BLACK CREEK INDUSTRIAL REIT IV INC. SUPPLEMENT NO. 4 DATED JUNE 3, 2021 TO THE PROSPECTUS DATED MAY 3, 2021

This prospectus supplement ("Supplement") is part of and should be read in conjunction with the prospectus of Black Creek Industrial REIT IV Inc., dated May 3, 2021 (the "Prospectus"), as supplemented by Supplement No. 1, dated May 5, 2021, Supplement No. 2, dated May 14, 2021, and Supplement No. 3, dated May 20, 2021. Unless otherwise defined herein, capitalized terms used in this Supplement shall have the same meanings as in the Prospectus.

Probable Real Property Acquisition Update

Key Logistics Portfolio

On June 2, 2021, BCI IV Portfolio Real Estate Holdco LLC, a Delaware limited liability company and one of our wholly owned subsidiaries ("Black Creek Holdco"), entered into an Agreement and Plan of Merger (the "Merger Agreement") with Prologis Targeted U.S. Logistics Fund, L.P., a Delaware limited partnership ("USLF"), Prologis USLV Operating Partnership, L.P., a Delaware limited partnership ("USLV"), and Prologis USLV SubREIT 1, LLC, a Delaware limited liability company ("USLV SubREIT", and together with USLF and USLV, the "Sellers") to acquire, through one or more related transactions, a portfolio of 48 industrial buildings totaling approximately 8.3 million square feet on approximately 480.7 acres, which we refer to as the "Key Logistics Portfolio." The Key Logistics Portfolio is located in 13 geographic markets throughout the United States and is 96.4% occupied by 83 customers with a weighted-average remaining lease term (based on square feet) of approximately 3.4 years. One customer in the Key Logistics Portfolio individually leases more than 10% of the total rentable area, as described below:

• Radial, Inc., a multinational e-commerce company, leases 1.0 million square feet, or approximately 11.6% of the portfolio's rentable area, under one lease that expires in 2026 with two options to extend the term of the lease for five years each. The annual base rent under the leases is currently \$3.6 million and is subject to annual rent escalations of approximately 2% in 2022, 2023, 2024, and 2025.

In general, the customers will be responsible for paying directly or reimbursing the landlord for their pro rata share of the real estate taxes, insurance, and repair and maintenance costs of the property.

Our management currently believes that the Key Logistics Portfolio is suitable for its intended purpose and has no immediate plans for material renovations or other capital improvements, and that the Key Logistics Portfolio will be adequately covered by insurance. There are a number of comparable facilities in the vicinity of the Key Logistics Portfolio that may compete with these buildings. If acquired, the cost of the Key Logistics Portfolio (excluding the cost attributable to intangible lease assets and liabilities, which will be amortized over the remaining lease term, and land) will be depreciated for tax purposes over a maximum of a 40-year period on a straight-line basis.

The total purchase price is expected to be \$920.0 million, subject to customary prorations. The Seller is not affiliated with us or our affiliates. In connection with the execution of the Merger Agreement, Black Creek Holdco will deposit \$100.0 million into an escrow account. We plan to fund this acquisition using proceeds from this public offering and funds from our existing credit facility.

The acquisition of the Key Logistics Portfolio is expected to close on or around July 14, 2021. There is no assurance that we will be able to purchase the Key Logistics Portfolio on the terms set forth herein or at all. The consummation of the acquisition is subject to our completion of due diligence and various closing conditions to be met by the parties. If we do not close on the acquisition, there are circumstances under which we may forfeit the deposit we have funded. We presently expect that, following the closing, up to 12 of the 48 buildings in the Key Logistics Portfolio, totaling approximately 4.2 million square feet, will be placed in one or more Delaware statutory trusts ("DST Properties") and become a part of our DST Program. Initially, the interests in the DST Properties are expected to be owned by a taxable REIT subsidiary of the Operating Partnership and then sold to third party

investors. We, through a subsidiary of the Operating Partnership, expect to hold long-term leasehold interests in the DST Properties pursuant to master leases that will be fully guaranteed by the Operating Partnership, while third-party investors will ultimately hold some or all of the interests in the DST Properties through their acquisition of beneficial interests in the Delaware statutory trusts.