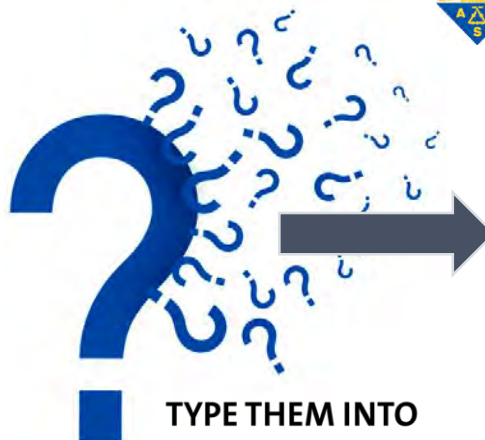




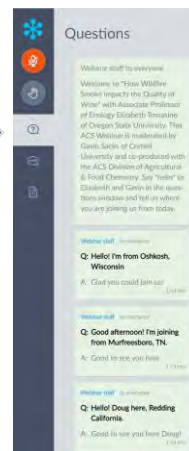
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“Why am I muted?”
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Thank you and enjoy the show.



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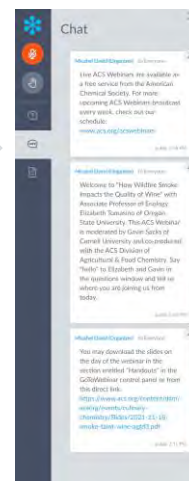
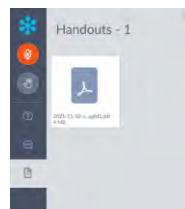


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Moderator: Rebekah Paul, American Chemical Society

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Chemistry and the Economy

2022 Outlook



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Chemistry and the Economy: 2022 Outlook



PAUL HODGES
Chairman, New Normal Consulting



BILL CARROLL
Founder, Carroll Applied Science

Presentation slides are available now! The edited recording will be made available as soon as possible.

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11

Helping you navigate the New Normal

The 2022 Outlook...and beyond

9 December 2021

New Normal is a Swiss-based strategy consultancy advising Fortune 500 and FTSE 100 companies, investment banks and fund managers.

Our consulting work focuses on the major paradigm shifts taking place in the global economy as a result of today's ageing populations.



DEMAND PATTERNS: The lockdowns have broken down the inertia surrounding work and home-based routines. Travel, leisure, construction, real estate and other industries will likely see major change as a result.



RESHORING SUPPLY CHAINS: Global supply chains have proved very fragile during the pandemic. They have collapsed not only because of the uncoordinated nature of the lockdowns around the world, but also due to volatility in demand patterns.



ENERGY ABUNDANCE: Q2 2020 provided a taste of the world to come. The issue is that it now makes economic sense in some regions to 'scrap and build' – scrap older, fossil fuel-based infrastructure, and replace it with modern renewable-based power sources.



CIRCULAR ECONOMY: The need to reshore supply chains in a world of potential energy abundance suggests that moves towards a circular economy will accelerate. We need new business models to be created, covering the entire value chain from collection to resale.



ADVANCED MANUFACTURING: Many manufacturing operations still operate as they would have done 50 years ago. It makes no sense to reshore using centuries-old equipment when digital, continuous & biotech-enabled technology is safer, greener, faster and cheaper.



Paul Hodges is a trusted adviser to major companies and investors. He publishes The pH Report, and serves as chairman of NiTech Solutions and of the Advisory Board of Infinity Recycling. He is a Global Expert with the [World Economic Forum](#) and a regular speaker at international conferences, and appears regularly on Real Vision and other leading media.

A number of major challenges currently exist

❖ Inventories seem to be all at sea



❖ Vaccine rollout is impressive, but not universal

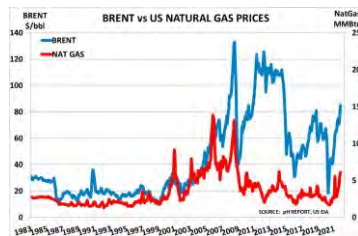


❖ China is bursting its real estate bubble



15 Unfinished Buildings in Kunming Were Demolished by Blasting, 1...

❖ Oil/Natgas prices have spiked





Audience Survey Question

ANSWER THE QUESTION ON THE INTERACTIVE SCREEN IN ONE MOMENT



How have economic trends and supply chain issues negatively affected you this year? (choose all that apply):

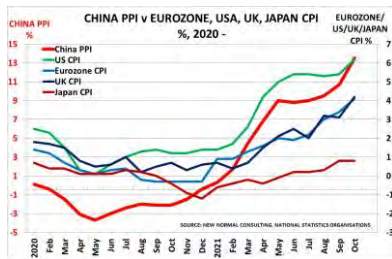
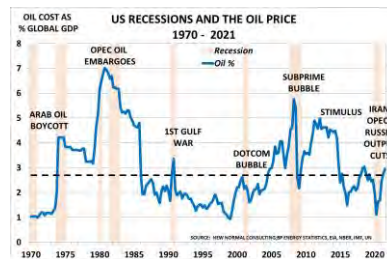
- Delivery of a product you purchased was delayed or cancelled
- Paid more for essentials like food and gas
- A product you needed was out of stock
- Delayed or avoided an important purchase due to price increase
- I have not been negatively affected this year

** If your answer differs greatly from the choices above tell us in the chat!*

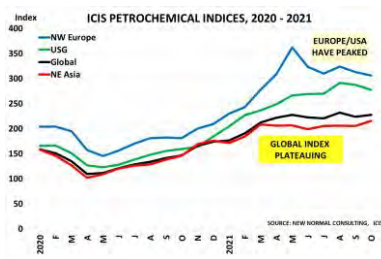
17

Prices have been rising as supply reduces

Oil prices are at levels which normally lead to recession



China's PPI has led the inflation surge



Europe/US petchem prices have led

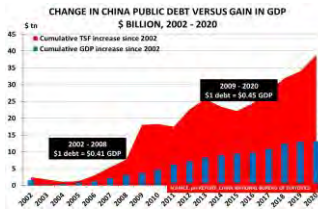
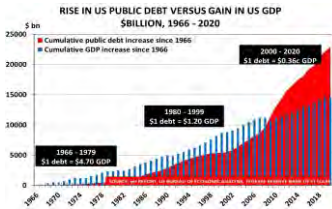
Welcome to the New Normal

- ❖ What's happening with the supply chain woes and inflation
- ❖ What will the world look like when things settle
- ❖ Will the move to recycling lead to a more localized model for the US chemical industry



Watchfulness seems to be the key issue

- ❖ The last decade has seen debt-fueled growth

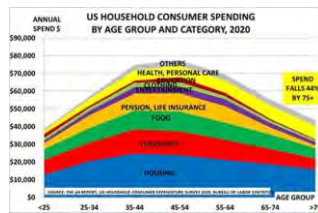
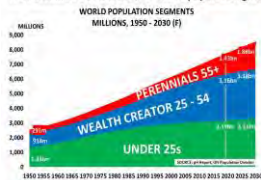


- ❖ Geopolitical tensions are growing



- ❖ Ageing populations will see demand growth slow

A completely new generation has developed since 1950
The Perennials 55+ are >50% of world population growth to 2030

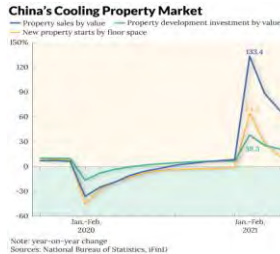
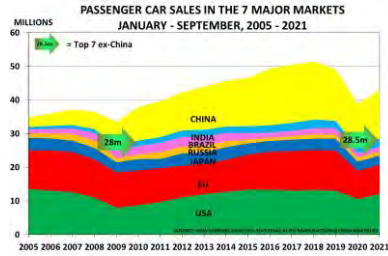


- ❖ Net Zero creates paradigm shifts



High prices are causing demand destruction

'Top 7' auto market sales are down 13% versus 2019



China's real estate bubble is bursting



US sales down 23%, Inventories up 37%



Audience Survey Question

ANSWER THE QUESTION ON THE INTERACTIVE SCREEN IN ONE MOMENT



What is your personal outlook for the economy in 2022?

- I think we're heading towards disaster (bleak)
- Things are bad but these problems are transitory and will improve eventually (somewhat hopeful)
- Things were bad but we're on the right path and will improve next year. (hopeful)
- Things are not as bad as people say, we are fine and will continue to be fine. (happy)

** If your answer differs greatly from the choices above tell us in the chat!*

Welcome to the New Normal

- ❖ What’s happening with the supply chain woes and inflation
- ❖ What will the world look like when things settle
- ❖ Will the move to recycling lead to a more localized model for the US chemical industry



Flexibility and Resilience have become critical success factors

“The transformation period is a wonderful opportunity to reset the clock and start a new race”

Stellantis CEO, Carlos Tavares, July 2021

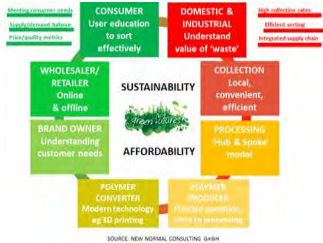


The End of the Oil Age



The International Energy Agency has reported that “Net Zero means a huge decline in the use of fossil fuels. They fall from ~80% of total energy supply today to ~ 20% by 2050.”

Plastics Recycling

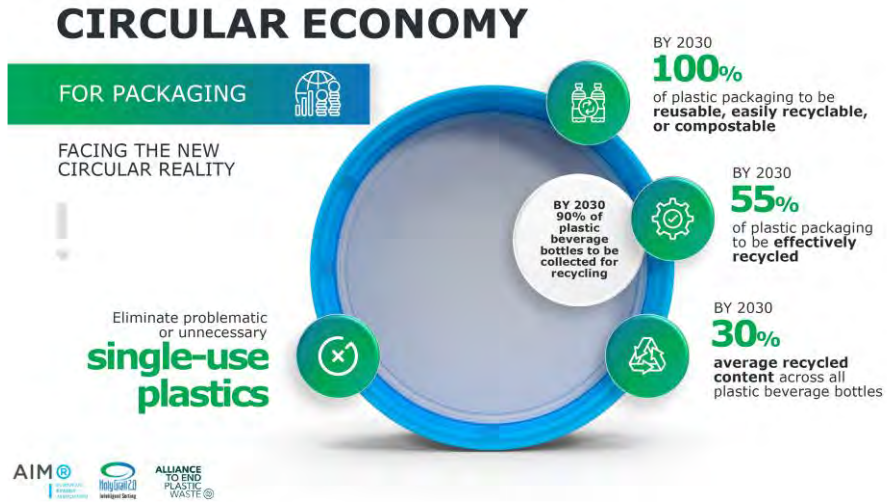


A new Nova Institute report for Unilever notes: *“Contrary to energy, it is not possible to decarbonise chemicals and products. The renewable carbon family is the only pathway to a sustainable future.”*

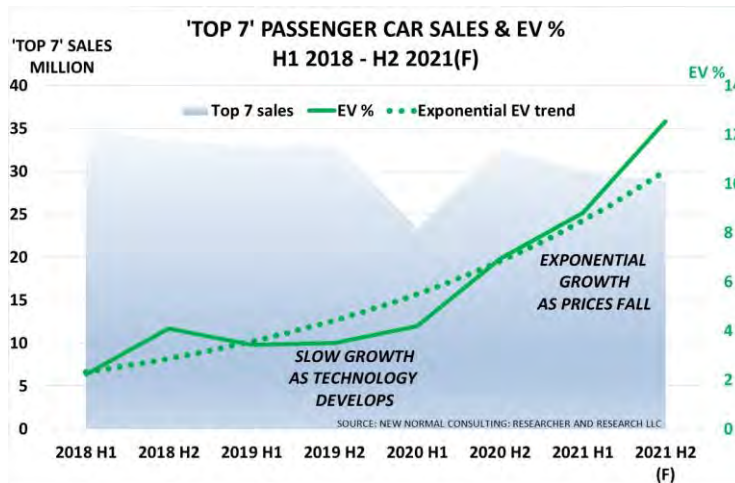
Nova expect recycling to account for 55% of plastics production by 2050, with 25% bio and 20% CO2-based

This paradigm shift creates the opportunity for the *“Biggest transformation of the chemical sector since the industrial revolution.”*

The EU is leading the way in the move to use recycled plastic



EV sales are accelerating up the S-Curve, and will close refineries



Major paradigm shifts are reshaping the business world



The lockdowns have broken down the inertia surrounding work and home-based routines. Travel, leisure, construction, real estate and other industries are already seeing major change.



Many manufacturing operations still operate as they would have done 500 years ago, or even 50 years ago. A visitor from then, would feel at home if they visited many sites today.



Global supply chains have collapsed because of the uncoordinated nature of the lockdowns around the world, and the rising volatility in demand patterns.



It already makes economic sense in some regions to 'scrap and build' – to scrap older, fossil fuel-based infrastructure, and replace it with modern renewable-based power sources.



The need to reshore supply chains in a world of potential energy abundance suggests that moves towards a circular economy will accelerate.

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