Nine
ENERGY SERVICE

REDUCE EMISSIONS WITH DISSOLVABLE PLUG TECHNOLOGY:

Dissolvable Versus Conventional Plug

ERM *The business of sustainability*

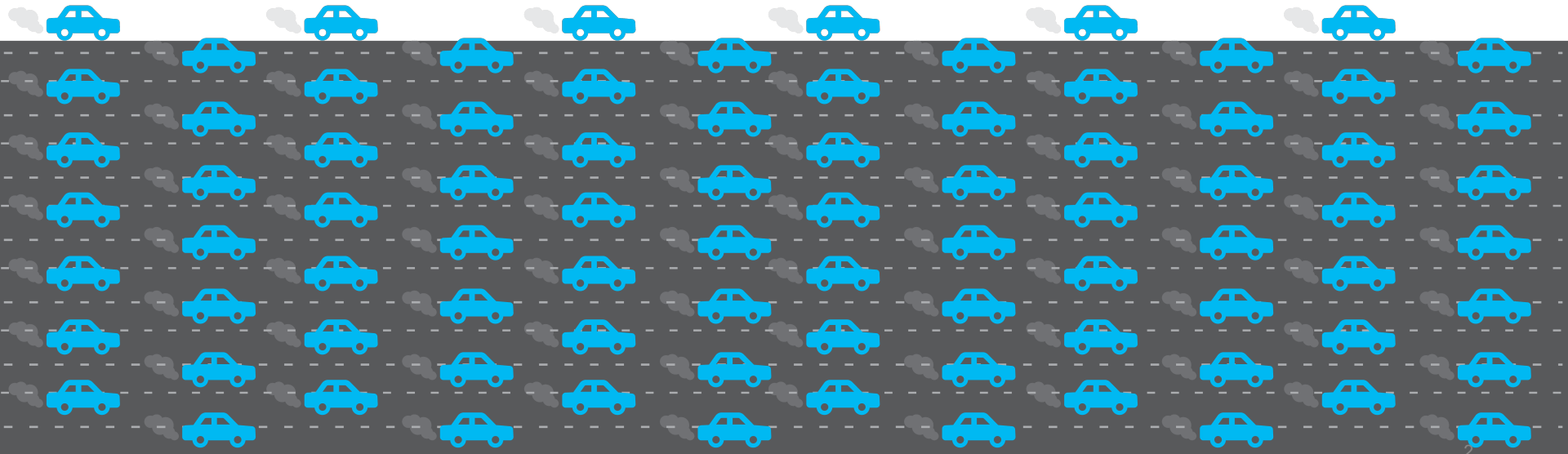
SIGNIFICANT AND SCALABLE EMISSION REDUCTIONS

Nine

STINGER™ Dissolvable Frac Plug

DISSOLVABLE FRAC PLUGS ON A 6-WELL PAD TAKE 84 CARS OFF THE ROAD:

~404 METRIC TONS OF CO_2E



source: ERM

WHAT ELSE?

NEUTRAL OR REDUCE

=/↓ AFE

INCREASED

↑ IRR

REDUCED

↓ EMISSIONS

INCREASED

↑ SAFETY WITH FEWER HUMANS AT SURFACE

TAKEAWAYS

Nine conducted an analytical study with ERM to quantify cradle-to-grave emission reduction of a dissolvable versus a composite plug completion.

Dissolvable plugs reduce carbon emission intensity in a scalable way that can be applied on a per-well basis.

There is a significant and immediate reduction in greenhouse gas emissions when using a dissolvable plug versus a composite plug.

↓91%

By eliminating coil intervention entirely, dissolvables reduce carbon footprint by 91% or ~67.3 metric tons of CO_2e

↓18%

Assuming a 3-day coil tubing clean-out run, dissolvables reduce carbon footprint by 18% or ~13.3 metric tons of CO2e

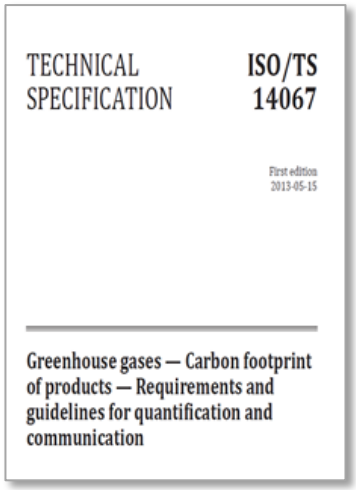
source: ERM

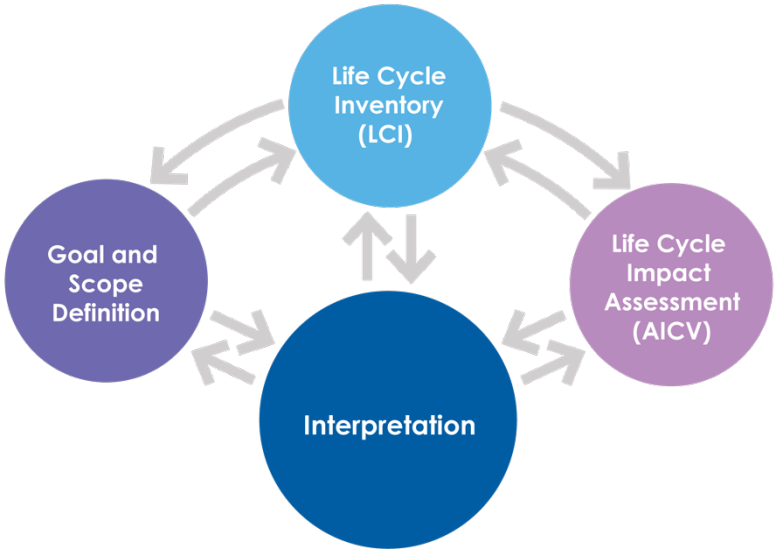
METHODOLOGY

Carbon footprint is "the sum of greenhouse gas emissions and removals in a product system, expressed in CO_2e and based on life cycle assessment, considering a single impact category - Climate Change" (ISO 14067: 2013).

ISO 14067: Quantifying and reporting the carbon footprint of products

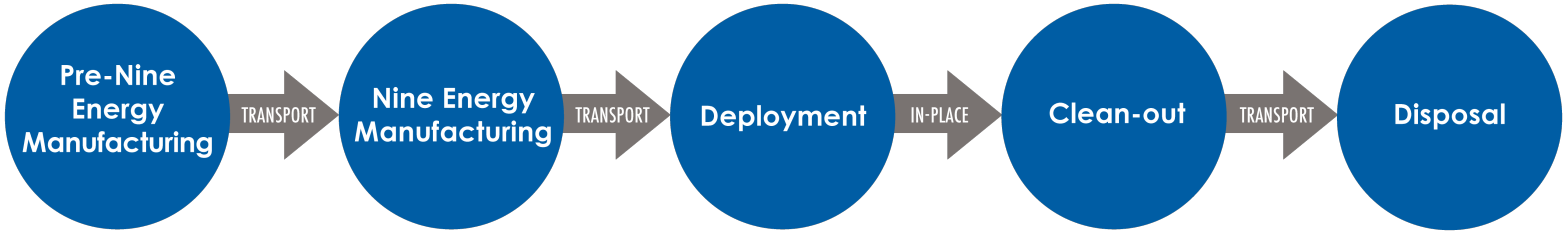
Established in 2013, the standard sets out four phases for the development of a carbon footprint study (in accordance with life cycle assessment studies):





source: ERM

SCOPE AND BOUNDARIES



Functional Unit

One typical deployment and extraction/clean-out process of 70 plugs

Approach

Cradle-to-grave

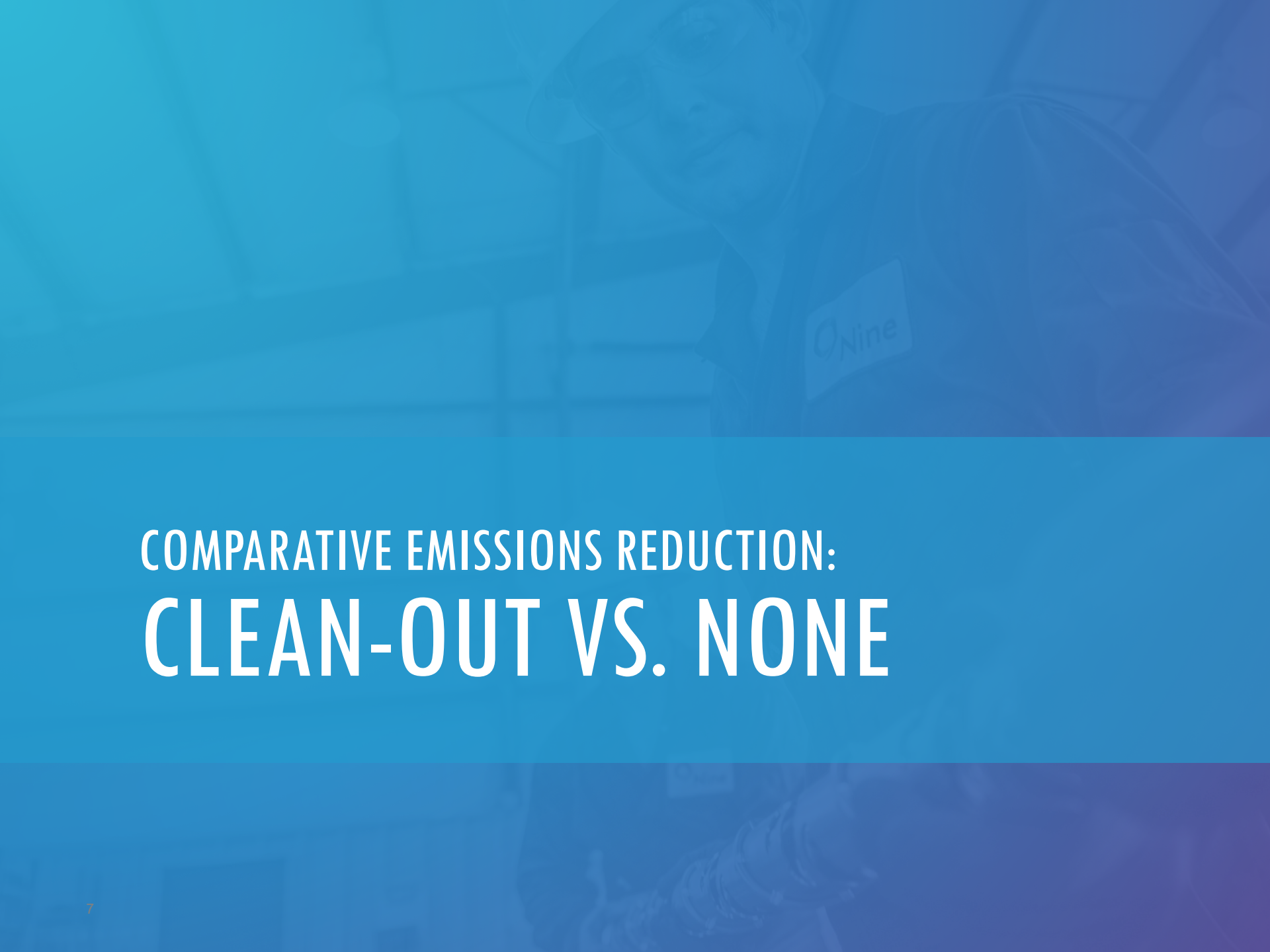
Geographic Coverage

United States, Permian Basin

Scenario 1: Coil clean-out run (assumes 3 days of clean-out and 4 days for conventional drill-out)

Scenario 2: Elimination of coil usage (assumes 4 days for conventional drill-out)

source: ERM



COMPARATIVE EMISSIONS REDUCTION:

CLEAN-OUT VS. NONE

RESULTS (ELIMINATION OF COILED TUBING)

DISSOLVABLE WITH NO CLEAN-OUT VS. CONVENTIONAL DRILL-OUT PER WELLBORE

Conventional

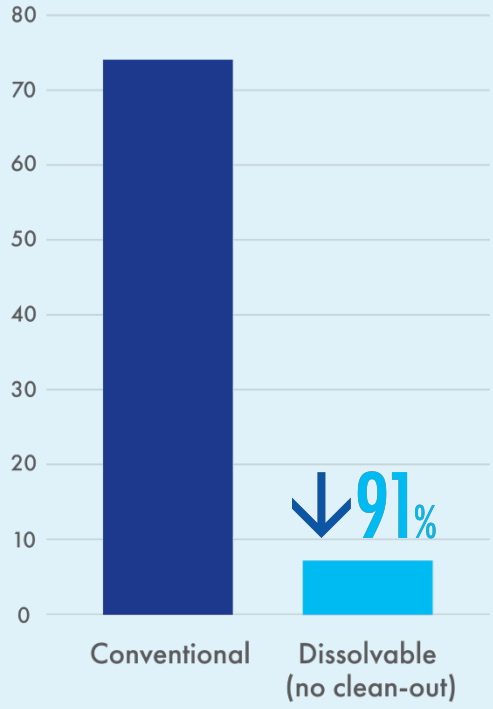
74,146 kg CO_2eq

Dissolvable

6,873 kg CO_2eq

The life-cycle carbon footprint of the dissolvable plug would be **91% smaller per wellbore** than the conventional composite plug.

CARBON FOOTPRINT OF 70-PLUG DEPLOYMENT IN METRIC TON CO_2 EQUIVALENTS

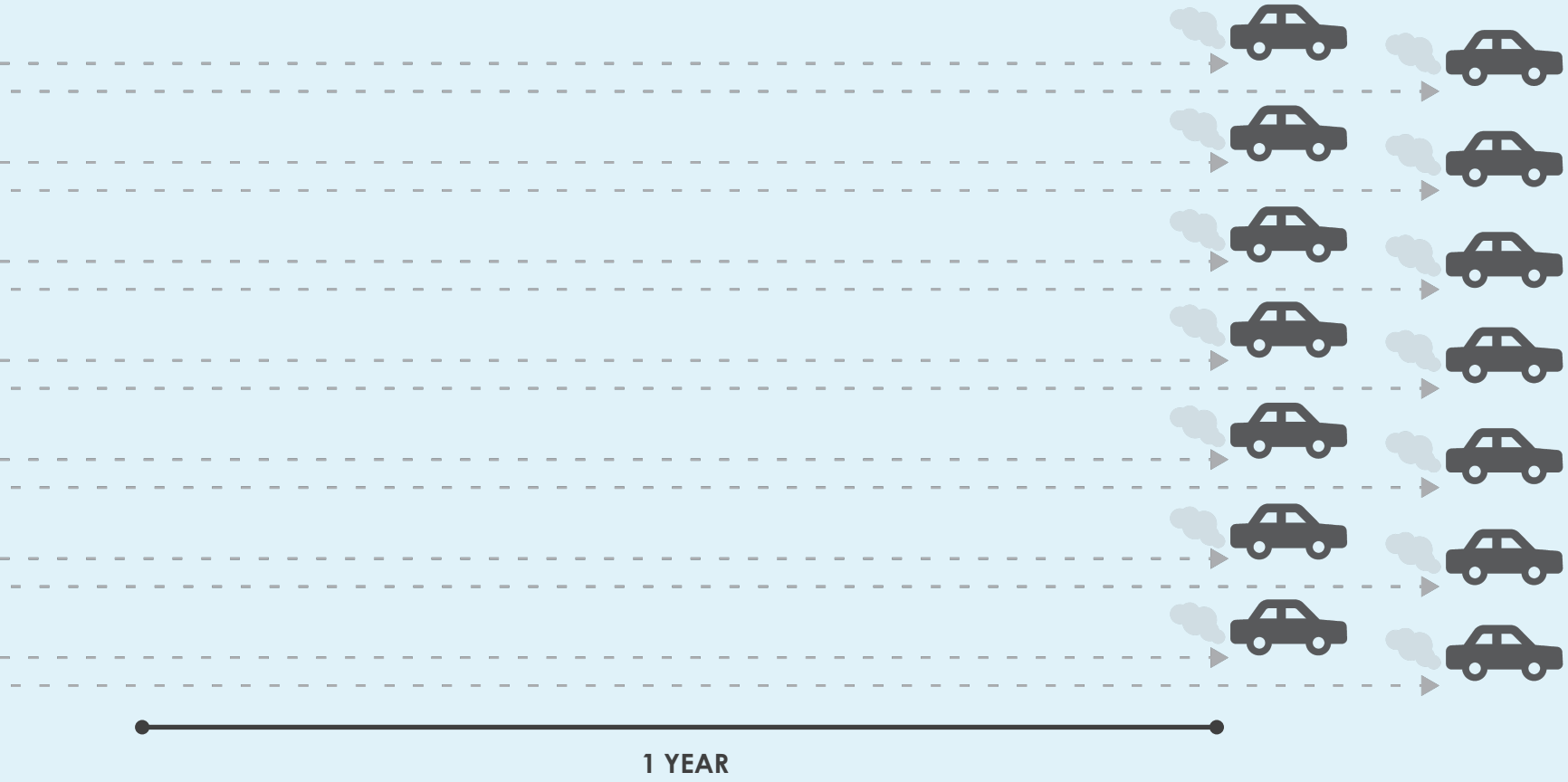


source: ERM

RESULTS (ELIMINATION OF COILED TUBING)

DISSOLVABLE WITH NO CLEAN-OUT VS. CONVENTIONAL DRILL-OUT PER WELLBORE

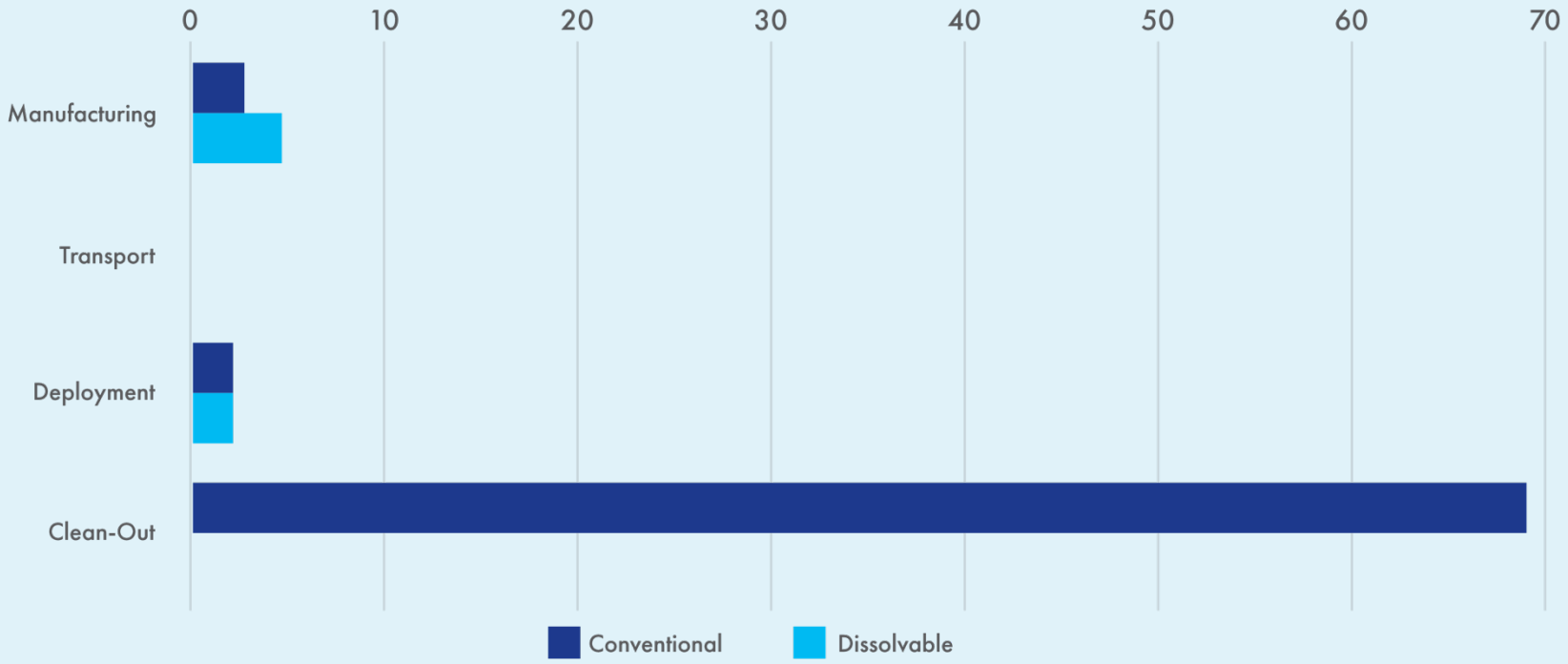
This equates to ~67.3 metric tons of CO_2e or 14 passenger cars driving per year.



source: ERM

RESULTS (ELIMINATION OF COILED TUBING)

CARBON FOOTPRINT OF 70-PLUG DEPLOYMENT IN METRIC TON CO_2 EQUIVALENTS PER WELLBORE



Assumes 4 days for conventional drill-out

source: ERM

RESULTS (DISSOLVABLE WITH CLEAN-OUT)

DISSOLVABLE CLEAN-OUT VS. CONVENTIONAL DRILL-OUT PER WELLBORE

Conventional

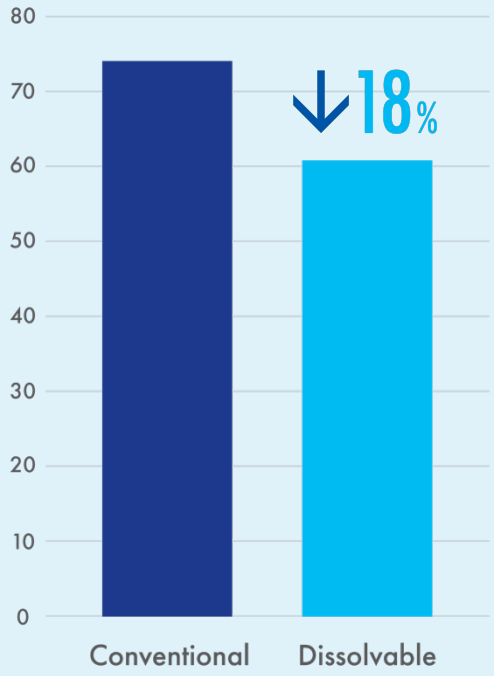
74,146 kg CO_2eq

Dissolvable

60,843 kg CO_2eq

The life-cycle carbon footprint of the dissolvable plug is **18% smaller per wellbore** than the conventional composite plug.

CARBON FOOTPRINT OF 70-PLUG DEPLOYMENT IN METRIC TON CO_2 EQUIVALENTS

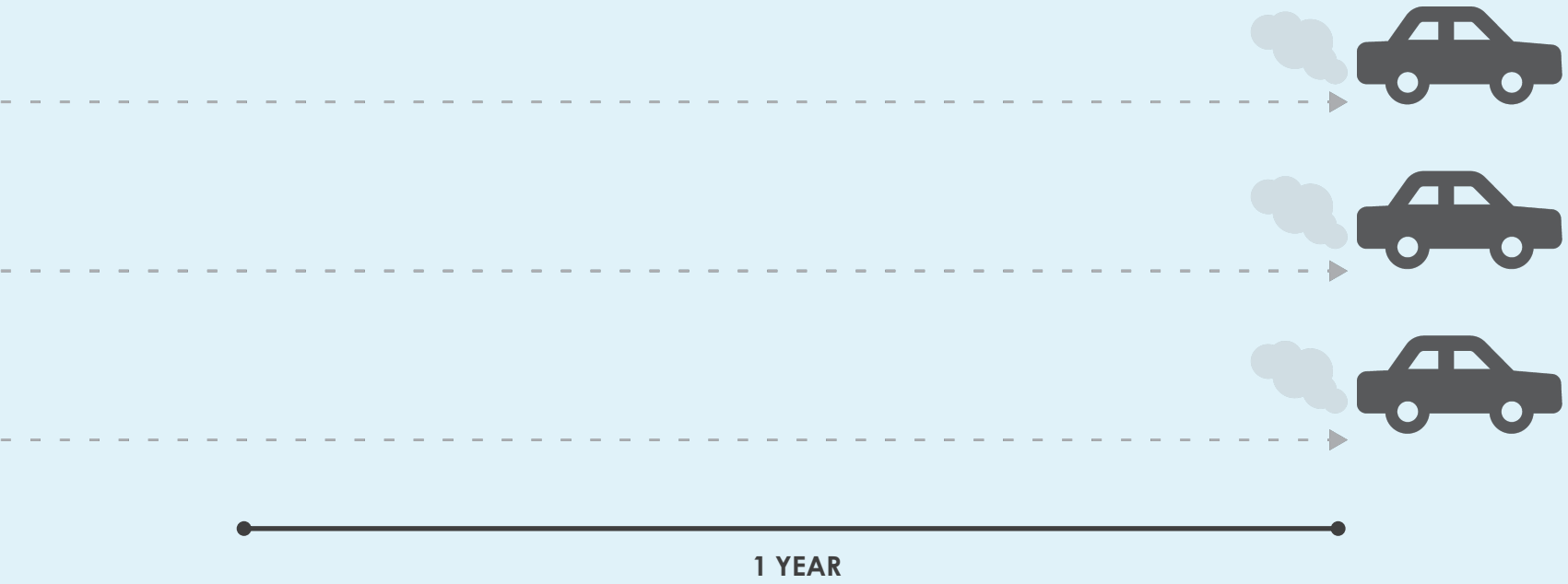


source: ERM

RESULTS (DISSOLVABLE WITH CLEAN-OUT)

DISSOLVABLE CLEAN-OUT VS. CONVENTIONAL DRILL-OUT PER WELLBORE

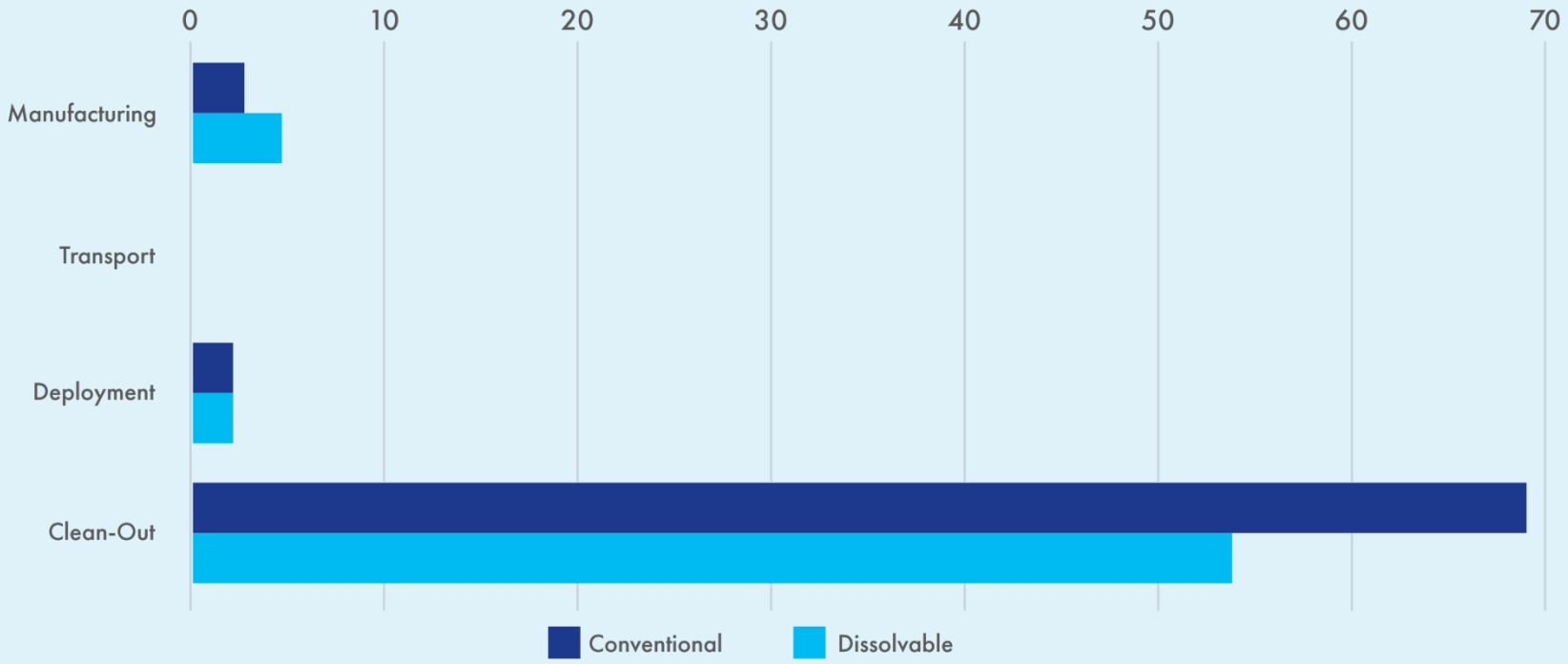
This equates to ~13.3 metric tons of CO_2e or 3 passenger cars driving per year.



source: ERM

RESULTS (DISSOLVABLE WITH CLEAN-OUT)

CARBON FOOTPRINT OF 70-PLUG DEPLOYMENT IN METRIC TON CO_2 EQUIVALENTS PER WELLBORE



Assumes 3 days of clean-out and 4 days for conventional drill-out

source: ERM