In-Basin Mine	40/140 Local	Pile	Eliminating Trains
	Mobile Mine	Petroleum Coke	Slurry Pipe	Eliminating Trucks





# The Path of Innovation & Technology

Pressure Pumpers are Much More Efficient





# The Path of Innovation & Technology

Dramatic Reductions in the Cost to Produce a Barrel of Oil

