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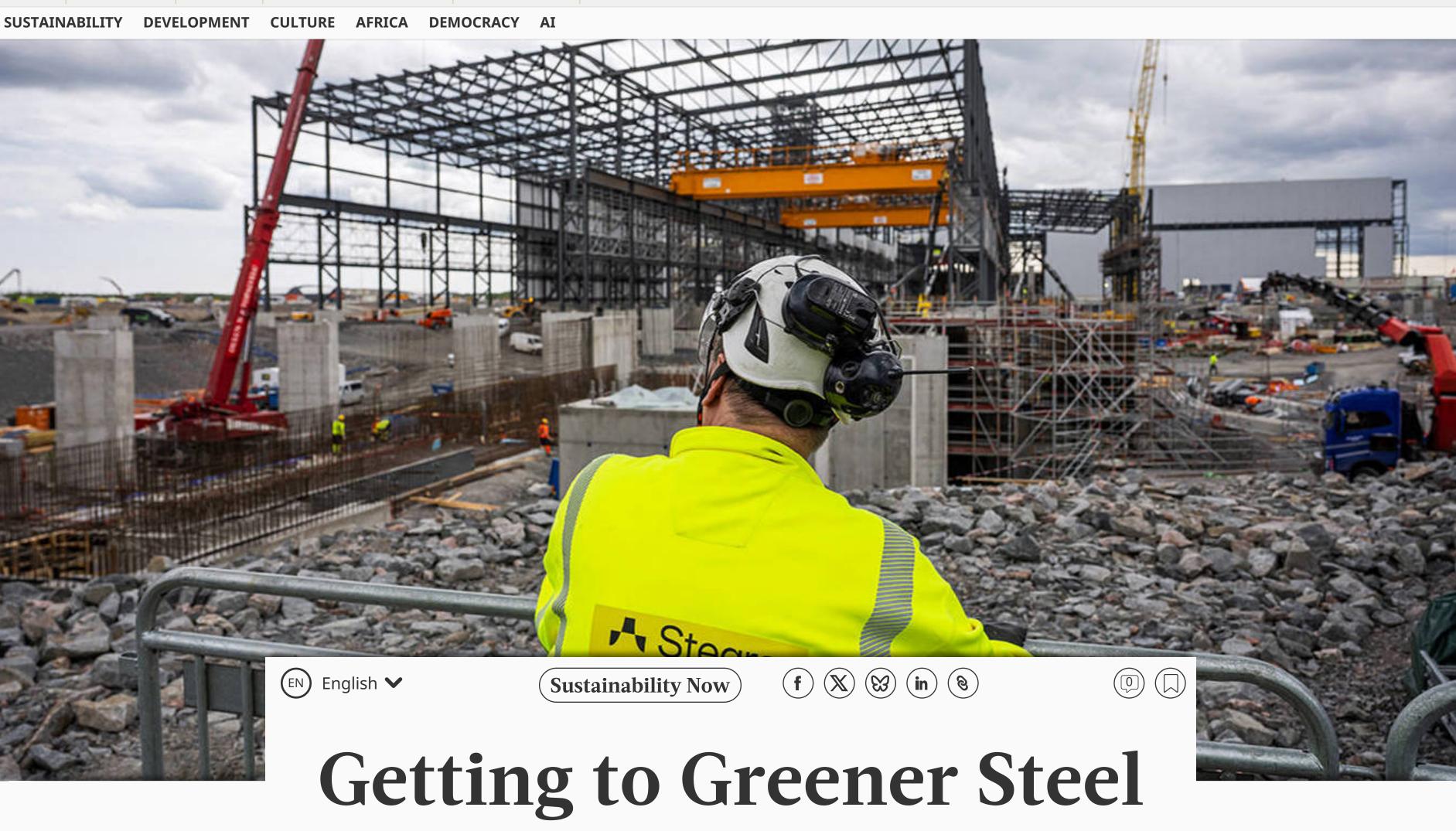
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Coalbed methane is an underappreciated problem of global steel

Sep 25, 2025 | GERNOT WAGNER and ROLAND KUPERS

production. While cutting methane emissions in the steel supply chain will not produce green steel overnight, it could reduce the sector's emissions by the equivalent of a billion tons of carbon annually, and at little cost. EW YORK – Burning coal to generate power is so uneconomical

that the Trump administration has resorted to issuing stay-open

orders to prop up the dying industry. However, there is one area

where coal is still king: in the production of primary iron to make steel.

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warn that continued escalation will

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Politics

This matters, because iron and steel production account for over 10% of annual global greenhouse-gas emissions. Most of these emissions come from blast furnaces, where coal is used to strip oxygen from iron ore, producing not only iron but

carbon dioxide (the main byproduct).

recyclable, and over one-fifth of the global supply by now is derived from recycled scrap. Recycling requires only electricity, so one can envision a perfect circular economy in which wind turbines produce electricity to produce steel from recycled wind turbines. This is already largely economical in places where scrap steel is readily available, such as the United States and Europe, but less so for fastgrowing Asian economies. Another option is to use natural gas. Only around 7% of steel globally is produced this way, because it does entail some additional costs and complications. Nonetheless, this option

Fortunately, there are better ways to do this. One is simply to

avoid making new iron in the first place. Steel is 100%

The Swedish startup Stegra does just that. It broke ground in 2022 on the world's first "deep green" steel plant – a major achievement and a big step in the right direction. The company's goal of producing five million tons of low-carbon steel annually by 2030 is both ambitious and achievable under the right policy conditions. Moreover, similar other projects are imminent, heralding a future of low-carbon steel.

your@email.com By signing up, you agree to our privacy policy and terms of service. It will be a steep climb. Stegra's five million tons are dwarfed by the 1.5 billion tons produced today using coal. For every new green steel plant under discussion, more than two traditional plants are also being planned.

Unlike coal power plants, coal-powered blast furnaces will remain economical unless CO₂ is priced appropriately. The European Union is starting to do that with its emissions-trading system, charging polluters around €80 (\$94) per ton; but steel producers in China, India, and + elsewhere face little to no carbon price. Moreover, while direct or indirect carbon pricing must be part of the sector's climate-policy portfolio, it cannot be the only measure. Another big part of the picture is methane.

While this greenhouse gas does inevitably leak when natural

methane, which vents directly into the air when mining for

gas is used to produce steel, the main culprit is coalbed

metallurgical coal to use in blast furnaces.

Methane is a far more potent greenhouse gas than CO₂. Over the first 20 years, it traps about 80 times more heat than CO₂. While CO₂ remains the most potent greenhouse gas in the long run, around half of the rate of warming experienced from the preindustrial period to the 2010s was due to methane emissions rather than CO₂. This outsize effect makes coalbed methane an

adds around 25% to blast-furnace steel's climate footprint – or the equivalent of around one billion tons of CO₂ per year. These emissions will continue for as long as blast furnaces + dominate the industry. Fortunately, while no industry-wide change will happen on its own, preliminary calculations suggest that methane could

underappreciated problem of global steel production. It alone

coal is produced by a limited number of mining companies in a handful of countries. That means partnerships to measure and effectively mitigate these emissions are well within reach. These could include not only countries like Australia, an early focus of the United Nations Environment Programme's methane effort, but also China, which accounts for over half of global metallurgical coal and steel production. With the US ceding the field on climate policy, the EU and China have been working more closely on key climate initiatives. Coalbed methane in

the steel supply chain ought to be on their list of problems to tackle.

equivalent of a billion tons of CO₂ annually, and at little cost.

Cutting methane emissions in the steel supply chain will not produce

green steel overnight, but it could reduce the sector's emissions by the

be removed from the supply chain of coal-based blast furnaces relatively

cheaply, at less than 1% of steel's market price. Moreover, metallurgical

Unlike some arguments for gas as a "bridge" fuel from coal to renewables, there is little danger that a focus on coalbed methane might detract from the need to move away from coal (and gas) toward greener methods. The world must not lose sight of the importance of moving toward truly lowcarbon steel. On the way there, "light green steel" is well worth the small investment.

33 Commentaries Gernot Wagner is a climate economist at Columbia Business School.

ROLAND KUPERS

6 Commentaries

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Roland Kupers, an adviser on complexity, resilience, and energy transition, is the lead architect of the United Nations' International Methane Emissions Observatory.

paves the way to one of the primary methods of cutting steel emissions to near-zero: replacing gas with green hydrogen.

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United States, Inc.

From "transactional" trade deals and "efficiency" drives to pay-to-play immigration policies, Donald Trump appears determined to govern the United States like a business. But a profit-seeking government will never provide an adequate supply of public goods, and the lawless version pursued by Trump, a serial bankrupt, is poorly suited to

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metropolitan areas with the highest

out that Republicans control many of the

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administration's new deal merely replaces one form of dependence with another. The app's owner, ByteDance, will no longer oversee daily content recommendations, but China will still have residual control over the platform's algorithms.

Rather than shifting TikTok from Chinese to American control, the Trump

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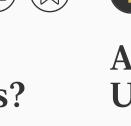
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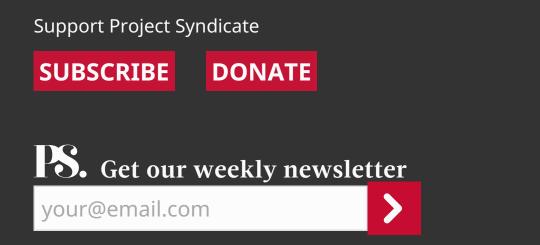
Politics

SAKIKO FUKUDA-PARR America's retreat from multilateralism,

which President Donald Trump proudly emphasized in his speech this week to the United Nations General Assembly, has upended the institutions that underpin

the UN. To make progress on the Sustainable Development Goals, a more diverse group of actors must devise ways to circumvent rising geopolitical tensions and growing populist sentiment. **FURTHER READING JOEL NG** | Multilateralism in a Post-American World

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