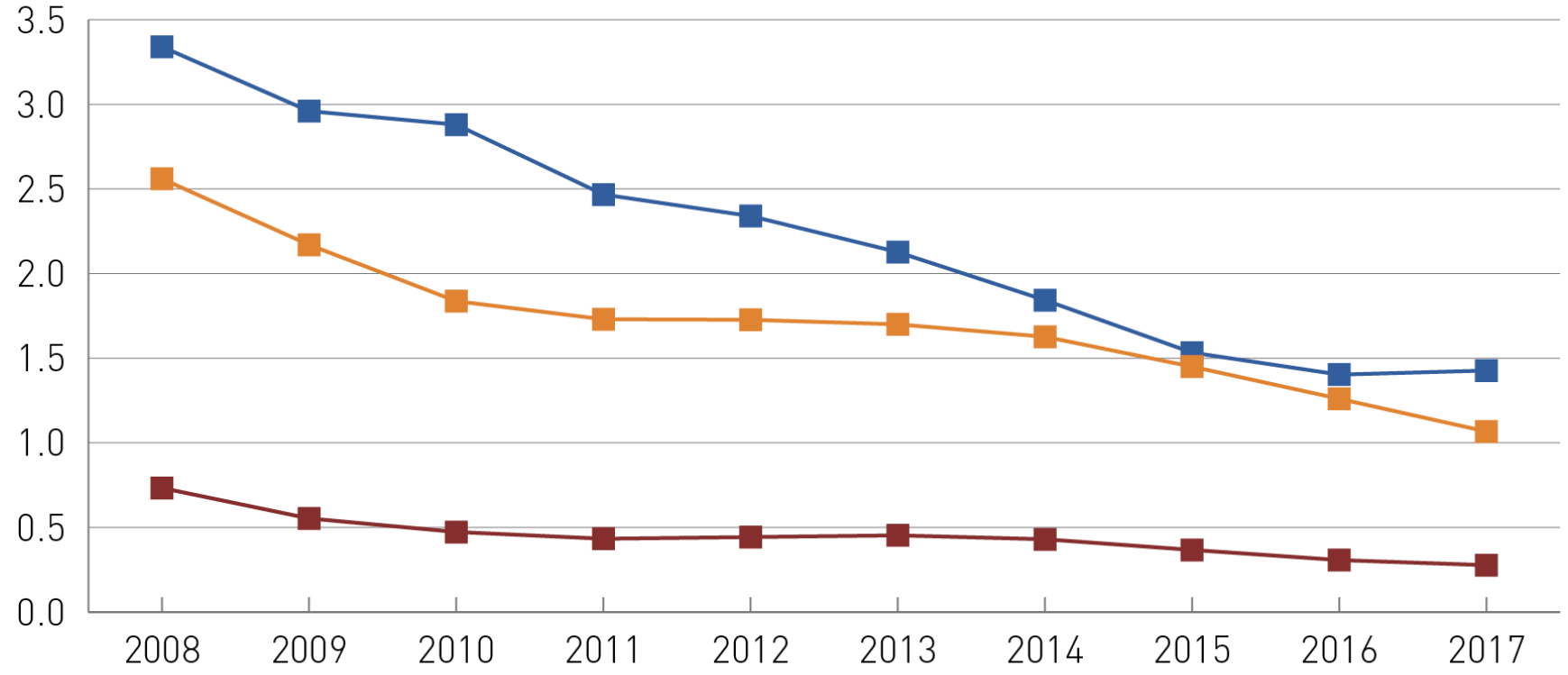


Eliminating fatalities in the upstream oil & gas industry

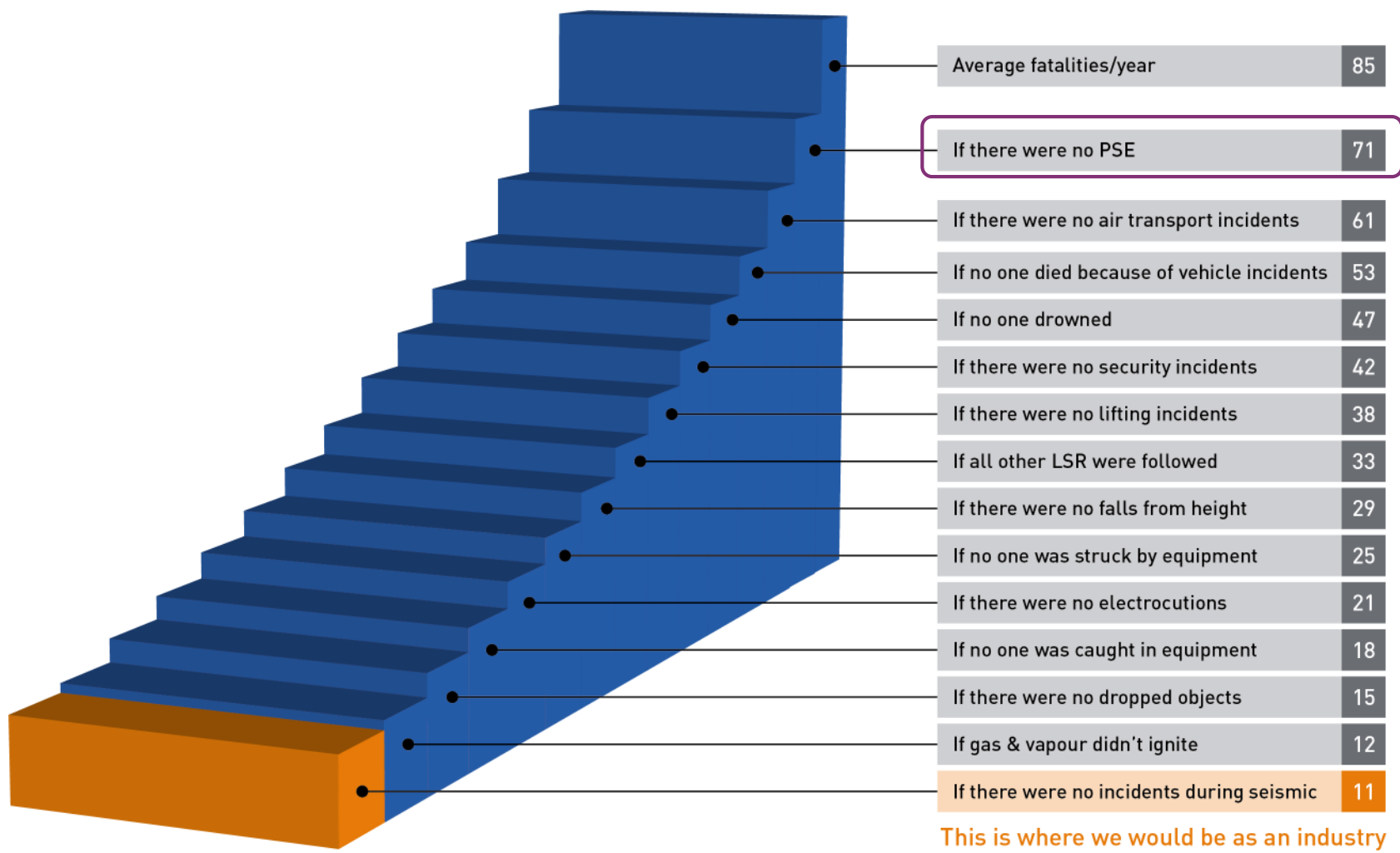
Mariana Carvalho
Occupation & Process Safety Manager
International Association of Oil & Gas Producers

LTIF, TRIR and FAR 3-yr rolling averages

— LTIF — TRIR — FAR



From data reported by IOGP Members 2006-2017



This is where we would be as an industry

Process safety events – high severity, low frequency



7 fatalities
2015



11 fatalities,
2010



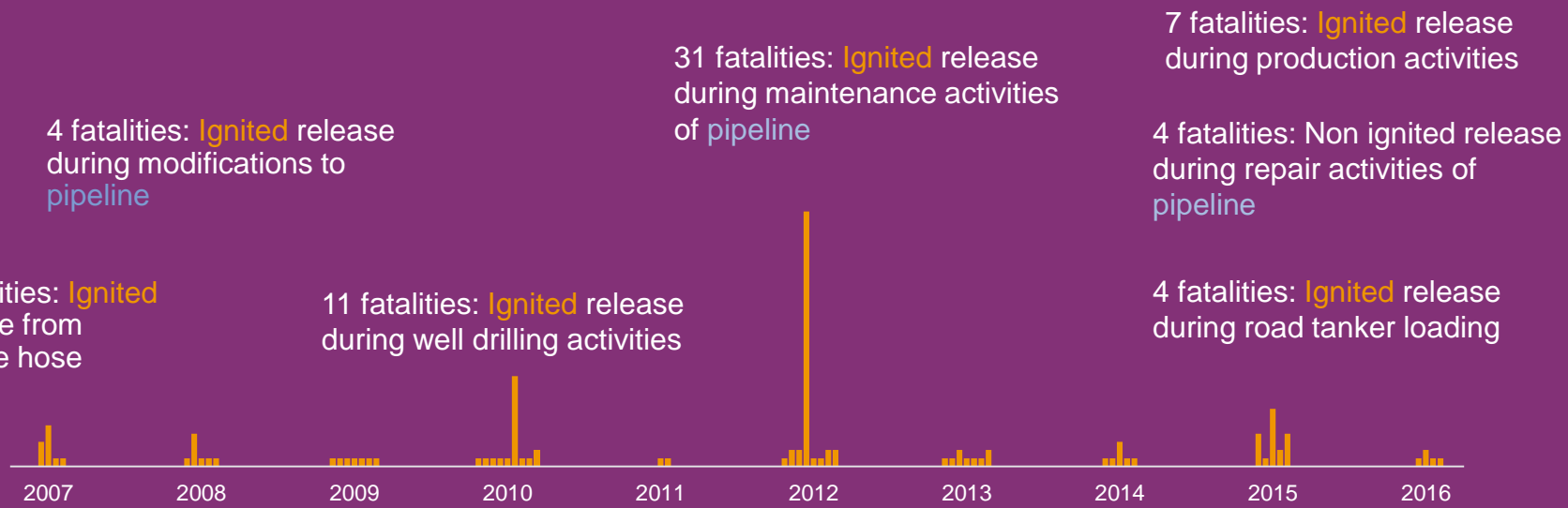
31 fatalities,
2012

As well as severe environmental and business consequences

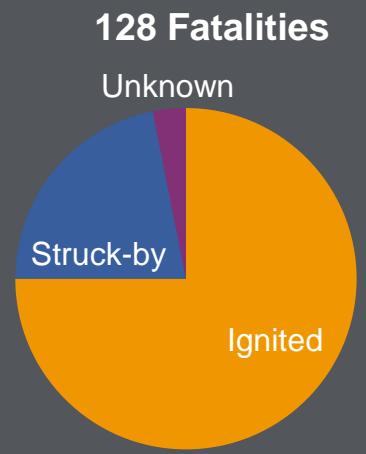
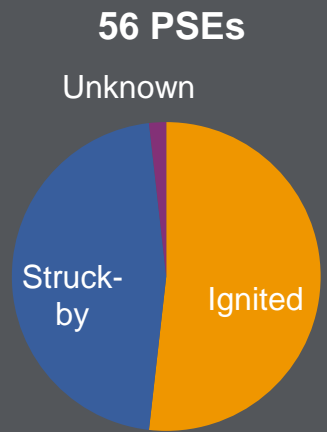
Yes, but...

IOGP Members report on average 5 fatal PSEs per year

We see a 4+ fatality event on average every 18 months



Fatal PSEs are either **Ignited** or **Struck-by** events



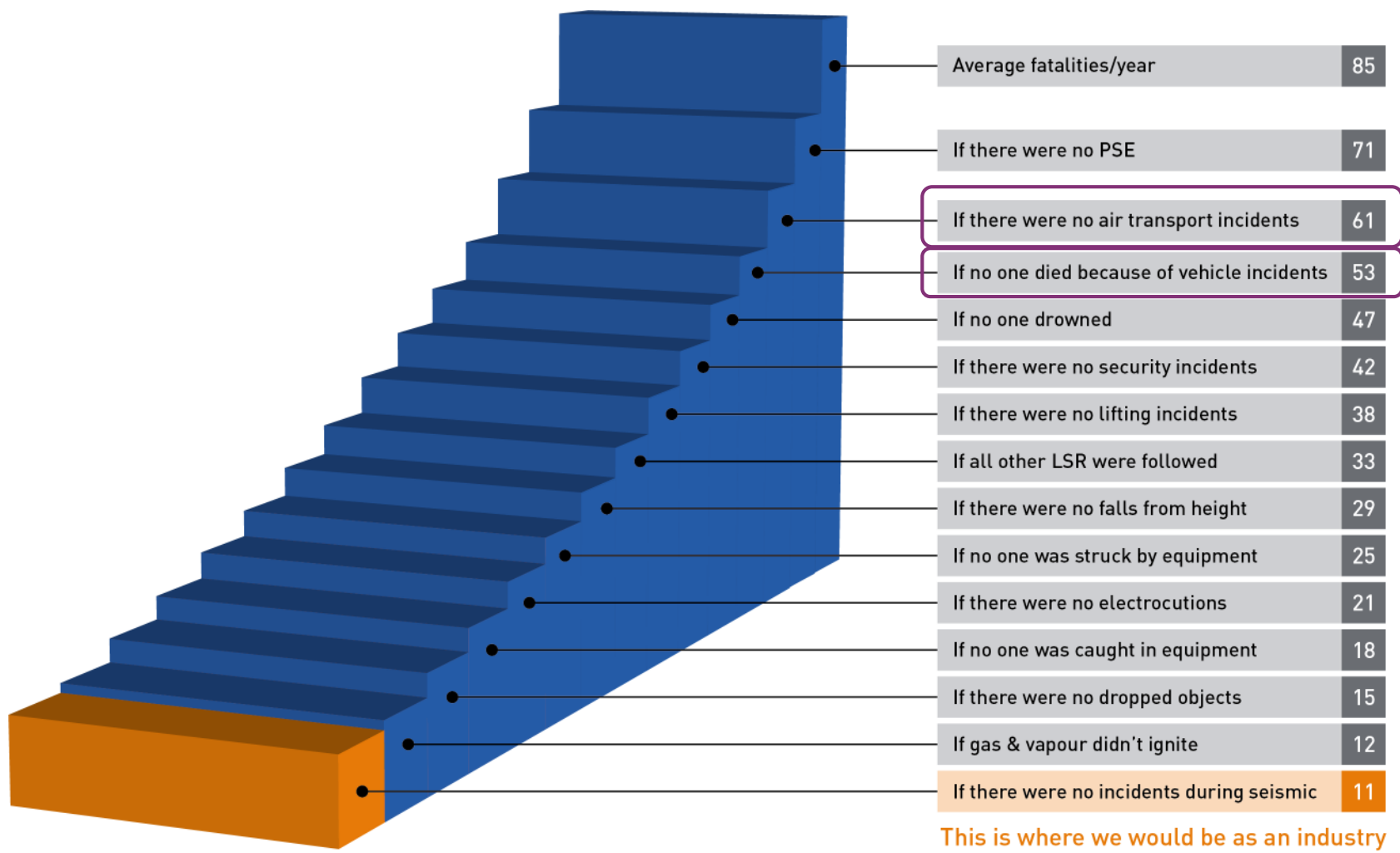
Ignited events are 75% of fatalities

Nearly all 4+ fatality events **ignited**

Almost half of PSEs occur during maintenance, inspection and testing
– this is equivalent for either Ignited or Struck-by events

- About 1/3 during drilling, workover and well services
- Fewer than 20% during normal production ops

(2007-2016 data reported to IOGP)



This is where we would be as an industry



IOGP calls on its Members to only purchase, lease or contract light vehicles that have a **5-star NCAP rating** from the 1st of January 2019

Key to injury diagrams
GOOD
ACCEPTABLE
MARGINAL
POOR



Safety ★★★★★



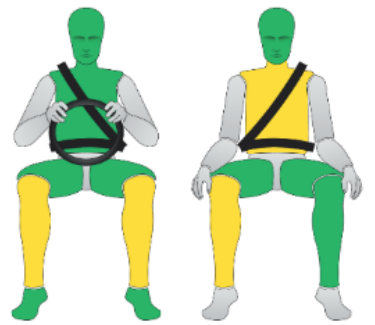
Safety ★★★★★



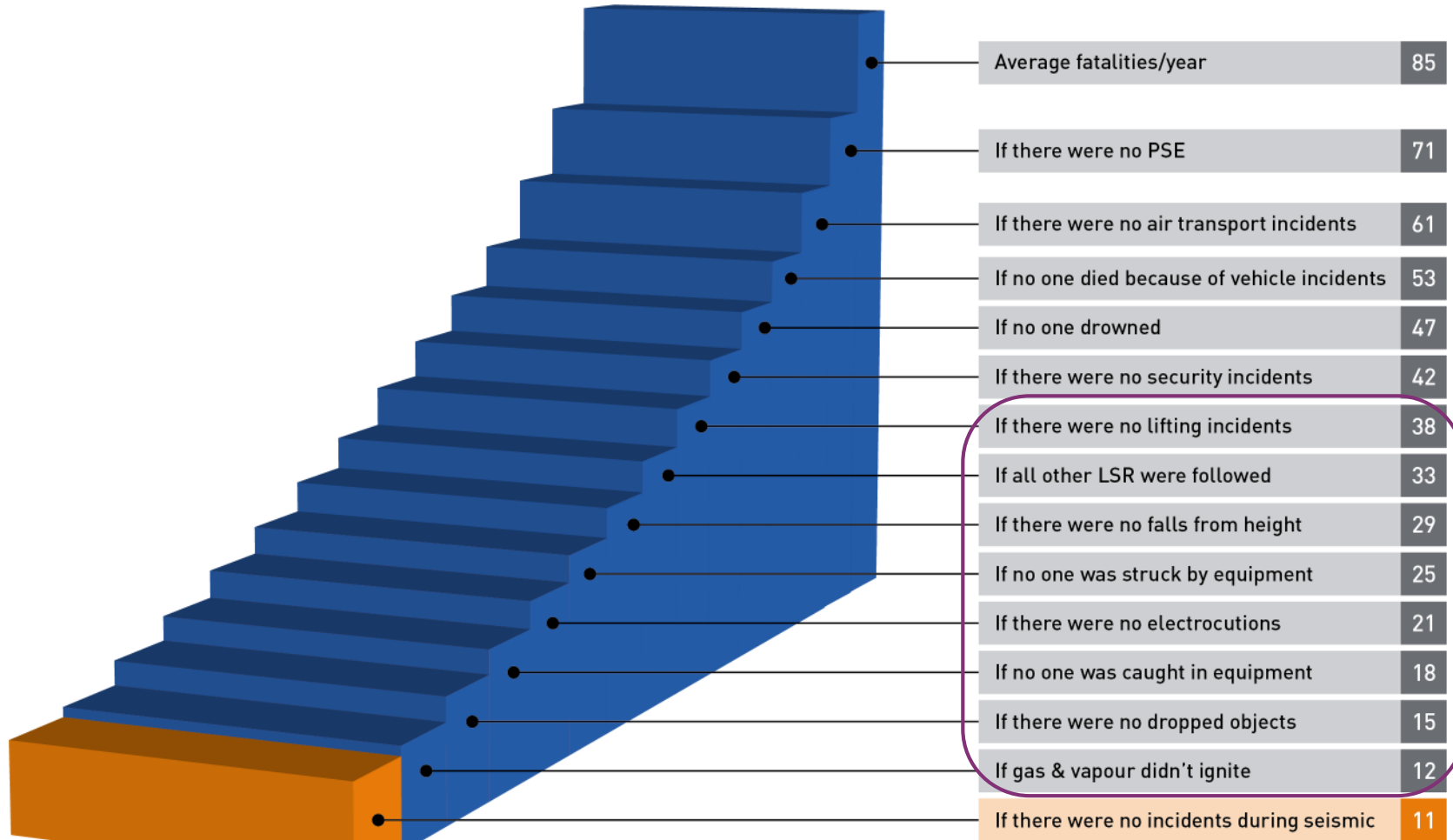
Safety ★★★★★



Safety ★★★★★



Safety ★★★★★



This is where we would be as an industry

Common set of industry Life-Saving Rules
for the front-line worker, regardless of who their employer is

Commitment from all IOGP Members
to adopt the Rules so that we have one implemented standardized set in the industry

Feedback from operators and contractors
that implemented, those that went their own way, and those that chose not to at all

Reviewed the last five years of data
(fatalities and high-potential events reported to IOGP)

Revised set of 9 IOGP Life-Saving Rules
launching in the summer

Goal
Within 3 years all IOGP Members use the IOGP Life-Saving Rules
Within 5 years, the entire industry



Bypassing Safety Controls



Confined Space



Driving



Energy Isolation



Hot Work



Line of Fire



Safe Mechanical Lifting



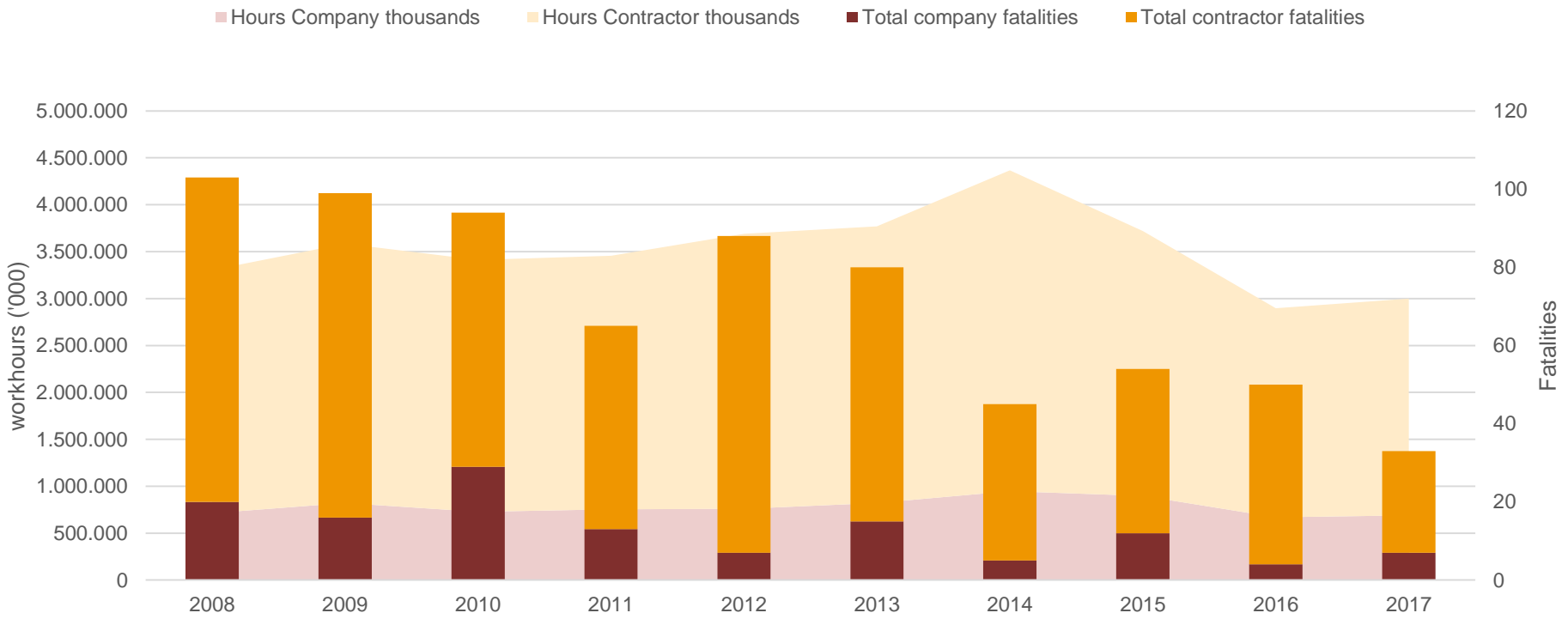
Work Authorization



Working at Height

Why?

Fatalities & workhours in the IOGP database



But why will one set for the industry help?

- Means for comparing outcomes resulting from standardized process implementation within or among organizations
- Enables investigators to compare data and to interpret the relevance and efficacy of an intervention
- Workers are able to relate to one another in meaningful ways (including the standardization of terms used)
- As more organisations begin to use the same standard protocols with the same data fields, the ability to analyse risk will be enhanced
- Reduces worker cognitive dissonance and thus the risk of human error
- Building on the same solid foundation, rather than struggling to grasp the range of safety concepts
- Allow workers to learn from each other's experiences (i.e. new ideas on how to address problems—what has worked, what has not worked and why).

Source: WHO in the Int. J. for Quality in Health Care, Volume 26, Issue 2, 1 April 2014, Pages 109–116

| | | | |
|---|--|--|---|
| <h3>Bypassing Safety Controls</h3> <p>Obtain authorization before overriding or disabling safety controls</p>  <ul style="list-style-type: none"> I understand and use safety-critical equipment and procedures which apply to my task I obtain authorization before: <ul style="list-style-type: none"> disabling or overriding safety equipment deviating from procedures crossing a barrier | <h3>Confined Space</h3> <p>Obtain authorization before entering a confined space</p>  <ul style="list-style-type: none"> I confirm energy sources are isolated I confirm the atmosphere has been tested and is monitored I check and use my breathing apparatus when required I confirm there is an attendant standing by I confirm a rescue plan is in place I obtain authorization to enter | <h3>Driving</h3> <p>Follow safe driving rules</p>  <ul style="list-style-type: none"> I always wear a seatbelt I do not exceed the speed limit, and reduce my speed for road conditions I do not use phones or operate devices while driving I am fit, rested and fully alert while driving I follow journey management requirements | <h3>Energy Isolation</h3> <p>Verify isolation and zero energy before work begins</p>  <ul style="list-style-type: none"> I have identified all energy sources I confirm that hazardous energy sources have been isolated, locked, and tagged I have checked there is zero energy and tested for residual or stored energy |
|---|--|--|---|

| | | | | |
|---|--|---|--|---|
| <h3>Hot Work</h3> <p>Control flammables and ignition sources</p>  <ul style="list-style-type: none"> I identify and control ignition sources Before starting any hot work: <ul style="list-style-type: none"> I confirm flammable material has been removed or isolated I obtain authorization Before starting hot work in a hazardous area I confirm: <ul style="list-style-type: none"> a gas test has been completed gas will be monitored continually | <h3>Line of Fire</h3> <p>Keep yourself and others out of the line of fire</p>  <ul style="list-style-type: none"> I position myself to avoid: <ul style="list-style-type: none"> moving objects vehicles pressure releases dropped objects I establish and obey barriers and exclusion zones I take action to secure loose objects and report potential dropped objects | <h3>Safe Mechanical Lifting</h3> <p>Plan lifting operations and control the area</p>  <ul style="list-style-type: none"> I confirm that the equipment and load have been inspected and are fit for purpose I only operate equipment that I am qualified to use I establish and obey barriers and exclusion zones I never walk under a suspended load | <h3>Work Authorization</h3> <p>Work with a valid permit when required</p>  <ul style="list-style-type: none"> I have confirmed if a permit is required I am authorized to perform the work I understand the permit I have confirmed that hazards are controlled and it is safe to start I stop and reassess if conditions change | <h3>Working at Height</h3> <p>Protect yourself against a fall when working at height</p>  <ul style="list-style-type: none"> I inspect my fall protection equipment before use I secure tools and work materials to prevent dropped objects I tie off 100% to approved anchor points while outside a protected area |
|---|--|---|--|---|

Can we do it?
We must do it. We will do it.

“ Baker Hughes, a GE company, is committed to full alignment with IOGP 577, *Fabrication site construction safety recommended practices* and supports industry-wide adoption as part of the effort to eliminate fatalities from the oil and gas industry.”



Jack Hinton, Chief HSE Officer, Baker Hughes, a GE Company

“ Kosmos Energy is supportive of industry-wide application of IOGP 577, *Fabrication site construction safety recommended practices* wherever practicable and plans to integrate these into the existing Kosmos work practices for use in its future executed projects.”



David Stroud, Director HSE, Kosmos

“ BP Global Projects Organization supports the simplification and standardization of HSE requirements for our industry fabrication and construction contractors. We encourage the adoption of IOGP 577 by our applicable contractors.”



David O'Connor, Head of Global Projects, BP

“ Shell is supportive of industry wide adoption of IOGP 577, *Fabrication site construction safety recommended practices* and has commenced the process of adopting IOGP 577 for Shell executed projects.”



Markus Droll, Executive VP Projects, Shell

“ Chevron supports the adoption of IOGP 577, *Fabrication site construction safety recommended practices* and is assessing the most effective way to incorporate the recommended practices into contracting processes and contracts, always maintaining focus on preventing serious injuries and fatalities in fabrication of facilities.”



Joe Gregory, President, Chevron Project Resources Company

“ Statoil is supportive to an industry wide adoption of IOGP 577, *Fabrication site construction safety recommended practices*, and have started the process of incorporating this in the relevant governing documents and upcoming contracts.”



Torger Rød, Senior Vice President, Head of Project Development

“ Eni support industry wide adoption of IOGP 577, *Fabrication site construction safety recommended practices* and has adopted IOGP 577 in our internal related standards system.”



Angelo Ligrone, Senior VP, Eni SEQ/UP

“ We are committed to use the IOGP 577, *Fabrication site construction safety recommended practices* with our future Contractors in order to continuously improve the fabrication sites safety performance.”



Jean-Yves Poulet, Head of Projects and Construction, Total

“ ExxonMobil supports IOGP 577, *Fabrication site construction safety recommended practices* as a way of establishing minimum safety standards for oil & gas projects.”



Keith Norman, Upstream Safety, Security, Health & Environment Manager

Thank you!

Get in touch

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Or visit the IOGP safety pages

<https://www.iogp.org/oil-and-gas-safety/>

