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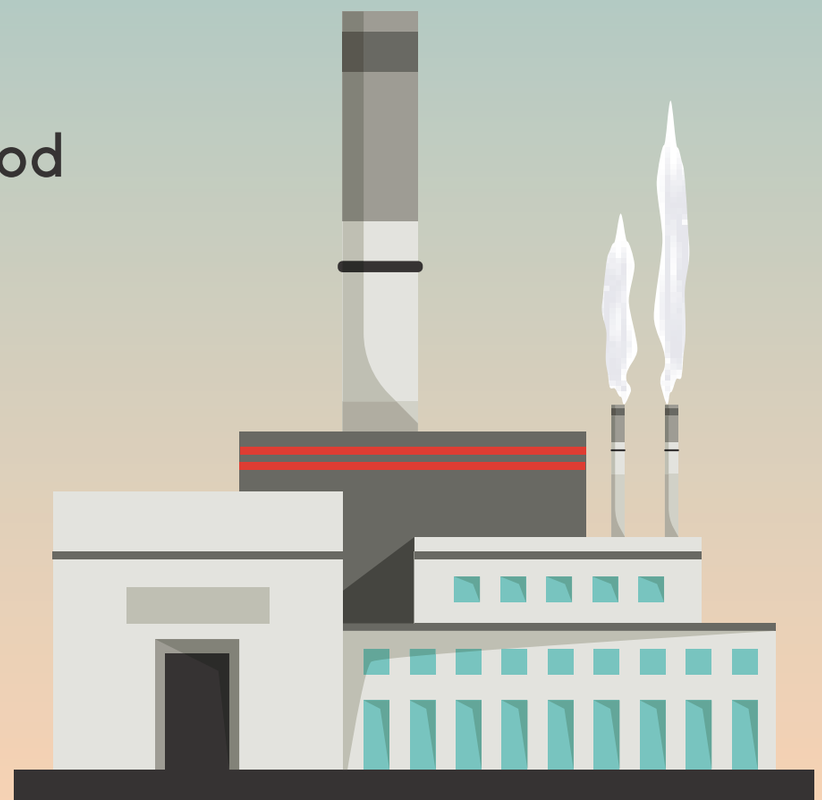
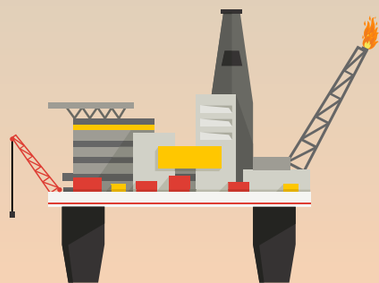
10 GIGA-TONS OF CO_2e

This figure represents gas emissions that could have been avoided over the period 1992-2018, by extracting less polluting oil.





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Indeed, not all barrels of oil are created equal:

- the extraction price differs from one barrel to the other;
- greenhouse gas emissions are more or less important depending on the barrel.

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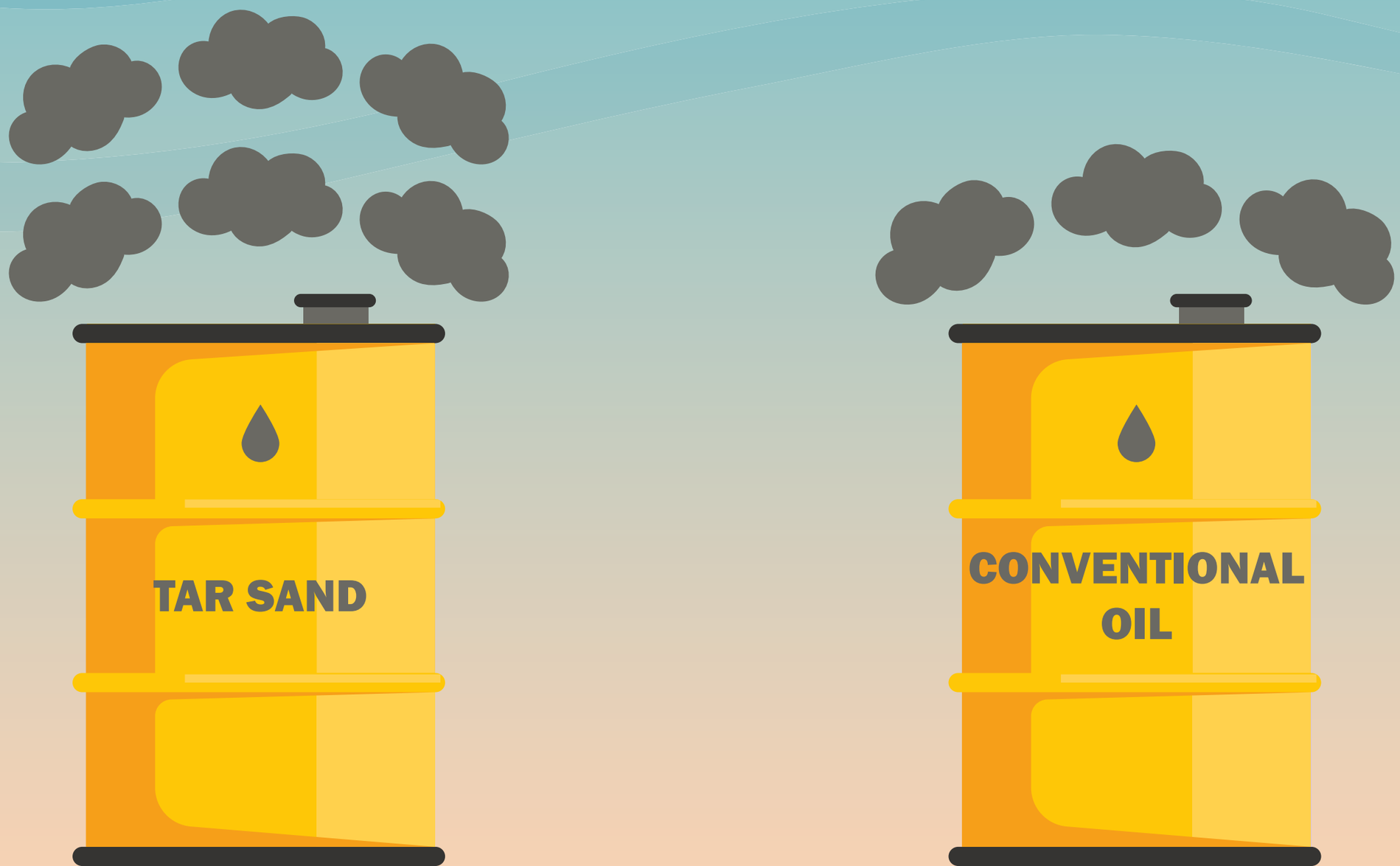
For example, on average, extracting a barrel of tar sand leads to more greenhouse gas emissions than extracting a barrel of conventional oil.



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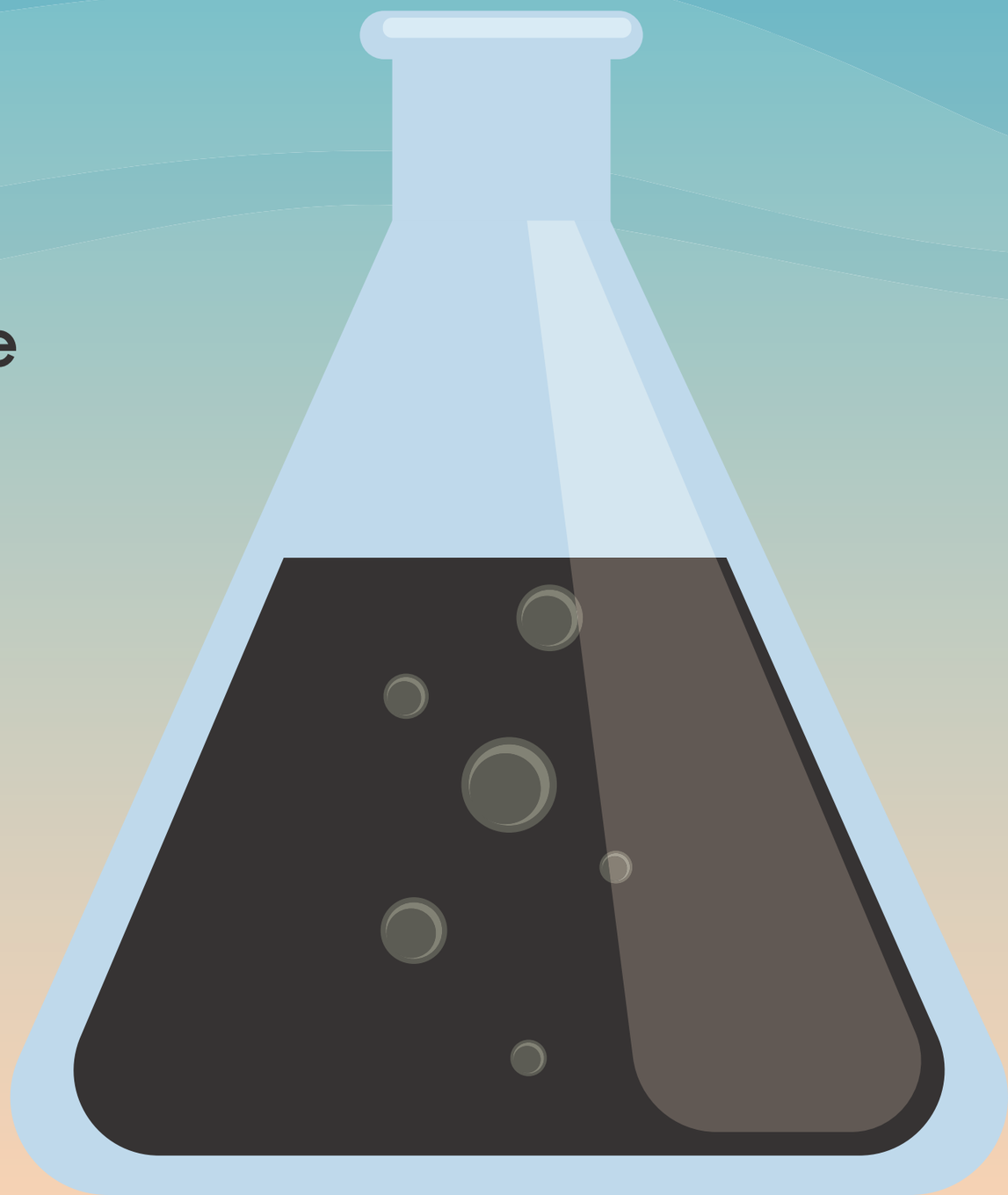
However, these differences in carbon intensity are not taken into account by producers in their choice to develop one deposit rather than another, because there is no economic cost for producers associated with higher emissions.



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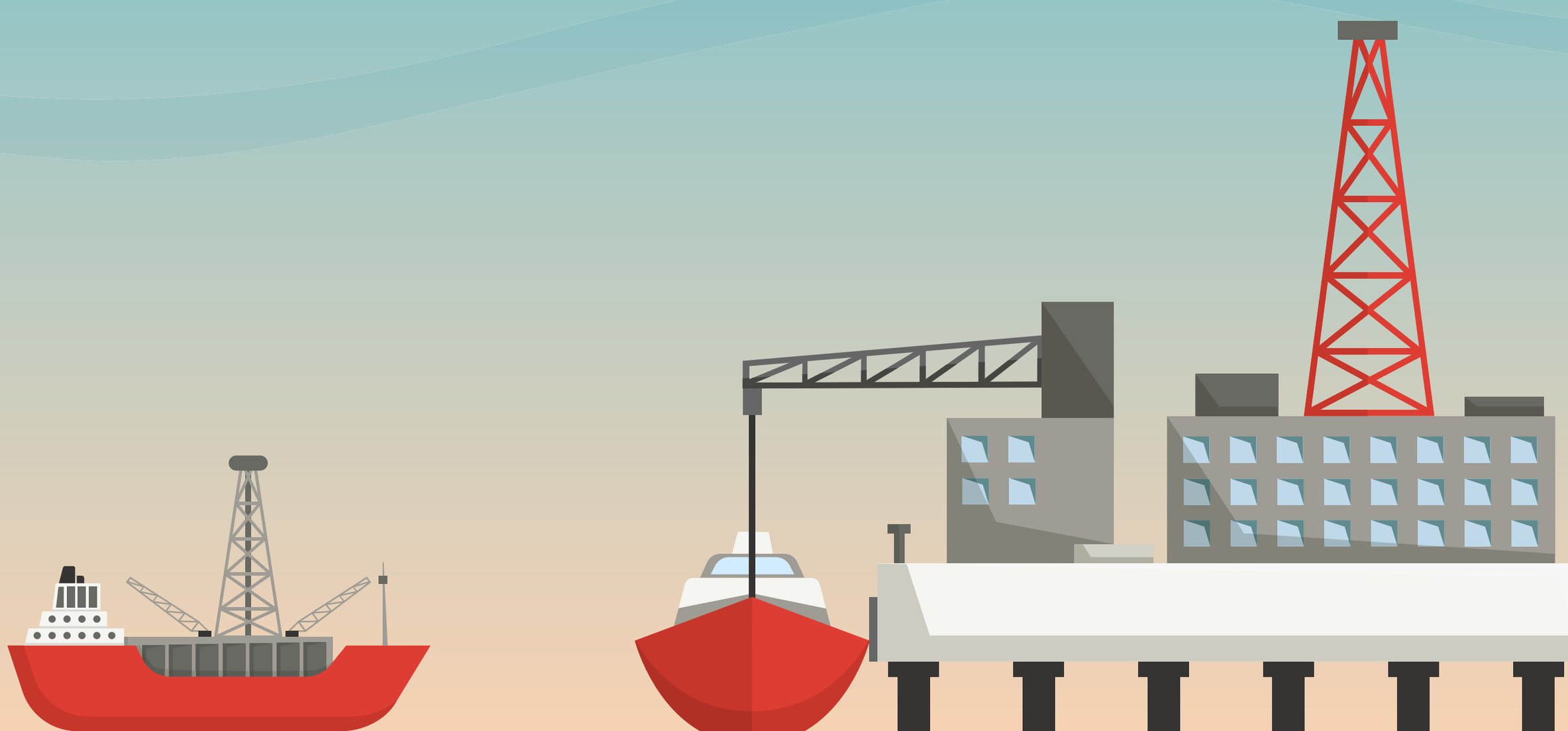
Using a rich dataset of the world's oil fields and estimates of their carbon intensities and extraction costs, it is possible to quantify the emissions and additional costs resulting from the extraction of the "bad" oil fields.



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It is therefore necessary
to compare historical production
at the level of each oil well to simulated
"optimal" production wells, while leaving
total annual production unchanged.

These simulated productions are those
that would have occurred if producers
had included the cost of pollution
in their production costs.

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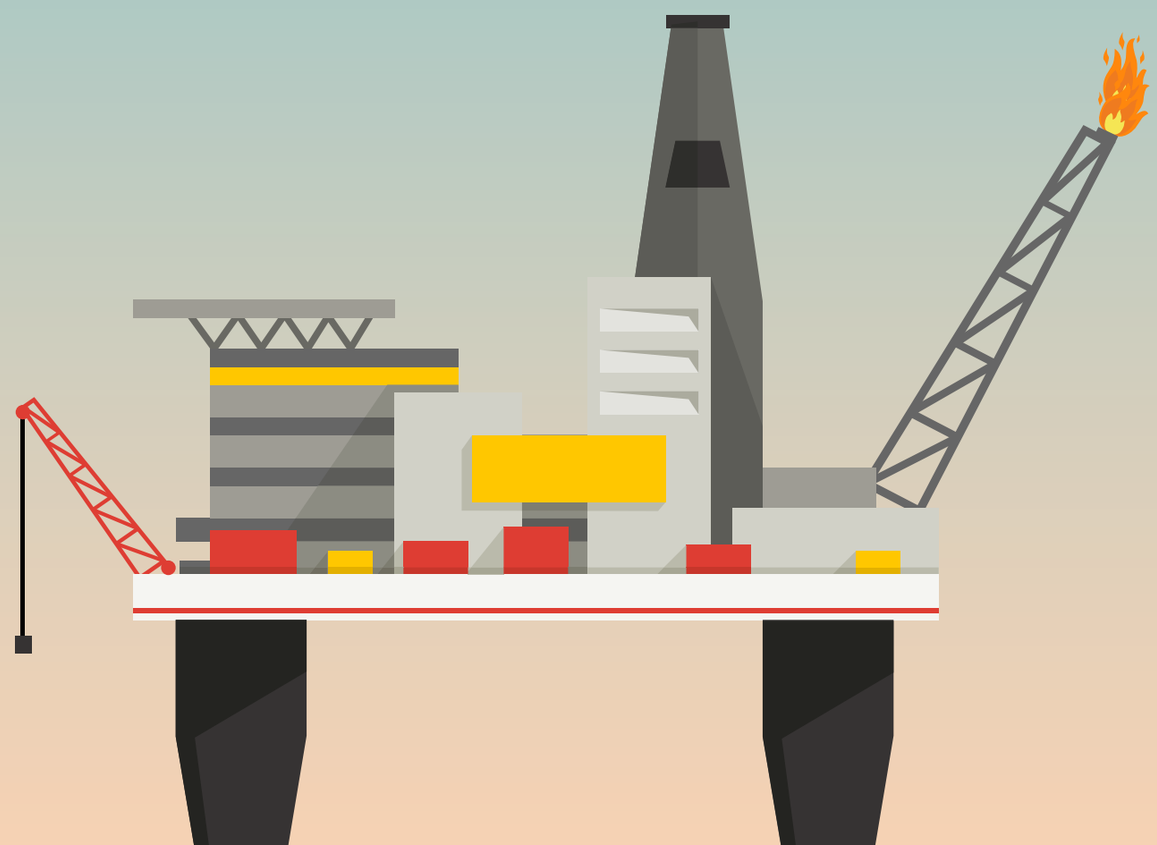
Between 1992 and 2018, the comparison between these two extraction paths *(observed and simulated)* leads to an estimate of the additional carbon in the observed extraction of at least 10.02 gigatonnes of CO_2e with an estimated environmental cost of US$2 trillion *(2018 US dollars)*.



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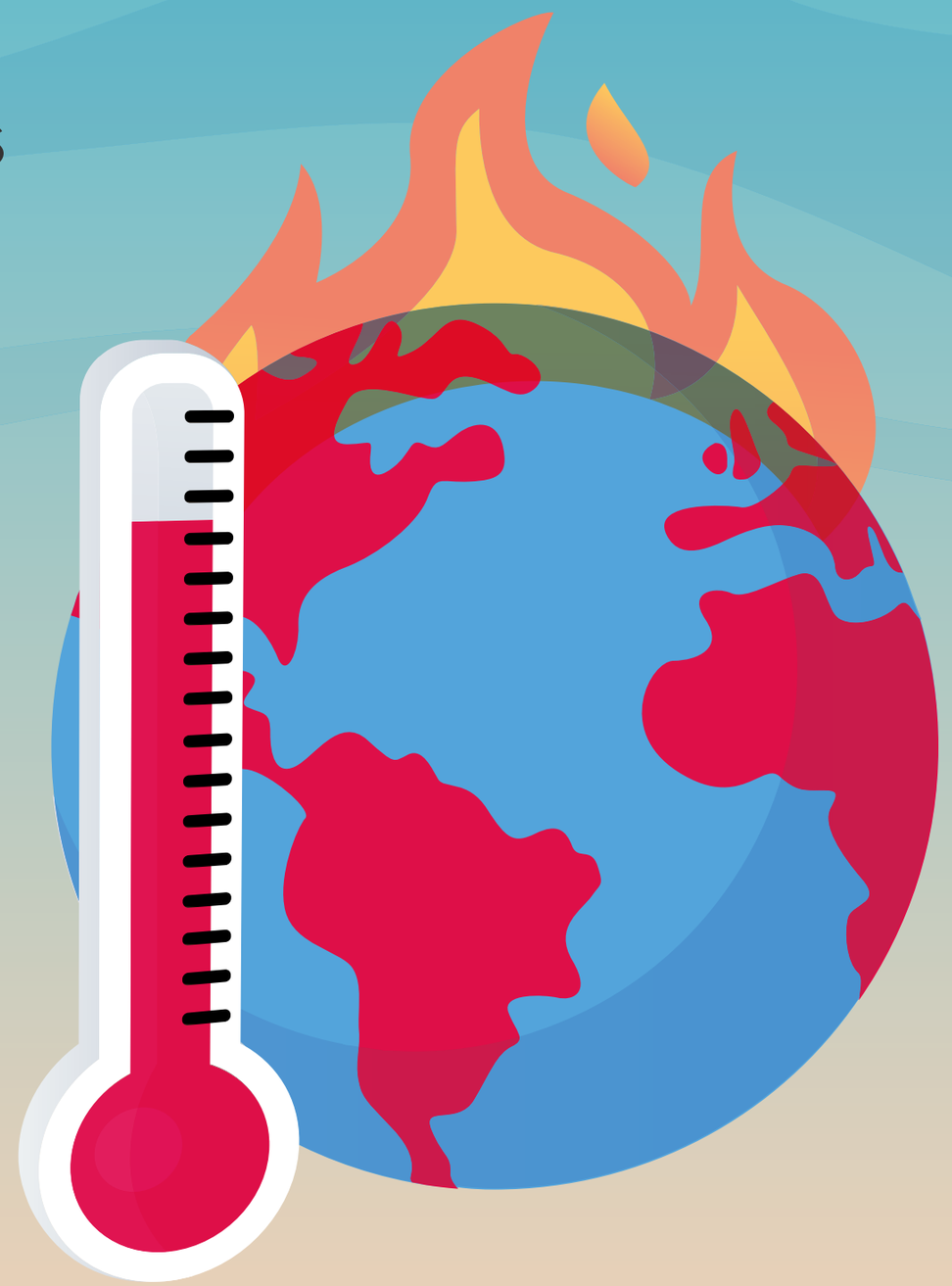
Looking ahead, carbon intensity differences between different oil wells will also play a crucial role.

A significant part of the oil reserves available today should remain underground to limit global warming.



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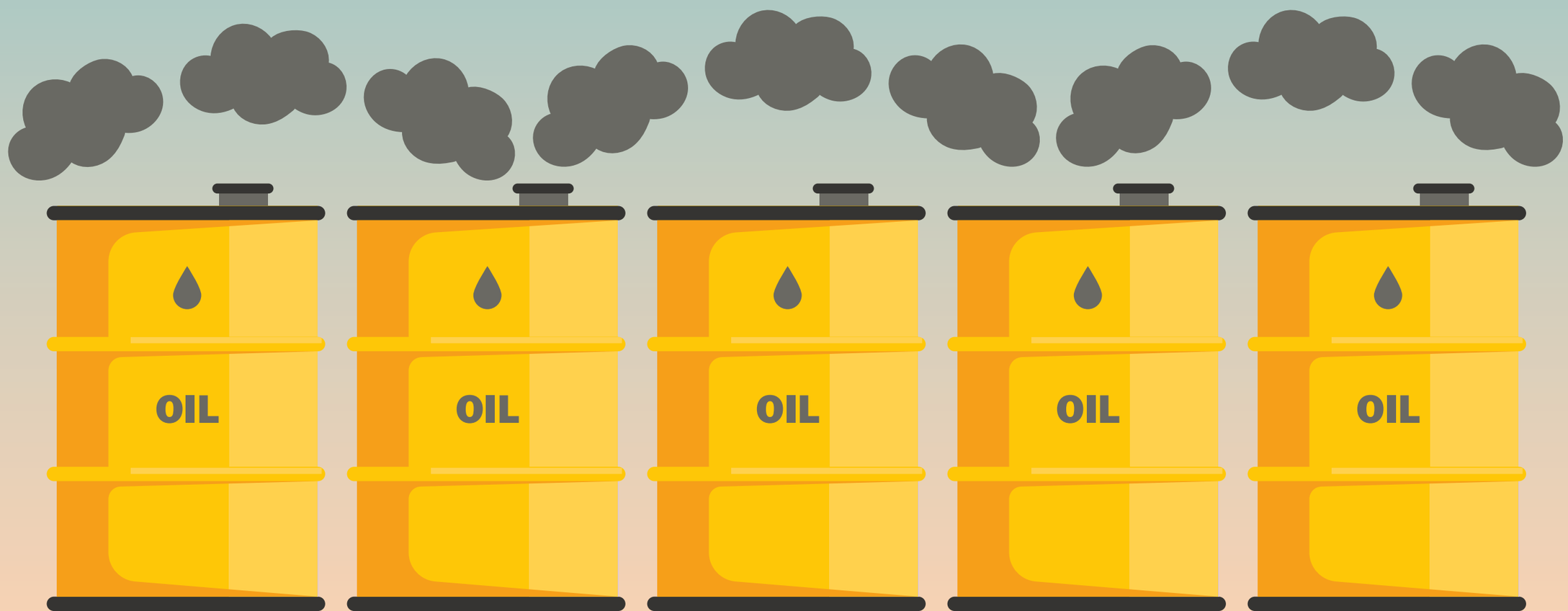
These oil reserves that should never be used are called "stranded". Their distribution is very uneven among countries: countries where oil deposits are relatively more greenhouse gas emitters have a much larger proportion of their reserves that are "stranded".



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From

Renaud Coulomb, Fanny Henriet & Léo Reitzmann, *'Bad' Oil, 'Worse' Oil and Carbon Misallocation*, 2021.

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