# Press Release

## NEW REPORT! Crude Awakening!

*New CWR report on how fast rising seas could threaten seaborne oil & energy security*

**Hong Kong, 21st May 2024** – CWR releases a new report: ***"Crude Awakening! Fast rising seas threaten seaborne oil & energy security – Spotlight: Japan & South Korea"*** which reveals that instead of providing energy security, oil now threatens it. The report warns that the entire oil supply chain is in for a crude awakening as almost two-thirds of oil produced globally is shipped by oil tankers, yet stress tests of the world's Top 15 Tanker Terminals show that 12 will be impacted at just 1m of sea level rise (SLR). This fresh take on oil has sobering implications for both energy and economic security as well as sovereign credit ratings, especially for Japan and South Korea, as they are particularly exposed with almost 100% of their oil imported by sea.

According to the report, rising seas of 1m will submerge six key oil export ports which serve four of the Top 10 crude oil exporters as well as swamp seven key oil import ports which serve four of the Top 10 crude oil importers. The key oil transit hub of Singapore is also not immune. Yet, the IPCC warned in 2021 that 2m of SLR *"cannot be ruled out"* by 2100 and CWR's report finds a further two tanker terminals (Suez and Said) impacted at these levels.

*"The consequences are far-reaching. Just 1m of sea level rise has the potential to disrupt up to 42% of global crude exports from Saudi Arabia, Russia, US and UAE as well as up to 45% of global crude imports to China, US, South Korea and the Netherlands. Oil exporting countries and nations reliant on oil imports by sea as well as oil majors must start factoring in sea level rise. Delaying oil transition will only accelerate rising seas, shooting the sector in the foot"* warned Debra Tan, Head of CWR and lead author of the report.

There is certainly cause for concern as key drivers of rising seas – warming oceans and polar ice sheet losses – are experiencing record-breaking temperatures and unimaginable melt today. Already, seas are rising faster than expected. Last year, UN Secretary General, António Guterres expressed concern that *"some coastlines have already seen triple the average rate of sea level rise."* He's worried, *"the danger is especially acute for nearly 900mn people who live in coastal zones at low elevations – that's one out of 10 people on earth."*

Dr CT Low, CWR's Geospatial Risk Lead and co-author of the report noted that accelerated warming and rapid ice loss from Greenland and Antarctica are already running well ahead of projections. *"Many ice sheet scientists have said they never thought they would see this level of melt in their lifetimes"* he said. In fact, ice experts sounded the alarm in the latest State of Cryosphere 2023 Report released ahead of COP28 – they say that *"2°C is too hot for ice"* and the only way to 'slow down' rising seas is to stay within 1.5°C.

Yet, near-term global oil production is still growing. The latest IEA report noted that almost half of the increase is led by the US, which is slated to add 2.6mn b/d between 2022-2028. Tan says that such oil expansion and growing emissions will only speed up rather than slow down rising seas. "*We have six years left to deliver greenhouse gas emission cuts of around 24Gt$CO_2$e to stay within 1.5°C. So, sizeable near-term oil expansion plus insufficient emission cuts will be deadly for coastal populations. What's sizeable is the US's oil add from 2022 to 2028 – it is equivalent to the entire crude oil production of Iran"* explained Tan.

Tan further elaborated that our current climate policy path of 3°C means that we could see rapid SLR in around 30 years' time and a shocking 2-3m by 2100. *"Because there is no "undo", overshooting 1.5°C will commit us to multi-metre SLR. So, this last hurrah to pump more oil led by the Americas could well trigger ice tipping points and unleash unstoppable rising seas, which will not only sink key oil ports and disrupt global oil trade but also swamp coastal refineries & petrochemical facilities – many of these facilities, as this report shows, will be impacted by just 1m of SLR."*

Staying within 1.5°C is impossible without fossil fuel emission cuts according to the IPCC. So, it's not just oil but coal must also deliver emission cuts. However, the IEA says coal has already peaked output and emissions but expects oil's to be still on the rise; possibly only peaking around 2030 and plateauing to 2050. Also, the IEA projects coal emission cuts to be much steeper and faster than oil's – by 2040, oil will overtake coal to become the No.1 fossil fuel emitter. And by 2050, oil emissions will be greater than coal's by 1.5Gt$CO_2$ – this difference is equivalent to the combined 2022 emissions of Indonesia and the Philippines, the report said.

The oil sector's sluggish emission cuts are not surprising as trillions of dollars are still flowing into the sector, delaying transition. 2023 supply- and demand-side clean energy investments of over US$1.7trn were impressive, but CWR's report says that fossil fuel investments and subsidies trump this by 1.5x at a whopping US$2.58trn. Oil takes the lion share – in 2023, oil spending of over US$1.07trn dwarfed coal investments and subsidies of US$184bn.

Asia is especially vulnerable with much of its oil delivered by sea, says the report. Of the world's Top 5 importers of crude oil which account for 60% of global crude oil imports, four of these are China, India, South Korea & Japan. Of these, CWR found Japan & South Korea to be most at risk, warranting sovereign risk re-ratings. Oil is Japan & South

Korea's largest energy source at 39% and 36% respectively, yet almost 100% is imported by sea, making their energy security very vulnerable to rising seas.

Tan highlighted that *"Japan & South Korea are most at risk – nine ports which serve almost 70-100% of national refining capacity are hit at 1m of SLR. Yet, EV adoption rates are abysmal plus they're far behind on their Paris climate pledges"* Indeed, the report stated that their implementation gaps on Paris Agreement targets lag China's by at least 7.5x.

*"Such laggard actions only fuel fast rising seas which will devastate significant shares of their populations clustered in handfuls of large coastal cities"* lamented Tan. Certainly, the report's analyses indicate no cohesive energy nor economic strategies by these countries to tackle climate risks and transition. *"With large shares of their Top 10 Exports skewed towards oil-related sectors, Japan & South Korea must re-think oil or risk a re-rating"* urged Tan.

Global temperatures continue to soar. Year-to-date March 2024 has ended up being 1.58°C warmer than the pre-industrial period. At these temperatures, ice is firmly in the danger zone. *"Port security is energy security"* emphasised Dr Low, *"we worry that adaptation plans in place are not sufficient to address fast rising seas. Governments, asset owners, banks, port operators, shipping magnates, energy traders and downstream oil clients must all prioritise SLR assessments, port resilience & oil transition. The outcomes will dictate who survives the impacts."*

The rapid rate of ice loss today means there is no time to waste and the report urges Asia to leverage its prime position as the world's largest importer & refiner of oil; its global leadership in petrochemical production; and dominance in bunkering, maritime services, ship owning & building to fast track oil transition. The report details five opportunities where Asia can lead in transition and adaptation, including aggressive expansion of renewables, embracing EVs and introducing caps on ever-growing petrochemical production to stimulate circular economies.

It's time for Asia to start re-thinking its relationship with oil. As Tan aptly surmises *"Asia is the region most vulnerable to SLR so Asia must 1) spearhead global oil transition; 2) build port resilience; and 3) revolutionise shipping. These are big asks but Asia's strategic position across the oil chain as well as shipping means it can deliver catalytic & transformative resilience in the energy sector. The infrastructure risks highlighted in our report offer unique investment opportunities. We must capitalise on them and wean ourselves off oil – far from providing energy security, our oil habit could sink all our futures."*

Ultimately, in writing this report, CWR hopes that the fresh perspectives on oil will inspire and catalyse action from all stakeholders around the world, not just in Asia.

## Media

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Report Link:
https://chinawaterrisk.org/notices/new-cwr-report-crude-awakening-fast-rising-seas-threaten-global-oil-trade-energy-security-spotlight-japan-south-korea

## Quick access – Infographics

- At-a-glance global oil flows vulnerable to rising seas – see which ports are flooded at which levels
- Emission trajectories by 2050 – oil vs. coal
- Ice tipping points & runaway SLR – see how much SLR each ice sheet holds
- Dirty Money: At-a-glance oil $$$, subsidies & expansion vs. clean energy $$$
- Oil matters for Asia – Japan & South Korea most at risk
- Crude awakening to rising seas – Japan Factsheet
- Crude awakening to rising seas – South Korea Factsheet

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CWR ACCELERATED THREAT SERIES
Breaching 1.5°C of warming in 2024

Crude Awakening!

Fast rising seas threaten seaborne oil & energy security

Spotlight: Japan & South Korea

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Published by:
China Water Risk (CWR)

Publication Date:
May 2024

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Graphics & layout:
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Acknowledgements:
CWR would like to acknowledge the contributions of Tsun Chen & Dharisha Mirando

- Rapid sea level rise (SLR) threatens seaborne crude & energy security as global oil trade is very reliant on maritime trade routes. Tankers which ship oil around the world make up almost 30% of the global shipping fleet and shipping emissions. 64% of oil produced globally, moved by these ships, can be disrupted as key import/export ports are impacted by rising seas.
- SLR = existential threat to oil trade: 12 of the world's Top 15 tanker terminals will be impacted at just 1m of SLR, disrupting top global exporters & importers of oil. Maritime infrastructure like ports & bunkering facilities are coastal & largely low-lying making them vulnerable to SLR. We stress tested the Top 15 ports that are essential to global oil trade to various SLR levels; the results were shocking: 12 are impacted by 1m; another 2 are hit by 2m of SLR.
- Beware! SLR is accelerating due to 1) rapid ice loss from Greenland & Antarctica; 2) thermal expansion from hotter oceans. Observations in the past 20 years show losses from both ice sheets running well ahead of earlier projections causing concerns that IPCC SLR projections are too low. Many ice sheet scientists never thought they would see this level of melt in their lifetimes & now warn that: ice is already in the danger zone at 1.5°C, & 2°C is too hot for ice. The only option is to stay <1.5°C or risk unleashing 2-3m SLR.
- Timing matters! For 1.5°C, fossil fuel cuts must be made by 2030; coal has peaked but oil emissions are only plateauing 2030-2050. Oil output is still rising by 5.8mn b/d for 2023-2028, meanwhile drastic coal cuts means that after 2040, oil's carbon emissions will exceed those of coal. By 2050, this gap is 6.5GtCO$_2$ – similar to the GHG emissions of the US & Australia. This last hurrah in oil led by the Americas could end up shooting the sector in the foot.
- Asia is especially vulnerable with much of its oil delivered by sea: Top 5 importers of crude oil account for 60% of global crude oil imports – 4 of these are from Asia – China, India, South Korea & Japan. We focused on most-at-risk Japan & South Korea + they may warrant sovereign risk re-ratings:
  - Oil is the key fuel source of primary energy: Japan (39%) & Korea (36%).
  - Almost 100% reliant on oil imports by sea = very vulnerable to SLR.
  - 1m SLR threatens Japan's energy security: 3 ports of key suppliers (78% crude imports) + 5 receiving ports (68% of refining capacity) impacted.
  - 1m SLR threatens Korea's energy security: 6 ports of key suppliers (70% crude imports) + 4 key receiving ports (100% refining capacity) impacted.
  - Yet both countries are behind on transition with implementation gaps that are 7.5-9x that of China's; EV adoption rates are also abysmal, plus large shares of Top 10 exports are skewed towards oil-related sectors.
- Crude awakening! YTD March warming of 1.58°C = accelerated SLR risks = time to rethink energy security & examine port resilience. We worry that adaptation plans in place are not sufficient to address fast rising seas. Governments, asset owners, banks & other stakeholders from port operators, shipowners, downstream oil players & users must prioritise SLR assessments, port resilience & oil transition; outcomes will dictate who survives the impacts.
- Asia is the region most vulnerable to SLR = Asia must lead global oil transition. Asia's position as the prime importer, refiner & producer of petro-chemicals to global leadership in bunkering, maritime services, ship owning & building means it can deliver catalytic & transformative resilience in the energy sector. The infrastructure risks highlighted in this report offer unique investment opportunities. The rapid rate of ice loss today means there's no time to waste – so take action with our 5 opportunities to lead in transition & adaptation.

## Quick access – Key takeaways

- Executive Summary
- 5 Reasons why the inability to peak oil by 2030 will unleash rapid SLR
- 5 Opportunities for Asia to lead in transition & adaptation
- 5 to-do's for the financial sector

# About CWR

**China Water Risk (CWR):** CWR is a non-profit think tank that aims to create a world where water and climate risks are embedded in business & finance. Since its launch in 2011, it has worked from its Hong Kong base to engage with global business and investment communities in understanding and managing various types of water and climate risks in China and across Asia. CWR's collaborative reports with financial institutions, IGOs, scientists as well as government related bodies have been considered ground-breaking and instrumental in understanding Asia's water challenges. They have helped inform better decision-making today for a water secure tomorrow. Join the conversation at **www.chinawaterrisk.org**

**ASSESS**
Understand the new risk landscape | Assess water & climate threats | Identify clustered risk hotspots & compound risks

**STRATEGIZE**
Align ESG & risk strategies | Plan sensible net zero & resilience strategies | Leverage risks to identify opportunities

**ADAPT**
Protect & prepare for locked-in climate impacts | Ideate flexible innovations | Be ready to survive & thrive

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