

The purpose of the information in this presentation is to guide ICA programs and provide members with information to make independent business decisions.

## Antitrust Guidelines for Copper Industry Trade Association Meetings

The following guidelines with respect to compliance with antitrust laws of the United States, Japan and European Community<sup>1</sup> are intended to govern the conduct of participants in copper industry trade association meetings, both at the meeting itself and in informal discussions before or after the formal meeting.

**Price:** Competitors should not discuss future prices (including terms of sale) of their products. There is no blanket prohibition against the mention of or reference to current or past prices but limits must be observed. Such references or mentions should occur only when necessary in connection with the development of association programs. For example, reference to a particular price level in comparing the cost of a copper product to a competing product is permitted. Whenever possible, such references should be discussed in advance with legal counsel.

**Competitive Information:** Competitors should not discuss the market share of a particular copper producer or copper fabricator's products. Furthermore, nothing should be said at a meeting which could be interpreted as suggesting prearranged market shares for such products or producer production levels. The overall market share of copper products may be discussed with regard to competition with non-copper products and general market acceptance.

**New Products:** Competitors should not encourage or discourage the introduction of a new product by another competitor or reveal a particular copper company's plans to change the production rate of an existing product or to introduce a new product. No company should disclose to another company whether it is in a position to make or market a new product. New products may be discussed in a technical manner or from the standpoints of competition with non-copper products and general market acceptance. In addition, proposed methods for and results of field and laboratory testing can be considered.

**The Role of Legal Counsel:** Legal counsel attends association meetings to advise association staff and other meeting attendees regarding the antitrust laws and to see that none of the matters discussed or materials distributed raise even the appearance of antitrust improprieties. During the course of a meeting, if counsel believes that the discussion is turning to a sensitive or inappropriate subject, counsel will express that belief and request that the attendees return the discussion to a less sensitive area.

A paper entitled 'Copper Industry Trade Associations and Antitrust Laws' is available upon request.

10/92, 5/93, 10/10

1. Other foreign competition laws apply to International Copper Association, Ltd. (ICA)'s activities worldwide.

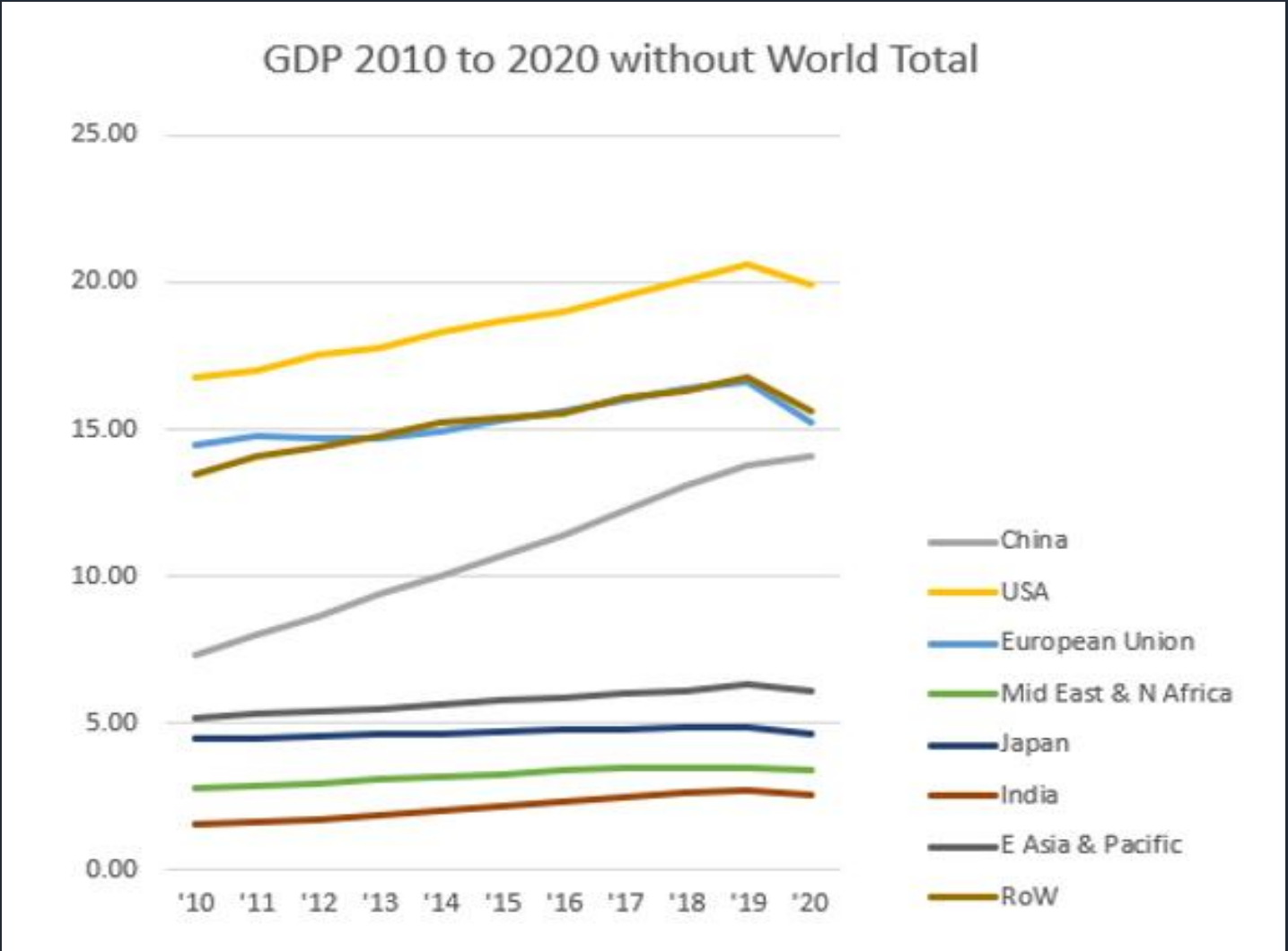
# Future Themes

## World Market Trends

### 2021 Update

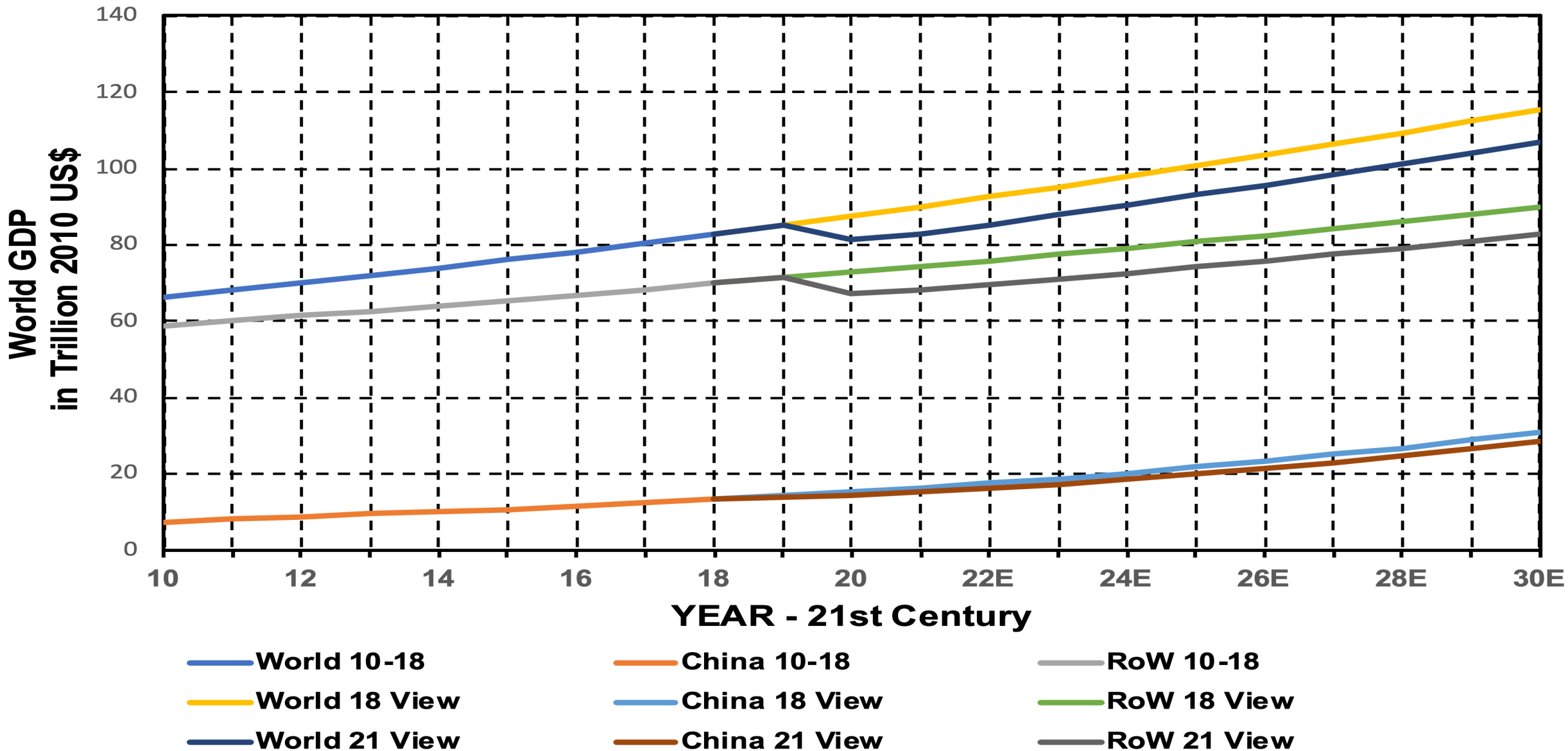
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# GDP as a baseline



# GDP 2010 to 2030

## with Pre Covid and 2018 and 2021 Views



## Stimulus Packages

### Package types:

Fiscal, tax cuts, direct Government spending, cash incentives etc  
 Income support has been widespread, covering over 50% of wages in North America, Europe and Middle East, down to none in Africa, Eastern Latin America and India.

### Timing and size of the stimulus

in Q1 & 2, 2020,	% of GDP
North America and Europe	More than 6%
Rest excl major players and Africa	1.5 to 2.4%
Africa	0.05%
North America and Europe	More than 6%
Q3 & 4 more added	Brazil, Canada, France
Largest percentage stimulus	Italy 48%, Japan 43%, Germany 36%

### Effect of the packages

Positive GDP by end of 2020	China +1.9
Typical GDP for 2020	-6%
Lowest	Italy and UK -10%

## Building Construction - Covid impact 2030

Trends 2019 Metra report and changed view in March 2021

2019 report view	March 2021 view
Faster growth (3.5-4%) except China.	5.6% decline in 2020 (excluding China), then recover to 2019 rate in 2021 or 2022.
Smart cities, houses etc new opportunities.	Anticipate delays.
Prefabricated units become more common	Offsite units suit Covid social distance practices.
Reduction in GHG producing thermal heating in building. Heat pumps, electrical heating.	Covid and increased focus on Climate Change should bring in these copper using units faster.
Sunamp phase change heat store for dwellings, a copper using start-up example.	Sunamp winning sizeable contracts, still small company

## Energy and Power - Covid impact 2030

2019 report	March 2021
Growth in demand: for primary energy [oil, gas etc] was forecast 1.8% CAGR to 2030	Growth of 1.5% is now more likely
Growth in electricity generation, the main user of copper was expected to be faster and was expected to be between 3% and 4.5% CAGR.	Demand reduction globally of 5 to 6%. Many projects in development or construction stalled. Growth now could be 8 to 10%
Substitution of thermal energy source by renewables	Solar increasingly competitive, but the great leap forward forecast in 2018 was slower than expected.
Carbon capture technology is advancing and many organizations are working on the processes.	Progress is slow, but need is great, copper content Unquantified.
HVDC transmission future prospect typically sub- sea or underground cabling and so need copper	Increasing intermittent renewables output calls for large power grids or energy storage systems.
Energy storage, including copper using Li-ion batteries, great need.	Progressing but slower than forecast. Battery storage growing very fast 30 to 40%pa
Re-structuring electricity supply networks and community micro grids	Widely discussed but will take time. Unquantified



## Manufacturing - Covid impact 2030

2019 report view	New view
2 to 3% growth in recent years, mainly China	Downturn in 2019, then Covid -19 came. Expect Covid disruption up to end of 2022, but many now back to 2019 level.
Increased automation and robotics	Continued development
New processes and materials	
Competition for skilled and talented employees	
More communication with customers	
The “Circular economy”	More emphasis on sustainability more economic use of material
International nature of manufacturing	Fragility of supply chains

## Automotive Trends

2019 report	New View
Demographic change, more middle class in emerging countries, more vehicles.	No change
Increasing awareness and Government action to reduce climate change	Becoming even more high priority, 2021 climate conference. Affects cars and power.
Some analysts forecast changing perceptions of vehicle ownership	Unclear how soon, tied to BEV uptake
Continued growth in car production years before 2018	2018 and 19 growth slowed and then crashed into the Covid crisis.
Developing technology	Ongoing
New issues in 2021	
Funds still needed to incentivise otherwise uncompetitive price electric car purchase price	Covid costs may have reduced funds available
Turmoil in the automotive sector caused by political pressure to abandon conventionally powered cars and novel industry structure in China.	Currently the industry is not expected to follow the pattern of GDP growth

## Overview

Too early to truly comment on stimulus schemes. The focus on saving the economy and jobs is running up giant debts. In the USA, for example it has been less successful than hoped.

Damage to the economy appears to be less than feared. Assuming that it does not continue.

The end of the crisis is in sight but problems yet to emerge could be:

- Virus mutations
- Virus strengthening in poorer nations who cannot afford to control it
- Trade discord as/if US and others re-shore manufacturing from China

The growth of China is remarkable but its increasing importance makes the world vulnerable and there are signs that the Chinese economy is itself vulnerable.

The covid effect is partially obscured by:

1. The new emphasis on Climate Change and
2. The fact that Covid hit the world just as there was a global downturn.