

# **Energy & Climate Watch**

## The 'race to net zero' is on

- The IEA's net zero pathway to 2050 lays out clear, and in some cases immediate, implications for the energy sector
- The implied actions and milestones could become new 'anchors' for sentiment among several actors
- Report is the first of several that will likely set tone for climate talks later this year, with a focus on need for urgent action

An energy pathway for net zero by 2050 with clear implications for oil & gas: The IEA's "Net Zero Emissions by 2050" scenario (published on 18 May 2021) provides one of the most detailed energy system pathways that aims to bring energy-related emissions down to net zero by 2050. This is two decades earlier than the more commonly referenced date of 2070 (which would deliver the goals of the Paris Agreement) and reflects the rising climate ambitions among countries, companies and investors. While it draws on some well-known decarbonisation traits – such as pushing clean energy deployment and ramping up technology innovation – it also takes a markedly more bearish view on the need for new future fossil fuel supply investment. The scenario details that the world needs no new upstream oil & gas project sanctions beyond 2021, and outlines a materially diminished future role for fossil fuels to reach net zero in 2050; starting almost immediately.

**It's not a forecast, but crucially demonstrates technical feasibility:** The IEA pathway is very ambitious, contains significant uncertainties and pushes the limits of the speed and scale of global climate action; but it is deliverable. Crucially, it highlights that a 2050 net zero energy system is technically feasible, if action is taken both swiftly and broadly. This implies that that what is missing is sufficient ambition and conviction to act – a notion could that could serve as a relevant backdrop for whether credible national climate commitments are put forward at COP26 in November this year, and followed up with policy frameworks that deliver.

**Findings could shape attitudes of policymakers, corporates and investors:** It can be argued that the IEA's net zero pathway will carry more weight than previous similar works, given the institution's role in global energy analysis. Many actors use its scenarios to benchmark and check consistency of actions, policies and strategies with global climate targets. With the new pathway detailing a set of granular milestones to meet a net zero ambition, we believe it could influence thinking in policy design, corporate strategies as well as investor efforts to align with climate goals – and with it potentially creating new expectations.

The first of a number of flagship climate releases in a busy climate year: In a year that is set to be crucial for shaping the global trajectory on climate action for many years, the new IEA pathway gives the clearest description of 'how' to get to a net zero energy system. It is likely to be viewed in parallel with the forthcoming latest iteration of The Intergovernmental Panel on Climate Change's (IPCC) work on the potential implications of climate change for the world. Both pieces, among others, are likely to frame the rounds of debate on climate set to take place globally in 2021.

This is an abridged version of a report by the same title published on 20-May-21. Please contact your HSBC representative or email <u>AskResearch@hsbc.com</u> for more information.

## **Disclosures & Disclaimer**

This report must be read with the disclosures and the analyst certifications in the Disclosure appendix, and with the Disclaimer, which forms part of it.

Free to View Equities & Climate - Energy

Tarek Soliman\*, CFA Analyst HSBC Bank plc

Gordon Gray\* Global Head of Oil and Gas Equity Research HSBC Bank plc

#### Wai-Shin Chan, CFA

Head, Climate Change Centre; Head, ESG Research The Hongkong and Shanghai Banking Corporation Limited

\* Employed by a non-US affiliate of HSBC Securities (USA) Inc, and is not registered/ qualified pursuant to FINRA regulations

Issuer of report: HSBC Bank plc

View HSBC Global Research at: https://www.research.hsbc.com



# Threading the net zero needle

- IEA scenario highlights that net zero energy by 2050 is feasible, but challenging...
- Absence of need for new fossil fuel supply investment could increase scrutiny of some company and country 'net zero' strategies
- In crucial year for climate efforts, it could influence several strands of the debate, setting new expectations around action and urgency

## Demanding, ambitious, unparalleled, transformational, formidable

The IEA's net zero scenario is designed to provide clarity around the practicalities of increased climate ambition

Narrow, but achievable, is how the IEA described its pathwayto delivering a net-zero energy system within 30 years, to limit global warming to 1.5°C, as part of its "*Net Zero Emissions by 2050*" report of 18 May 2021. The main thrust of the piece follows a well-trodden path for ambitious energy-climate scenarios – more technology innovation and massive clean energy deployment, coupled with an accelerated phase-out of fossil fuels. However, certain headline findings (such as the immediate negative implications for global upstream oil & gas investment) can be described as 'new', and the granularity of the pathway provides an expanded and clearer list of actions and milestones dates for parties to consider on a journey to net zero.

## IEA's three-point plan for net zero by 2050

- 1. Push existing decarb onisation measures to their maximum namely, activity in clean electricity (wind & solar), energy efficiency and electric vehicles needs to step up markedly
- 2. Ramp-up innovation efforts to bring developing technologies up to scale deployment spending on the likes of hydrogen, carbon capture, synthetic fuels and bioenergy
- 3. Sharp and almost immediate reduction in fossil fuel consumption and investment this extends across oil, natural gas and coal and calls for halting of new incremental project sanctioning beyond what is currently approved

The scenario is not without its pre-conditions and significant asks; for example, it needs: 1) global energy spending to increase markedly; 2) climate action ambition to both rise and be followed with conviction; 3) governments, companies and citizens to commit; and 4) action to start today.

#### Its relevance

In short, the report highlights that, according to the group of leading energy experts (rather than scientists or NGOs), getting to net zero energy by 2050, with as few emissions or technological 'loopholes' as possible, can be done. While it also points to the significant actions needed to be taken, it does somewhat shift the narrative from one of technical feasibility toward a question of ambition and conviction. In doing so, it could provide a new anchor or benchmark for expectations around the future actions of countries, companies and investors, with respect to the degree of their alignment to ambitious climate mitigation goals.





## IEA net zero pathway in charts

## Global emissions to 2050 by fuel source / activity (m tonnes CO2e)

The pathway reaches 'net zero' emissions in 2050 from energy with limited need for 'negative' CO<sub>2</sub>



Surging renewables displace fossil fuels in the energy mix

Energy supply to 2050 by fuel source (%)



Source: IEA

Absolute levels of oil, natural gas and coal use fall sharply to 2050







## IEA 'net zero' by 2050 - in numbers, facts and context

Milestones, measures and facts about the IEA's pathway

- The IEA sees no new upstream oil & gas field developments required beyond those that are currently approved or sanctioned effectively declaring a near-term peak in supply
- 2050 oil demand / supply is at 24mbd, compared to around 100mbd in 2019 (ie, pre COVID-19), with OPEC's share of supply rising to over 50% (from 34% in 2020)
- The world electricity system is carbon free by 2040, with 70% electricity from wind and solar in 2050 (from c10% today)
- Spending on energy needs to rise from around USD2trn a year today to USD5trn by 2030, and shift from mostly fossil-fuel based to largely low-carbon forms
- Around 45% of emissions reductions by 2050 are to come from technologies under development today (ie, not currently at commercial scale)
- Carbon prices in developed economies reach USD130/tonne CO<sub>2</sub> by 2030 and USD250/tonne CO<sub>2</sub> by 2050 (compared to current EU prices of cEUR50/tonne CO<sub>2</sub>)
- The suite of actions needed include a number of energy demand measures that would change some everyday consumer choices (see page 7)
- The scope of the pathway covers the energy and industrial sectors, which together account for 90% of global CO<sub>2</sub> and 75% of total greenhouse gases (GHGs)
- In the scenario, the world economy in 2030 is around 40% larger than today but uses 7% less energy highlighting the (often overlooked) role of energy efficiency measures
- The cumulative emissions in the scenario are consistent with levels to limit global warming to 1.5°C with 50% probability, and limited temperature overshoot
- According to the IEA, while government net zero pledges cover around 70% of global GDP and CO<sub>2</sub> emissions, fewer than a quarter are backed by legislation or policies

#### **Comparison with HSBC scenarios and forecasts**

We compare some of the IEA's data points with HSBC's own net zero pathway and market forecasts:

- HSBC's Future Frontier scenario models global zero-carbon electricity by 2035/2050 in developed/emerging markets, respectively
- Hydrogen electrolyser capacity globally of 850GW by 2030 (HSBC's current forecast is 126GW based on the current pipeline) and 3,000GW by 2045
- Carbon capture in the IEA's pathway reaches 4Gt CO2 by 2035 and over 7.5Gt CO2 by 2050 – HSBC's current forecast is 1Gt CO2 by 2050

#### What the report is ... and what it isn't

The report outlines *one* route to net zero in the energy system, which is not exclusive, but one of many. The IEA's pathway does not rely on assumed carbon offsets outside of the energy sector, and has lower use of negative emissions technologies (like direct air capture) than other 1.5°C scenarios. It is also designed to facilitate economic growth and energy security. It achieves net zero emissions in the energy sector, but the other 25% of GHG emissions that occur in other parts of the system (eg, agriculture and land use) are not within its explicit scope. The pathway isn't a forecast or prediction, nor is it a country or company-specific decarbonisation template. It also rests on a series of assumptions that are arguably absent from today's on-the-ground reality.



How to reach net zero will likely be viewed alongside the implications of not meeting the goal...

## How the scenario's implications may shape perceptions

We consider how the IEA's findings could inform discussions across engagement and benchmarking on climate mitigation action – including among governments, corporates and investors. It can be argued that the scenario (coming from the world's leading energy institution) adds enhanced credibility to the net zero ambition narrative, and arms parties with concrete data points concerning what is needed to reach the end-goal of a fully decarbonised energy system by 2050.

With global climate talks due to take place later this year, the IEA's findings maybe seen to cover the 'what needs to be done' aspect of the climate-energy challenge. It is likely to be viewed in conjunction with the expected release of new findings from the IPCC (6<sup>th</sup> Assessment Report) around the potential impacts of not drastically curtailing global warming through sharp, and almost immediate, emissions cuts.

### Policy

At a policy forming level, the IEA's roadmap could serve to not only guide overall ambition setting at a country level but also provide a sense check that influences debates around specific measures, sayon certain fuels or technologies. For example, the role of natural gas (among others) in the EU Taxonomy for sustainable investment has been a hotly contested topic (*Financial Times*, 21 April). The new IEA pathway provides a clearer opinion around the consistency of new incremental upstream oil & gas investment (beyond currently approved projects) with net zero 2050 ambitions, which leaves significantly less scope for interpretation than previously. That is to say, while the IEA's scenario is not *the* definitive route to net zero emissions – which the European Union has legally set as its goal – it does, in our view, peg that debate closer towards one where there is notably less space for new investmentin, say, natural gas supply.

## **Company climate strategies**

Leading on from the question about how net zero pathways could form policy decisions, it is also likely to influence engagement on, and interpretation of, corporate climate strategies. As company 'net zero' ambitions have become increasingly common – particularly in emissions intensive sectors – there has been a desire by stakeholders to test the consistency of company actions and spending patterns with overarching 'net zero' ambitions. For example, we recently highlighted the fact that oil & gas company upstream investment plans could come under increasing scrutiny for their compatibility with 2050 climate goals. The IEA's energy scenarios have often served as a benchmark for assessing alignment of company strategies with emissions ambitions – the new pathway laid out by the IEA will likely serve as a more stringent hurdle for companies to demonstrate alignment with 'net zero', in our view.

#### Investor portfolio alignment efforts

Finally, investor efforts to decarbonise investment portfolios and aligning them with a high degree of climate ambition could, in the future, reference the actions and milestones of the IEA pathway as a way to judge consistency with achieving global net zero in energy by 2050.

## The feasibility question – do we have the tools that we need?

Debate has surfaced over whether net zero relies on yet-to-be invented means... Whether the world has the means required to meet net zero emissions ambitions has shot up the agenda in recent days following comments from John Kerry, US Special Presidential Envoy for Climate, which implied that around 50% of emissions reductions *"are going to come from technologies we don't yet have".* 

...and findings could pose questions for policy makers, companies and investors



Emissions reductions by technology

In practise, the comments appear to refer to technologies that are not economical or available at scale today, but that are expected to have a meaningful role in reducing future emissions (for example, direct air capture and green hydrogen). In the context of the broader discussion around the energy transition, this speaks to the need to push innovation in emerging emissions-reducing technology, while ramping up the deployment of more established options.

In the charts below, the IEA identifies that technology readiness is significantly more advanced when considering what needs to be done in the energy system by 2030 to be aligned with net zero ambitions – in theory, removing the notion of a technology-based roadblock to short-term action. Energy investments in coming years are particularly important for minimising the amount of 'locked-in' future emissions from new, long-cycled, infrastructure builds. The technology availability gap starts to appear more prominently in the following 20 years (evidenced by the fact that over 45% of emissions reductions are expected to come from currently under-developed options), which the IEA argues highlights the need for meaningful innovation in coming years.



...and while the net zero toolbox is largely known, it will need innovation

Policy support and investment will be crucial to pushing innovation in 2020s In terms of monetary amounts; the IEA points to the fact that decarbonisation technologies in areas such as electrification, hydrogen, bioenergy and carbon capture only get about a third of current public R&D funding that the more established zero-carbon electricity generation and energy efficiency technologies receive. It sees the need for up to USD90bn of public money to be allocated to demonstration projects in such emerging technologies by 2030; it estimates that less than 30% of that amount is currently accounted for in spending plans. We have previously highlighted the need for some key technologies to undergo significant deployment through policy support and corporate investment in the coming years in order to be in a position to play a meaningful role in future emissions reduction efforts.

## Is the IEA's net zero pathway realistic?

Emissions reductions by technology

One could argue that the scenario is unrepresentative of current global climateenergy decision-making A question in manyreaders' minds will be whether a feasible scenario is a realistic one. By its own admission, the IEA net zero scenario is very ambitious and requires a number of trends, attitudes and commitments to drastically divert from current states. As a long-dated modelling exercise, it also inherently contains both assumptions and uncertainties. For example, it relies on several principles, namely that the energy transition is orderly, underpinned by rational decision-making in technology choices and policy making (eg, with respect to costs and benefit trade-offs), and features global cooperation towards delivering global net zero emissions. One can reasonably argue that none of these conditions are currently representative of the energy system dynamics.



Net zero also means pushing several technologies and measures to untested levels All climate scenarios that limit warming to 1.5°C envisage significant and widespread change in the energy system with adoption levels of certain technologies at many multiples of current rates. However, compared to other prominent 1.5°C compliant scenarios, the new IEA pathway does foresee a proportionally smaller role for some (currently) less developed technologies, such as carbon capture and carbon dioxide removal. However, it sees a bigger role for others such as green hydrogen; it also relies on aggressive energy efficiency measures to help curb energy demand within the context of a growing economy and population. It takes a bullish view on how much wind and solar can power the world energy system – at around 70% of global electricity generation in 2050, a level that will seem unrealistic to many. Furthermore, while it factors in a less prominent role for bioenergy than other scenarios; the land devoted to the production of such energy would need to increase by 25% to reach 410m hectares in 2050 in its scenario (roughly equivalent to an area the size of India and Pakistan).

### A collective effort is needed across governments, corporates and citizens

The lion's share of the focus of climate-energy models has often historically been on the supply side of the energy equation – in particular, an emphasis on lowering fossil fuel production. However, as the scope of climate mitigation plans have expanded beyond the role of upstream energy actors, we have noticed an evolution of the discussion to include a broader set of participants, including the likely required actions of individuals in climate mitigation action.

We see a growing prevalence of the notion that governments need to take the imperative to shape policythat provides clarity and an acceptable risk/reward for companies to channel investment. However, this policy and corporate investment need to be met by willing consumer actions. For example, the IEA estimates that over half of the cumulative emissions reductions in its pathway are in some way linked to consumer choices such as purchasing an electric vehicle or spending to improve home energy efficiency. In addition, there is increasing evidence to suggest that certain behavioural changes in energy consumption will be needed, such as foregoing car ownership and/or using more public transport and restricting long-haul air travel.



## Net zero pathways and climate in 2021

A large part of the significance of the IEA's new report is its relevance for 2021, a crucial year for climate change ambitions. The coming months are set to build towards global climate talks at COP26, where nations are expected to revisit nationally determined contributions (NDCs) to the efforts to deliver on the goals of the Paris Agreement. Some major emitting nations have already indicated that they are revamping ambitions in advance of the conference. Scientific research around the potential impacts of climate change is also due to be updated over the course of the coming months, which will likely raise the urgency to act in discussions (see chart below).



## Climate milestones in 2021

#### The difference between 1.5°C and 2°C and the need for 'net zero' by 2050

The rise in prominence of 'net zero' emissions as a policyobjective has meant that accompanying implied actions are increasingly aggressive and ambitious. This is due to the fact that because of historical emissions, the world's temperature has alreadywarmed bymore than 1°C compared to pre-industrial levels. The more we continue to emit (current total annual GHGs are in the order of 50GtCO<sub>2</sub>e), the more needs to be done, and on a quicker timeframe, to bring emissions down to a net zero level to apply the brakes on atmospheric CO<sub>2</sub> level rises. According to scientific evidence, this reduction needs to happen in accordance with estimated 'carbon budgets' which vary according to warming limits and probability (chart below).



#### Estimated remaining global carbon budgets (cumulative emissions in GtCO<sub>2</sub>e)

Source: IPCC, IEA

Net zero by 2050 is broadly consistent with limiting warming to 1.5°C...





## HSBC's Future Frontier pathway to 2050 net-zero

## Our Future Frontiers Scenario shows how it is possible to close the gap between where we are headed and net-zero emissions by 81% by 2050



Source: UNEP. HSBC:

Note: Our Future Frontiers Scenario focuses on energy emissions, as well as emissions from non-energy industrial processes. Significant emitting sectors important to the energy transition which we do not cover include waste generation and management, water utilities, agriculture and forestry. GtCOe refers to gigatomes of carbon doxide equivalent: The United Nations Environment Programme's (UNEP) Current Policy Scenario is used as business-asusual emissions, where no further policy measures are taken to limit emissions beyond those already in place; Emissions from agriculture, waste and LUCF are capped at 2019 levels through to 2050 in our Future Frontiers scenario; Emissions reduction from the buildings sector versus 2019 level is shown at 88%, but can be described as a reduction of 96% by including indirect emissions, via decarbonised power.



# **Disclosure** appendix

## Analyst Certification

The following analyst(s), economist(s), or strategist(s) who is (are) primarily responsible for this report, including any analyst(s) whose name(s) appear(s) as author of an individual section or sections of the report and any analyst(s) named as the covering analyst(s) of a subsidiary company in a sum-of-the-parts valuation certifies(y) that the opinion(s) on the subject security(ies) or issuer(s), any views or forecasts expressed in the section(s) of which such individual(s) is (are) named as author(s), and any other views or forecasts expressed herein, including any views expressed on the back page of the research report, accurately reflect their personal view(s) and that no part of their compensation was, is or will be directly or indirectly related to the specific recommendation(s) or views contained in this research report: Tarek Soliman, CFA, Gordon Gray and Wai-Shin Chan, CFA.

## Important disclosures

## Equities: Stock ratings and basis for financial analysis

HSBC and its affiliates, including the issuer of this report ("HSBC") believes an investor's decision to buy or sell a stock should depend on individual circumstances such as the investor's existing holdings, risk tolerance and other considerations and that investors utilise various disciplines and investment horizons when making investment decisions. Ratings should not be used or relied on in isolation as investment advice. Different securities firms use a variety of ratings terms as well as different rating systems to describe their recommendations and therefore investors should carefully read the definitions of the ratings used in each research report. Further, investors should carefully read the entire research report and not infer its contents from the rating because research reports contain more complete information concerning the analysts' views and the basis for the rating.

## From 23rd March 2015 HSBC has assigned ratings on the following basis:

The target price is based on the analyst's assessment of the stock's actual current value, although we expect it to take six to 12 months for the market price to reflect this. When the target price is more than 20% above the current share price, the stock will be classified as a Buy; when it is between 5% and 20% above the current share price, the stock may be classified as a Buy or a Hold; when it is between 5% below and 5% above the current share price, the stock will be classified as a Hold; when it is between 5% and 20% below the current share price, the stock may be classified as a Hold; when it is more than 20% below the current share price, the stock may be classified as a Hold; when it is more than 20% below the current share price, the stock will be classified as a Reduce; and when it is more than 20% below the current share price, the stock will be classified as a Reduce.

Our ratings are re-calibrated against these bands at the time of any 'material change' (initiation or resumption of coverage, change in target price or estimates).

Upside/Downside is the percentage difference between the target price and the share price.

## Prior to this date, HSBC's rating structure was applied on the following basis:

For each stock we set a required rate of return calculated from the cost of equity for that stock's domestic or, as appropriate, regional market established by our strategy team. The target price for a stock represented the value the analyst expected the stock to reach over our performance horizon. The performance horizon was 12 months. For a stock to be classified as Overweight, the potential return, which equals the percentage difference between the current share price and the target price, including the forecast dividend yield when indicated, had to exceed the required return by at least 5 percentage points over the succeeding 12 months (or 10 percentage points for a stock classified as Volatile\*). For a stock to be classified as Underweight, the stock was expected to underperform its required return by at least 5 percentage points over the succeeding 12 months (or 10 percentage points for a stock between these bands were classified as Neutral.

\*A stock was classified as volatile if its historical volatility had exceeded 40%, if the stock had been listed for less than 12 months (unless it was in an industry or sector where volatility is low) or if the analyst expected significant volatility. Ho wever, stocks which we did not consider volatile may in fact also have behaved in such a way. Historical volatility was defined as the past month's average of the daily 365-day moving average volatilities. In order to avoid misleadingly frequent changes in rating, however, volatility had to move 2.5 percentage points past the 40% benchmark in either direction for a stock's status to change.



### Rating distribution for long-term investment opportunities

As of 19 May 2021, the distribut	ion of all	I independent ratings published by HSBC is as follows:
Buy	58%	( $29\%\ of\ these\ provided\ with\ Investment\ Banking\ Services$ )
Hold	34%	( $28\%$ of these provided with <code>Investment Banking Services</code> )
Sell	8%	( $25\%$ of these provided with <code>Investment Banking Services</code> )

For the purposes of the distribution above the following mapping structure is used during the transition from the previous to current rating models: under our previous model, Overweight = Buy, Neutral = Hold and Underweight = Sell; under our current model Buy = Buy, Hold = Hold and Reduce = Sell. For rating definitions under both models, please see "Stock ratings and basis for financial analysis" above.

For the distribution of non-independent ratings published by HSBC, please see the disclosure page available at http://www.hsbcnet.com/gbm/financial-regulation/investment-recommendations-disclosures.

To view a list of all the independent fundamental ratings disseminated by HSBC during the preceding 12-month period, please use the following links to access the disclosure page:

Clients of Global Research and Global Banking and Markets: www.research.hsbc.com/A/Disclosures

Clients of HSBC Private Banking: www.research.privatebank.hsbc.com/Disclosures

HSBC and its affiliates will from time to time sell to and buy from customers the securities/instruments, both equity and debt (including derivatives) of companies covered in HSBC Research on a principal or agency basis or act as a market maker or liquidity provider in the securities/instruments mentioned in this report.

Analysts, economists, and strategists are paid in part by reference to the profitability of HSBC which includes investment ban king, sales & trading, and principal trading revenues.

Whether, or in what time frame, an update of this analysis will be published is not determined in advance.

Non-U.S. analysts may not be associated persons of HSBC Securities (USA) Inc, and therefore may not be subject to FINRA Rule 2241 or FINRA Rule 2242 restrictions on communications with the subject company, public appearances and trading securities held by the analysts.

Economic sanctions imposed by the EU, the UK, the USA, and certain other jurisdictions generally prohibit transacting or dealing in any debt or equity issued by Russian SSI entities on or after 16 July 2014 (Restricted SSI Securities). Economic sanctions imposed by the USA also generally prohibit US persons from purchasing or selling publicly traded securities issued by companies designated by the US Government as "Communist Chinese military companies" (CMCs) or any securities that are derivative of, or designed to provide investment exposure, to the targeted CMC securities (collectively, Restricted CMC Securities). This report does not constitute advice in relation to any Restricted SSI Securities or Restricted CMC Securities, and as such, this report should not be construed as an inducement to transact in any Restricted SSI Securities or Restricted CMC Securities.

For disclosures in respect of any company mentioned in this report, please see the most recently published report on that company available at www.hsbcnet.com/research. HSBC Private Banking clients should contact their Relationship Manager for queries regarding other research reports. In order to find out more about the proprietary models used to produce this report, please contact the authoring analyst.



### Additional disclosures

- 1 This report is dated as at 20 May 2021.
- 2 All market data included in this report are dated as at close 19 May 2021, unless a different date and/or a specific time of day is indicated in the report.
- 3 HSBC has procedures in place to identify and manage any potential conflicts of interest that arise in connection with its Research business. HSBC's analysts and its other staff who are involved in the preparation and dissemination of Research operate and have a management reporting line independent of HSBC's Investment Banking business. Information Barrier procedures are in place between the Investment Banking, Principal Trading, and Research businesses to ensure that any confidential and/or price sensitive information is handled in an appropriate manner.
- 4 You are not permitted to use, for reference, any data in this document for the purpose of (i) determining the interest payable, or other sums due, under loan agreements or under other financial contracts or instruments, (ii) determining the price at which a financial instrument maybe bought or sold or traded or redeemed, or the value of a financial instrument, and/or (iii) measuring the performance of a financial instrument or of an investment fund.

### **Production & distribution disclosures**

- 1. This report was produced and signed off by the author on 19 May 2021 19:08 GMT.
- 2. In order to see when this report was first disseminated please see the disclosure page available at https://www.research.hsbc.com/R/34/dBQbRZS



# Disclaimer

#### Legal entities as at 1 December 2020

'UAE' HSBC Bank Middle East Limited, DIFC; HSBC Bank Middle East Limited, Dubai; 'HK' The Hongkong and Shanghai Banking Corporation Limited, Hong Kong; 'TW' HSBC Securities (Taiwan) Corporation Limited; 'CA' HSBC Securities (Canada) Inc.; 'France' HSBC Continental Europe; 'Spain' HSBC Continental Europe, Sucursal en España; 'Italy' HSBC Continental Europe, Italy, 'Sweden' HSBC Continental Europe Bank, Sweden Filial; 'DE' HSBC Trinkaus & Burkhardt AG, Düsseldorf; 000 HSBC Bank (RR), Moscow, 'IN' HSBC Securities and Capital Markets (India) Private Limited, Mumbai; 'JP' HSBC Securities (Japan) Limited, Tokyo; 'EG' HSBC Securities Egypt SAE, Cairo; 'CN' HSBC Investment Bank Asia Limited, Beijing Representative Office; The Hongkong and Shanghai Banking Corporation Limited, Singapore Branch; The Hongkong and Shanghai Banking Corporation Limited, Secul Securities Branch; The Hongkong and Shanghai Banking Corporation Limited, Securities (USA) Inc, New York; HSBC Yatirim Menkul Degerler AS, Istanbul; HSBC México, SA, Institución de Banca Múltiple, Grupo Financiero HSBC; HSBC Bank Australia Limited; HSBC Bank Argentina SA; HSBC Saudi Arabia Limited; The Hongkong and Shanghai Banking Corporation Limited, New Zealand Branch incorporated in Hong Kong SAR; The Hongkong and Shanghai Banking Corporation Limited, Bangkok Branch; PT Bank HSBC Indonesia; HSBC Qianhai Securities Limited; Banco HSBC SA.

Issuer of report HSBC Bank plc 8 Canada Square, London E14 5HQ, United Kingdom Telephone: +44 20 7991 8888 Fax +44 20 7992 4880 Website: www.research.hsbc.com

In the UK, this publication is distributed by HSBC Bank plc for the information of its Clients (as defined in the Rules of FCA) and those of its affiliates only. Nothing herein excludes or restricts any duty or liability to a customer which HSBC Bank plc has under the Financial Services and Markets Act 2000 or under the Rules of FCA and PRA. A recipient who chooses to deal with any person who is not a representative of HSBC Bank plc in the UK will not enjoy the protections afforded by the UK regulatory regime. HSBC Bank plc is regulated by the Financial Conduct Authority and the Prudential Regulation Authority. If this research is received by a customer of an affiliate of HSBC, its provision to the recipient is subject to the terms of business in place between the recipient and such affiliate. In Australia, this publication has been distributed by The Hongkong and Shanghai Banking Corporation Limited (ABN 65 117 925 970, AFSL 301737) for the general information of its "wholesale" customers (as defined in the Corporations Act 2001). Where distributed to retail customers, this research is distributed by HSBC Bank Australia Limited (ABN 48 006 434 162, AFSL No. 232595). These respective entities make no representations that the products or services mentioned in this document are available to persons in Australia or are necessarily suitable for any particular person or appropriate in accordance with local law. No consideration has been given to the particular investment objectives, financial situation or particular needs of any recipient.

In the European Economic Area, this publication has been distributed by HSBC Continental Europe or by such other HSBC affiliate from which the recipient receives relevant services

The document is distributed in Hong Kong by The Hongkong and Shanghai Banking Corporation Limited and in Japan by HSBC Securities (Japan) Limited. Each of the companies listed above (the "Participating Companies") is a member of the HSBC Group of Companies, any member of which may trade for its own account as Principal, may have underwritten an issue within the last 36 months or, together with its Directors, officers and employees, may have a long or short position in securities or instruments or in any related instrument mentioned in the document. Brokerage or fees may be earned by the Participating Companies or persons associated with them in respect of any business transacted by them in all or any of the securities or instruments referred to in this document. In Korea, this publication is distributed by either The Hongkong and Shanghai Banking Corporation Limited, Seoul Securities Branch ("HBAP SLS") or The Hongkong and Shanghai Banking Corporation Limited, New Zealand Branch into a prospectus as defined in the FSCMA. It may not be further distributed in whole or in part for any purpose. Both HBAP SLS and HBAP SEL are regulated by the Financial Services Commission and the Financial Supervisory Service of Korea. This publication is distributed in Hongkong and Shanghai Banking Corporation Limited, New Zealand Branch incorporated in Hong Kong SAR.

The information in this document is derived from sources the Participating Companies believe to be reliable but which have not been independently verified. The Participating Companies make no guarantee of its accuracy and completeness and are not responsible for errors of transmission of factual or analytical data, nor shall the Participating Companies be liable for damages arising out of any person's reliance upon this information. All charts and graphs are from publicly available sources or proprietary data. The opinions in this document constitute the present judgement of the Participating Companies, which is subject to change without notice. From time to time research analysts conduct site visits of covered issuers. HSBC policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits. This document is neither an offer to sell, purchase or subscribe for any investment nor a solicitation of such an offer.

HSBC Securities (USA) Inc. accepts responsibility for the content of this research report prepared by its non-US foreign affiliate. The information contained herein is under no circumstances to be construed as investment advice and is not tailored to the needs of the recipient. All US persons receiving and/or accessing this report and intending to effect transactions in any security discussed herein should do so with HSBC Securities (USA) Inc. in the United States and not with its non-US foreign affiliate, the issuer of this report. In Singapore, this publication is distributed by The Hongkong and Shanghai Banking Corporation Limited, Singapore Branch for the general information of institutional investors or other persons specified in Sections 274 and 304 of the Securities and Futures Act (Chapter 289) ("SFA") and accredited investors and other persons in accordance with the conditions specified in Sections 275 and 305 of the SFA. Only Economics or Currencies reports are intended for distribution to a person who is not an Accredited Investor, Expert Investor or Institutional Investor as defined in SFA. The Hongkong and Shanghai Banking Corporation Limited, Singapore Branch is not a prospectus as defined in the SFA. This publication is not a prospectus as defined in the SFA. This publication is not a prospectus as defined in the SFA. This publication is not a prospectus as defined in the SFA. This publication is not a prospectus as defined in the SFA. It may not be further distributed in whole or in part for any purpose. The Hongkong and Shanghai Banking Corporation Limited, Singapore Branch is regulated by the Monetary Authority of Singapore. Recipients in Singapore should contact a "Hongkong and Shanghai Banking Corporation Limited, Singapore Branch' representative in respect of any matters arising from, or in connection with this report. Please refer to The Hongkong and Shanghai Banking Corporation Limited Singapore Branch' representative in respect of any matters arising from, or in connection with this repo

In Canada, this document has been distributed by HSBC Securities (Canada) Inc. (member IIROC), and/or its affiliates. The information contained herein is under no circumstances to be construed as investment advice in any province or territory of Canada and is not tailored to the needs of the recipient. No securities commission or similar regulatory authority in Canada has reviewed or in any way passed judgment upon these materials, the information contained herein or the merits of the securities described herein, and any representation to the contrary is an offense. In Brazil, this document has been distributed by Banco HSBC S.A. ("HSBC Brazil"), and/or its affiliates. As required by Instruction No. 598/18 of the Securities and Exchange Commission of Brazil (Comissão de Valores Mobiliários), potential conflicts of interest concerning (i) HSBC Brazil and/or its affiliates; and (ii) the analyst(s) responsible for authoring this report are stated on the chart above labelled "HSBC & Analyst Disclosures".

The document is intended to be distributed in its entirety. Unless governing law permits otherwise, you must contact a HSBC Group member in your home jurisdiction if you wish to use HSBC Group services in effecting a transaction in any investment mentioned in this document. HSBC Bank plc is registered in England No 14259, is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority and is a member of the London Stock Exchange. (070905)

If you are an HSBC Private Banking ("PB") customer with approval for receipt of relevant research publications by an applicable HSBC legal entity, you are eligible to receive this publication. To be eligible to receive such publications, you must have agreed to the applicable HSBC entity's terms and conditions for accessing research and the terms and conditions of any other internet banking service offered by that HSBC entity through which you will access research publications ("the Terms"). Distribution of this publication is the sole responsibility of the HSBC entity with whom you have agreed the Terms. If you do not meet the aforementioned eligibility requirements please disregard this publication and, if you are a customer of PB, please notify your Relationship Manager. Receipt of research publications is strictly subject to the Terms and any other conditions or disclaimers applicable to the provision of the publications that may be advised by PB. © Copyright 2021, HSBC Bank plc, ALL RIGHTS RESERVED. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, on any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of HSBC Bank plc. NCI (P) 087/10/2020