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BEFORE THE
SURFACE TRANSPORTATION BOARD

REVISIONS TO THE BOARD'S	)	
METHODOLOGY FOR	)	EP 664 (Sub-No. 4)
DETERMINING THE RAILROAD	)	
INDUSTRY'S COST OF CAPITAL	)	

COMMENTS OF THE WESTERN COAL TRAFFIC LEAGUE

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Pursuant to notice of proposed rulemaking that the Surface Transportation
Board ("STB" or "Board") served in EP 664 (Sub-No. 4) on September 30, 2019, as
corrected October 11, 2019 (the "Notice"), the Western Coal Traffic League ("WCTL" or
"League")[1] submits the following comments.

I.
SUMMARY

WCTL commends the Board for revisiting the subject of the cost of equity
("COE") component of the railroad industry cost of capital ("COC"). WCTL also agrees
that including a transition or phase-in of the terminal growth rate in the second stage of
the proposed "Step MSDCF" represents an improvement on the Multi-Stage Discounted
Cash Flow model ("MSDCF") that the Board has been utilizing.

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[1] WCTL is a voluntary association, whose regular membership consists entirely of
shippers of coal mined west of the Mississippi River that is transported by rail. WCTL
members currently ship and receive in excess of 90 million tons of coal by rail each year.
WCTL's members are: Ameren Missouri, Arizona Electric Power Cooperative, Inc.,
Austin Energy (City of Austin, Texas), CLECO Corporation, CPS Energy, Entergy
Services, Inc., Kansas City Power & Light Company, Lower Colorado River Authority,
MidAmerican Energy Company, Minnesota Power, Nebraska Public Power District, and
Western Fuels Association, Inc.

However, the Board's proposal is so limited as to be misguided. The Board focuses on stability, when its overriding concern should be accuracy. The proposed inclusion of the Step MSDCF will have modest impact on COE stability, but very little on COE accuracy. Stability can be useful at times, but when it serves to lock-in overstated values and isolate them from the opportunity cost of capital, as is the case here, stability detracts from accuracy.

The Board should adduce an accurate railroad COE by dropping the MSDCF altogether and relying instead entirely on the Capital Asset Pricing Model ("CAPM") calculated with the use of a more current market risk premium ("MRP"). That approach will better align the Board with the financial and investment community and most accurately capture the opportunity cost of capital for investment in equity in the Class I railroad industry. The change would also increase stability substantially.

Adoption of Mr. Grabowski's adjustment to the MSDCF terminal growth rate would also be helpful, but its impact is too limited to have much benefit.

If the Board is to insist on a "hybrid" methodology combining the MSDCF and CAPM, it should first revise its Step MSDCF to use a narrower measure of cashflow and address the stock buyback distortion, and then combine the corrected Step MSDCF with the CAPM calculated using a current MRP. If the Board insists on retaining its existing CAPM and MSDCF, the better approach would be to weight equally: (a) the existing CAPM, (b) the CAPM with a current MRP, (c) the existing MSDCF adjusted for buybacks, and (d) the Step MSDCF adjusted for buybacks and redefined cashflow. If the Board's logic is three models are better than two, then four should be better than three,

and the current MRP represents additional information considered material by investors that should be incorporated rather than excluded.

These and related matters, including the treatment of operating leases in the capital structure, are addressed below. WCTL's comments are supported by the Verified Statement of Thomas D. Crowley of L.E. Peabody & Associates, Inc., attached as Exhibit C.

II.
DISCUSSION

1.   The Board's key objective should be COC accuracy, not stability.

WCTL fully agrees with Board's premise "that its cost-of-capital determinations could be strengthened." Notice at 4. WCTL has long urged such change. However, the Notice addresses a subsidiary issue, namely, the variability in COE values over a multiple-year period, and proposes a modest solution for the perceived problem, lack of stability, that does little to address the real problem, lack of accuracy. The fluctuation in the Board's COE figures over the years is a function of their inaccuracy, which in turn results from the Board's flawed methodology.

The stated impetus for the Board's Notice is that its 2018 COC value (12.22%) represents a sharp increase, 218 basis points, over its 2017 COC value (10.04%), and that the increase is largely attributable to the COE, particularly the MSDCF component and its sensitivity to high growth rates. The Board is right to be

concerned about the COE increase and its MSDCF cause, when there is no indication that railroads or equities generally have become that much riskier, or riskier at all.

However, the Board should be much more concerned that its 2018 COC figure is not supported by any independent benchmark and far exceeds those that WCTL has identified elsewhere.[2] In particular, the Board's figure is 500 basis points (or 70%) higher than the circa 7% COC values determined by respected independent analysts and recently confirmed by then-BNSF Executive Chairman Matt Rose.[3] The Board's COC value for 2017 and even 2016 (8.88%) also exceeded independent benchmarks, as did

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[2] WCTL's filing *Railroad Cost of Capital – 2018*, EP 558 (Sub-No. 22), filed May 13, 2019, at 2, identified values from Morgan Stanley for the four carriers in the composite sample ranging from 7.1% to 7.4%, as well as lower values from 6.1% to 6.2% from ISS-EVA (Institutional Shareholders Service group). WCTL's table also presented a 2018 CAPM COC of 7.83% using the AAR's inputs and the Duff & Phelps 5.0% MRP.

Morgan Stanley values that WCTL previously submitted to show COC overstatement also show substantial stability in the COC perceived by the investment community. For example, WCTL's filing in in *Railroad Cost of Capital – 2015*, EP 558 (Sub-No. 19), filed May 11, 2016, at 3, showed values ranging from 6.5% to 7.4%, and in *Railroad Cost of Capital – 2016*, EP 558 (Sub-No. 20), filed May 11, 2017, showed values ranging from 7.1% to 7.4%. Morgan Stanley's 4Q19 Preview/2020 Outlook dated January 6, 2020, thereby reflecting data only through 2019, shows very similar values ranging from 7.0% (UP) to 7.5% (NS).

[3] WCTL Comments in EP 558 (Sub-No. 22), filed May 13, 2019, noted that Mr. Rose's comments were reported at both https://www.commtrex.com/tony-hatch-articles/gwr-seeks-gold-in-high-valuations-rail-meetings-in-the-southwest-swars-ref/takeaways and https://www.railwayage.com/financeleasing/matt-rose-at-ref-2019-its-about-growth-not-cutting/. The first article explained that BNSF's return on net investment (around 15%) vastly exceeded the cost of capital and provided ample incentive for reinvestment, and noted that Mr. Rose was critical of CSX and UP for cutting capital expenditures as a percentage of revenue in view of those returns. The second article explained that Mr. Rose referred to the "dark side" of precision scheduled railroading, particularly how cutting capital expenditures hinders long-term growth, causes "service disruptions," and "can result in unanticipated but logical bad public policy outcomes."

earlier determinations. The Board's persistent evasion of the real COE problem has

caused it to propose only a marginal improvement for the wrong problem – lack of

stability, with no consideration of the problem – lack of accuracy.

2.   The Board can best approximate the financial and investment community's railroad COE by using the community's predominant methodology, which is the CAPM combined with a current MRP.

The Board apparently remains of the view that the COE is inherently

unknowable, as "there is no single simple or correct way to estimate" the rail COE and

"no one model is 'conceptually or pragmatically superior to the other.'" Notice at 3

(citation omitted). Accordingly, the Board "uses multiple models" that it insists are

somehow "more robust," but nonetheless recognizes that its existing MSDCF has led to

variability because of the model's sensitivity to changes in analysts' earnings per share

projections that result from one-time or otherwise non-permanent changes. *Id.* at 3-4.

The Board's premise that the COE is unknowable may lead it to conclude that the COE

should be stable, although the linkage of the two is less than apparent.

WCTL strongly disputes the Board's initial premise. The COE may not be

directly observable, but it is properly defined as the opportunity cost of capital and the

Board purports to employ it on that basis. As WCTL has repeatedly explained, the

overwhelming consensus in the financial and business community is to calculate the COE

using the CAPM with a MRP that reflects current investor expectations, not historical

premiums.[4] The consensus CAPM methodology and the consensus MRP yield a railroad

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[4] *E.g.*, R. Bruner, K. Eades, R. Harris, & R. Higgins, *Best Practices in Estimating the Cost of Capital: Survey and Synthesis*, Fin. Practice and Education 8, No. 1 (Spring-

COC approaching 7% in recent years, very much in line with the values published by

Morgan Stanley and other analysts and also that identified by BNSF Executive Chairman

Matt Rose before his departure. The consensus model is relatively simple to apply and

conceptually and pragmatically superior in terms of capturing actual investor practice and

expectations and tracking changes therein. As shown *infra*, it even yields stable results.

Because the COE is not directly observable, the preferred risk-free rate

("RFR"), MRP, and beta inputs for the CAPM can be debated. However, those debates

are relatively confined (particularly as the RFR and MRP should be consistent with each

other) and do not detract from the reality that CAPM is the overwhelmingly dominant

approach, there is strong conceptual and empirical support for using a current MRP, and

recent COC values around 7% are the norm and readily approximated under the CAPM

using standard inputs. The Board's insistence on using other approaches makes it

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Summer 1998), at 27 (85% of companies surveyed use the CAPM to calculate the COE);
John Graham & Campbell Harvey, *The Theory and Practice of Corporate Finance:
Evidence from the Field*, 60(2) J. of Fin. Econ. 187, 201 (2001) (stating that "the CAPM
is by far the most popular method of estimating the cost of equity capital … as 73.5% of
respondents always or almost always use CAPM," whereas "[f]ew firms back the cost of
equity out from a dividend discount model"); K Eades, R. Harris, & R. Higgins, *Best
Practices in Estimating the Cost of Capital: An Update*, 1 J. of Applied Finance 15
(2013) (finding that CAPM had become even more dominant since their 1998 article and
that only one (5%) of the firms surveyed (which included UP) relied on a dividend
discount (DCF) model, and only as a check on the CAPM); *Estimating and Applying
Cost of Capital*, Ass'n for Fin. Prof. (2013) ("AFP Survey") (finding that 85% of all
respondents, and 87% of publicly traded respondents, used the CAPM, but only 4% used
the dividend discount model, 2% used the arbitrage pricing model, and 9% used other).
The AFP Survey at 11 also noted that 50% of publicly-traded respondents used an MRP
of 4.9% or below, and only 27% used a MRP above 5.9%. Duff & Phelps, discussed
infra, recommended a current 5% MRP for 2013, whereas the Board used a 1926-based
historical average MRP of 6.96% for that year.

exceedingly likely that its hybrid methodology will adduce inaccurate figures on an ongoing basis, as it has.

The Board and the railroads have never provided any independent benchmark support for the values produced by the Board's methodologies. No railroad has ever attested that it uses values or methods similar to those relied upon by the Board, and there are strong indications that they do not. At the recent revenue adequacy hearing in EP 761/722 on December 13, 2019, Sean Pelkey, CSXT's Vice President and Treasurer, would not reveal actual COE or COC numbers (Tr. 180), but stated that CSXT relies on its group of thirteen banks for its values (*id.*), "the banks predominantly use CAPM" as "a commonly accepted methodology" (Tr. 181), disagreed with the AAR's outside experts regarding blending the CAPM and MSDCF ("It doesn't me as you heard on the last panel that it's correct.") (Tr. 181), and added that "even though in business school they teach us the way to value a company is to look at its future cash flows and discount them at the cost of capital [as with the MSDCF], most investors don't do that" (Tr. 183). The Board also acknowledged in the Consumers rate case that at least CSX uses lower values.[5] Matt Rose has now disclosed that BNSF uses values very close to those that WCTL has identified and that Morgan Stanley and others have published. UP is also highly likely among the overwhelming majority of firms that relies on the CAPM

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[5] *Consumers Energy Co. v. CSX Transp., Inc.*, NOR 42142 (STB served Jan. 11, 2018, updated Mar. 14, 2018), at 18. The Board gave little weight to those values because CSX did not produce them internally, but Mr. Pelkey's testimony is that CSXT avoids producing values internally and instead prefers to rely on those provided by its banks.

for its COE, as it was one of the firms surveyed in the 2013 *Best Practices* article

discussed at n.3, *supra*.

Within this context, criticism of WCTL for not being able to specify

exactly how firms such as Morgan Stanley or Matt Rose derive their COC figures is

contrived. Their values are easily and closely approximated using standard CAPM

inputs. In contrast, the Board and the railroads have not identified any separate support

for the far higher values produced by even the Board's existing CAPM approach with the

historical MRP, much less the usually substantially higher values produced by the

MSDCF and the hybrid methodology.

3.   The interior logic of the MSDCF does not ensure its accuracy.

WCTL has repeatedly shown how the presence of high analyst growth rates

causes the MSDCF to produce high COE values and to increase the disparity between the

MSDCF and CAPM COE values. The impact of high growth rates on that disparity is

particularly evident in 2018 and appears to provide the impetus for the proposed Step

MSDCF.

The Board's recurring response has been to point to what it depicts as the

MSDCF's inherent logic. The assertion is that the impact of the high growth rates on the

MSDCF cannot be considered in isolation because they are accompanied by higher share

prices, and the high growth rates and high share prices operate in conjunction under the

MSDCF to moderate the COE that is defined as the discount rate at which the net present

value (market cap) equates to the projected cashflows.

However, the MSDCF's interior "logic" noted by the Board establishes, at most, only that the MSDCF does not deliver values that are as overstated as they might be otherwise. The asserted logic is not sufficient to demonstrate, much less ensure, that the model produces accurate results or even plausible ones. The model must still be properly calibrated or "tethered." An analogy is that mounting new tires on a car wheel will not deliver good performance unless the tires are properly balanced and the wheels properly aligned. In the case of MSDCF, one must still consider if the cashflow definition and the growth rates are combined in a manner that reasonably tracks investor expectations. The Board has eschewed this essential task altogether by limiting its consideration only to whether the results are stable, and then averaging the MSDCF with a flawed CAPM to obtain a result that it claims is somehow more "robust." [6]

Something more than mere agnosticism as to the accuracy and reasonableness of the actual results is required, especially when the MSDCF values have always exceeded the CAPM values, even those calculated with the overstated historical MRP, often by substantial amounts, as in 2018. The MSDCF's internal logic provides no assurance that the model is properly calibrated and that the results are sound. Yet, the Board has never meaningfully considered the calibration issue, despite WCTL's repeated

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[6] In contrast, the CAPM is tethered in the way that the MSDCF is not. The CAPM uses a risk-free rate (the current yield for 20-year Treasury bonds) that is directly observed from the market and forms a baseline for all investment. The market risk premium reflects the premium expected to incent investments in equities generally (the S&P 500) instead of the risk-free rate. The beta represents the nondiversifiable or systemic risk inherent in investing in the individual equity(ies) at issue instead of equities generally.

presentations that the MSDCF values are high relative to those presented by respected sources such as Morgan Stanley and now even Matt Rose.

4.   Combining the CAPM with the MSDCF makes the COE less accurate, not "more robust."

The Board's claim that combining the CAPM and the MSDCF produces a "more robust" analysis, Notice at 2-8, is also unsubstantiated. As explained *supra*, the CAPM (with a current MRP) closely tracks available benchmarks, and the MSDCF does not. Including the MSDCF produces error and, as shown *infra,* increases volatility, not accuracy. In other words, two wrongs – the defective MSDCF and the CAPM calculated with a historical MRP – do not make a right.

The Board's repeated claim that the hybrid approach is superior because the CAPM looks backwards and the MSDCF looks forward, is misplaced. The claim that the CAPM is backwards-looking rests largely on the MRP, where the Board insists on using a historical, 1926-based MRP. Using the current MRP, as WCTL urges, would reverse the Board-imposed limitation. Any remaining claim that the CAPM remains backward-looking because betas reflect historical data is flawed because the railroad betas have varied relatively little. The railroad betas in recent years peaked in 2013 at 1.3499 and have declined since then, reaching 1.1120 for 2018. Nothing suggests they will be substantially higher than they have been, and there is some reason to suspect that they are reverting to a lower mean, as suggested by the Blume adjustment. Substituting the highwater beta from 2013 would not begin to eliminate the difference between the CAPM, especially one calculated with a current MRP, and the MSDCF.

While MSDCF models are available and used in some other contexts, the

Board has not shown that investors utilize them for railroads, nor have the railroads

themselves. A more typical MSDCF use is for determining the allowable return on

equity for fully-regulated utilities. Recent examples include the Direct Testimony that

Patrick C. Hager, Christopher Liddle, and Bente Villadsen, PhD, of the Brattle Group

(the AAR's recent expert witness in Board COE matters) submitted on behalf of Portland

General Electric Company (PGE) to the Oregon Public Utility Commission in UE 335 on

February 15, 2018 ("Direct Testimony"), and Dr. Villadsen's testimony addressing the

2020 cost of capital for Southern California Edison ("SoCal Edison") before the

California Public Utilities Commission in U 338-E on April 22, 2019, at 51.[7]

As discussed more fully *infra*, Brattle did not use the Board's MSDCF.

Brattle instead employed a more standard model that defines cashflows as dividends in

all of the stages (since utility buybacks are effectively non-existent) and relatively low

initial long-term growth rates. In the PGE rate case, three of the 22 sampled electric

utilities had initial growth rates between 7% and 8%, and the others were all below 7%.

Id., Ex. 1003 at 29. Where there is less of a gap between the initial and terminal growth

rates, a MSDCF is better equipped to produce stable and credible results.

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[7] *See* https://www.portlandgeneral.com/-/media/public/documents/ue-335/ue-335-pge-exhibit-1000-cost-of-capital.pdf, and http://www3.sce.com/sscc/law/dis/dbattach5e.nsf/0/8D16EC110361035C882583E4006F8E3A/$FILE/A1904XXX-SCE%202020%20COC%20EXH.%20SCE-02%20Testimony-Villadsen.pdf.

Railroads present very different circumstances: utilities are highly regulated, but railroads are not; there are many utilities, but few railroads to include in a sample; railroads have substantial stock buybacks, but utilities do not; and railroad growth rates far exceed those of utilities, especially in some years.

An additional problem with using the MSDCF is that most railroad stock analysts do not even provide the "long-tem," three-to-five year forecasts that are a critical input to the MSDCF and the source of the recent increases and recurring instability. The AAR's back-up for the 2018 MSDCF COE for 2018, Appendix L, lists five such forecasts (many unidentified) for CSX, NS, and UP and only two for KCS. However, Yahoo!Finance identifies many more analysts that provided one-year (as of late 2019) estimates for the railroads' earnings for 2020: 28 for CSX, 19 for KCS, 26 for NSC, and 28 for UP, *e.g.,* https://finance.yahoo.com/quote/CSX/analysis?p=CSX&.tsrc=fin-srch.

The fact that most analysts do not even provide three-year projections, the minimum required for the MSDCF, indicates that railroad investors do not consider the information to be material and/or reliable.[8] Information that is not developed and thus

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[8] Significant analysis confirms the inaccuracy of longer-term projections. For example, Eugene F. Fama and Kenneth R. French stated in in 2002 that the "power to forecast dividend growth does not extend much beyond a year," and "we can report that extending the forecast horizon from two to three years causes all hint of forecast power to disappear." *The Equity Risk Premium,* 57 J. of Finance 637, 650 (April 2002). A more recent statement to the same effect is that "[w]hile analysts prove a bit more prescient about earnings growth when it comes to one- or two-year projections, over a five-year time horizon Berezin says they're 'useless.'" Colby Smith, *How accurate are sell-side analysts?*, Financial Times (Nov. 13, 2018) (quoting Peter Berezin, BCA Research's chief global strategist), available at https://ftalphaville. ft.com/2018/11/13/ 1542091438000/How-accurate-are-sell-side-analysts-/.

not used by most analysts and investors is also not reflective or informative of investor expectations. Relying heavily on an input that most railroad analysts do not even produce does not result in a "more robust" COE.

5.   Stability in the COE, as well as the MRP, can undermine accuracy.

The Board's Notice stresses the need for stability. Stability would be a virtue if all other things were equal or at least constant. The problem is that they are not always so. The COE and COC represent the opportunity cost of capital, and if the risk of railroading changes, or if the risk/reward of investing in other equities or alternatives to equity changes, then there should be some change in the COC. Conversely, if the risk/reward changes and the COC remains constant, then there is a problem in the earlier COC, the later COC, or both. If the COC were constant, annual determinations would be superfluous.

COE change can arise due to internal forces (railroads become more or less risky), external forces (*e.g.*, equities generally become more or less risky due to inflation or changing growth prospects), or the interaction of the two. If, for example, MRPs generally decline, interest rates/inflation do not increase, and the railroad industry composite sample has not become riskier relative to equities generally, then the railroad industry COE should decline as well, as stability within that context represents error. On the other hand, if precision scheduled railroading ("PSR") increases railroad cashflows, but does not also significantly increase railroad risk, particularly relative to other equities, the COE should not increase due to PSR. If, under those circumstances, the COE does

increase, the problem is not merely excess variability, but also that the COE is too high. In other words, COE fluctuation should become a basis for further review and analysis.

In that regard, a virtue of the CAPM is that the source of change is explicit as there are only three inputs to consider: the risk-free rate (common to all equities), the MRP (also common to all equities), and the beta (representing the sensitivity of the individual firm to systematic risk). While some room exists for debate as to these particular inputs, there are only three, they are explicit, and the source and nature of change can be identified and considered because it is transparent. The MSDCF has no explicit risk component and no external benchmarks (or tether). One cannot quickly determine whether a figure appears high because investors do not implicitly believe the model or they do not agree with the projections. With the CAPM, there is no need to speculate why analysts, few in number and mostly unidentified, selected particular growth rates and on what basis.

The same problems with focusing on stability in the COE also manifest themselves in use of the historical 1926-based average MRP that the Board utilizes in its CAPM.[9] A historical, non-rolling MRP becomes increasingly stable over time. As the number of years in the average expands and each year is weighted the same in each

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[9] The AAR and the Board have noted that WCTL used a historical MRP when initially proposing the CAPM. Suffice it to note that conditions were different in that pre-recession period, the historic and current MRPs had less divergence, WCTL was filing under a tight time frame to illustrate the problems inherent in the single-stage DCF that the Board used at the time, and WCTL advocated use of a more current MRP once the Board initiated its review.

multi-year average, each successive year has less impact on the overall, ever-lengthening average. The MRP becomes less sensitive or responsive to the contemporary investor expectations upon which investors actually make their investment choices. Those current expectations are what form the opportunity cost of capital. Stability thus contributes to contemporaneous inaccuracy.

It is not readily apparent, and the Board has not established, that there is some long-term average value, particularly a 1926-based one, to which the MRP (or the COC) will revert over time. Moreover, the historical MRP reflects an amalgamation of such constituent elements as interest rates, inflation, expansions, and contractions that do not seem destined to revert synchronously, *e.g.,* whether the MRP would revert to a nominal or real mean. Even if the posited reversion does occur, reliance on the long-term average in the presence of normal fluctuation ensures ongoing inaccuracy. A long-term average historical MRP will be too high at some periods, too low at others, and seldom reflective of actual investor expectations at any point in time. The long-term average is then contrary to what is depicted by the current cost of capital, meaning the return needed to attract or retain capital contemporaneously.

Suppose, for example, mortgage rates average a hypothetical 5% on a long-term basis. A borrower will not pay 5% when 3% is available, and will be unable obtain a 5% mortgage when 7% rates prevail. The fact that the Board redetermines the COC annually is an additional reason to make each year's determination accurate, even – or especially – if it diverges from the long-term average.

In short, stability is not necessarily a virtue *per se*, and becomes a defect

when it results in a COE and COC that do not reflect current conditions. At some point,

rapid annual fluctuations in the COC might present pragmatic complications for

investment and planning decisions for both carries and shippers. However, the recent

performance of the CAPM with the current MRP indicates that accuracy and, as

addressed next, stability can be achieved simultaneously. In contrast, the MSDCF is

inherently prone to such fluctuations as growth rate forecasts vary, as has occurred in

recent years, and the recent increases in growth rates do not appear to be linked any

increase in risk.[10] Similar concerns might also arise if current COE or MRP values fell

outside of a historical range. However, it is the MSDCF COE and underlying growth

rates for 2018 that exceed norms, not the CAPM and its constituents

6.   Using the CAPM exclusively will improve COE stability as well as accuracy.

The Board correctly observes that the MSDCF has been a source of COE

variability, that its variability stems from the model's sensitivity to growth rates and thus

changes therein, and that one-time events, such as the switch to PSR, can result in spikes

and increased divergences from the Board's CAPM. The Board's Notice measures

variability in terms of the standard deviation from a multiple-year historical annual

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[10] During 2016-2018, the MSDCF COE rose from 10.44% to 17.01% (its highest
level since its adoption), while the beta was declining from 1.1467 to 1.1120, its lowest
level since 2009. In contrast, the MSDCF COE decreased from 16.53% in 2012 to
13.40% in 2013, while the beta increased substantially, from 1.1543 to 1.3499. The beta
change reflects the removal of the oldest year and the inclusion of the newest year, with
the other four years remaining the same. Changes in the MSDCF COE thus appear to
have little to do with risk as measured by the beta.

average, and notes that the existing hybrid methodology has a standard deviation of 1.18

and that its proposal would reduce that to 1.09. Notice at 8. However, the Board

overlooks how the CAPM has contributed to COE stability.

Exhibit A is the first tab of a spreadsheet, based on the Board's own

workpaper, that shows the calculation of various COEs, but also includes the CAPM

constituents, with the historical MRP and the current MRPs recommended by Duff &

Phelps, as well as various permutations for combining the MSDCF and CAPM.[11] The

spreadsheet confirms that the source of variability in the Board's hybrid COE has been

the MSDCF, which has a standard deviation over the ten years 2009-2018 of 2.27. The

Step MSDCF reduces that variability, but by a relatively modest amount, as it has a

standard deviation of 1.90.

In contrast, the Board's existing CAPM has a standard deviation of 0.74. It

reasonably follows that the CAPM has reduced the variability of the Board's hybrid COE

methodology. Likewise, if the Board's objective is to reduce variability, then its best

alternative among the CAPM, the existing MSDCF, and the proposed MSDCF, is to rely

entirely on the CAPM and discard the MSDCF and its variants. While that approach also

better tracks the Morgan Stanley and other independent values that WCTL has previously

identified, overstatement of the COC persists.

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[11] WCTL has filed its spreadsheet (also containing Exhibit B, which applies Mr. Grabowski's adjustment to the 2018 MSDCF COE) as an electronic workpaper and will provide it to other parties upon request.

Approximation of mainstream COC benchmarks requires employing the

CAPM with a more current MRP than the 1926-based MRP used by the Board. Duff &

Phelps is one such prominent provider. While other current MRP values, including lower

ones, are available from other sources, the Board and the AAR both rely on Duff &

Phelps data for the historical MRP, Duff & Phelps provides a continuous times series of

MRP values that is readily available without charge,[12] Duff & Phelps provides a

supporting analysis when it changes its recommended MRP, and its MRP is keyed to a

20-year risk-free rate, which the Board utilizes as the RFR under its CAPM.[13]

Recalculating the CAPM using the current MRPs recommended by Duff & Phelps[14]

increases the standard deviation slightly to 0.81, but it remains substantially below those

for the existing hybrid methodology (1.18) or the Board's proposed replacement (1.09).[15]

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[12] *See* https://www.duffandphelps.sg/-/media/assets/pdfs/publications/valuation/coc/erp-risk-free-rates-jan-2008-present.ashx?la=en-sg&hash=0174E90D51B4B5E723FD2367D8E6180A2DE4121.

[13] Duff & Phelps also provides a "normalized" risk-free rate. RFR normalization has been strongly criticized and is especially unneeded for a COC that is done annually. *E.g.*, https://mercercapital.com/financialreportingblog/should-business-appraisers-normalize-long-term-treasury-rates-when-building-equity-discount-rates/ and http://aswathdamodaran.blogspot.com/2011/09/risk-free-rates-and-value-dealing-with.html.

[14] Exhibit A uses the MRP values recommended by Duff & Phelps as of the last day of each year. Use of most frequent value (mode) may be more appropriate, *e.g.*, for 2018, Duff & Phelps recommended 5.0% for every day, except 5.5% for December 31.

[15] The higher variability of the CAPM values calculated using the Duff & Phelps MRP appears to stem from its greater sensitivity to changes in investor expectations. As explained *supra*, the historical MRP is more stable (standard deviation of 0.16) only because it is less responsive to such changes. Nonetheless, the Duff & Phelps MRP itself has been quite stable. Over the ten-year measuring period used in the Board's Notice, the standard deviation for the Duff & Phelps MRP is 0.34, as shown on Exhibit A.

The Board's proposed inclusion of the Step MSDCF would reduce the average COE values over the past ten years from 12.39% to 12.20%, a difference of only 19 basis points. That reduction is trivial compared to the average difference of 244 basis points between the Board's CAPM and MSDCF (11.17% versus 13.61%), and all the more so compared to the average difference of 300 basis points between the CAPM calculated using a current MRP and the Board's hybrid COE (9.39% versus 12.39%).

Accordingly, if the Board seeks to maximize stability, it should rely exclusively on the CAPM and discard the MSDCF and Step MSDCF altogether. Doing so will also increase accuracy substantially, which should be the overriding objective.

7. **The Step MSDCF represents a small, but inadequate improvement to the Board's existing MSDCF, and additional improvements are needed if the MSDCF is to be used at all.**

The Step MSDCF improves on the Board's existing MSDCF by including a gradual transition or phase-in to the terminal growth rate in the second stage rather than applying the simple average of the first stage growth rates. This change helps to convert the model into more of a true MSDCF, rather than what is effectively a glorified two-stage DCF. The change also mitigates the problem of applying the initial growth rates for a period that is two-to-three times as long as those growth rates were forecast. Elimination of the simple average in the second stage is also desirable so that an outlier growth rate for the smallest carrier will not have an outsize influence. Such changes bring the model closer to a traditional MSDCF model, such as that Brattle presented for

PGE and SoCal Edison.[16] The Notice's Step MSDCF shows less variability and also reduces the impact of the very high growth rates that emerge from time to time, thereby reducing the divergence between the MSDCF and the CAPM.

However, the impact is modest. The standard deviation is lower, but remains high relative to the CAPM models. The Board's proposal results in very limited reduction in the COE, not nearly enough to conform the COC to mainstream values.

In short, the Step MSDCF is a small first step in the right direction, but not nearly enough. Additional changes are needed such as how cashflows are defined, correcting the growth rates for the effect of buybacks, and adjusting the terminal growth rate, if the MSDCF is to be used at all. Even these changes may not be enough to cause the MSDCF to conform to mainstream benchmarks, as explained previously.

A.   The MSDCF should use a narrower definition of cashflows.

In particular, the MSDCF measure of cashflow is too broad. The Board selected a model that purports to measure all cashflow that might be available for distribution to shareholders, rather than all cashflow that is or is likely to be distributed. All other things being equal, a broader cashflow measure yields a higher COE (more

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[16] Direct Testimony, *supra,* Ex. 1000 at 28 & n.30 (describing Brattle's MSDCF), Ex. 1003, p. 29 (MSDCF table showing initial long-term growth rates for 22 sampled electric utilities, the phase-in to terminal growth rates in years six through ten, and then GDP long-term growth rates). Dr. Villadsen used the same MSDCF approach in her testimony submitted on behalf of Southern California Edison regarding its 2020 cost of capital to the California Public Utilities Commission in U 338-E on April 22, 2019, at 51.

cashflow to be reduced to a net present value), and a narrower measure yields a lower one, further confirming that the MSDCF has no inherent tether.

The Board's MSDCF (and proposed Step MSDCF) uses a very broad cashflow measure in its first two stages: GAAP earnings plus depreciation and deferred taxes less capital expenditures. There is no suggestion that these funds will actually be distributed to shareholders, only that they possibly could be distributed. There is no consideration that more capital will need to be retained as the entity grows over time, *e.g.*, very rapid growth somehow occurs without any need to increase the amount of working capital. In contrast, a narrower measure would focus only on the cashflows that will actually be distributed to shareholders, *i.e.*, dividends and buybacks. Again, the measure of cashflow translates directly into the COE. WCTL submits that a narrower measure should be used both because it will provide a more realistic measure of actual distribution and because it will conform more closely to mainstream values and practice, *e.g.,* the Brattle testimony.

Furthermore, the MSDCF redefines, and greatly expands, cashflow for the third stage as earnings. The theory is that the firm enters a steady state where earnings grow at the rate of the general economy, depreciation and capital expenditures offset each other (growth at the rate of the general economy supposedly requires only asset replacement and not asset expansion), and deferred taxes become a wash as new tax deferrals offset previous tax deferrals that become due.

Those assumptions are flawed in several respects. First, much of the steady-state growth is associated with inflation, and that same inflation will cause

replacement assets covered by capital expenditures to have higher prices than the assets

that are being replaced. Second, even with steady state growth, some investment will

become stranded, also requiring capital expenditures in excess of depreciation to maintain

steady-state growth. Third, as expansion stops, and capital expenditures become a

smaller percentage of revenues, more accumulated deferred tax liabilities from the past

will become due, causing net deferred taxes to become a drain on cashflow. The

assumptions in the third-stage cashflow redefinition are thus overly optimistic.

The sounder approach is to define cashflow as dividends and buybacks for

all three stages, without any redefinition. Brattle employed precisely this approach in the

Portland General Electric rate case noted earlier. The Brattle witnesses "note that

because investors are interested in cash flow, it is technically important to include all

cash flow that is distributed to shareholders" and discuss that "many companies distribute

cash through share buybacks in addition to dividends and therefore, we would include

this type of distribution." Direct Testimony, *supra*, Ex. 1000 at 29. Brattle explained

that it did not include buybacks because only one of the sampled utilities had "non-trivial

share buybacks" and the impact would not affect the results. *Id.* Brattle also saw no need

to redefine the measure of cashflow for the terminal stage. Significantly, WCTL

proposed the same dividends plus buybacks approach over a decade ago (if the MSDCF

was to be used at all).

Again, defining cashflow as dividends plus buybacks and not redefining

cashflow for the third stage will likely improve the Step MSDCF (and the existing

MSDCF, for that matter) by reducing variability and producing values that deviate less

from mainstream benchmarks. Nonetheless, a comparison of the results with mainstream benchmarks would still be required before the utility of such a MSDCF, especially for averaging purposes, can be assessed.

B.   The MSDCF growth rates should be adjusted for buybacks.

WCTL has repeatedly explained how buybacks cause the MSDCF to yield overstated MSDCF values. The core problem is that growth forecasts are stated on an earnings per share ("EPS") basis, but the MSDCF applies those per share growth rates to grow cashflows on a firm-wide basis. Buybacks reduce the number of outstanding shares, causing an accurate EPS forecast to overstate growth in firm-wide earnings or cashflows, creating COE overstatement.

To illustrate the problem, consider a simple example where a firm has 100 shares and earns $100 in year one, but buys back ten shares and earns the same $100 in year two. Firm-wide earnings are unchanged, yet EPS grow from $1/share ($100/100 shares) in year one to $1.11/share ($100/90 shares) in year two, an 11% EPS increase. The use of the 11% EPS growth rate in the MSDCF overstates firm-wide cashflow, and overstated cashflows yield an overstated COE.

The Board has not denied that buybacks exist and are material.[17] Indeed, buybacks provided the impetus for the Board to broaden the measure of cashflows

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[17] Buybacks, like dividends, represent a distribution or return of capital to stockholders. However, it should be understood that the carriers in the composite sample have not raised new equity from the public markets in decades. Accordingly, discussion of stockholders' investment in railroads really means investment in ownership of railroads. For example, when Berkshire Hathaway acquired the remainder of BNSF in

beyond dividends in the first place. The Board has instead attempted to deny that

buybacks create a mismatch, but its explanation lacks logic.

Specifically, WCTL again raised the issue in conjunction with the Board's

consideration of the impact of the 2017 tax cut, and the Board responded as follows:

> In its reply, WCTL reiterates its previously-raised arguments
> that stock buybacks cause earnings-per-share estimates to
> diverge from total cash flows. According to WCTL, this
> divergence causes the MSDCF to overestimate future cash
> flows and the cost of capital, which is exacerbated by the
> 2017 tax cut. (WCTL Reply 2 n.1, citing *Buybacks Dress Up
> Profits*, Wall St. J., Sept. 24, 2018, at B9.) The Board finds
> WCTL's argument unpersuasive. WCTL has not
> demonstrated that the analysts' estimates of earnings growth
> failed to account for stock buybacks in their estimates. In
> fact, the language from the article cited by WCTL supports
> the Board's position: "while the buybacks add to per-share
> earnings, the effect is clear to investors and baked into the
> analyst earnings estimates that drive stock prices."[18]

With respect, the Board got it backwards. The Board actually agreed with WCTL's

premise that the growth rates incorporate projected buybacks: "the buybacks add to *per*

share earnings," "*the effect is clear to investors*," and the artificial increase is "*baked into*

the analyst earnings estimates that drive stock prices." Each post-buyback share may

well be worth more because it represents more earnings or cashflow (in the example,

each post-buyback share has a claim on $1.11 in earnings), but there are still fewer

shares, and the overall earnings and market capitalization of the company should not be

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2010, none of the amount paid, including the acquisition premium, went into the railroad
itself, but went instead entirely to BNSF's previous shareholders.

[18] *Railroad Revenue Adequacy—2017 Determination, et al.*, EP 552 (Sub-No. 22),
et al. (STB served Dec. 6, 2018), at 5-6, n.7.

changed. The MSDCF grows total firm-wide cashflows by a growth rate increase that may be correct on a *per share* basis, but overstated on a firm-wide basis because buybacks reduce the total number of shares. The projected firm-wide earnings/cashflows reflect shares that are no longer outstanding. There is a mismatch that must be corrected if the MSDCF is going to be utilized.

The Board has at times also suggested that the buybacks bring earnings or cashflow forward in time. This explanation is also lacking. The Board's MSDCF defines cashflow to reflect all cashflow that might be available to shareholders, not what is actually distributed. Giving any additional credit to actual distributions necessarily creates a double-count.

WCTL has previously shown how buybacks have been so extensive as to explain a substantial portion of the divergence between the MSDCF and the CAPM and other COE and COC values.[19]

C. The modification to the MSDCF terminal growth proposed by Mr. Grabowski appears sound, but has limited impact.

Roger J. Grabowski, Managing Director of Duff & Phelps, submitted testimony to the Board on November 4, 2019, explaining that the MSDCF terminal growth rate appears to be incorrectly specified.

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[19] If, for example, the growth is projected to be 18% per year and buybacks are expected to be 4% per year, then the adjusted growth rate is 13.5% (1.104 x 1.135 = 1.1804). However, the projected buyback figures over time are seldom explicit, which is another reason to avoid the MSDCF.

Mr. Grabowski notes that the MSDCF defines the terminal growth as the sum of (a) historical growth in real Gross Domestic Product ("GDP") as measured by the Bureau of Economic Analysis, plus (b) the long-run expected inflation rate. He further explains that the historical real GDP growth reflects both existing companies (including railroads) and new companies (such as tech), that the growth for new companies appears to be generally double that of existing companies, and that reducing the general growth rate by two-thirds (or multiplying the aggregate growth rate by one-third) appears appropriate "to better represent the long-run expected cash flow growth of the railroads." He attaches two supporting articles, including one by Bradford Cornell, who appeared as a witness for CSXT in the *Consumers* rate case.

Mr. Grabowski's observation and support appear sound. An average represents an aggregation, and if a substantial subset of that data is more representative for the specified application, it should logically be used instead of a larger, but less representative, aggregate.

For purposes of the 2018 COC determination, the Board used a historical real GDP of 3.22% and expected inflation of 1.78% for a total of 5%. Mr. Grabowski's adjustment results in a terminal growth rate of 2.85%, as shown on WCTL's workpaper for Exhibit B. The effect on the 2018 COC itself is diminished because the terminal growth rate has less impact on the net present value calculation. As shown on Exhibit B, the resulting 2018 MSDCF COE value is 16.05%, as compared to the 17.01% that the Board calculated in its determination.

Mr. Grabowski is thus correct in his assertion "that such an adjustment would bring the estimated cost of equity capital from applying the MSDCF closer to the estimates provided by the CAPM." Testimony at 4. However, the gap between the two remains substantial, *e.g.,* more than five percentage points (or 59%) in 2018 alone, using the Board's CAPM value for 2018. The modification does not begin to create convergence between the MSDCF and CAPM values. Furthermore, his observation underscores that the linkage of the MSDCF to investor expectations is attenuated and hardly self-executing.

8. The Board should rely exclusively on the CAPM with a current MRP, but if the Board insists on combining the CAPM and MSDCF, there are better alternatives.

The Board's Notice proposed a modified hybrid methodology for calculating the industry COE consisting of 50% existing CAPM, 25% Step MSDCF, and 25% existing MSDCF. As the Board notes, this approach will increase stability, but only modestly, and as explained *supra*, it will do little to achieve accuracy.

As also explained *supra*, the best approach to determine the COE is to rely entirely on the CAPM calculated with a current MRP. That approach will achieve stability under the Board's designated measure (standard deviation of 0.81 as shown on Exhibit A) and accuracy in terms of conformity with the COC values and methodology used by the financial and investment community.

WCTL has noted that a second methodology could have potential utility if used as a check on the CAPM. For example, the Board might compare the performance of the CAPM and the MSDCF over the past three years, see that the CAPM has been

quite stable and the MSDCF has not, consider the potential causes of the divergence (the 2017 tax cut and broader adoption of PSR seem to be the prime candidates), reasonably conclude that those changes do not make the railroads inherently riskier, and determine that the CAPM remains reliable under the circumstances. However, that type of exercise involves a measure of discretion and judgment, which the Board has seemed to want to avoid in favor of a more mechanical approach.

To the extent the Board feels compelled to continue with some form of hybrid methodology that averages different methodologies, the best alternative would be a 50/50 combination of (a) the CAPM calculated using a current MRP with (b) a version of the Step MSDCF that defines cashflow more narrowly, such as dividends plus buybacks, with no redefinition for the third stage, and adjusts growth rates for buybacks. That approach has a standard deviation of 1.18 (before adjusting the cashflow redefinition and correcting for buybacks), the same as with the Board's proposal.

If the Board wants to combine its existing models with new ones, a better alternative is 25/25/25/25 approach with (a) the CAPM calculated with a current MRP, (b) existing CAPM, (c) Step MSDCF modified as above (with Mr. Grabowski's adjustment), and (d) existing MSDCF, although the existing MSDCF should at least be adjusted for buybacks. The standard deviation is 1.17 (again, before adjusting the cashflow redefinition and correcting for buybacks in the MSDCFs), slightly less than the Board's proposal.

WCTL strongly recommends inclusion of the MSDCF with a current MRP in some form. The current MRP directly represents the return that investors expect to

receive in order to invest in equities generally, and it should not be excluded from the

Board's methodology altogether, as has been the case.

9.   **The Board should address the GAAP treatment of operating leases as debt for purposes of the cost of capital starting 2019.**

WCTL has previously noted that the financial community has been treating

operating leases as debt for capital structure (debt-equity) purposes for many years.[20]

The Board refused to make such an adjustment in order to conform to generally accepted

accounting principles ("GAAP"). In the COC proceeding for 2015, WCTL observed that

GAAP will require publicly-traded companies to treat operating leases as debt for fiscal

years beginning after December 15, 2018. The Board responded that it "monitors FASB

issuances and is aware of the guidance" and that the guidance "is being reviewed … to

determine whether it is appropriate for our accounting and reporting purposes." *Railroad*

Cost of Capital—2015, EP 558 (Sub-No. 19) (STB served Aug 5, 2016), at 4-5.

Three years have passed, and the GAAP requirement took effect for 2019.

Railroads have long used operating leases as off-balance sheet debt. For example, UP's

use of an operating lease for its then-new $260 million Omaha headquarters was

specifically referenced in Jonathan Weil, *How Leases Play A Shadowy Role In*

Accounting; Despite a Post-Enron Push, Companies Can Still Keep Big Debts Off

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[20] WCTL Reply Statement in *Railroad Cost of Capital--2011*, EP 558 (Sub-No. 15), dated May 10, 2012, citing, *inter alia*, Pepa Kraft, *Rating Agency Adjustments to GAAP Financial Statements and Their Effect on Ratings and Bond Yields* (originally posted 2008), available at http://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID1876672_code1104503.pdf?abstractid=1266381&mirid=1 (analyzing data from 2002-2008).

Balance Sheets, Wall St. J. (Sept. 22, 2004), at A1, available at

http://people.stern.nyu.edu/adamodar /New_Home_Page/articles/opleaseasdebt.htm. The

treatment of operating leases may serve to explain the relatively small difference between

the Matt Rose COC figure and the CAPM values calculated using the Duff & Phelps

MRP in Exhibit A.

The Board should address the operating lease matter, specify how it

proposes to address that change, or explain why it believes change is somehow not

appropriate in light of its statutory directives to rely on GAAP to the maximum extent

practicable.

III.
CONCLUSION

The Board is quite correct in revising its COE methodology at this time, but

it perceives too small a problem and proposes an inadequate solution. The Board should

calculate the railroad industry COE by relying exclusively on the CAPM calculated using

a current MRP.

Respectfully submitted,

WESTERN COAL TRAFFIC LEAGUE

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Dated: January 15, 2020   Its Attorneys

Exhibit A

Year	STB Existing				STB Proposed		CAPM Constituents			WCTL Proposals		
	CAPM[1]	MRP[2]	MSDCF[3]	50/50 Hybrid[4]	Step MSDCF[5]	New Hybrid[6]	Risk-Free Rate[7]	Beta[7]	D&P MRP[8]	Current CAPM[9]	50/50 Hybrid[10]	4-factor Hybrid[11]
2009	11.39%	6.67%	13.34%	12.37%	12.71%	12.21%	4.11%	1.09150	5.50%	10.11%	11.41%	11.89%
2010	11.84%	6.72%	14.13%	12.98%	13.45%	12.81%	4.03%	1.16190	5.50%	10.42%	11.93%	12.46%
2011	11.31%	6.62%	15.83%	13.57%	14.74%	13.30%	3.62%	1.16230	6.00%	10.59%	12.67%	13.12%
2012	10.27%	6.70%	16.53%	13.40%	15.56%	13.16%	2.54%	1.15430	5.50%	8.89%	12.22%	12.81%
2013	12.52%	6.96%	13.40%	12.96%	12.71%	12.79%	3.12%	1.34990	5.00%	9.87%	11.29%	12.12%
2014	11.82%	7.00%	12.30%	12.06%	11.53%	11.87%	3.07%	1.25030	5.00%	9.32%	10.43%	11.24%
2015	10.95%	6.90%	10.97%	10.96%	10.91%	10.95%	2.55%	1.21670	5.00%	8.63%	9.77%	10.37%
2016	10.18%	6.94%	10.44%	10.31%	10.22%	10.25%	2.22%	1.14670	5.50%	8.53%	9.37%	9.84%
2017	10.74%	7.07%	12.18%	11.46%	11.40%	11.26%	2.65%	1.14380	5.00%	8.37%	9.88%	10.67%
2018	10.70%	6.91%	17.01%	13.86%	15.40%	13.45%	3.02%	1.11200	5.50%	9.14%	12.27%	13.06%
Stand. Dev.	0.74	0.16	2.27	1.18	1.90	1.09	0.65	7.55	0.34	0.81	1.18	1.17
Average	11.17%	6.85%	13.61%	12.39%	12.86%	12.20%	3.09%	1.1789	5.35%	9.39%	11.12%	11.76%
Minimum	10.18%	6.62%	10.44%	10.31%	10.22%	10.25%	2.22%	1.0915	5.00%	8.37%	9.37%	9.84%
Maximum	12.52%	7.07%	17.01%	13.86%	15.56%	13.45%	4.11%	1.3499	6.00%	10.59%	12.67%	13.12%

Notes:
[1] CAPM is Capital Asset Pricing Model.

[2] MRP is Market Risk Premium.

[3] MSDCF is Multi-Stage Discounted Cash Flow Model.

[4] 50/50 Hybrid is the Board's existing approach.

[5] Step MSDCF is the Board's proposal to modify the second-stage of the MSDCF to transition or phase-in to the the terminal growth rate over five years.

[6] New Hybrid is the Board's proposal to combine the existing CAPM with the Step MSDCF.

[7] Risk-Free Rate and Beta are taken from past Board decisions.

[8] D&P MRP is the Duff & Phelps recommended Market Risk Premium.

[9] Current CAPM is the CAPM calculated using the MRP recommended by Duff & Phelps for the last day of the referenced year.

[10] 50/50 Hybrid is the simple average of the Current CAPM and the Step MSDCF.

[11] 4-factor- Hybrid is the simple average of the CAPM, MSDCF, Step MSDCF, and Current CAPM.

Exhibit B

2018 Cost of Equity Using STB's MSDCF WITH GRABOWSKI CHANGE

Company	CSX		KSU		NSC		UNP	
Year	2018		2018		2018		2018	
Inputs								
Initial Cash Flow	$1,555.28		$208.45		$1,378.60		$4,066.82	
Input for Terminal C.F.	$2,225.84		$551.31		$2,080.73		$5,154.01	
Stage One Growth	27.430%		14.700%		17.400%		19.990%	
Stage Two Growth	19.880%		19.880%		19.880%		19.880%	
Stage Three Growth	2.853%	E	2.853%		2.853%		2.853%	
Year	Val. 12/31	Pres Val.	Val. 12/31	Pres Val.	Val. 12/31	Pres Val.	Val. 12/31	Pres Val.
1	$1,982	$1,698	$239	$211	$1,618	$1,408	$4,880	$4,192
2	2,526	1,853	274	213	1,900	1,438	5,855	4,322
3	3,218	2,023	315	215	2,231	1,469	7,026	4,455
4	4,101	2,208	361	217	2,619	1,500	8,430	4,592
5	5,226	2,410	414	219	3,075	1,532	10,115	4,734
6	6,265	2,475	496	232	3,686	1,598	12,126	4,875
7	7,510	2,542	595	245	4,418	1,666	14,537	5,021
8	9,003	2,610	713	258	5,297	1,738	17,427	5,171
9	10,793	2,680	855	273	6,350	1,812	20,891	5,326
10	12,939	2,752	1,025	288	7,612	1,890	25,045	5,485
Terminal	137,143	29,171	26,125	7,350	97,700	24,259	240,978	52,777
Sum of Pres. Values		$52,421.72		$9,721.26		$40,310.07		$100,950.91
Market Value (input)		$52,421.62		$9,721.26		$40,310.07		$100,778.15
Cost of Equity	16.74%		13.52%		14.95%		16.40%	
Prev. Yr. Cost of Equity	11.75%		11.28%		11.87%		12.60%	

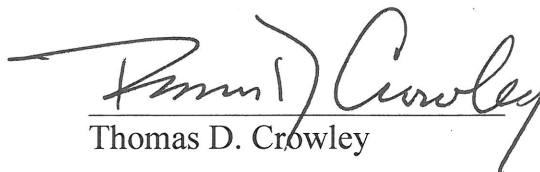| Terminal Growth Rate	2.853%	Weighted Average COE	16.05%

Exhibit C

VERIFIED STATEMENT

OF

THOMAS D. CROWLEY

My name is Thomas D. Crowley. I am an economist and the President of L.E. Peabody & Associates, Inc. Our offices are located at 1501 Duke Street, Suite 200, Alexandria, Virginia 22314, 760 E. Pusch View Lane, Suite 150, Tucson, Arizona 85737, and 7 Horicon Avenue, Glens Falls, New York 12801.

A copy of my qualifications and experience is attached to this Verified Statement as Exhibit No. 1.

I verify under penalty of perjury that I have read the Comments of the Western Coal Traffic League in EP 664 (Sub-No. 4), *Revisions to the Board's Methodology for Determining the Railroad Industry's Cost of Capital*, dated January 15, 2020, that I know the contents thereof, and that the economic and financial statements and assertions therein are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Thomas D. Crowley

Executed on January 14, 2020

THOMAS D. CROWLEY
STATEMENT OF QUALIFICATIONS

My name is Thomas D. Crowley. I am an economist and President of the economic consulting firm of L. E. Peabody & Associates, Inc. The firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, Virginia 22314, 760 E. Pusch View Lane, Suite 150, Tucson, Arizona 85737, and 7 Horicon Avenue, Glens Falls, New York 12801.

I am a graduate of the University of Maine from which I obtained a Bachelor of Science degree in Economics. I have also taken graduate courses in transportation at George Washington University in Washington, D.C. I spent three years in the United States Army and since February 1971 have been employed by L. E. Peabody & Associates, Inc.

I am a member of the American Economic Association, the Transportation Research Forum, and the American Railway Engineering and Maintenance-of-Way Association.

The firm of L. E. Peabody & Associates, Inc. specializes in analyzing matters related to the rail transportation of all commodities. As a result of my extensive economic consulting practice since 1971 and my participation in maximum-rate, rail merger, service disputes and rule-making proceedings before various government and private governing bodies, I have become thoroughly familiar with the rail carriers and the traffic they move over the major rail routes in the United States. This familiarity extends to subjects of railroad service, costs and profitability, cost of capital, railroad capacity, railroad traffic prioritization and the structure and operation of the various contracts and tariffs that historically have governed the movement of traffic by rail.

As an economic consultant, I have organized and directed economic studies and prepared reports for railroads, freight forwarders and other carriers, for shippers, for associations and for state governments and other public bodies dealing with transportation and related economic

THOMAS D. CROWLEY
STATEMENT OF QUALIFICATIONS

problems. Examples of studies I have participated in include organizing and directing traffic, operational and cost analyses in connection with single car and multiple car movements, unit train operations for coal, grain, oil and other commodities, freight forwarder facilities, TOFC/COFC rail facilities, divisions of through rail rates, operating commuter passenger service, and other studies dealing with markets and the transportation by different modes of various commodities from both eastern and western origins to various destinations in the United States. The nature of these studies enabled me to become familiar with the operating practices and accounting procedures utilized by railroads in the normal course of business.

Additionally, I have inspected and studied both railroad terminal and line-haul facilities used in handling various commodities. These operational reviews and studies were used as a basis for the determination of the traffic and operating characteristics for specific movements of numerous commodities handled by rail.

I have frequently been called upon to develop and coordinate economic and operational studies relative to the rail transportation of various commodities. My responsibilities in these undertakings included the analyses of rail routes, rail operations and an assessment of the relative efficiency and costs of railroad operations over those routes. I have also analyzed and made recommendations regarding the acquisition of railcars according to the specific needs of various shippers. The results of these analyses have been employed in order to assist shippers in the development and negotiation of rail transportation contracts which optimize operational efficiency and cost effectiveness.

I have developed property and business valuations of privately held freight and passenger railroads for use in regulatory, litigation and commercial settings. These valuation assignments

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required me to develop company and/or industry specific costs of debt, preferred equity and common equity, as well as target and actual capital structures. I am also well acquainted with and have used the commonly accepted models for determining a company's cost of common equity, including the Discounted Cash Flow Model ("DCF"), Capital Asset Pricing Model ("CAPM"), and the Farma-French Three Factor Model.

Moreover, I have developed numerous variable cost calculations utilizing the various formulas employed by the Interstate Commerce Commission ("ICC") and the Surface Transportation Board ("STB") for the development of variable costs for common carriers, with particular emphasis on the basis and use of the Uniform Railroad Costing System ("URCS") and its predecessor, Rail Form A. I have utilized URCS/Rail form A costing principles since the beginning of my career with L. E. Peabody & Associates Inc. in 1971.

I have frequently presented both oral and written testimony before the ICC, STB, Federal Railroad Administration, Federal Energy Regulatory Commission, Railroad Accounting Principles Board, Postal Rate Commission and numerous state regulatory commissions, federal courts and state courts. This testimony was generally related to the development of variable cost of service calculations, rail traffic and operating patterns, fuel supply economics, contract interpretations, economic principles concerning the maximum level of rates, implementation of maximum rate principles, and calculation of reparations or damages, including interest. I presented testimony before the Congress of the United States, Committee on Transportation and Infrastructure on the status of rail competition in the western United States. I have also presented expert testimony in a number of court and arbitration proceedings concerning the level

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of rates, rate adjustment procedures, service, capacity, costing, rail operating procedures and other economic components of specific contracts.

Since the implementation of the *Staggers Rail Act of 1980*, which clarified that rail carriers could enter into transportation contracts with shippers, I have been actively involved in negotiating transportation contracts on behalf of shippers. Specifically, I have advised shippers concerning transportation rates based on market conditions and carrier competition, movement specific service commitments, specific cost-based rate adjustment provisions, contract reopeners that recognize changes in productivity and cost-based ancillary charges.

I have developed different economic analyses regarding rail transportation matters for over sixty (60) electric utility companies located in all parts of the United States, and for major associations, including American Chemistry Council, American Paper Institute, American Petroleum Institute, Chemical Manufacturers Association, the Chlorine Institute, Coal Exporters Association, Edison Electric Institute, the Fertilizer Institute, Mail Order Association of America, National Coal Association, National Grain and Feed Association, National Industrial Transportation League, North America Freight Car Association and Western Coal Traffic League. In addition, I have assisted numerous government agencies, major industries and major railroad companies in solving various transportation-related problems.

In the two Western rail mergers that resulted in the creation of the present BNSF Railway Company and Union Pacific Railroad Company and in the acquisition of Conrail by Norfolk Southern Railway Company and CSX Transportation, Inc., I reviewed the railroads' applications including their supporting traffic, cost and operating data and provided detailed evidence supporting requests for conditions designed to maintain the competitive rail environment that

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existed before the proposed mergers and acquisition. In these proceedings, I represented shipper

interests, including plastic, chemical, coal, paper and steel shippers.

I have participated in various proceedings involved with the division of through rail rates.

For example, I participated in ICC Docket No. 35585, *Akron, Canton & Youngstown Railroad*

Company, et al. v. Aberdeen and Rockfish Railroad Company, et al. which was a complaint filed

by the northern and mid-western rail lines to change the primary north-south divisions. I was

personally involved in all traffic, operating and cost aspects of this proceeding on behalf of the

northern and mid-western rail lines. I was the lead witness on behalf of the Long Island Rail

Road in ICC Docket No. 36874, *Notice of Intent to File Division Complaint by the Long Island*

Rail Road Company.

CERTIFICATE OF SERVICE

I hereby certify that on this 15th day of January 2020, I have caused true and accurate copies of the foregoing Comments of the Western Coal Traffic League to be served upon all parties on the service list in EP 664 (Sub-No. 4) by first class mail, postage prepaid, or by more expeditious means.

/s/ Robert D. Rosenberg