

S&P Dow Jones Indices

A Division of **S&P Global**

S&P North American Sector Indices *Methodology*

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Introduction

Index Objective, Highlights, and Index Family

The S&P North American Sector Indices measure the performance of specific segments of U.S. stocks and Canadian stocks with U.S. listings. Segments are identified with reference to pre-defined sets of Global Industry Classification Standard (GICS[®]) sectors and industries. Constituents are drawn from either the S&P Total Market Index (TMI) or the S&P/TSX Composite Index.

The index family consists of the following indices:

- S&P North American Natural Resources Sector Index
- S&P North American Technology Sector Index
 - S&P North American Technology Multimedia Networking Index
 - S&P North American Technology Software Index

Each index is capped market capitalization weighted. The selection criteria include requirements for GICS classification, the exchange on which a company is traded, minimum capitalization, minimum float, and minimum liquidity. A company that meets the screening criteria, at each reconstitution reference date, will be included in the corresponding Sector Index.

For more information on S&P Dow Jones Indices' capped market capitalization weighted methodology, please refer to S&P Dow Jones Indices' Index Mathematics Methodology document.

At each rebalancing, the weight of a particular company in a Sector Index is capped at a level determined on a sector-by-sector basis. Please refer to *Capping Methodology* for further details.

Supporting Documents

This methodology is meant to be read in conjunction with supporting documents providing greater detail with respect to the policies, procedures and calculations described herein. References throughout the methodology direct the reader to the relevant supporting document for further information on a specific topic. The list of the main supplemental documents for this methodology and the hyperlinks to those documents is as follows:

Supporting Document	URL
S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology	Equity Indices Policies & Practices
S&P Dow Jones Indices' Index Mathematics Methodology	Index Mathematics Methodology
S&P Dow Jones Indices' Float Adjustment Methodology	Float Adjustment Methodology
S&P Dow Jones Indices' Global Industry Classification Standard (GICS) Methodology	GICS Methodology

This methodology was created by S&P Dow Jones Indices to achieve the aforementioned objective of measuring the underlying interest of each index governed by this methodology document. Any changes to or deviations from this methodology are made in the sole judgment and discretion of S&P Dow Jones Indices so that the index continues to achieve its objective.

Eligibility Criteria

Index Eligibility

The company must be a member of either the S&P Total Market Index (TMI) or the S&P/TSX Composite Index in order to be considered for index inclusion.

Eligibility Factors

Market Capitalization. At each reconstitution, companies must have full market capitalization above their sector capitalization cutoff as of the reconstitution reference date to be added to the index. These cutoffs are subject to change depending on market requirements. The sector capitalization cutoffs are as follows:

Index	Sector Capitalization Cutoff
S&P North American Natural Resources Sector Index	US\$ 2.4 billion
S&P North American Technology Sector Index	US\$ 1.4 billion
S&P North American Technology Multimedia Networking Index	
S&P North American Technology Software Index	

Current index constituents with a full market capitalization below 50% of their sector capitalization cutoff are removed.

Liquidity. Stocks must have a liquidity ratio greater than 30%. The liquidity ratio is defined as the annualized dollar value traded over the previous six months divided by the average full market capitalization over the previous six months. The length of time to evaluate liquidity is reduced to the available trading period for IPOs or spin-offs that do not have six months of trading history. If a stock has been trading for fewer than six calendar months but more than 22 trading days, the stock’s average daily share volume for its entire trading history is used to calculate its liquidity ratio.

Current index constituents with a liquidity ratio less than 15% based, on annualized dollar value traded for the prior six calendar months, are removed.

Public Float. Companies with float below 20% are not eligible (10% for current constituents).

For more information on float adjustment, please refer to S&P Dow Jones Indices’ Float Adjustment Methodology.

Exchange Listing. The company’s stock must trade on the NYSE (including NYSE Arca), the NYSE American, the NASDAQ Global Select Market, the NASDAQ Select Market, the NASDAQ Capital Market, Investors Exchange (IEX), or BATS. Only actual common shares outstanding are eligible for inclusion. Canadian companies with common shares listed on the above exchanges are eligible for inclusion, but ADRs are not eligible.

Sector Classification. Stocks are classified according to the Global Industry Classification Standard (GICS®).

Index	GICS Classifications (GICS Code)
S&P North American Natural Resources Sector Index	Companies classified under: <ul style="list-style-type: none"> • Energy Sector (GICS code 10) • Materials Sector (GICS code 15) <u>excluding:</u> <ul style="list-style-type: none"> • Chemicals Industry (from the Materials Sector, GICS code 151010) • Steel Sub-Industry (from the Materials Sector, GICS code 15104050)
S&P North American Technology Sector Index	Companies classified under: <ul style="list-style-type: none"> • Information Technology Sector (GICS code 45) • Internet & Direct Marketing Retail Sub-Industry (GICS code 25502020) • Interactive Home Entertainment Sub-Industry (GICS code 50202020) • Interactive Media & Services Sub-Industry (GICS code 50203010)
S&P North American Technology Multimedia Networking Index	Companies classified under: <ul style="list-style-type: none"> • Communications Equipment Sub-Industry (GICS code 45201020)
S&P North American Technology Software Index	Companies classified under: <ul style="list-style-type: none"> • Application Software Sub-Industry (GICS code 45103010) • Systems Software Sub-Industry (GICS code 45103020) • Home Entertainment Software Sub-Industry (GICS code 45103030)

For more information on the structure of GICS, please refer to the Global Industry Classification Standard (GICS®) Methodology.

Minimum Constituent Count. At each quarterly rebalancing, if the constituent count is less than 22 after applying the rules set forth in the eligibility criteria, the market capitalization requirement is relaxed so that the next largest non-constituent in the eligible universe is added until the constituent count reaches 22.

Multiple Classes of Stock. All publicly listed multiple share class lines are eligible for index inclusion, subject to meeting the eligibility criteria. For more information regarding the treatment of multiple share classes, please refer to Approach A within the Multiple Share Classes section of S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Index Construction

Approaches

The indices are capped market capitalization weighted, based on float-adjusted common shares outstanding. The weight removed from a company, due to that company exceeding the cap, is proportionally redistributed among all other uncapped index constituents.

S&P Dow Jones Indices believes turnover in index membership should be avoided when possible. At times a company may appear to temporarily violate one or more of the addition criteria. However, the addition criteria are for addition to an index, not for continued membership. As a result, an index constituent that appears to violate criteria for addition to that index will not be deleted unless ongoing conditions warrant an index change.

Constituent Weightings

The index is weighted by float-adjusted market capitalization, subject to the diversification rules outlined below.

The weight of a particular company in an index is capped at the following levels:

Index	Company Weight Cap
S&P North American Natural Resources Sector Index	10%
S&P North American Technology Sector Index	8.5%
S&P North American Technology Multimedia Networking Index	
S&P North American Technology Software Index	

The following procedure is used to ensure that no index constituent weighting exceeds the pre-defined maximum weight as of the rebalancing reference date:

1. The reference date for pricing is the second Thursday of March, June, September, and December.
2. With prices reflected on the pricing reference date, and membership, shares outstanding and IWFs as of the rebalancing effective date, each company is weighted by float-adjusted market capitalization.
3. If any company's weight exceeds the maximum detailed above, that company's weight is capped at the maximum level and all excess weight is proportionally redistributed to all uncapped companies within the index. If, after this redistribution, any company breaches the weight cap the process is repeated iteratively until no company breaches the company capping rule.
4. Then, the aggregate weight of the companies in the index with a weight greater than 4.5% cannot exceed 45% (22.5% for the S&P North American Natural Resources Sector Index). These caps are set to allow for a buffer below the respective 5% and 50% limits (5% and 25% for the S&P North American Natural Resources Sector Index).
5. If the rule in step 4 is breached, all the companies are ranked in descending order of their weights and the company with the lowest weight that causes the 45% (22.5% for the S&P North American Natural Resources Sector Index) limit to be breached is reduced either until the rule in step 4 is satisfied or its individual weight falls to 4.5%.
6. This excess weight is proportionally redistributed to all companies with weights below 4.5%. Any stock that receives weight cannot breach the 4.5% cap. This process is repeated iteratively until step 4 is satisfied or until all stocks are greater than or equal to 4.5%.

Daily Dynamic Capping

The S&P North American Natural Resources Sector Index is also reviewed daily based on each company's capped market capitalization weight. Daily capping is performed when the aggregate weight of companies in the index with a weight greater than 4.8% exceeds 24%.

Index Maintenance

Rebalancing

Index membership is reviewed semi-annually, effective after the market close on the third Friday of June and December, respectively. The reconstitution reference date is after the market close of the last trading date of the previous month.

Weight Capping is applied quarterly, after the market close on the third Friday of March, June, September, and December, using prices from the close of the second Thursday of the respective month.

Additions. Except for spin-offs, companies can only be added to an index at the time of the semi-annual reconstitution.

All companies not already in the index, which meet the eligibility criteria on the reconstitution reference date, are added to the index prior to the open of trading on the reconstitution date.

Deletions. Between rebalancings, a company can be deleted from the indices due to corporate events such as mergers, acquisitions, takeovers or delistings. Deleted constituents are not replaced. In the case of GICS changes, where a company does not belong to a qualifying sector after a classification change, it is removed from the relevant index at the next reconstitution.

Spin-offs. The spun-off company is added to the index at a zero price after the market close of the day before the ex-date (with no divisor adjustment).

If the spun-off company remains in the underlying universe (S&P Total Market Index (TMI) or the S&P/TSX Composite Index), both the parent and the spun-off companies will remain in the index until the next index reconstitution, at which time each will be evaluated for continued membership.

If the spin-off does not remain in the underlying universe, the spun-off company is then removed from the index after the close of its first day of regular way trading (with a divisor adjustment).

Corporate Actions

For information on Corporate Actions, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology document.

Other Adjustments

In cases where there is no achievable market price for a stock being deleted, it can be removed at a zero or minimal price at the Index Committee's discretion, in recognition of the constraints faced by investors in trading bankrupt or suspended stocks.

Investable Weight Factor (IWF)

All issues in the indices are assigned a float factor, called an Investable Weight Factor (IWF). The IWF ranges between 0 and 1 and is an adjustment factor that accounts for the publicly available shares of a company.

Please refer to S&P Dow Jones Indices' Float Adjustment Methodology for details.

Currency, Currency Hedged, and Risk Control Indices

The indices are calculated in U.S. dollars.

Additional currency, currency hedged, decrement, fair value, and risk control versions of the indices may be available. Please note that this list of versions may not be complete, and that other index variations may exist. For a list of available indices, please refer to [S&P DJI's All Indices by Methodology Report](#).

For more information on these types of indices, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

Base Dates and History Availability

Index history availability, base dates and base values are shown in the table below.

Index	First Value Date	Base Date	Base Value
S&P North American Natural Resources Sector Index	08/29/1996	04/30/1998	100
S&P North American Technology Sector Index	01/21/1994	04/30/1996	100
S&P North American Technology Multimedia Networking Index	01/21/1994	04/30/1996	100
S&P North American Technology Software Index	01/21/1994	04/30/1996	100

Index Data

Calculation Return Types

S&P Dow Jones Indices calculates multiple return types which vary based on the treatment of regular cash dividends. The classification of regular cash dividends is determined by S&P Dow Jones Indices.

- Price Return (PR) versions are calculated without adjustments for regular cash dividends.
- Gross Total Return (TR) versions reinvest regular cash dividends at the close on the ex-date without consideration for withholding taxes.
- Net Total Return (NTR) versions, if available, reinvest regular cash dividends at the close on the ex-date after the deduction of applicable withholding taxes.

In the event there are no regular cash dividends on the ex-date, the daily performance of all three indices will be identical.

For a complete list of indices available, please refer to the daily index levels file (“SDL”).

For more information on the classification of regular versus special cash dividends as well as the tax rates used in the calculation of net return, please refer to S&P Dow Jones Indices’ Equity Indices Policies & Practices Methodology.

For more information on the calculation of return types, please refer to S&P Dow Jones Indices’ Index Mathematics Methodology.

Index Governance

Index Committee

S&P Dow Jones Indices' Americas Thematic and Strategy Index Committee maintains the indices. All members are full-time professional members of S&P Dow Jones Indices' staff. At each meeting, the committee reviews pending corporate actions that may affect index constituents, statistics comparing the composition of the indices to the market, companies that are being considered as candidates for addition to an index, and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting companies, treatment of dividends, share counts or other matters.

S&P Dow Jones Indices considers information about changes to its U.S. indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

S&P Dow Jones Indices' Index Committees reserve the right to make exceptions when applying the methodology if the need arises. In any scenario where the treatment differs from the general rules stated in this document or supplemental documents, clients will receive sufficient notice, whenever possible.

In addition to the daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, S&P Dow Jones Indices may publish a consultation inviting comments from external parties.

For information on Quality Assurance and Internal Reviews of Methodology, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Index Policy

Announcements

All index constituents are evaluated daily for data needed to calculate index levels and returns. All events affecting the daily index calculation are typically announced in advance via the Index Corporate Events report (.SDE), delivered daily to all clients. Any unusual treatment of a corporate action or short notice of an event may be communicated via email to clients.

All methodology changes are posted to the S&P Dow Jones' Web site and announced via email to all clients. The latest available version is posted on the Web site at www.spdji.com.

For more information, please refer to the Announcements section of S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Pro-forma Files

In addition to the corporate events file (.SDE), S&P Dow Jones Indices provides constituent pro-forma files each time the indices rebalance. The pro-forma file is typically provided daily in advance of the rebalancing date and contains all constituents and their corresponding weights and index shares effective for the upcoming rebalancing. Since index shares are assigned based on prices six business days prior to the rebalancing, the actual weight of each stock at the rebalancing differs from these weights due to market movements.

Please visit www.spdji.com for a complete schedule of rebalancing timelines and pro-forma delivery times.

Holiday Schedule

The indices are calculated when the U.S. equity markets are open.

A complete holiday schedule for the year is available on S&P Dow Jones Indices' Web site at www.spdji.com.

Rebalancing

The Index Committee may change the date of a given rebalancing for reasons including market holidays occurring on or around the scheduled rebalancing date. Any such change will be announced with proper advance notice where possible.

Unexpected Exchange Closures

For information on Unexpected Exchange Closures, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Recalculation Policy

For information on the recalculation policy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

For information on Calculations and Pricing Disruptions, Expert Judgment and Data Hierarchy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Contact Information

For questions regarding an index, please contact: index_services@spglobal.com.

Index Dissemination

Index levels are available through S&P Dow Jones Indices' Web site at www.spdji.com, major quote vendors (see codes below), numerous investment-oriented Web sites, and various print and electronic media.

Tickers

The table below lists headline indices covered by this document. All versions of the below indices that may exist are also covered by this document. Please refer to [S&P DJI's All Indices by Methodology Report](#) for a complete list of indices covered by this document.

Index	Return Type	Bloomberg
S&P North American Natural Resources Sector Index	Price Return Total Return	SPGSSINR SPGINRTR
S&P North American Technology Sector Index	Price Return Total Return	SPGSTI SPGICTR
S&P North American Technology Multimedia Networking Index	Price Return Total Return	SPGSTIIP SPGIIPTR
S&P North American Technology Software Index	Price Return Total Return	SPGSTISO SPGISOTR

Index Data

Daily constituent and index level data are available via subscription.

For product information, please contact S&P Dow Jones Indices, www.spdji.com/contact-us.

Web site

For further information, please refer to S&P Dow Jones Indices' Web site at www.spdji.com.

Appendix

Methodology Changes

Methodology changes since January 1, 2015 are as follows:

Change	Effective Date (After Close)	Methodology	
		Previous	Updated
Minimum Constituent Count	03/15/2019	--	At each quarterly rebalancing, if the constituent count is less than 22 after applying the rules set forth in the eligibility criteria, the market capitalization requirement is relaxed so that the next largest non-constituent in the eligible universe is added until the constituent count reaches 22.
5% Rule	03/15/2019	<p>Index constituent share changes resulting from public offerings (also known as follow-on offerings or secondary offerings) that equal 5% or more of the total shares outstanding are eligible for next day implementation. Block trades and spot secondaries must meet the above criteria in order to be eligible for next day implementation.</p> <p>Next day implementation includes a review of the company's IWF using the latest publicly available ownership data. Any change in the IWF of at least five (5) percentage points resulting from the review is implemented with the share update.</p>	<p>Confirmed share changes that are at least 5% of the total shares outstanding are implemented weekly. Total shares outstanding (not float-adjusted shares) are used to determine whether the share change meets this 5% threshold. Share changes of 5% or greater resulting from aggregated smaller share change events are implemented when S&P Dow Jones Indices is able to validate the cumulative change.</p> <p>Share changes are applied weekly and are announced after the market close on Fridays for implementation after the close of trading the following Friday (i.e. one week later). If a change in total shares outstanding of at least 5% causes a company's IWF to change by at least five (5) percentage points, the IWF is updated at the same time as the share change. IWF changes resulting from partial tender offers are considered on a case-by-case basis. Changes to share counts that total less than 5% of total shares are accumulated and made quarterly on the third Friday of March, June, September and December.</p>
Capping Thresholds for the S&P North American Natural Resources Sector Index	03/15/2019	<p>The index is weighted by float-adjusted market capitalization, subject to the following:</p> <ul style="list-style-type: none"> The weight of any individual company is capped at 7.5%. If any company's weight exceeds 7.5%, that company's weight is capped at 7.5% and all excess weight is proportionally redistributed to all uncapped companies within the index. If after this redistribution, any company breaches the 7.5% weight cap, the process is repeated iteratively until no company breaches the 7.5% weight cap. Then, the aggregate weight of companies in the index with a weight greater than 4.5% is capped at 45%. 	<p>The index is weighted by float-adjusted market capitalization, subject to the following:</p> <ul style="list-style-type: none"> The weight of any individual company is capped at 10%. If any company's weight exceeds 10%, that company's weight is capped at 10% and all excess weight is proportionally redistributed to all uncapped companies within the index. If after this redistribution, any company breaches the 10% weight cap, the process is repeated iteratively until no company breaches the 10% weight cap. Then, the aggregate weight of companies in the index with a weight greater than 4.5% is capped at 22.5%.

Change	Effective Date (After Close)	Methodology	
		Previous	Updated
Daily Dynamic Capping for the S&P North American Natural Resources Sector Index	03/15/2019	--	The index is also reviewed daily based on each company's capped market capitalization weight. Daily capping is performed when the aggregate weight of companies in the index with a weight greater than 4.8% exceeds 24%.
Eligible GICS Sectors and Sub-Industries (Codes) for the S&P North American Technology Sector Index	12/21/2018	Companies classified under: <ul style="list-style-type: none"> Information Technology Sector (GICS code 45) Internet Retail Sub-Industry (from the Consumer Discretionary Sector, GICS Code 25502020) 	Companies classified under: <ul style="list-style-type: none"> Information Technology Sector (GICS code 45) Internet & Direct Marketing Retail Sub-Industry (GICS code 25502020) Interactive Home Entertainment Sub-industry (GICS code 50202020) Interactive Media & Services Sub-industry (GICS code 50203010)
Clarification of Index Capping Rules	03/04/2016	In the event an index count falls to a level that renders the general capping rules unworkable, S&P Dow Jones Indices may relax the 4.5%/45% rule.	S&P Dow Jones Indices has provided a detailed process for capping in the event an index count falls to a level that renders the general capping rules unworkable.

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