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# Construction Rules for the Morningstar® Global Equity Infrastructure Index<sup>SM</sup>

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## Morningstar Indexes

November 2014

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## Overview

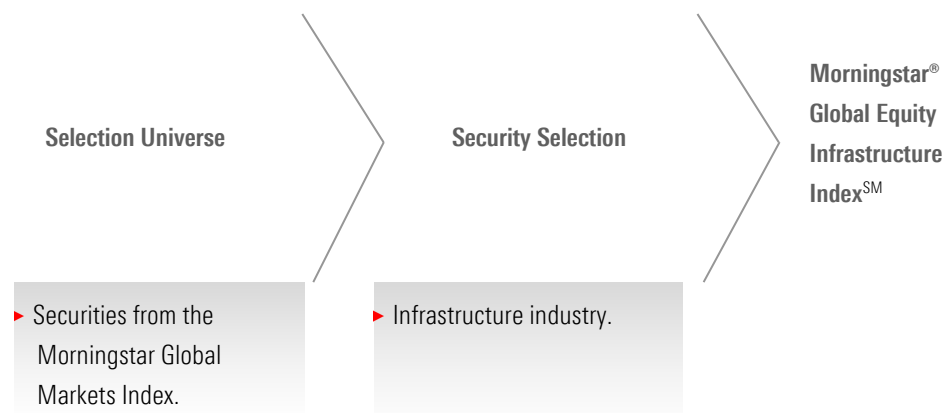
The Morningstar® Global Equity Infrastructure Index<sup>SM</sup> is designed to provide global, diversified exposure to equity issuers identified as infrastructure-related companies using Morningstar's infrastructure asset class definition.

### Index Inception Date and Performance Inception Date

The inception date of the index is September 01, 2014, and the performance inception date of the index is December 19, 2003, when the first back-tested index value was calculated.

## Index Construction

**Exhibit 1** Morningstar Global Equity Infrastructure Index Construction Process



For additional details, refer to the "Assigning Stocks to the Index" section.

### Assigning Stocks to the Index

#### Selection Universe

At each reconstitution, securities for the Morningstar Global Equity Infrastructure Index are derived from the Morningstar Global Markets Index (benchmark). For more details on benchmark construction, refer to the [Construction Rules for the Morningstar Global Markets Index Family](#).

#### Security Selection

To be eligible for the index, securities must be assigned to an infrastructure industry based on the infrastructure taxonomy. For details on the infrastructure taxonomy, refer to Appendix 2.

#### Number of Stocks

The number of stocks in the index is subject to the selection and eligibility criteria at the time of reconstitution.

#### Index Weighting

The index is float market capitalization weighted with maximum sector capping at 50%. For more details, refer to the [Morningstar Indexes Calculation Methodology rulebook](#).

#### Weighting Algorithm

- ▶ Given the weighting constraint, Morningstar employs the following algorithm to assign weights to each constituent such that the constraint is satisfied.

- ▶ Assign weights to each constituent and individual infrastructure sector proportional to the float-adjusted market capitalization of each security.
- ▶ If a sector exceeds the capping constraint, apply the constraint and adjust the weights of the remaining sectors proportionally. For example, if the utilities sector exceeds the maximum sector weight  $w_{max}^U$ , the rescaling is simply

$$w_{new}^U = w_{max}^U$$

$$w_{new}^C = \left( (1 - w_{max}^U) / \sum_{i \in \{C,E,S,T\}} w_{old}^i \right) w_{old}^C$$

$$w_{new}^E = \left( (1 - w_{max}^U) / \sum_{i \in \{C,E,S,T\}} w_{old}^i \right) w_{old}^E$$

$$w_{new}^S = \left( (1 - w_{max}^U) / \sum_{i \in \{C,E,S,T\}} w_{old}^i \right) w_{old}^S$$

$$w_{new}^T = \left( (1 - w_{max}^U) / \sum_{i \in \{C,E,S,T\}} w_{old}^i \right) w_{old}^T$$

- ▶ The result of the weighting algorithm is an adjustment factor that will be applied to all securities' free-float market cap within each sector to arrive at the specified rescaled weight.

## Index Maintenance and Calculation

### Scheduled Maintenance

The index is reconstituted semiannually and implemented after the close of business on the third Friday of June and December and is effective the following Monday. If Monday is a holiday, reconstitution is effective on the immediate following business day. The market data used for reconstitution is as of the last trading day of April and October.

The index is rebalanced quarterly and implemented after the close of business on the third Friday of March, June, September, and December and is effective the following Monday. If Monday is a holiday, rebalance is effective on the immediate following business day. The market data used for rebalance is as of the last trading day of February, April, August, and October.

Refer to Appendix 1 for details on reconstitution and rebalancing.

### Corporate Action

The treatment of corporate actions can be found in the [Morningstar Indexes Corporate Actions Methodology rulebook](#).

### **Index Calculation and Price Data**

Details about index calculations and price data can be found in their respective rulebooks: [Morningstar Indexes Calculation Methodology](#) and [Equity Closing Prices Used for Index Calculation](#).

### **Methodology Review and Index Cessation Policy**

The index methodology is continually reviewed to ensure it achieves all stated objectives. These reviews take into account corporate action treatment, selection, and maintenance procedures. Subscribers to the index will be notified before any methodology changes are made. For more details, refer to the [Morningstar Index Methodology Change Process](#).

Morningstar also notifies all subscribers and stakeholders of the index that circumstances might arise that require a material change to the index, or a possible cessation of the index. Circumstances that could lead to an index cessation include, but are not limited to, market structure change, product definition change, inadequate supply of data, insufficient revenue associated with the index, insufficient number of clients using the index, and/or other external factors beyond the control of the Morningstar Index Committee.

Because the cessation of the index or benchmark index could disrupt subscriber products that reference this index, all subscribers are encouraged to have robust fallback procedures if an index is terminated. For more details, refer to the [Morningstar Index Cessation Process](#).

### **Data Correction and Precision**

#### **Intraday Index Data Corrections**

Commercially reasonable efforts are made to ensure the accuracy of data used in real-time index calculations. If incorrect price or corporate action data affect index daily highs or lows, they are corrected retroactively as soon as is feasible.

#### **Index-Related Data and Divisor Corrections**

Incorrect pricing and corporate action data for individual issues in the database will be corrected upon detection. In addition, an incorrect divisor of an index, if discovered within five days of its occurrence, will always be fixed retroactively on the day it is discovered to prevent an error from being carried forward. Commercially reasonable efforts are made to correct an older error subject to its significance and feasibility.

For more details, refer to the [Recalculation Guidelines](#).

#### **Computational and Reporting Precision**

For reporting purposes, index values are rounded to two decimal places and divisors are rounded to appropriate decimal places.

## Appendixes

### Appendix 1: Glossary

Terms	Description
<b>Reconstitution</b>	During each reconstitution, the steps mentioned in the index construction process are performed, resulting in membership reset.
<b>Rebalance</b>	During each rebalancing, the weights are adjusted for updated free-float and shares outstanding data.

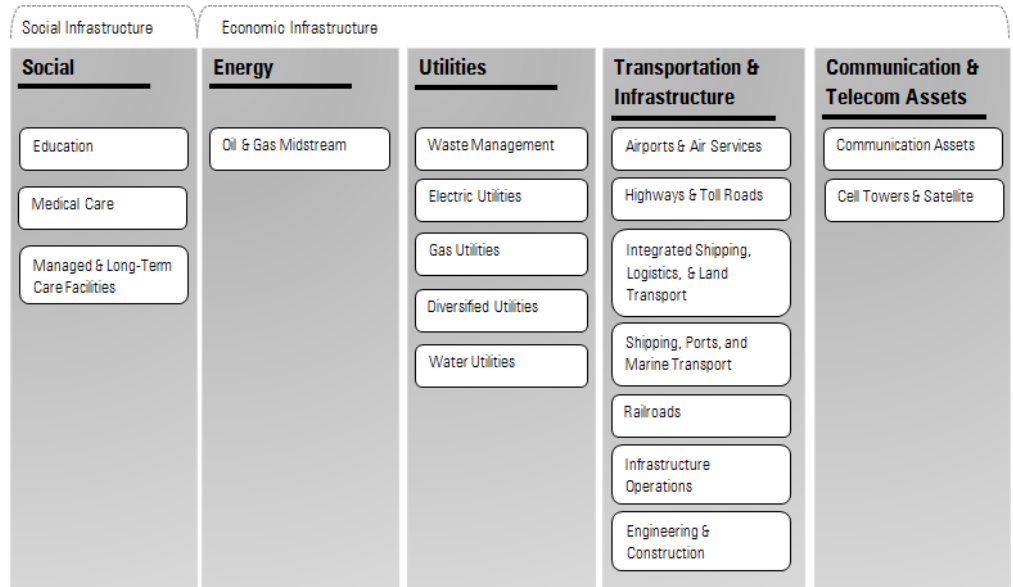
### Appendix 2: Infrastructure Taxonomy Overview

The infrastructure taxonomy consists of 18 industries that meet the Morningstar definition of the infrastructure asset class. The industries fall into one of the five segments that are organized into two Super Sectors, social and economic, as shown below.

Morningstar Global Infrastructure Taxonomy



#### Global Infrastructure



### Industry Assignments

Each security eligible for the index is classified into one of the 18 infrastructure industries that most accurately reflect the company's underlying business. This mapping is based on publicly available information from annual reports, Form 10-Ks, security offering statements, and Morningstar equity/credit analyst input as its primary sources. Secondary sources of information may include company websites, sell-side research (if available), and trade publications.

Issuers are mapped into the industries that best reflect each company's majority revenue and income source. In situations where no clear revenue or income segment holds clear majority or in the case of not-for-profit fixed-income issuers, the classification will be determined by further research and analysis. Further, if the company has more than three sources of revenue or income and there is no clear dominant revenue or income stream, the company is assigned to the conglomerates industry, which is not eligible for the index.

### **Industry Assignment Maintenance**

Based on Morningstar analyst research or third-party information, Morningstar may change industry assignments to more accurately reflect a company's changing business. Industry classification is reviewed at least once a year when a new annual report is available or whenever a major corporate change occurs (a merger or acquisition, for example) that might affect business segment revenue or income.

### **Infrastructure Asset Class Definition**

The infrastructure asset class generally has long-duration assets that elicit stable and predictable cash flows. High entry barriers and monopolistic business models, paired with inelastic demand for essential services provided by infrastructure companies, result in predictable revenue that is often indexed to inflation. Furthermore, the two main revenue drivers, pricing and volume, have particular characteristics within this space. Prices are generally tied to long-term contracts and/or regulation and are often adjusted with inflation. Volume tends to grow steadily because of inelastic demand, efficiencies of scale, and increasing GDP. Hence, in periods of rising inflation, infrastructure investments act as a real asset. Additionally, in times of economic contraction, such businesses tend to have defensive characteristics, since they are relatively insulated due to stable demand irrespective of the economic cycle.

### **Infrastructure Industry Definitions**

The following definitions govern industry assignment when evaluating business segment revenue and income for classification purposes.

#### **Communication and Telecom Assets**

##### **Communication Equipment**

Communication infrastructure is defined as those companies that offer equity and own and operate cell towers or satellites, and primarily generate revenue from long-term contracts that lease access to these assets. Cell tower owners often enjoy 10- to 15-year contracts that are indexed to inflation. Similarly, satellite owners lease bandwidth and are regulated with high barriers to entry. Included in the bond subindex are companies that manufacture telecommunications equipment, telecom technology-related products, hardware, and raw materials required for telecommunications systems.

## **Energy**

### **Oil and Gas Midstream**

Companies that own and operate oilfield pipelines and gather, process, and transport natural crude petroleum. This industry includes companies that process, store, market, and transport bulk natural gas, liquefied natural gas, refined petroleum products, crude oil, and to a lesser extent ethanol, coal, and carbon dioxide. Pipelines are characterized by relatively high barriers to entry, high capital costs, and significant regulatory oversight. While there is ample competition among midstream firms, once a pipeline is in service it demonstrates excess returns.

## **Social**

### **Education**

A handful of major universities worldwide issue corporate bonds to fund the growth and development of their facilities. These are generally private, not-for-profit institutions with high credit ratings and large capital investment and improvement programs.

### **Medical Care**

The healthcare provider industry includes acute-care hospitals, ambulatory surgical centers, dialysis facilities, rehabilitation clinics, and other healthcare-service companies. They provide essential inpatient and outpatient medical services, including clinical visits, emergency care, rehabilitation, and surgical procedures. Healthcare providers generally compete in a fragmented industry, with a majority of revenue stemming from government-controlled reimbursements. Healthcare providers generally have a steady stream of patients that provide stable cash flows despite modest reimbursement concerns. An aging demographic shift in many global developed markets also supports an attractive growth trend for the industry.

### **Managed and Long-Term Care Facilities**

Long-term care providers, including long-term care hospitals, nursing centers, assisted living facilities, retirement communities, and home health and hospice services, fill a wide range of medical needs for patients requiring varying levels of assistance over extended periods of time. This industry maintains a relatively stable inflow of patients and will likely become increasingly important as the result of an aging population demographic in numerous developed countries over the coming decades. These facilities largely depend on government payments, which keeps profitability relatively low. However, facilities with less-intensive medical requirements, such as retirement communities, generally operate more like real estate companies that provide modest value-added medical services.

## **Transportation and Infrastructure**

### **Airports and Air Services**

Air-services companies include helicopter transportation, air-charter services, and other air emergency and business-related services. Public and private operators work within implied or granted authority to manage all the workings of the airport. Acquiring the rights to operate and manage an airport from the government is the most important source of competitive advantage. Returns on capital are driven by

regulated revenue, related to tariffs charged to passengers and airline customers, and by more profitable sales of nonregulated, or commercial, items. Most operators are generally given decades-long rights to operate and manage airports. However, some governments do not allow operators to earn significant excess returns on capital, treating the airport more like a regulated utility than a private business.

#### Railroads

Companies that transport passengers and freight by line-haul railroad. Railroads haul coal, chemicals, grain, shipping containers, automobiles, and myriad other commodities. Unlike those in many other regions, North American railroads generally own the land or rights of way, track, and terminals over which they operate, plus motive power and most rolling stock. While other transportation modes like barges, aircraft, and trucks also haul freight, railroads are the lowest-cost option by far when no waterway connects the origin and destination. Furthermore, railroads operate at an efficient scale.

#### Highways and Toll Roads

Public or private highways and toll roads are sometimes permanently financed by debt issued in the corporate market. These entities are included in the bond subindex along with companies that construct or own highways or highway-related facilities.

#### Shipping, Ports, and Marine Transport

Companies that transport freight and cargo via water are vital to worldwide trade. Container shipping and terminals that focus on multiple modes of freight transport via shipping containers require a substantial infrastructure investment. In the marine segment, inland tank barge providers move bulk liquid cargo throughout waterway systems, while the large steamship lines concentrate on shipping containerized ocean freight, and the ports process containers and break down bulk cargo. On the other hand, competitive advantages exist in the inland barging industry and among port operators, as certain firms should continue to benefit from scale economies and related cost advantages.

#### Infrastructure Operations

Companies that develop, finance, maintain, and manage infrastructure operations such as airports and roadways. Infrastructure operations firms comprise business lines that span industries, geographies, and customer markets contained under one parent or holding company. These companies are similar to concessionaires in the public-private partnership space within the engineering and construction industry.

#### Integrated Shipping, Logistics, and Land Transport

Companies that transport freight and cargo via diversified methods such as trucks, airline, water, and railways. This industry again permits exposure to a wide range of infrastructure operations, but is more specifically focused on transportation assets. Third-party logistics, or 3PL, providers typically operate asset-light business models, buying capacity from asset-based carriers and reselling it to shippers to earn a spread. The 3PL industry includes domestic truck brokers and air and ocean forwarders. Global integrators such as FedEx and UPS not only provide domestic and intercontinental express package delivery but also participate to a significant degree in the 3PL space. Network effect is normally the key



source of competitive advantage. Only a handful of integrated shippers have sufficient scale to offer global parcel delivery service, and this oligopolistic market structure enables more pricing power than if a greater number of firms competed on an international scale. Among the asset-intensive global integrators, competitive advantage is often built by a combination of cost advantage (scale economies), efficient scale, and the network effect. In terms of scale-based cost advantage, the need for global distribution infrastructure and heavy capital investment to compete in international and domestic-express markets is a primary reason there are few providers in the space — DHL, FedEx, UPS, and TNT control the vast majority of the market.

#### Engineering and Construction

Companies in public-private partnerships that specialize in the design, construction, or contracting of large infrastructure building projects. This industry permits exposure to diversified infrastructure investments. The focus lies on firms that generate the majority of their revenue from building and operating toll roads, tunnels, bridges, railways, airports, seaports, and similar capital-intensive infrastructure. These engineering-services firms provide the expertise, services, and equipment necessary to efficiently and cost-effectively solve complex problems in often challenging operating environments. These firms are often asked to solve some of the most difficult engineering problems on the planet while operating in deeply hostile environments, and customers are very reluctant to use unproven providers because a mistake can cost hundreds of millions of dollars.

#### Utilities

##### Regulated Utilities

Regulated utilities generally own difficult-to-replicate distribution, transmission, and generation networks that produce and deliver energy sources such as electricity, natural gas, oil, propane, or water. Regulators must allow a reasonable opportunity for a utility to recover its operating and capital costs through customer rates. Service-territory monopolies and efficient-scale advantages are the primary sources of competitive advantage for regulated utilities. State and federal regulators typically grant regulated utilities exclusive rights to charge customers rates that allow the utilities to earn a fair return on and return of the capital they invest to build, operate, and maintain their distribution networks. In exchange for regulated utilities' service-territory monopolies, state and federal regulators typically set returns at levels that aim to minimize customer costs while offering fair returns for capital providers.

##### Diversified Utilities

Companies that generate, transmit, and/or distribute electricity and natural gas, and own and operate merchant power generation facilities and energy marketing operations.

##### Electric Utilities

Companies that generate, transmit, and/or distribute electric energy for sale.

##### Gas Utilities

Companies that transmit, store, and/or distribute natural gas.

### Water Utilities

Companies that distribute water for sale.

### Waste Management

Companies that collect, treat, store, transfer, recycle, and dispose of waste materials as well as companies that support environmental, engineering, and consulting services. Vertically integrated waste management companies establish collection routes around a network of physical assets, such as landfills, incinerators, and recycling centers. Non-hazardous-waste vendors handle the majority of trash generated by municipal, industrial, and commercial customers. Hazardous-waste companies are subject to greater regulation and often handle specific types of waste, such as medical or radioactive. Hazardous-waste handlers benefit from regulatory permits on the collections side of the business. Owning a landfill or incinerator can be a competitive advantage in countries with strict waste-handling regulations. Owning disposal capacity leads to pricing power in the industry, which provides the foundation for predictable, annuity-type cash flows. The necessity of waste handling provides some assurance for a basic level of demand throughout the economic cycle. Regulatory permits are valuable intangible assets that secure exclusive rights to run a disposal asset for 10-20 years on average. As such, the owners of landfills or incinerator sites develop the ability to set the price.

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**About Morningstar Indexes**

Morningstar® Indexes combine the science and art of indexing to give investors a clearer view into the world's financial markets. Our indexes are based on transparent, rules-based methodologies that are thoroughly back-tested and supported by original research. Covering all major asset classes, our indexes originate from the Morningstar Investment Research Ecosystem—our network of accomplished analysts and researchers working to interpret and improve the investment landscape. Clients such as exchange-traded fund providers and other asset management firms work with our team of experts to create distinct, investor-focused products based on our indexes. Morningstar Indexes also serve as a precise benchmarking resource.

**Morningstar Index Committee**

The [Morningstar Index Committee](#) is currently comprised of senior officials who possess the appropriate levels of knowledge in relation to Indexes. A wide array of business groups are represented to allow for a broad voice to be heard and for a wider view to be expressed in evaluating all subjects brought up during Committee meetings. The Committee seeks to create indexes of the highest quality that meet the recognized qualities of a good benchmark.

**For More Information**

For any queries, reach out to us via our [communication page](#).



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