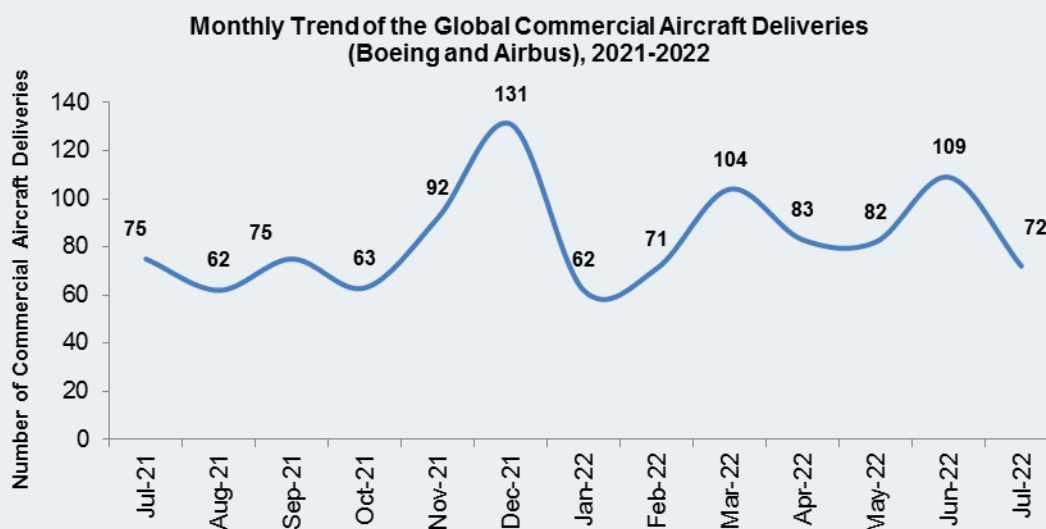


## Composites Market Update for July, 2022

The composites market in July was down 2-3% on a YoY basis. However, for the year 2022, the composites market remains slightly above the prior year to date performance. August is projected to be the same or slightly down from YoY performance, which means that demand remains high across most industries. RV and Marine sales remain steady but could slow around Q1 of 2023 as backlogs and inventories lessen. Infrastructure remains robust, as does housing and construction for the remainder of '22. Raw material prices have shown signs of peaking, and even coming down, after steadily climbing all year. Raw material prices are expected to continue to soften in September, and into Q4. There remains a high degree of uncertainty about 2023, with the ongoing Russian incursion into Ukraine, labor & transportation challenges, and economic concerns. Still, the current and short-term outlook is strong.

## Aerospace

Commercial aircraft (Boeing and Airbus) deliveries decreased from 109 aircraft deliveries in June, 2022, to 72 aircraft deliveries in July, 2022.



Some highlights of July, 2022, are as follows:

- Agreement between Hexcel and Dassault to Supply Carbon Fiber Prepreg for F10X Program.** Hexcel has signed a long-term agreement with Dassault to supply carbon fiber prepreg for the Falcon 10X program. This is the first Dassault business jet program to incorporate high-performance advanced carbon fiber composites in the manufacture of its aircraft wings. Dassault Aviation has selected HexPly M21EV/IMA, a high-performance advanced composite that has proven over the past 10 years to meet high-efficiency manufacturing standards. Due

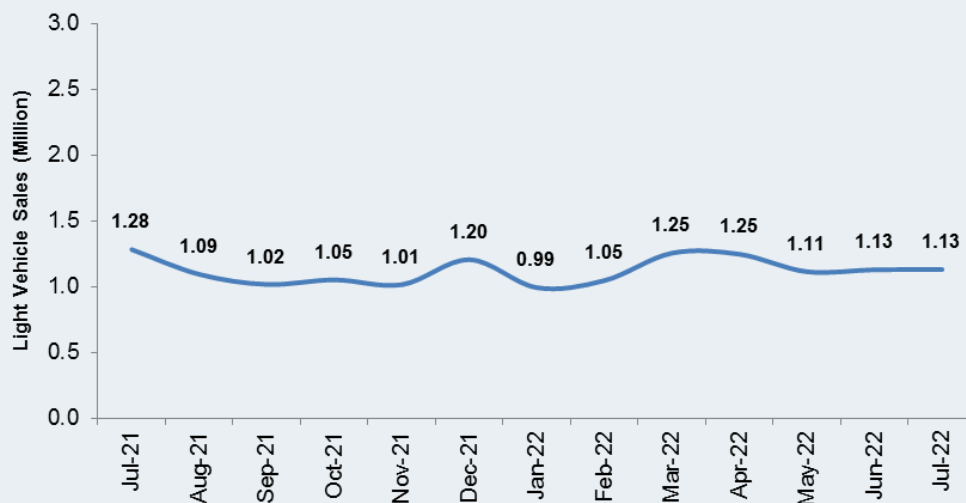
to Hexcel carbon fiber composites, the wide, high-speed wing will be made for maximum strength, reduced weight and minimum drag. The Falcon 10X is planned to enter service at the end of 2025.

- Embraer, Collins Aerospace Demonstrate CNT-based Ice Protection System.** Collaboration between Embraer and Collins Aerospace has culminated in the development and demonstration of a carbon nanotube (CNT) electro-thermal heating system that seeks to result in more efficient and sustainable aircraft. Collins' CNT heater and ice protection controller were successfully integrated on the vertical stabilizer and flight tested in Embraer's fully functional Phenom 300E light jet prototype aircraft, executing more than 10 hours of ground and "dry air" flight tests. Collaborations such as the one between Collins and Embraer are helping innovations like this come to market more quickly.
- Agreement between Virgin Galactic and Boeing Subsidiary Aurora to Build New Motherships.** Virgin Galactic, an aerospace and space travel company, apprised of an agreement with Aurora Flight Sciences ("Aurora"), a Boeing company, to partner in the design and manufacturing of the Company's next generation motherships. The mothership is the air launch carrier aircraft in Virgin Galactic's space flight system that carries the spaceship to its release altitude of approximately 50,000 feet. Headquartered in Virginia, Aurora brings more than 30 years of experience building cutting-edge aircraft from concept to delivery and specializes in novel aircraft configurations and complex composites. Virgin Galactic has been working with Aurora for the past several months to develop design specifications as well as workforce and resource requirements in preparation for this long-term project. The two-vehicle contract will enable Aurora to immediately begin development.

### Automotive

The U.S. new vehicle sales of 1,128,891 units in July, 2022, represented a decrease of 12% as compared to 1,280,803 units in July, 2021.

Monthly Trend of Light Vehicle Sales in the US, 2021-2022



One of the highlights of July, 2022, is as follows:

- Electric Vehicle Battery Enclosures.** UL Solutions announced the Battery Enclosure Thermal Runaway (BETR) evaluation, the first material screening test method at UL Solutions to evaluate electric vehicle (EV) battery enclosure material. The offering is based on UL 2596, Test Method for Thermal and Mechanical Performance of Battery Enclosure Materials. As the automotive industry looks to decrease the weight of many components, manufacturers are increasingly changing battery enclosure materials to plastics and composites. They must choose the appropriate enclosure material before building an expensive prototype to minimize safety hazards and other costly issues. UL 2596, Test Method for Thermal and Mechanical Performance of Battery Enclosure Materials, specifies the requirements for the evaluation of EV battery enclosure materials.

### Construction

Privately-owned housing starts in July were at a seasonally adjusted annual rate of 1,446,000. This is 9.6% below the revised June estimate of 1,599,000 and is 8.1% below the July 2021 rate of 1,573,000. Single-family housing starts in July were at a rate of 916,000; this is 10.1% below the revised June figure of 1,019,000. The July rate for units in buildings with five units or more was 514,000.

Monthly Trend of Privately Owned Housing Starts in the US, 2021-2022



One of the highlights of July, 2022, is as follows:

- Planefibra Develops Opaque Composite Roof Tiles for Corrosive Environments.** Planefibra a company specializing in solutions for lighting and ventilation, has taken advantage of composites — their robustness, light weight and even their ability to be formulated with resins resistant to flame propagation and invested in the production of opaque composite tiles for corrosive environments. In relation to tiles, however, Planefibra says fiberglass composites pose a solution that not only solves the problem of corrosion, but offers additional advantages, such as better control of room temperature.

## Wind Energy

According to the latest "Energy Infrastructure Update" report from the Federal Energy Regulatory Commission's Office of Energy Projects, the cumulative installed capacity of 27 units during January – June, 2022 was 5,722 MW as compared to 7,157 MW of 41 units during January – June, 2021. With a total installed generating capacity of 140.57 (GW), wind constituted 11.21% of the total installed generating capacity of 1,253.74 (GW) among all energy sources.

### One of the highlights of July, 2022, is as follows:

- **Swancor, Siemens Gamesa Collaborate on Advancing Recyclable Wind Blade Technologies.** Both companies are committed to supplying customers with environmentally friendly products and recycling solutions to reach a green circular economy and hit carbon neutrality and new materials innovation milestones. The combination of the technologies would enable wind turbine blade components to be recovered and recycled after the blades are decommissioned, according to Swancor. The recovered materials, resins and glass fibers can then be used in other applications. The recycling process reportedly does not produce waste solvents and waste gas, and has a low-carbon footprint to help solve environmental challenges which arise from landfill disposal or incineration. This initiative is aimed at reaching the goal of fully recyclable wind turbine blades.

## Marine

The US marine industry is anticipated to experience good growth in 2022.

### Some highlights of July, 2022, are as follows:

- **Boka Marine joins American Recreational Products portfolio, launches Fiberglass Boat Line.** Boka e-boats use the same fiberglass frame technology of its cousin, Paddle Wheeler, but are powered by a battery-powered, three-horsepower Torqeedo Ultralight 1103 motor that weighs less than 20 pounds. Each fully charged battery can provide up to four hours on the water and reach speeds of up to six miles per hour, according to ARP.
- **National Composites Centre Wild Water Champion Spearheads Project for U.K.'s First Sustainable Kayak.** A wild water kayak, made from sustainable composite materials, reported to be a U.K. first has been designed and manufactured by a team of 19 graduates, apprentices and year-in industry students from the National Composites Centre. The project provided the team the opportunity to develop processing knowledge and performance testing for new sustainable materials and tools that are said to increase composite EOL options and be deployed to future projects.

### Consumer Goods

New orders for manufactured durable goods in July decreased less than \$0.1 billion or virtually unchanged to \$273.5 billion, the U.S. Census Bureau announced today. This decrease, down following four consecutive monthly increases, followed a 2.2% June increase. Excluding transportation, new orders increased 0.3%. Excluding defense, new orders increased 1.2%. Transportation equipment, down following three consecutive monthly increases, drove the decrease, \$0.6 billion or 0.7% to \$93.0 billion.

### Recent Development in Materials

- SABIC Launches New PP Compounds for Foam Injection Molding.** SABIC has introduced a specialized portfolio of SABIC PP compounds for foam injection molding (FIM). New mineral-reinforced SABIC PPc F9005, PPc F9007 and PPc F9015 grades can help deliver excellent aesthetics for visible automotive interior parts with complex geometries, such as door panels and trim, seat and trunk cladding, A/B/C/D pillar covers and center consoles. Unlike standard FIM materials, which typically exhibit surface defects, the new advanced PP compounds feature uniformly high surface quality similar to solid injection molded parts. Compared to solid components, foamed parts made with SABIC PP compounds offer significant weight savings that can help cut emissions. According to a cradle-to-grave lifecycle assessment study (pending third-party review), the advanced new materials can help OEMs lower carbon dioxide (CO<sub>2</sub>) emissions by as much as 15%.

### Recent Product Launches in the Composites Market

The following table represents new product launched in the composites market in July, 2022.

Product	Company Name	Description
Electric Motor	Collins Aerospace	The 500-kilowatt motor for the Hybrid Air Vehicles airship targets 9 kW/kg and 98% efficiency through a new motor topology and composite construction. Collins' technology roadmap for the development of a family of electric motors that can be scaled up or down to meet the needs of various hybrid-electric and all-electric applications across multiple aircraft segments.

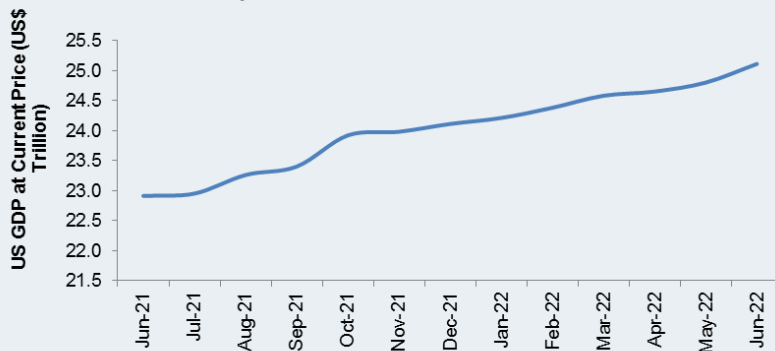
### The US Economic Overview – July, 2022

The US Consumer Confidence Index increased to 51.1 in July, 2022, as compared to 50.0 in June, 2022. The GDP at current price of the US increased from US \$24.80 trillion in May, 2022, to US \$25.11 trillion in June, 2022.

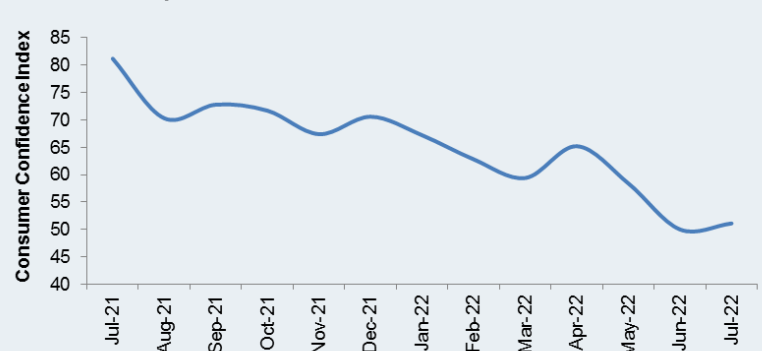
**Real gross domestic product (GDP)** decreased at an annual rate of 0.6% in the second quarter of 2022, according to the "second" estimate. The decrease in real GDP reflected decreases in private inventory investment, residential fixed investment, federal government spending, and state and local government spending that were partly offset by increases in exports and consumer spending. Imports, which are a subtraction in the calculation of GDP, increased.

The price index for gross domestic purchases increased 8.4% in the second quarter, an upward revision of 0.2% point from the previous estimate. The personal consumption expenditures (PCE) price index increased 7.1%, the same as previously estimated. Excluding food and energy prices, the PCE price index increased 4.4%, also unrevised.

Monthly Trend of the US Current GDP in 2021-2022



Monthly Trend of Consumer Confidence Index in the US, 2021-2022



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