



Sayı : 38591462-010.07.03-2022-2108

30.05.2022

Konu : Yenilenebilir Enerji Hakkında ICS Basın Bülteni

Sirküler No: 420

Sayın Üyemiz,

Uluslararası Deniz Ticaret Odası (International Chamber of Shipping-ICS) tarafından Odamızla gönderilen, 16.05.2022 tarihli Ek'te sunulan yazda; 17.05.2022 tarihinde gerçekleştirilen Dünya Limanlar Konferansı'nda yayımlanan "Dördüncü Sevk Sistemi Devrimine Yakıt Sağlamak" Özeti Raporu ve rapora ait bilgiler içeren basın bülteni yer almaktadır.

Denizcilik sektörünün dekarbonizasyonu, net sıfır karbonlu yakıtların üretilmesi, yaygınlaştırılması, sektör paydaşları açısından oluşacak fırsatlar hakkında bilgiler ve Uluslararası Enerji Ajansı'nın (International Energy Agency-IEA) konuya yönelik çalışmalarını içeren Özeti Raporu kapsamında ICS tarafından hazırlanan basın bülteni ve Türkçe tercümesi Ek'te sunulmaktadır.

Bilgilerinize arz/rica ederim.

Saygılarımla,

e-imza
İsmet SALİHOĞLU
Genel Sekreter

Ek:

- 1- Basın Bülteni Türkçe Tercümesi (2 sayfa)
- 2- ICS'in Yazısı (2 sayfa)
- 3- Basın Bülteni (2 sayfa)
- 4- "Dördüncü Sevk Sistemi Devrimine Yakıt Sağlamak" Özeti Raporu (12 sayfa)

Dağıtım:

Gereği:

- Tüm Üyeler (WEB sayfası ve e-posta ile)
- İMEAK DTO Şube ve Temsilcilikleri
- Türk Armatörler Birliği
- S.S. Armatörler Taşıma ve İşletme Kooperatif
- GİSBİR (Türkiye Gemi İnşa Sanayicileri Birliği)
- Derneği
- Gemi, Yat ve Hizmetleri İhracatçıları Birliği
- VDAD (Vapur Donatanları ve Acenteleri Derneği)
- TÜRKLİM (Türkiye Liman İşletmecileri Derneği)
- KOSDER (Koster Armatörleri ve İşletmecileri Derneği)
- GBD (Gemi Brokerleri Derneği)

Bilgi:

- Yönetim Kurulu Başkan ve Üyeleri
- İMEAK DTO Şube YK Başkanları
- İMEAK DTO Çevre Komisyonu
- İMEAK DTO Meslek Komite Başkanları

Bu belge, 5070 sayılı Elektronik İmza Kanuna göre Güvenli Elektronik İmza ile İmzalanmıştır.



Evrakı Doğrulamak İçin : <https://ebys.denizticaretodasi.org.tr/enVision/Dogrula/BSP6USHL4>
 Bilgi için: Alper MERGEN Telefon: 0212 252 01 30/246 E-Posta: alper.mergen@denizticaretodasi.org.tr
 Meclis-i Mebusan Caddesi No:22 34427 Fındıklı-Beyoğlu-İSTANBUL/TÜRKİYE
 Tel : +90 (212) 252 01 30 (Pbx) Faks: +90 (212) 293 79 35
 Web: www.denizticaretodasi.org.tr E-mail: iletisim@denizticaretodasi.org.tr KEP: imeakdto@hs01.kep.tr





- ROFED (Kabotaj Hattı Ro-Ro ve Feribot İşletmecileri Derneği)
- Yalova Altınova Tersane Girişimcileri San.ve Tic.A.Ş.
- UTİKAD (Uluslararası Taşımacılık ve Lojistik Hizmet Üretenleri Derneği)
- Türk Uzakyol Gemi Kaptanları Derneği
- GEMİMO (Gemi Makineleri İşletme Mühendisleri Odası)
- TMMOB GMO (Gemi Mühendisleri Odası)
- İstanbul Üniversitesi DUİM-MED

Bu belge, 5070 sayılı Elektronik İmza Kanuna göre Güvenli Elektronik İmza ile İmzalanmıştır.

AKREDİTE

ODA



Odamızda

ISO 9001:2015

KALİTE

YÖNETİM

SİSTEMİ

Uygulanmaktadır

Evrakı Doğrulamak İçin : <https://ebys.denizticaretodasi.org.tr/enVision/Dogrula/BSP6USHL4>
 Bilgi için: Alper MERGEN Telefon: 0212 252 01 30/246 E-Posta: alper.mergen@denizticaretodasi.org.tr
 Meclis-i Mebusan Caddesi No:22 34427 Fındıklı-Beyoğlu-İSTANBUL/TÜRKİYE
 Tel : +90 (212) 252 01 30 (Pbx) Faks: +90 (212) 293 79 35
 Web: www.denizticaretodasi.org.tr E-mail: iletisim@denizticaretodasi.org.tr KEP: imeakdto@hs01.kep.tr

Odamızda

Sıfır Atık Yönetimi

Sistemi

Uygulanmaktadır.



Denizcilik Sektörünün Gelecekteki Yakıt Talebinin Tüm Mevcut Küresel Yenilenebilir Enerji Üretimine Eşit Olduğu Yeni Veriler Dahilinde Belirtilmektedir

Ek-1

- Yayınlanan “Dördüncü Sevk Sistemi Devrimine Yakıt Sağlamak” konulu rapora göre, denizcilikte yenilenebilir bazlı yakıtlara olan büyük ve acil ihtiyaç, yatırımcılar için bir fırsat sunuyor.
- Rapora göre, 2050 yılına kadar yeşil altyapıya yapılacak yatırımla deniz taşımacılığının dünyadaki net sıfır yakıtın yarısından fazlasını taşıyacağı tahmin ediliyor.
- “Küresel Güney” bölgesi özelindeki fırsatlar çerçevesinde, net sıfır emisyonlu yakıt üretim maliyetlerinin Latin Amerika ve Afrika’da %20’ye kadar daha düşük olması bekleniyor.

Açıklanan yeni verilerle, küresel denizcilik sektörünün fosil yakıt kullanımını yerine dünyanın mevcut tüm yenilenebilir enerji talebinin eşdeğerine ihtiyaç duyulacağı ortaya koyulmuştur.

Uluslararası Denizcilik Örgütü tarafından Almanya Uygulamalı Bilimler Üniversitesi’nden Prof. Dr. Stefan ULREICH’e hazırlattırılan “Dördüncü Sevk Sistemi Devrimine Yakıt Sağlamak” konulu raporda, küresel denizcilik sektörünün yeni ve yeşil yakıtlara olan ihtiyacının yatırımcılar ve hükümetler için “muazzam bir fırsat” olduğu vurgulanmaktadır.

Bahse konu raporda, denizcilik sektörünün 2050 yılı net sıfır emisyon hedefine ulaşmasına yönelik olarak deniz taşımacılığı yakıt ihtiyacının karşılanması için yenilenebilir kaynaklardan elde edilen elektriğin 3.000 TWh’ye kadar artması gerekeceği belirtilmektedir. Bu miktar tüm dünyanın mevcut yenilenebilir enerji üretimine eşdeğer olduğu bilinmektedir.

Uluslararası Enerji Ajansı’nın (IEA) 2050 yılına kadar Net Sıfır Emisyon ullaşmak için ortaya koyduğu senaryoya göre, dünyanın mevcut yenilenebilir üretim kapasitesinde 18 kat artıça ihtiyaç duyulmaktadır.

Küresel hidrojen ticaretini örnek alan söz konusu raporda, özellikle Küresel Güney’deki ihracatçı ve ithalatçı ülkeler için önemli potansiyel faydalar belirlenmiştir. Bu duruma, dünya genelinde bu tür yakıtların beklenen üretim maliyeti farklılıklarını (2050 yılında 72,60 €/MWh ile 156,40 €/MWh aralığında olması beklenmektedir) neden olarak gösterilmektedir.

Maliyet aralığı, hidrojen yakıtlarının üretiminde ihtiyaç duyulan elektriği çok daha düşük maliyetle üretebilen birçok Afrika ve Latin Amerika ülkesinde güneş ve rüzgar enerjisi gibi yenilenebilir potansiyelin yüksek olduğunu yansımaktadır.

Söz konusu raporda, hidrojen yakıtlarının üretimi konusunda çok sayıda ikili anlaşma imzalayan Almanya, Cezayir ve Şili dahil olmak üzere bu yatırım fırsatlarını değerlendirmek isteyen ilk ülkeler listelenmiştir.

Kanada, Vancouver’daki Dünya Limanlar Konferansı’nda tanıtımı yapılan “Dördüncü Sevk Sistemi Devrimine Yakıt Sağlamak” raporunda, acilen yeşil yakıtlarda Ar-Ge’nin artırılması ve özellikle Latin Amerika ve Afrika gibi önemli coğrafi bölgelerde üretim altyapısının geliştirilmesi gereği ifade edilmektedir.

Tahminler, dünya çapında kıyı bölgelerinde net sıfır karbon yakıtları için 10.000 TWh'den fazla üretim potansiyeli olduğunu göstermektedir. Bu alanlardaki yatırımları, ülkelerin ikili anlaşmalarında mevcut olan potansiyel kazanımları gerçekleştirmelerine yardımcı olmanın anahtarı olarak denizcilik görülmektedir.

Günümüze kadar, sıfır emisyonlu teknolojilere yatırım eksikliği devam etmektedir. IEA tarafından, denizcilik sektörüne yönelik, 2017 yılında 2,7 milyar dolar tutarında olan toplam kurumsal Ar-Ge yatırımının 2019 yılında da 1,6 milyar dolara düştüğünü vurgulanmaktadır.

Bunun yanı sıra, Uluslararası Yenilenebilir Enerji Ajansı'na (International Renewable Energy Agency-IRENA) göre, 2050 yılına kadar, küresel olarak ticareti yapılan net sıfır emisyonlu yakıtların en az yarısının gemiler tarafından taşınması beklenmektedir.

Sayın ULREICH; “*Küresel Kuzey'deki hidrojen bazlı yakıtlara yönelik muazzam talebi karşılamak için, Küresel Güney'deki üretim merkezlerine acilen ihtiyaç duyulmaktadır. Hükümetler, hidrojen gibi yakıtlara geçiş ihtiyacını fark etmeye başlarken, bugüne kadar bu yakıtlara gerçekte nasıl geçiş yapacakları konusunda çok az düşünülmüş görünüyor. Deniz taşımacılığı, enerji geçiş müzakerelerinde daha fazla pay sahibi olmalıdır. Deniz taşımacılığı ve limanlar yatırıma ihtiyaç duyacak. Ancak bu yatırımla birlikte büyük bir geri dönüş fırsatı geliyor*” açıklamasında bulunmuştur.

Uluslararası Deniz Ticaret Odası Strateji ve İletişim Direktörü Sayın Stuart NEIL; “*Deniz taşımacılığı, dünya çapında ticareti yapılan net sıfır karbonlu yakıtların en az yarısının taşınması için uygun maliyetli ve esnek çözümler sunarak, küresel enerji dönüşümünün önemli bir kolaylaştırıcısı olacaktır. Denizcilik dışında sıfır emisyonlu yakıtlara küresel enerji geçiş hakkında çok şey konuşuluyor. Ancak bu raporda herkes için muazzam bir fırsat olduğu görülmüyor*” açıklamasında bulunmuştur.



Shaping the Future of Shipping

Walsingham House
35 Seething Lane
London
EC3N 4AH

Tel +44 20 7090 1460

info@ics-shipping.org | ics-shipping.org

This Circular and its attachments (if any) are confidential to the intended recipient and may be privileged. If you are not the intended recipient, you should contact ICS and must not make any use of it.

16 MAY 2022

COMMUNICATIONS(22)21

TO: COMMUNICATIONS STRATEGY WORKING GROUP

**COPY: COMMUNICATIONS LEADS
ALL FULL AND ASSOCIATE MEMBERS
BOARD MEMBERS
SHIPPING POLICY COMMITTEE
MARINE COMMITTEE
LONG TERM MEASURES WORKING GROUP**

EMBARGOED PRESS RELEASE: New data shows future-fuel demand for shipping industry equal to entire current global production of renewables

Action Required: ICS kindly invites you to take note of the embargoed press release, new data shows future-fuel demand for shipping industry equal to entire current global production of renewables.

Further to our discussion at the last Communications Strategy Working Group meeting and our previous discussions about the latest report on the Fourth Propulsion Revolution series please find at **Annex A** an embargoed version of the Fuelling the Fourth Propulsion Revolution report which will be launched on 17 May to coincide with World Ports Summit. As discussed at our last meeting we have framed the outcomes of the research as an opportunity for the industry and the wider energy and infrastructure value chain. The key finding which is new is the amount of renewable energy demand that will be required to provide the zero emission fuels just for shipping.

We are grateful for all the inputs we have received from members, the International Energy Agency and the International Renewable Energy Agency, along with our lead author Professor Dr Stefan Ulrich.

Professor Ulrich has already presented the findings at the World Hydrogen Summit ahead of the launch and it was clear that the energy sector who are looking at producing the new zero emission fuels are not considering shipping as either an off taker or even the fact that they will need to transport these new fuels by sea.

Following the launch of the report at the World Ports Conference we will then showcase the findings at the Argus Green Marine Fuels Conference in Rotterdam. A press release is being issued, at **Annex B**, and we will use this as a key input to the Shaping the Future of Shipping Conference in June. This summary report and the full report will be available on the ICS

website from the 17th along with pdf's of the graphics in the summary report. We will also work on a presentation for members which will be distributed shortly to aid the engagement with policymakers and the energy sector so that they consider the needs of the maritime sector and particularly shipowners in their planning and investment considerations.

Thank you for your continued support as we deliver on the ICS Communications Strategy.

[COMMUNICATIONS\(22\)21 -Annex A - Fuelling the Fourth Propulsion Revolution_ Summary Report - embargoed review copy](#)

[COMMUNICATIONS\(22\)21 -Annex B -Embargoed -FFPR - press release for media May 2022](#)

For any further information contact stuart.neil@ics-shipping.org

Stuart Neil
Director of Strategy and Communications

New data shows future-fuel demand for shipping industry equal to entire current global production of renewables

- Huge and immediate need for renewable-based fuels in shipping represents opportunity for investors, according to 'Fuelling the Fourth Propulsion Revolution' report released today.
- Investment in green infrastructure key, as shipping will carry more than half of the world's net-zero fuels by 2050, report estimates.
- Particular opportunity for the Global South identified as net-zero fuel production costs expected to be up to 20% lower in Latin America and Africa.

London, UK. Vancouver, Canada. 17th May 2022. New data released today has revealed how the global shipping industry will require the equivalent of the world's entire current renewable energy demand in order to replace fossil fuel use.

'Fuelling the Fourth Propulsion Revolution', authored by Professor Dr. Stefan Ulreich from Germany's University of Applied Sciences, and commissioned by the International Chamber of Shipping, highlighted the 'enormous opportunity' for investors and governments represented by the global shipping industry's need for new, green fuels.

To reach the industry's 2050 (net) zero goal, shipping's fuel needs would require electricity from renewable sources to increase by up to 3,000 TWh, the [report](#) showed. This is the equivalent of the entire world's current renewable energy production.

It found that to achieve the IEA's Net Zero Emissions by 2050 scenario, the world would need an 18-fold increase in existing renewable production capacity.

Taking the global trading of hydrogen as an exemplar, the report identified substantial potential benefits for exporting and importing countries, particularly in the Global South. This is due to the expected production cost differentials of such fuels across the world (expected range of €72.60/MWh to €156.40/MWh in 2050).

The cost range reflects the abundance of renewable potential, such as solar and wind power, in many African and Latin American countries, which can generate the electricity needed in the production of hydrogen fuels at much lower cost.

The report identified the first movers who are looking to seize these investment opportunities, including Germany, Algeria, and Chile, who have signed multiple bilateral agreements on the production of hydrogen fuels (seen as key for powering ships).

Unveiled at the World Ports Conference in Vancouver, Canada, 'Fuelling the Fourth Propulsion Revolution' urgently calls for increased R&D in green fuels, and to specifically develop production infrastructure in key geographic locations such as Latin America and Africa.

Estimates show a production potential of more than 10,000 TWh for (net) zero carbon fuels in coastal regions worldwide. Shipping views investment in these areas as key to helping countries realise the potential gains present in their bilateral agreements.

Up to this point, there continues to be a lack of investment in zero-emission technologies, with the IEA highlighting that the total amount of corporate R&D investment for maritime has decreased, from \$2.7 billion in 2017 to \$1.6 billion in 2019.

Under embargo to Tuesday 17th May 2022

Yet by 2050, at least half of (net) zero fuels traded globally are expected to be moved by ships, according to the International Renewable Energy Agency (IRENA). Today's report indicates that this makes maritime a key enabler of the decarbonisation of land-based industrial sectors.

The report's author, Prof. Dr. Stefan Ulreich of the University of Applied Sciences Biberach, Germany, said:

"To meet the enormous demand for hydrogen-based fuels in the Global North, production centers in the Global South are urgently needed.

"While governments are beginning to realise the need to transition to fuels like hydrogen, little thought to date seems to have been given to how they will actually transport those fuels.

"Shipping must be part of wider energy transition negotiations, and shipping and ports are going to need investment. But with this investment comes huge opportunity for return."

Stuart Neil, Director of Strategy and Communications at the International Chamber of Shipping said:

"Shipping will be a key enabler of the global energy transition, providing cost effective and flexible solutions to transport at least half of the net zero carbon fuels traded around the world.

"A great deal is talked about the global energy transition to zero emission fuels outside of shipping. But what we have found in this report is that there is a tremendous opportunity for all."

ENDS

Notes to editors

Full report available [here](#).

About ICS

The International Chamber of Shipping (ICS) is the principal international trade association for merchant shipowners and operators, representing all sectors and trades and over 80% of the world merchant fleet.

Media Contact:

Duncan Bray

Tel.: +44 (0) 7972 224445

Email: ICS@woodrowcommunications.com



Fuelling the Fourth Propulsion Revolution

An Opportunity for All



SUMMARY REPORT

May 2022

“Shipping will be a key enabler of the global energy transition, providing cost effective and flexible solutions to transport at least half of the (net) zero carbon fuels traded around the world.”

“Decarbonisation and the creation of (net) zero carbon fuels presents a massive economic opportunity for shipowners, companies and countries, as fuel producers, importers and exporters.”

“An opportunity for all”



Introduction

Decarbonisation and the creation of (net) zero carbon fuels presents a significant economic opportunity for shipowners, companies and countries, as fuel producers, importers and exporters.

This summary report outlines how shipping will play a fundamental role in delivering these fuels globally and act as an enabler for governments and industries to achieve their climate targets.

It showcases why the maritime industry must be included in international decarbonisation plans and have access to the same (net) zero carbon fuels they will be transporting to decarbonise; the world's renewable energy generation would need to increase up to 100% just to supply enough (net) zero carbon fuel to power the shipping industry.

The enormous scale of the opportunity and transformation of the fourth propulsion revolution for governments, ports, developing economies, and key maritime stakeholders is laid out in this summary report.

This research was created in collaboration with author Professor Dr Stefan Ulreich, University of Applied Sciences, Biberach, Germany and Chair of the Task-force Renewables of the European Federation of Energy Traders. ICS is also grateful to the following people and organisations for their input and peer review of this report:

- Roland Roesch, Deputy Director at the Innovation and Technology Center and Gabriel Castellanos, International Renewable Energy Agency (IRENA).
- Araceli Fernandes, Jose Miguel Bermudez and Elizabeth Connelly, International Energy Agency (IEA).

Read the full report:

www.ics-shipping.org/publication/fuelling-the-fourth-propulsion-revolution-full-report

This is a follow up to the [Catalysing the Fourth Propulsion Revolution](#) report published by ICS in 2020.

ICS signed a [Partnership Agreement](#) with the International Renewable Energy Agency (IRENA) in January 2022.



Executive Summary

The UNFCCC Paris agreement of 2015 aims for global climate-neutrality by the middle of this century. The global shipping industry has pledged to achieve net-zero CO₂ emissions by 2050, meaning that the fourth propulsion revolution will be green. The transition to new fuels presents enormous opportunities as well as critical transformational challenges for all segments of the global economy.

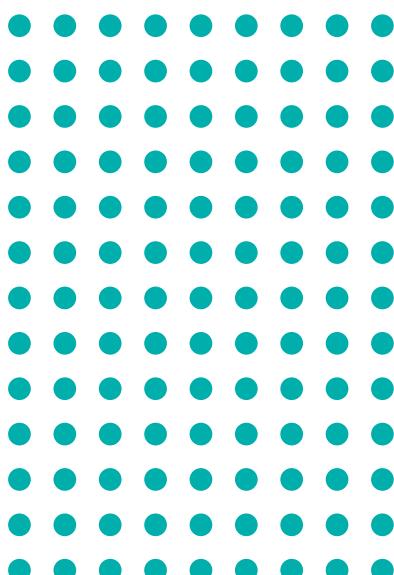
Current geopolitical tensions are creating fuel supply uncertainty and heightening energy security concerns. This increases the pressure to accelerate the transition to green fuels, as well as establish alternative fuel hubs and routes to increase resilience. Governments, ports, developing economies, and key stakeholders that create renewable energy supply centres and production hubs will benefit greatly from early mover advantage.

The International Energy Agency's (IEA) [Net Zero Emissions by 2050](#) scenario says to decarbonise the world, global electricity demand will increase to 60,000 TWh, up from 23,230 TWh in 2020. Shipping will not only be a consumer of (net) zero emission carbon fuels to meet decarbonisation targets, but is critical for transportation of green fuels as it is the most economical option over long distances (above 10,000km). At least half of (net) zero fuels are expected to be moved by ships, according to the International Renewable Energy Agency (IRENA), making maritime a key enabler of the decarbonisation of land-based industrial sectors.

However, maritime decarbonisation is highly dependent on the transition speed of energy producers, in terms of building renewable energy production facilities ashore at scale, catalysts such as global levies needed to accelerate production of fuels at scale, as well as with updated infrastructure at ports.

Governments and industry must act now to ensure that their energy transition plans account for and support the vital role that shipping will play in delivering renewable energy and hydrogen plans. Policy, funding and actions must combine to create an easy path towards the green propulsion transition. This is where development finance can play a significant role in de-risking the much needed investment required to move to a (net) zero carbon fuel future.

This research has looked to identify the amount of electricity needed to produce (net) zero carbon fuels for maritime use as part of the wider global energy transition. For shipping's (net) zero carbon fuel needs, electricity from renewable sources used to supply shipping would need to increase by up to 3,000 TWh. This would require the equivalent of all of the world's current renewable energy production just to provide shipping's fuel needs.



Key takeaways

1

Producing (net) zero carbon marine fuels, especially close to ports, will create a significant opportunity for renewable energy producers

It could require the equivalent of all the world's current renewable energy production just to supply shipping's (net) zero carbon fuel needs.

2

Shipping will have a multi-fuel future

No one fuel can replace current fossil fuels for maritime and decarbonising will require a mix of bio-fuels, e-fuels, natural gas and hydrogen derivatives such as ammonia and methanol.

3

High demand for (net) zero carbon fuels presents opportunities for the global south

Developing economies are well-placed to become fuel suppliers and exporters of (net) zero carbon fuels but must move quickly to gain early mover advantage and will need support from the international community for capacity building and access to finance.

4

Renewable energy production of (net) zero carbon fuels provides economic opportunities for all

Investors should be confident in opportunities for (net) zero carbon fuel production as the demand for hydrogen-based solutions is expected to increase strongly in many industrialised countries with strong green policies, that do not have the potential to produce enough renewable hydrogen for their own needs.

5

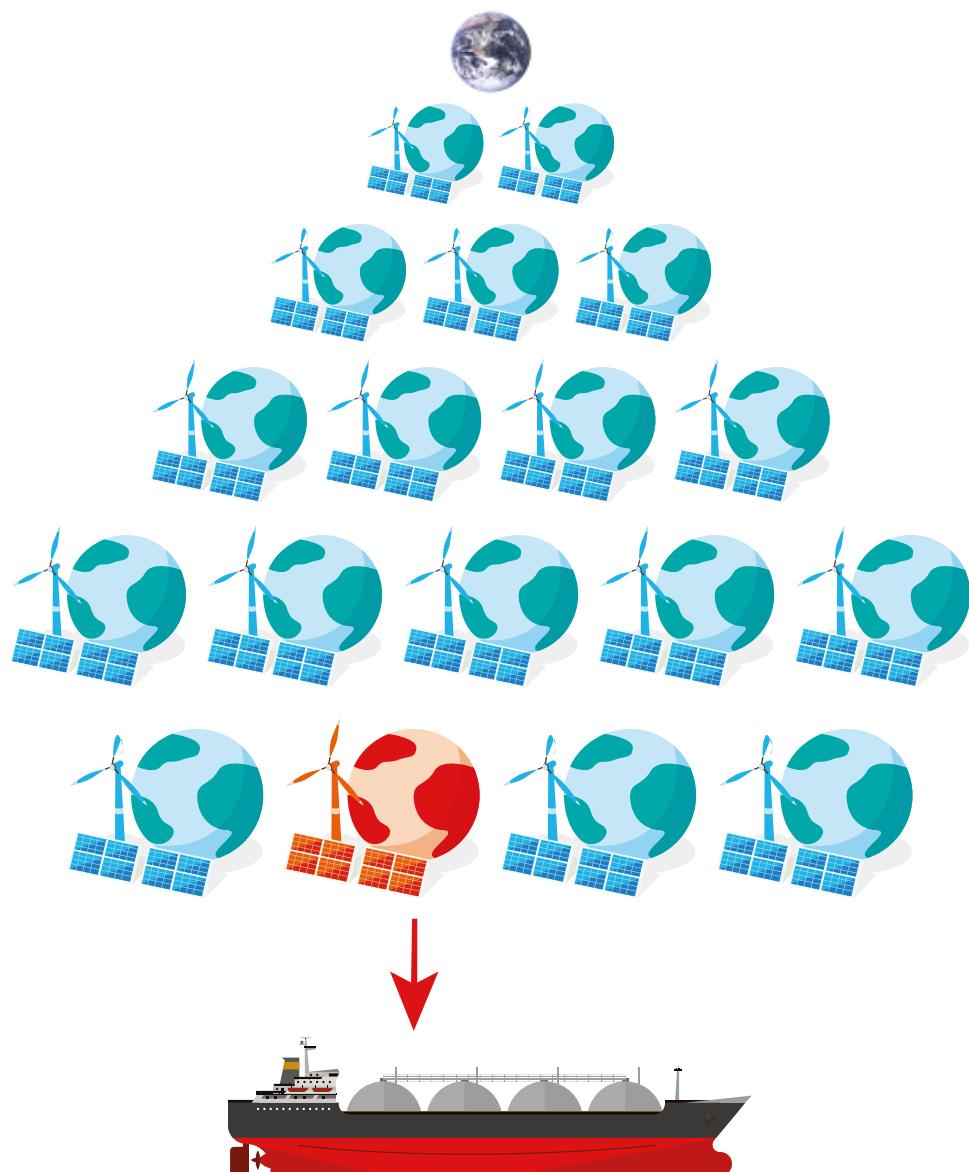
Invest in infrastructure and research, development and demonstration now or economic gains will be minimised

Early mover advantage is vital and all stakeholders, including governments, ports, fuel suppliers and industry must invest now to ensure a stable supply of (net) zero carbon fuels.

1 Replacing conventional marine fuels with (net) zero carbon fuels, especially close to ports, will create a significant opportunity for renewable energy producers and stakeholders

(Net) zero carbon fuels such as hydrogen-based fuels are expected to become an essential part of the climate-neutral maritime fuel mix in coming decades. Renewable electricity production must be rapidly increased to capitalise upon this opportunity and ensure fuel security for maritime, which will underpin the decarbonisation of other land-based industries. It is crucial for shipping that production facilities for new fuels are within easy access of ports and new bunkering hubs are established to ensure shipping can access and deliver (net) zero fuels globally.

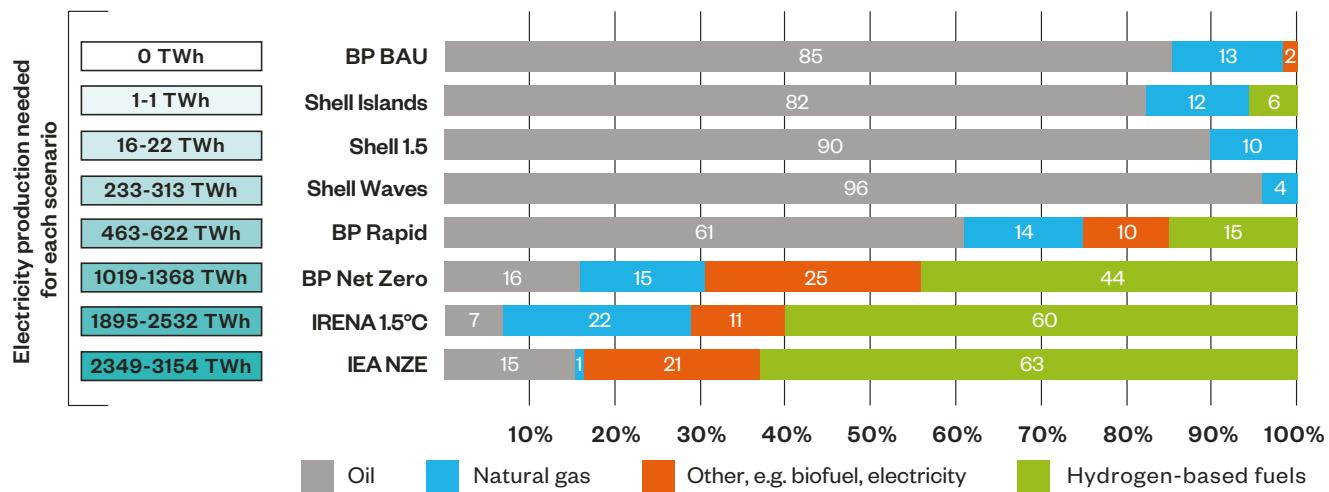
The scale and challenge to supply alternative fuels to decarbonise the shipping sector is often underestimated. To supply shipping's (net) zero carbon fuel needs (as outlined in International Energy Agency and IRENA scenarios), electricity from renewable sources used to supply shipping would need to increase by up to 3,000 TWh considering expected technology efficiencies by 2050. This could require the equivalent of all of the world's current renewable energy production just to provide shipping's fuel needs.



To achieve the IEA's Net Zero Emissions by 2050 scenario we would need an 18-fold increase in the world's existing renewable production capacity. Shipping would require the equivalent of one of these worlds to meet its own renewable energy needs.

2 The decarbonisation of shipping will have a multi-fuel future

The maritime industry's green transition will take time and consist of a multi-fuel future as there is no single replacement for affordable and readily available current fossil fuels. Biofuels, e-fuels, natural gas and hydrogen derivatives are all likely to play a role in the future fuel mix for shipping. New production ecosystems must be built rapidly across the globe to meet decarbonisation goals. A global carbon levy would be an effective tool to reduce the enormous costs of a large-scale transition away from fossil fuels.



Various scenarios of fuel mixes for maritime shipping in 2050

Note: Each scenario is explored in detail in the full version of this report

Sources: International Energy Agency (IEA), Shell, BP and International Renewable Energy Agency (IRENA).

Using and transporting these new fuels comes with significant operational and safety challenges which will need to be addressed. Defined and agreed global safety and sustainability standards for hydrogen-based fuels and strong safety standards for the transport and use of (net) zero fuels must be developed quickly, to keep pace with the transformation. Seafarers and those in the supply chain will need to be trained and new standards developed to maintain safety and minimise risk.

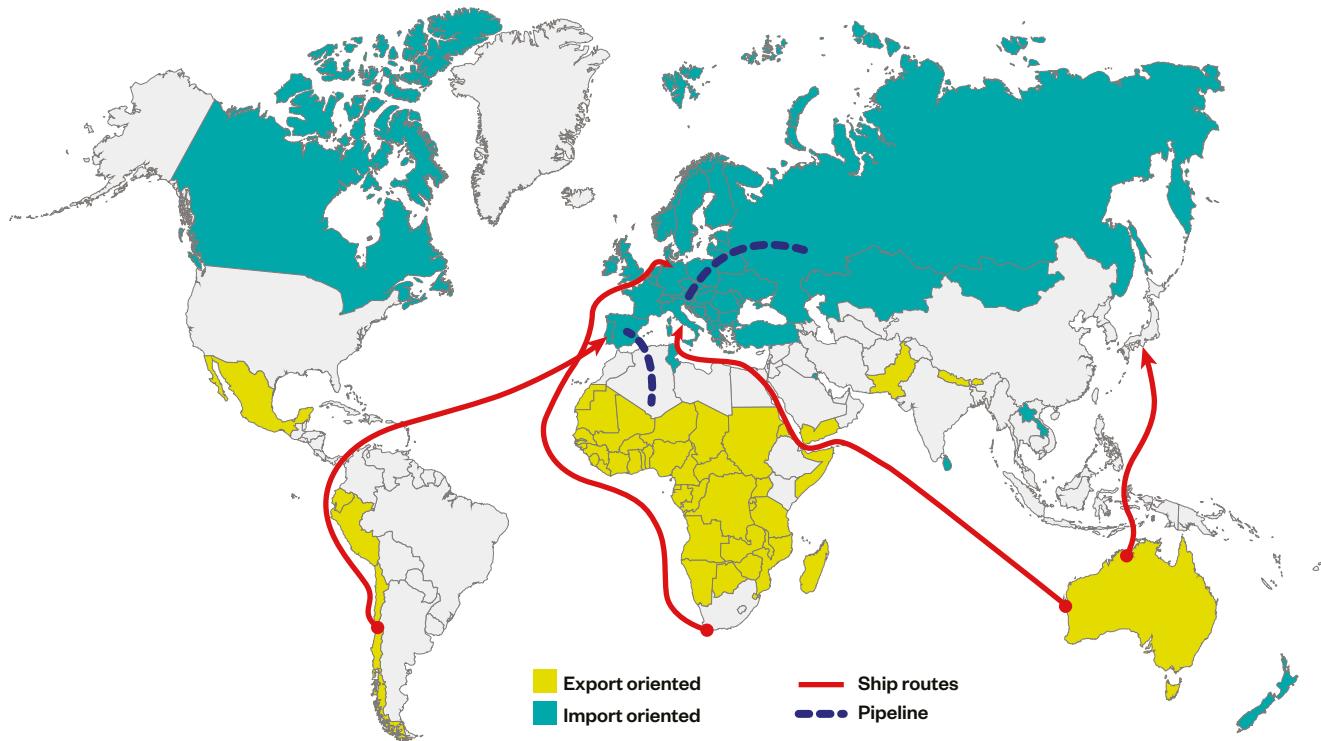
3 Supply side dynamics: High demand for (net) zero carbon fuels presents enormous economic opportunities for the global south

Developing economies are well placed to benefit economically by becoming fuel supply producers and exporters of (net) zero carbon fuels to meet high demand from Europe, North America and Asia. Shipping presents the most cost effective means to trade (net) zero carbon fuels from these supply hubs to different parts of the world over long distances.

Regions such as Latin America and Africa are expected to benefit from a 20%+ lower cost of production and transport of fuels due to the abundance of solar and wind in these regions. Existing energy hubs in the MENA region are primed to transform themselves from fossil fuel sellers to (net) zero carbon fuel supply hubs due to their excellent wind conditions and high solar radiation.

However, hydrogen and (net) zero carbon fuel facilities must be urgently developed to ensure access to a highly competitive market. In setting up these facilities location is important. Export strategies and policies, along with enhanced international cooperation agreements, must also be created rapidly. Countries such as Algeria, Argentina, Australia, Chile and Morocco have already begun this journey.

Developing economies must be supported by the international community to increase capacity building, construct necessary infrastructure and access finance to gain early-mover advantage and establish themselves as energy supply hubs in the global (net) zero fuel markets.



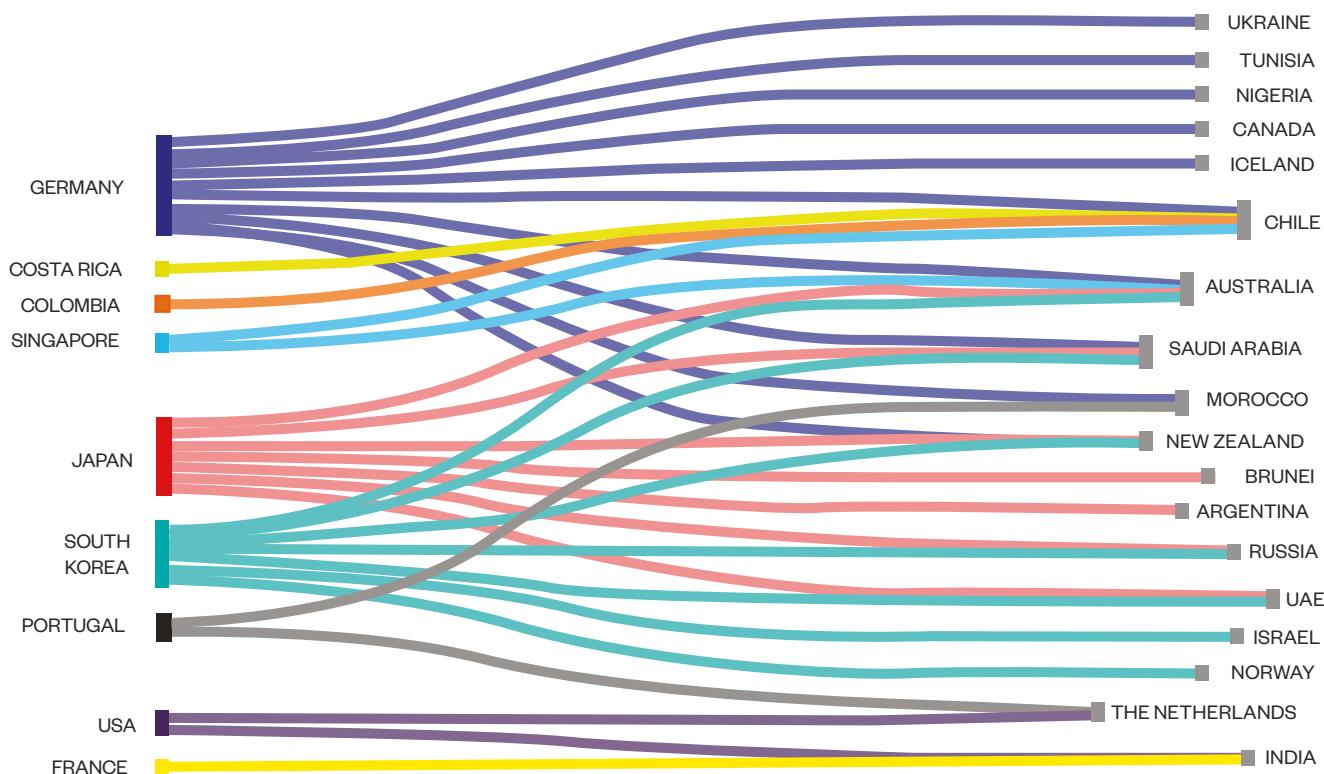
Countries that have currently identified their import/export preference. We see significant growth opportunities as countries around the world clarify their positions as they seek to enhance their energy security needs.

4 Demand side dynamics: renewable energy production poses massive economic opportunities for all stakeholders

As the (IEA) Net Zero Emissions by 2050 scenario outlines, in order to decarbonise the world, electricity demand will need to increase to 60,000 TWh, up from 23,230 TWh in 2020. Specifically, the demand for hydrogen-based solutions is expected to increase sharply from countries without the capacity to produce sufficient renewable hydrogen to meet their green targets. IEA's Net Zero Emissions by 2050 scenario states electricity demand for hydrogen production (including synthetic ammonia) is expected to be 14,500 TWh by 2050. All hard-to-abate sectors, including shipping, cement and steel, will require these fuels to reach decarbonisation targets. This should give investors confidence to back the most promising hydrogen production sites and logistics, including those in developing economies. Shipping offers the security of cost effective supply of (net) zero carbon fuels from a multitude of exporting countries to receiving countries across the globe. High fossil fuel prices – driven both by market scarcity and carbon pricing – will help to develop the hydrogen market further.

Given the expected production cost differentials across the world (expected range of €72.60/MWh to €156.40/MWh in 2050), the global trading of hydrogen could create substantial benefits for exporting and importing countries. The first international cooperation projects between countries have already been established. Over time, these bilateral initiatives should merge into a truly global, harmonised and level playing field. The global value chain can benefit from accepted global standards for contracts and quality. Most of the bilateral agreements will spur maritime transport demand as they will likely need to be shipped over long distances, whilst offering flexibility to supply and demand hubs.

Shipping's decarbonisation is deeply intertwined with the wider energy transition and the industry will compete for (net) zero carbon fuels with other sectors. Production facilities for new bunkering fuels need to be within easy access of ports, unless future technologies and bunkering systems permit otherwise. Estimates show a production potential of more than 10,000 TWh for (net) zero carbon fuels in coastal regions worldwide making the case for immediate investment.



Bilateral agreements on hydrogen.

Source: Based on the World Energy Council, National Hydrogen Strategies, 2021.

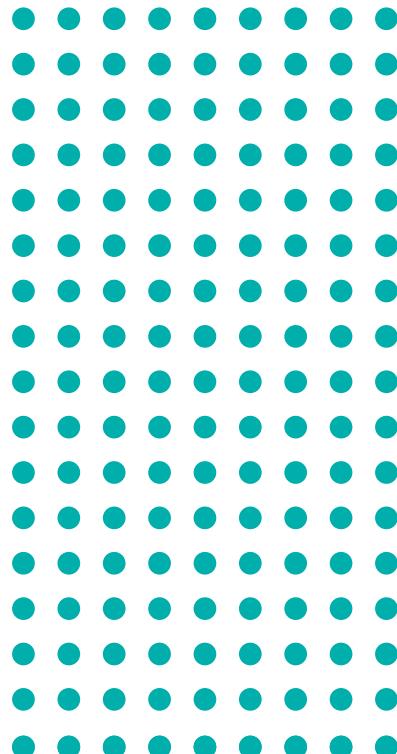
5 Invest in infrastructure and RD&D now or economic opportunities will be delayed

Substantial investment is needed to achieve the enormous potential for (net) zero carbon fuels, including hydrogen, hydrogen-based fuels and sustainable biofuels. Funding for Research, Development and Demonstration (RD&D) from both industry and the public sector, as well as for production facilities and transport infrastructure around emerging fuel hubs is imperative. Despite some promising announcements and plans, there continues to be a lack of investment in zero-emission technologies, with the IEA highlighting that the total amount of corporate R&D investment for maritime has decreased, from \$2.7 billion in 2017 to \$1.6 billion in 2019.

Fuel exporters seeking financing will want proof of a stable demand outlook for (net) zero carbon fuels, including hydrogen, in order to present bankable projects. To achieve this physical infrastructure will need to be established at pace, as well as generic trading infrastructure. The latter might already be available within existing global trading houses for commodities. To meet all these challenges coordinated global efforts are needed.

There is a significant opportunity for the development finance community to catalyse the global energy transformation and de-risk future investments. Investment in renewable projects in developing economies does not always present the scale needed to meet the requirements of development finance institutions, leading to what is sometimes referred to as a lack of bankable projects. Investing in larger scale generation, production and transportation infrastructure enables existing development finance to be unlocked creating a strong pipeline of bankable projects that meet development finance criteria. Such early investment would send a significant market signal, which can then be easily scaled when additional revenue sources are available. Without re-risking investment economic opportunity for all could be delayed.

Additional investment is key. This will accelerate technology-readiness levels, increase demonstration and deployment to reach the required scale of production, and drive down production costs of (net) zero carbon fuels within this decade.



Conclusion

It is clear that the transition to a green fourth propulsion future will be a once-in-a-generation opportunity. Shipping will be a key enabler of the global energy transition, providing cost effective and flexible solutions to transport at least half of (net) zero carbon fuels around the world by 2050. Immediate investment in technology, infrastructure and the establishment of international cooperation projects is needed. As a user and carrier of (net) zero carbon fuels, shipping will underpin and benefit from this transition – and it must be adequately supported.

The speed and scale of change cannot come at the cost of safety. Defined and agreed global safety and sustainability standards for hydrogen-based fuels and strong safety standards for the transport and use of (net) zero fuels must be developed quickly, to keep pace with the transformation. Seafarers and those in the supply chain must be trained and new standards developed to maintain safety and minimise risk.





International Chamber of Shipping

Shaping the Future of Shipping

Fuelling the Fourth Propulsion Revolution

An Opportunity for All

International Chamber of Shipping
7th Floor, Walsingham House, 35 Seething Lane, London EC3N 4AH

Telephone + 44 20 7090 1460
info@ics-shipping.org
www.ics-shipping.org

© International Chamber of Shipping 2022

Cover image: 3d rendering of a liquid hydrogen renewable energy ship, Shutterstock

In collaboration with Professor Dr Stefan Ulreich, University of Applied Sciences, Biberach, Germany

While the advice given in this Report has been developed using the best information available, it is intended purely as guidance to be used at the user's own risk. No responsibility is accepted by Marisec Publications or by the International Chamber of Shipping or by any person, firm, corporation or organisation who or which has been in any way concerned with the furnishing of information or data, the compilation, publication or any translation, supply or sale of this Report for the accuracy of any information or advice given herein or for any omission herefrom or from any consequences whatsoever resulting directly or indirectly from compliance with or adoption of guidance contained therein even if caused by a failure to exercise reasonable care.

International Chamber of Shipping
7th Floor, Walsingham House, 35 Seething Lane,
London EC3N 4AH

Telephone + 44 20 7090 1460
info@ics-shipping.org
www.ics-shipping.org

Stay updated with ICS news,
events and publications:
www.ics-shipping.org/sign-up