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Bonneville's Financial Plan Refresh and its Credit Ratings

Bart Oosterveld
Senior Fellow, Atlantic Council

The analysis and conclusions in this research are the author's own and do not purport to reflect the views of the Atlantic Council or other third parties.

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Executive Summary

In the context of the Bonneville Power Administration's ("Bonneville" or "BPA") current review of its financial priorities, as well as the recent significant increase in its ability to incur federal debt obligations, this paper provides an in-depth analysis of the ratings, research, and underlying methodologies of the three major rating agencies (Fitch, Moody's, and S&P). We also discuss suggested global peer comparisons for the assessment of Bonneville's credit standing and look at the precise 'rating triggers' as defined by the rating agencies. The paper concludes that in terms of its funding environment and credit ratings, Bonneville enters the next few years with significant flexibility to define its financial and debt priorities. Specifically, Bonneville does not appear to need to drastically reduce its debt-to-asset ratio to maintain high ratings.

Introduction

The Bonneville Power Administration is currently conducting a review of its long-term capital financing priorities ("Financial Plan Refresh"). The BPA considers as integral to its financial health and flexibility a path to deleveraging and a desire to keep a supportive funding environment including high credit ratings.[1] In its 2018 Leverage Policy ("the Policy"), Bonneville established specific targets for the level of debt-to-asset ratio, defined as the ratio of its federal and non-federal debt to the combination of its net utility plant and non-federal generation.[2]

The Policy's targets are to bring the debt-to-asset ratio down from around 90% at that time to between 75% and 85% by 2018 and between 60% and 70% long term.[3]

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[1] See e.g. slide 7 of the presentation supporting the October 19, 2021 Debt & Borrowing Authority Grounding Workshop.

[2] Page 3 of Bonneville's 2018 Leverage Policy.

[3] Importantly, the Policy also incorporates short-term targets for its business lines, and the ratio is not to increase for either its Power Services (98% at that time) or Transmission Services (79%) segments. At the time, Transmission Services' ratio was on a path to grow to around 90%.

In the Policy, Bonneville describes this ratio as an appropriate summary statistic of its financial health and funding prospects: "…a high ratio may negatively impact BPA's credit ratings, which can result in higher interest rates" and "...a high ratio hampers BPA's ability to respond in times of financial stress and increased uncertainty by limiting its financial flexibility."

In what follows, this research considers the stand-alone credit quality of Bonneville as analyzed by the rating agencies and the importance to their analysis of the ability of Bonneville to borrow from the United States Department of the Treasury ("the Treasury Line"). The research then dissects the rating agencies' analysis and rating considerations in detail, especially when it comes to the importance assigned to financial and debt metrics. After considering several U.S. and internationally comparable utilities, it draws analytical conclusions about the relative importance to Bonneville's credit ratings of (much) lower leverage.

I. Assessing Bonneville's Stand-Alone Credit Quality

Rating agencies and other capital market participants provide independent assessments of the credit and financial profile of Bonneville. Using a range of methodologies, these external reviews consider such factors as Bonneville's service area and customers, its power supply, its management and governance, the contractual nature of its billing agreements, as well as BPA's financial and debt profile. The analysis of rating agencies is expressed in summary form in a rating, which is used in turn by investors to assess, compare, and price the default risk of their fixed income investments. A particular feature of BPA's rating is that it is assigned to the debt issuances of third-party entities such as Energy Northwest that issue bonds backed by the BPA. BPA does not issue bonds directly to the market, as it can only issue bonds directly to be purchased by the U.S. Treasury Department. The use of such 'conduit issuers' is relatively standard practice in the U.S. municipal debt market but does set Bonneville aside from comparable entities that can place their own bonds directly into the market.

While ratings symbols differ slightly between the three main agencies, they are comparable in the level of risk they indicate. For the purposes of this analysis, only the upper portion of the rating scales is important, summarized in the table 1 below. A full comparison of the different scales can be found in Appendix 1.

Comparison of Rating Symbols and Meaning at the Upper End of the Scale					
Fitch	**Moody's**	**S&P**	**5-year default rate**	**Market interpretation**	
AAA	Aaa	AAA	0.14%	Prime	Investment Grade
AA+ AA AA-	Aa1 Aa2 Aa3	AA+ AA AA-	0.64%	High Grade	
A+ A A-	A1 A2 A3	A+ A A-	1.06%	Upper Medium Grade	
BBB+ BBB BBB-	Baa1 Baa2 Baa3	BBB+ BBB BBB-	2.31%	Lower Medium Grade	

The rating agencies base their analysis of BPA's credit standing on publicly available sector-specific rating methodologies. It is worth highlighting that while there are certain common analytical considerations in these methodologies, the overall approaches of the various rating agencies are quite different, both in terms of coming to a conclusion on BPA's stand-alone credit quality and how to incorporate the supportive Treasury Line. Before discussing their ratings in detail in Section III, below are some high-level impressions of their analyses:

1. As a result of its relatively unique role and history, as well as the agencies' own internal structure, the analysis of BPA is somewhat disconnected from some of its more natural peer entities. At all three rating agencies, the analysis of Bonneville's credit is conducted by their municipal finance or infrastructure finance departments. As a result, in their publications discussing peer groups, both Fitch and Moody's compare BPA to municipal wholesale electric utilities, where S&P is mostly silent on the topic. A more natural domestic comparative credit analysis is that performed for the Tennessee Valley Authority, which is rated out of the corporate finance department or its equivalent at

Moody's and S&P but the municipal department at Fitch and has a link to the U.S. government as well. Similarly, the credit analysis of BPA is disconnected from appropriate global peers, such as the large transmission operators in Europe and Canada. We will provide a deeper analysis of these more appropriate domestic and international comparisons in Section IV.

2. Fundamental factors related to BPA's strong market position as an energy and capacity seller drive the methodology scores at Fitch and Moody's, more so than financial and leverage ratios. As we will discuss in more detail in Section III, the scorecards supporting the Fitch and Moody's methodology focus heavily on such factors as the long-term power supply contracts, BPA's access to competitively-priced power, the network of Bonneville's assets, and its management and track record. These fundamental strengths appear to create significant flexibility in terms of BPA's debt management practices at a high rating level.

3. Bonneville's own financial strategies, policies, and goals factor into rating agency analysis. The BPA's leverage policy and other aspects of the overall strengthening of the financial strategy framework are seen as meaningful improvements to the governance of BPA by all agencies. In addition, Bonneville's institutional debt management practices, such as rate-setting in the context of the Treasury Payment Probability and the existence of the Cost Recovery Adjustment Clause, are important credit-supportive features in the rating agencies' analysis. While S&P's rating methodology is not very specific, it focuses heavily on Environmental, Social, and Governance ("ESG") factors in its written research on Bonneville. All three rating agencies consider strong, policy-driven, financial management as a positive *in se*, the actual financial targets appear to be of only secondary analytical importance.

4. In the remainder of this paper, we will focus on the rating implications of three intertwined Bonneville priorities: low debt funding costs, lower leverage, and shifting in

the direction of more revenue financing[4]. In the discussion documents underpinning Bonneville's current Financial Plan Refresh efforts, a shift to more revenue financing is a key part of its financial health objectives and driven almost exclusively by its deleveraging goals and the desire to keep high credit ratings.[5]

II. The Role of the Treasury Line

Bonneville benefits from several layers of federal support. Most importantly, the entity's revolving borrowing authority provides it with debt management flexibility that is relatively unique in the U.S. municipal market. Legally rooted in the application of the 1974 Federal Columbia River Transmission System Act, it authorizes Bonneville to sell bonds to the U.S. Treasury at the same low rate that other federal agencies can access when they borrow from Treasury.[6] The total such authority is for $17.7 billion, and in its 2018 Financial Plan, Bonneville limits itself to the degree that it always aspires to preserve $1.5 billion available.[7]

As background to the further analysis in this paper, it is important to note that H.R. 3684 (Infrastructure Investment and Jobs Act) was signed into law by President Biden on November 16, 2021. The legislation increases the Treasury Line by $10 billion, more than doubling the existing borrowing authority, with the limitation that additional borrowing should not exceed $6 billion by fiscal year 2028.[8]

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[4] In this context, revenue financing refers to raising rates for customers to pay down debt or to fund capital projects with rate-generated cash flow (and contrasted to issuing new debt to finance those projects).
[5] See e.g. slide 7 of the presentation supporting the October 19, 2021 Debt & Borrowing Authority Grounding Workshop.
[6] See section 13 of the 1974 Federal Columbia River Transmission System Act (16 U.S.C. 838k).
[7] See the FY 2022 Bonneville Power Administration Congressional Budget submission and the 2018 Financial Plan.
[8] See section 40110 of https://www.congress.gov/bill/117th-congress/house-bill/3684/text.

The ability to sell bonds to the U.S. Treasury an exemption from certain regulatory transmission requirements[9], and the appropriations-based funding Bonneville receives are credit-supportive features. Both Fitch and S&P make an explicit, 1 notch adjustment based on this beneficial federal involvement. Moody's discusses the importance of the federal support in more general terms but cites it among the key credit strengths. In the case of Fitch, the defining characteristic leading to the 1 notch upward adjustment is the structural subordination of the BPA's federal debt to its non-federal debt. The adjustment in the case of S&P is based on general criteria governing the ratings of government-related entities.

III. The Rating Agencies' Analysis in Detail

Fitch currently assigns a AA rating with a stable outlook to bonds backed by Bonneville's credit.[10] An important reference point in the case of Fitch is the fact that the agency has a negative outlook on its AAA rating on the U.S. federal government's debt. The combination of outlooks implies, and conversations with the Fitch team confirm, that the federal government's rating is somewhat disconnected from Bonneville's and a downgrade of the federal government's debt (for example to AA+) would not in and of itself lead to a downgrade of BPA's debt to AA-.

Fitch refers to two of its methodologies to support its rating analysis, the U.S. Public Power Rating Criteria and the Public Sector, Revenue-Supported Entities Rating Criteria, both most recently updated in February of 2021. The Fitch rating on Bonneville is derived mostly from the U.S. Public Power Rating Criteria publication, as the credit-supportive analysis of the Treasury

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[9] For example, Bonneville is mostly exempt from oversight of its transmission practices by the Federal Energy Regulatory Commission (FERC), at last compared to FERC-jurisdictional transmission providers.
[10] Rating Action Commentary: Fitch Rates Energy Northwest, WA Elec Rev Ref Bonds 'AA'; Affirms Bonneville's IDR at 'AA-', 4 May 2021

Line is based on its structural subordination feature. The most relevant segment of Fitch's scorecard follows below and displays how key rating considerations combine for the rating[11] (the complete scorecard is in Appendix 2). Its methodology scores assigned for Bonneville are highlighted in blue.

Summary of Fitch Rating Grid (BPA scores in blue)

Revenue Defensibility Assessment	Operating Risk Assessment	Leverage Profile Assessment (Net Adjusted Debt/Funds Available for Debt Service, x) aa	a	bbb	bb
aa	**aa**	**<10**	10-12	12-15	>15
aa	a	<8	8-10	10-15	>15
a	aa	<8	8-10	10-15	>15
…	…	…	…	…	…
Suggested Analytical Outcome		**AA**	A	BBB	BB

In Fitch's approach, the consideration of leverage is one of three key pillars of the analysis. Fitch also explicitly acknowledges that transmission systems inherently can support higher leverage ratios. Fitch's leverage ratio combines for a rating with the agency's assessment of an entity's revenue defensibility (incorporating such factors as power supply contracts, rate setting ability, and purchaser credit quality) and operating risk assessment (considering power supply costs, capital needs, generation fleet, etc.). Given highest scores assigned to the latter two factors, and the fact that BPA's leverage ratio according to the Fitch calculation is at 9.3x[12], it would take a severe and sustained deterioration in Bonneville's debt metrics to push the scorecard outcome down to the A level. Fitch explicitly makes note of its flexible application of the leverage ratio at the current rating level in recent research on Bonneville: "Given planned capital spending and debt issuance, Fitch expects Bonneville's leverage to range between 9.0x-

[11] See U.S. Public Power Rating Criteria, February 2021. Fitch uses lower case letters to indicate individual factor scores (aa, bbb, etc.) and uppercase letters to indicate the final rating outcome (AA, BBB, etc.)
[12] For the detailed formula and calculation, see the next page and footnote 15. For an idea of what the ratio would look like at different levels of Bonneville's own debt-to-asset ratio, please refer to Appendix 3.

10.0x range over the next five years, although leverage could periodically increase to 11.0x under adverse water conditions, ... Transmission business lines are able to support slightly higher leverage than the power business line, resulting in Fitch's rating tolerance for leverage periodically trending slightly higher than the 10.0x 'aa' threshold."[13]

Fitch's recent critical rating drivers highlight the role of leverage in its analysis, both for rating upside and downside potential. Fitch states it may consider positive rating actions were its leverage ratio to decline below 8x over time, which would make its scorecard's outcome resilient to weakening in one of its other two rating factors. It also cites a risk of a potential downgrade were leverage to trend consistently above 11x with "limited expectation of reduction."[14]

A detailed review of Fitch's leverage analysis further shows the importance of financial reserves. Unlike Bonneville's debt-to-asset ratio, Fitch's leverage ratio considers both an entity's balance sheet and income statement. Per its methodology, Fitch's leverage ratio calculation is as follows:[15]

Fitch's Leverage Calculation
Leverage = Net Adjusted Debt ÷ Adjusted Funds Available for Debt Service (FADS) = (Total Debt + Capitalized Fixed Charges + Pension Obligation - Unrestricted Cash - Funds Restricted for Debt Service)/(FADS + Fixed Charges - Transfers & Distributions + Pension Expense)

[13] Rating Action Commentary: Fitch Rates Energy Northwest, WA Elec Rev Ref Bonds 'AA'; Affirms Bonneville's IDR at 'AA-', 4 May 2021

[14] Rating Action Commentary: Fitch Rates Energy Northwest, WA Elec Rev Ref Bonds 'AA'; Affirms Bonneville's IDR at 'AA-', 4 May 2021

[15] From U.S. Public Power Rating Criteria, February 2021. The components of the calculation using Bonneville's 2020 accounts is as follows in US $ millions: total debt of 14,513, capitalized fixed charges of 599, unrestricted cash of 847, funds available for debt service of 1494 (total operating revenues of 3684 minus operating and maintenance expense of 2066 minus purchased power costs of 124) and fixed charges of 36. In summary: (14,513+599-847)/(1494+36)=9.3x.

Since unrestricted cash is netted from the numerator, Fitch's leverage ratio outcome can be partially 'managed' by an entity such as BPA by improving its cash liquidity position the way Bonneville has. In that way, operational financial volatility (for example due to hydrological variability) has less of an impact on the long-term trajectory of the leverage ratio. Fitch explicitly notes the BPA's Financial Reserve Policy as a stabilizing factor to the credit in recent research: "The FRP established a minimum threshold of 60 days' reserves for risk at each business line individually and for both business lines collectively. Fitch views the FRP as supportive of an improved liquidity profile because it provides Bonneville with the authority to increase rates solely to meet the objective of increasing cash reserves."[16]

Both Bonneville and Fitch use total debt in their preferred leverage ratio, which allows for a coarse analysis of what scores Fitch might assign to its leverage ratio if Bonneville were to achieve certain debt-to-asset ratios.[17]

Ratio Reconciliation Analysis	*This analysis uses BPA's 2020 accounts. It asks the question: if we hold all other calculation inputs constant, and achieve the following Debt-to-Assets Ratios by changing the Debt level only, what would be the resulting relevant rating agency-defined ratios?*							
	Ratio	**Aa Range**	**A Range**	**Baa Range**				
Bonneville	*Debt to Assets (%)*				**82% (current level)**	**80%**	**75%**	**70%**
Fitch	*Leverage (x)*	< 10x	10x-12x	12x-15x	9.3x	9.1x	8.5x	7.9x
Moody's	*Adjusted Debt Ratio (%)*	35%-60%	60%-80%	80%-100%	83.2%	81.6%	76.4%	70.7%

A conclusion from the table above is that in a deleveraging scenario, there is no upside to the Fitch methodology-indicated rating from deleveraging below the current 82% debt-to-asset level. If all else is constant and debt declines, the score assigned in the methodology is already at its highest possible level.

[16] Rating Action Commentary: Fitch Rates Energy Northwest, WA Elec Rev Ref Bonds 'AA'; Affirms Bonneville's IDR at 'AA-', 4 May 2021

[17] This is an entirely hypothetical and static analysis. Changing only 2020 debt levels, it calculates new values of Fitch's and Moody's ratios holding everything else constant. Calculations are the author's own and were not provided or verified by the rating agencies.

Fitch incorporation of federal support is mostly based on the subordination of Bonneville's federal debt obligations. Specifically, the agency writes that "Bonneville's federal debt and appropriations debt offer a layer of structural support to nonfederal debt. Bonneville must defer payment on its federal obligation if revenues in the Bonneville Fund are insufficient to meet its nonfederal debt..."[18] Recent Fitch research also cites the benefits inherent to the $750 million line of credit for operational purposes that Bonneville enjoys with the U.S. Treasury as part of its overall borrowing authority. Fitch's analysis and research do not incorporate a direct link between BPA's rating and the U.S. federal government's rating, though the team would consider it unlikely for BPA to be rated above the U.S. federal government. Fitch will consider any increase in the Treasury Line as supportive while Bonneville pursues de-leveraging but is unlikely to take a positive rating action based on such an increase alone.

Given the stable outlook, the resilience of the very high factor scores in the methodology, and its key rating drivers, it appears that Fitch will continue to assign a AA-level rating to Bonneville's debt in most feasible scenarios.

Moody's currently assigns a Aa2 rating with a stable outlook to bonds backed by Bonneville's credit.[19] As a reference, Moody's assigns a Aaa with a stable outlook to the federal government's debt securities. Moody's bases its analysis and rating on its August 2019 US Public Power Electric Utilities with Generation Ownership Exposure methodology. The benefits of federal support to Bonneville are discussed in Moody's research notes on BPA, but are not an explicit factor in its methodology scorecard. The most relevant segment of Moody's scorecard follows below and displays how key rating considerations combine for the rating[20] (the complete scorecard is in Appendix 2). Its methodology scores for Bonneville are highlighted in blue.

[18] Rating Action Commentary: Fitch Rates Energy Northwest, WA Elec Rev Ref Bonds 'AA'; Affirms Bonneville's IDR at 'AA-', 4 May 2021

[19] Rating Action: Moody's assigns Aa2 rating to Energy Northwest's (WA) Project 1, Project 3 and Columbia Generating Station Revenue Bonds Series 2021; Outlooks are stable, 3 May 2021

[20] See US Public Power Electric Utilities with Generation Ownership Exposure Methodology, August 2019

Summary of Moody's Rating Grid (BPA scores in blue)				
Factor	**Weight**	**Subfactor**	**Weight**	**BPA Score**
Cost Recovery Framework	25%			**Aa**
Willingness & Ability to Recover Cost with Sound Financial Metrics	25%			**A**
Procurement Risk Exposure	10%			**Aa**
Competitiveness	10%			**Aa**
Financial Strength and Liquidity	30%	Adjusted Days Liquidity on Hand	10%	**A**
		Adjusted Debt Ratio	10%	**Baa**
		Adjusted Debt Service Coverage Ratio	10%	**Baa**
Total	100%			**A1**
Operational considerations				**+1 notch**
Debt Structure and Reserves				**+1 notch**
Revenue Stability and Diversity				**0**
Grid-indicated outcome				**Aa2**

Moody's rating scorecard is driven in large part by the consideration of business fundamentals. Moody's debt ratio is a subfactor to its analysis of an entity's financial strength and liquidity and by itself only carries a weight of 10% in the scorecard. That being said, the other two subfactors (days liquidity and debt service coverage) correlate heavily to leverage given the different ratio calculations. Moody's scorecard also allows for analyst adjustments after the application of the scorecard, with upward and downward notches that can be applied for such factors as debt structure, revenue stability, and operational considerations. Moody's uses trailing 3-year averages for the ratio inputs in the scorecard and as financial metrics improve over time, the scores should improve as well (right now the scorecard input is for fiscal years 2018 – 2020, at 87.1%, 84%, and 83.3%). Were the average 3-year average debt ratio according to Moody's formula to drop below 80%, it crosses a scoring threshold in the methodology, leading to an 'A' score for the subfactor and a higher grid-indicated rating. Improvements beyond a ratio of 80% are unlikely to bring further benefits (the next threshold is 60%).

Moody's recent research on Bonneville's credit quality does not tie the rating or outlook in a direct way to any specific level of its debt ratio. In a discussion of key credit factors, there is only an indirect reference towards the end: "The rating also acknowledges continuing credit challenges including hydrology and wholesale market price risk, a 'regulated utility' like ratemaking process, environmental burdens, and low consolidated financial metrics."[21]

A detailed review of Moody's debt ratio analysis also highlights the importance of liquidity. Similar to Bonneville's debt-to-asset ratio, Moody's Adjusted Debt Ratio is based on balance sheet considerations alone. Per its methodology, Moody's debt ratio calculation is as follows:[22]

Moody's Leverage Calculation
Adjusted Debt Ratio (%) = (Total Debt Net of Debt Service and Debt Service Reserve Funds) plus Adjusted Net Pension Liability ÷ (Fixed Plant Assets Net of Accumulated Depreciation plus Net Working Capital), with net working capital = cash and investments plus receivables expected to be collected minus current liabilities unrelated to debt

Similar to Fitch's leverage ratios, reserves are important to Moody's debt analysis and to some degree this debt ratio can also be 'managed' by a strong liquidity position. Conversations with the team at Moody's support the conclusion that the adoption of a range of policies including on leverage has been credit-positive over the past ten years and supportive of the assessment of management and governance.

Both Bonneville and Moody's use total debt in their preferred leverage ratio, which allows for a coarse analysis of what scores Moody's might assign to its leverage ratio if Bonneville were to achieve certain debt-to-asset ratios.[23]

[21] Rating Action: Moody's assigns Aa2 rating to Energy Northwest's (WA) Project 1, Project 3 and Columbia Generating Station Revenue Bonds Series 2021; Outlooks are stable, 3 May 2021
[22] See US Public Power Electric Utilities with Generation Ownership Exposure Methodology, August 2019
[23] This is an entirely hypothetical and static analysis. Changing only 2020 debt levels, it calculates new values of Fitch's and Moody's ratios holding everything else constant. Calculations are the author's own and were not provided or verified by the rating agencies.

Ratio Reconciliation Analysis	*This analysis uses BPA's 2020 accounts. It asks the question: if we hold all other calculation inputs constant, and achieve the following Debt-to-Assets Ratios by changing the Debt level only, what would be the resulting relevant rating agency-defined ratios?*							
	Ratio	**Aa Range**	**A Range**	**Baa Range**				
Bonneville	*Debt to Assets (%)*				**82% (current level)**	**80%**	**75%**	**70%**
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Moody's	*Adjusted Debt Ratio (%)*	35%-60%	60%-80%	80%-100%	83.2%	81.6%	76.4%	70.7%

A conclusion from the table above is that in a deleveraging scenario, there is some upside to the Moody's methodology-indicated rating from deleveraging below the current 82% debt-to-asset level. If all else is constant and debt declines, the score assigned in the methodology can improve to the 'A' score if BPA's debt-to-asset ratio were to drop below approximately 78% on a sustained basis (Moody's inputs 3-year averages for its ratios so the effect may be delayed). In a scenario in which Bonneville were to increase its debt even significantly (say Moody's debt ratio went to 95%), Moody's methodology score for this factor would not deteriorate.

Moody's recent critical rating drivers are focused on Bonneville's liquidity levels primarily and do not mention leverage. The most precise indications about developments that might lead Moody's to change BPA's rating or outlook are tied to liquidity and federal support. Specifically, Moody's states it may consider positive rating actions were BPA to sustainably maintain more than 90 days cash on hand or availability of the Treasury Line in excess of $1.75 billion. Correspondingly, indications of weakened federal support and fewer than 45 days cash on hand incurs the risk of a potential downgrade. Moody's own baseline language implies neither scenario is particularly close: "While the final rates implemented by BPA can be different than those currently proposed, we expect BPA's rates will lead to consolidated debt service coverage of around 1.0x with internal liquidity likely in the upper end of the 60 to 90 day range and net availability under the US Treasury line at around $1.65 billion over the two year rate period."[24]

[24] Rating Action: Moody's assigns Aa2 rating to Energy Northwest's (WA) Project 1, Project 3 and Columbia Generating Station Revenue Bonds Series 2021; Outlooks are stable, 3 May 2021

Moody's strongly incorporates the Treasury Line and Bonneville's status as a federal line agency in its analysis. Like Fitch, it considers the structural subordination of the federal debt as an important credit-supportive feature: "Borrowing ability under the US Treasury line and the ability to defer debt service payments to the US Treasury are two of the most critical support features from the US government."[25] The federal support is incorporated in the scorecard above by the 1-notch positive adjustment to the scorecard's outcome. As seen in the previous section, the level and nature of the federal support also is directly tied to the rating outcome drivers. A sharp increase in the Treasury Line as is being contemplated would be outside of Moody's base case considerations and may well lead to consideration of an upgrade of Bonneville's bonds.

Given the stable outlook, the relative importance of federal support and liquidity in the analysis, and the prospect of an increase in the Treasury Line, it appears that Moody's will continue to assign a Aa-level rating to Bonneville's debt in most feasible scenarios.

In comparison to Fitch and Moody's, S&P's approach is much less transparent and its future rating stance harder to predict. S&P's methodology lacks the transparency of, for example, a rating scorecard which allows other market participants to get a sense of where its ratings might trend. Similarly, its written research on Bonneville is not very clear about how the risks discussed might lead to changed ratings.

S&P currently assigns a AA- rating with a stable outlook to bonds backed by Bonneville's credit.[26] As a reference, S&P assigns a AA+ with a stable outlook to the federal government's debt securities. S&P refers to two of its methodologies to support its rating analysis, U.S. Public Finance: Wholesale Utilities, and General Criteria: Rating Government-Related Entities, last updated in 2019 and 2021, respectively.[27] S&P derives a 'stand-alone' rating for Bonneville of

[25] Rating Action: Moody's assigns Aa2 rating to Energy Northwest's (WA) Project 1, Project 3 and Columbia Generating Station Revenue Bonds Series 2021; Outlooks are stable, 3 May 2021

[26] Rating Action: Bonneville Power Administration, OR Series 2021AB Bonds Rated 'AA-', 4 May 2021

[27] See: U.S. Public Finance Wholesale Utilities and General Criteria: Rating Government-Related Entities: Methodology And Assumptions.

A+ using the first methodology, and the final rating benefits from a 1 notch uplift based on the second methodology. In the absence of a scorecard, S&P does give a description of its key analytical considerations: (i) the number of municipal participants, with larger pools of participants having a favorable rating impact; (ii) the nature of the off-take contracts, with take-or-pay arrangements viewed in a favorable light; and (iii) whether there are 'step-up' obligations present in the contractual structure, where participants can be called on to fulfill the payments of members in default.

S&P's most recent critical rating drivers do highlight that leverage and liquidity have a role in its analysis, but the language lacks precision and appears rooted in outdated analysis of Bonneville's strengths and challenges. S&P explicitly states it does not expect to upgrade the rating of Bonneville in the foreseeable future.[28] Downside risk to the rating is clearly present however, given the following language:

"If, during our two-year outlook horizon, BPA does not make strides in addressing competitiveness issues or if DSC, liquidity, and federal borrowing capacity decline beyond targeted levels, we could lower the SACP. Also, if the utility adds significant nonfederal leverage obligations due to its statutory debt ceiling, there could be negative implications for the SACP and the 'AA-' rating."[29]

The team at S&P does not specify at which precise levels of any of the indicators listed there would be downward pressure on the rating. Since its recent research on issuers in the sector is very focused on Environmental, Social, and Governance ("ESG") factors, the agency has the option of explaining its rating actions based on those considerations, as well.

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[28] Rating Action: Bonneville Power Administration, OR Series 2021AB Bonds Rated 'AA-', 4 May 2021

[29] Rating Action: Bonneville Power Administration, OR Series 2021AB Bonds Rated 'AA-', 4 May 2021. DSC stands for debt service coverage and SACP stands for Stand Alone Credit Profile, the rating of Bonneville before consideration of the Treasury Line. It is possible S&P is referring to Bonneville's own 'targeted levels' here.

Through the application of its Government-Related Entity methodology, S&P adds a notch to it's A+ stand-alone rating to factor in the Treasury Line and arrive at Bonneville's AA- final rating. The team at S&P will have to consider the increased Treasury Line as it is at odds with its assumptions at the time of the most recent rating assignment.

Given the stable outlook and the increase in the Treasury Line, it appears that S&P will continue to assign a AA-level rating to Bonneville's debt. However, its methodology lacks transparency, its research language is vague and open-ended, and it is hard to predict its future actions.

IV. Key Analytical Comparisons

This analysis attempts to 'reconnect' the credit analysis of Bonneville to some more appropriate global peers. Many transmission operators have a tie to their host government or otherwise benefit from support. Bonneville's position is relatively unique in the U.S. context and other municipal wholesale utilities are not an immediately appropriate set of peers. We also gauge some alternative measures of Bonneville's credit standing, including those provided by market price-based indicators and those based on bank credit analysis.

While Bonneville can be considered highly leveraged when compared to municipal wholesalers in the U.S. market only, a different picture emerges when it is compared to more appropriate peers. While some large transmission entities in Europe tend to be (at least partially) privatized and equity-financed, others rely on debt-financing in ways that are comparable to Bonneville.

We consider the comparison to three international peers (Fingrid Oyj, Hydro-Quebéc, and Statnett) and one domestic entity (the Tennessee Valley Authority). Some basic comparisons are in the table below (full table in Appendix 4):

	Bonneville	Fingrid Oyj	Hydro-Quebéc	Statnett	Tennessee Valley Authority
Supporting Government	*USA*	*Finland*	*Province of Quebéc*	*Norway*	*USA*
Supporting Government's Rating (Fitch/Moody's/S&P)	AAA/Aaa/AA+	AA+/Aa1/AA+	AA-/Aa2/AA-	AAA/Aaa/AAA	AAA/Aaa/AA+
Stand-Alone Utility Rating (F/M/S)	AA-/Aa2/A+	A/a2/A+	AA-/Aa2/AA-	not rated/Baa2/BBB	AA/Aa1/AA-
Type of Government Support	Treasury Borrowing & Appropriations	Majority Ownership and Potential Supportive Financial Intervention	Provincial Guarantee	Potential Supportive Financial Intervention	Potential Supportive Financial Intervention
Notches Uplift (F/M/S)	1/0/1	0/1/1	0/0/0	not rated/3/4	2/1/2
Final Rating Incorporating Support (F/M/S)	AA/Aa2/AA-	A/A1/AA-	AA-/Aa2/AA-	not rated/A2/A+	AAA/Aaa/AA+

Fingrid Oyj operates the national transmission grid in Finland. Its ability to manage its leverage and cash flows is constrained by regulation as its allowed financial margins are a function of its weighted cost of capital. Fingrid is minority-owned by financial institutions and rated just below Bonneville at Fitch and Moody's and at the same level by S&P. Despite its different funding mix and the need to make distributions to shareholders, Fingrid Oyj's leverage per the BPA debt ratio calculation is at 73% and trending upwards. Certain aspects of its credit profile facilitate a good comparison with BPA. Both Moody's and S&P add a notch to their rating to indicate the relative likelihood of a supportive financial intervention by the Finnish government. The company has never needed such support and the Finnish government does not have a track record of staging large financial interventions, reasons cited by Fitch to rate Fingrid on its own merits. While revenue stability and market position are in some ways comparable to Bonneville, its metrics are anticipated to deteriorate for the foreseeable future, unlike Bonneville's improving metrics. Fingrid has increased its capital spending plan by 75% to connect renewable projects coming online in upcoming years and also committed to a new transmission line with the Swedish operator and the anticipated debt to finance these programs will place severe pressure on its credit metrics. Given the proximity of the ratings, downward pressure on Fingrid's ratings would be easier to explain than downward pressure on Bonneville's ratings.[30]

Hydro-Quebéc operates as a public utility managing the generation, transmission, and distribution of power in the Province of Quebéc. The Province is Hydro-Quebéc's only shareholder and the company, which finds its origins in an expropriation of private enterprise

[30] See: Fitch Affirms Fingrid at 'A'; Stable Outlook (fitchratings.com), Research: Announcement of Periodic Review: Moody's announces completion of a periodic review of ratings of Fingrid Oyj - Moody's (moodys.com), and https://disclosure.spglobal.com/ratings/en/regulatory/article/-/view/type/HTML/id/2745234.

at the end of World War II, pays a sizeable dividend to the Province at the end of each year. While comparable to Bonneville in scope and reach, Hydro-Quebéc's value as a comparative entity is to show how much stronger federal support of and involvement with BPA would affect the latter's rating. Based on an interpretation of guaranty language in Article 28 of the Hydro-Quebéc Act, the rating agencies effectively consider the utility's debt as a provincial obligation.[31] Fitch and Moody's pass the Province's rating on to the Hydro-Quebéc's debt obligations, while S&P does not even list the utility as a separate entity, simply a financing vehicle of the Province. The Province of Quebéc has a history of coming to the financial aid of troubled debt-issuing entities, and the legislative language establishing the guaranty is broad and flexible. Based on the debt-to-asset formula of Bonneville, Hydro-Quebéc's leverage stands around 70% but has no impact on the rating.[32]

Statnett is the government-owned owner and operator of the power grid in Norway. The Norwegian government, which is itself rated AAA by all three rating agencies, is the only shareholder in the company. As is the case with Fingrid Oyj, Statnett's ability to manage its leverage and cash flows is constrained by regulation and its cost recovery is based on projects entering its regulated asset base. Statnett's leverage per the BPA calculation hovers around 80%. Its stand-alone credit profile as analyzed by Moody's and S&P (Fitch does not rate Statnett) stands at the equivalent Baa2 and BBB levels, respectively. While both rating agencies cite the well-established and supportive regulatory environment in which the company operates, the stand-alone credit quality is very much constrained by the company's practice of incurring significant leverage for its subsea interconnectors years before being able to recover the costs through the regulated asset base, leading to chronically weak credit metrics. In contrast to the government of Finland, the Norwegian government has a more active interventionist history in the energy sector in the country, and high expectations of timely

[31] See: h-5 - Hydro-Québec Act (gouv.qc.ca)
[32] See: Fitch Affirms Hydro-Quebec at 'AA-'; Outlook Stable (fitchratings.com),

financial support to the entity from the Aaa-rated sovereign leads to a 3-notch uplift to A2 at Moody's and a 4-notch uplift to A+ at S&P.[33]

The three rating agencies heavily consider their respective ratings on the U.S. government's debt when rating the Tennessee Valley Authority ("TVA"), the only somewhat comparable domestic entity to Bonneville. Initially founded as a government agency in 1933, the TVA is now a corporation wholly owned by the United States government, its board consisting of Senate-confirmed presidential nominees. Relevant legislation both protects the TVA from certain competition and limits its ability to expand into new jurisdictions or markets. The lack of a statutory guaranty for TVA's debt creates the analytical distinction between TVA and Hydro-Quebéc, and all three rating agencies have a stand-alone assessment of TVA's credit quality. With TVA's debt ratio in the mid-to-upper 60s, its credit quality is only minimally constrained by financial considerations, providing a useful 'upper bound' to what Bonneville might achieve with its debt reduction in the sense of improving its credit standing. The rating agencies all end up assigning the U.S. government's rating to TVA's debt and it appears would do so at much higher levels of TVA leverage as well: Fitch assigns a stand-alone rating to TVA of AA (one notch higher than the AA- it assigns to Bonneville's stand-alone credit standing). The agency values the high likelihood of timely financial support by the Federal government at two notches, assigning a final rating of AAA. Moody's assigns a stand-alone rating to TVA of Aa1 (one notch higher than the Aa2 it assigns to Bonneville's stand-alone credit standing). Moody's values the high likelihood of timely financial support by the Federal government at one notch, assigning a final rating of Aaa. Finally, S&P assigns a stand-alone rating to TVA of AA- (one notch higher than the A+ it assigns to Bonneville's stand-alone credit standing). S&P values the high likelihood of timely financial support by the Federal government at two notches, assigning a final rating of AA+.[34] In conclusion, all three rating agencies express high confidence that TVA

[33] See: Research: Announcement of Periodic Review: Moody's announces completion of a periodic review of ratings of Statnett SF - Moody's (moodys.com) and Statnett SF 'A+' Rating Affirmed With A Stable Ou | S&P Global Ratings (spglobal.com)

[34] See: https://www.fitchratings.com/research/us-public-finance/fitch-rates-tennessee-valley-authority-global-power-bonds-aaa-outlook-negative-13-09-2021, Research: Rating Action: Moody's assigns a Aaa rating to TVA's

would be 'bailed out' as needed by the Federal government and conclude that TVA's debt is effectively guaranteed by the Federal government. The TVA rating is as a result much more closely tied in their view to the U.S. government's own credit standing: while Bonneville's credit standing is driven by its own strength and strengthened by the benefits of the Treasury Line, TVA's credit standing is driven by its tie to the U.S. government, and its own credit fundamentals are a secondary consideration.

Rating agencies are not the only providers of risk assessments. Pricing of Bonneville-backed bonds in the municipal market has for a long time shown little to no deviation from pricing consistent with AA credit. While municipal yields have been quite low for a long time, there is nothing to indicate that in a rising rate environment the market will start differentiating Bonneville from other AAs. An additional marker are the ratings assigned by Credit Benchmark, which publishes ratings based on the average internal ratings assigned at lending banks. While a limited number of lending banks may have contributed to its average, the Credit Benchmark consensus rating for Bonneville's bonds currently stands at aa+, identical to the average internal rating large banks assign to the U.S. government's debt (and the Tennessee Valley Authority).[35]

Conclusions

The above analysis yields the following four initial high-level conclusions:

1. There appears to be no compelling need from a ratings or market perspective to reduce Bonneville's debt-to-assets ratio much below 80%, and Bonneville benefits from significant financial flexibility at its high rating level. Two rating agencies have precise numerical cut-offs on leverage in their methodology, and an initial review of their

$500 million note offering - Moody's (moodys.com), and Tennessee Valley Authority's 2021 Series A Global | S&P Global Ratings (spglobal.com).

[35] For more information please see: About Credit Benchmark - Credit Benchmark

calculations suggests that there is limited additional upside to further deleveraging in terms of Fitch's scorecard, and some limited upside to deleveraging below to a sustained level below 80% in Moody's scorecard. This is a 'static' conclusion and ignores the possibility that other factors may change or that the agencies might have rating drivers other than the scorecard. It is worth noting that in addition to leverage (and within the assessment of leverage), liquidity plays an important role in rating agency considerations.

2. When 're-connected' to a more appropriate set of comparators than simply U.S. municipal wholesalers, Bonneville's leverage looks to be in line with peers and defensible given the features of the other entities. The comparison to municipal wholesalers ignores credit-supportive features that can be benchmarked against global peers and do not exist for municipal entities in the U.S. The peer analysis above concludes that downward pressure on Bonneville's rating based on leverage considerations would be hard to reconcile with the credit standing of Fingrid Oyj, which is embarking on a sizeable capital spending program that will be debt-financed and will place severe pressure on its financial ratios. In addition, the comparison to TVA simultaneously suggests only limited upgrade potential for BPA.

3. Banks and other market participants appear to view Bonneville's credit standing as relatively close (sometimes identical) to the U.S. government's own debt, a view they do not have on municipal wholesale entities. The sizeable increase in Bonneville's Treasury Line is an unambiguously positive development that the market has yet to price in. While unlikely to result in a ratings upgrade, it gives additional tools to BPA as it deleverages and Fitch and Moody's analysts will be interested in discussing how that flexibility will be used.

4. Some uncertainty persists on how S&P may respond to changes in Bonneville's credit ratios and profile. The S&P rating is rooted in a methodology that does not provide the

same specificity about what ratios it considers or the importance of leverage to its analysis.

Appendix 1: Rating Symbols and Meaning

Fitch	Moody's	S&P	5-year default rate	Market interpretation	
AAA	Aaa	AAA	0.14%	Prime	Investment Grade
AA+ AA AA-	Aa1 Aa2 Aa3	AA+ AA AA-	0.64%	High Grade	
A+ A A-	A1 A2 A3	A+ A A-	1.06%	Upper Medium Grade	
BBB+ BBB BBB-	Baa1 Baa2 Baa3	BBB+ BBB BBB-	2.31%	Lower Medium Grade	
BB+ BB BB-	Ba1 Ba2 Ba3	BB+ BB BB-	8.13%	Non-Investment Grade/Speculative	Speculative Grade ("High Yield")
B+ B B-	B1 B2 B3	B+ B B-	19.23%	Highly Speculative	
CCC	Caa1 Caa2 Caa3	CCC+ CCC CCC-	33.78%	Extremely Speculative	
CC C D	Ca C	CC C D		Default or Default Imminent with Limited Recovery In Default	

Notes: 5 year broad-letter default rates from exhibit 40 in Moody's Annual Default Study (January 28, 2021)

Appendix 2: Relevant Rating Agency Methodologies

Fitch: U.S. Public Power Rating Criteria (February, 2021), uses leverage profile assessment (net debt/adjusted funds available for debt service) as adjustment factor to two other rating pillars (revenue defensibility & operating risk). Fitch also cites its Public Sector, Revenue-Supported Entities Rating Criteria (February, 2021).

Rating Positioning

Revenue Defensibility Assessment	**Operating Risk Assessment**	**Leverage Profile Assessment (Net Adjusted Debt/Adjusted FADS) (x)**			
		aa	**a**	**bbb**	**bb**
aa	aa	< 10	10–12	12–15	> 15
aa	a	< 8	8–10	10–15	> 15
a	aa	< 8	8–10	10–15	> 15
aa	bbb	< 7	7–9	9–13	> 13
a	a/bbb	< 6	6–8	8–12	> 12
aa	bb	< 5	5–7	7-11	> 11
bbb	aa/a	< 4	4–6	6–10	> 10
a	bb	< 4	4–6	6–10	> 10
bbb	bbb	< 0	0–4	4–6	> 6
bbb	bb	< 0	0–2	2–4	> 4
bb	a/aa	—	< 1	1-3	> 3
bb	bbb	—	< 0	0–2	> 2
bb	bb	—	< (3)	(3)–0	> 0
Suggested Financial Profile Assessment		**aa**	**a**	**bbb**	**bb**
		Very Strong	**Strong**	**Midrange**	**Weak**
Suggested Analytical Outcome		**AA**	**A**	**BBB**	**BB**

Moody's: US Public Power Electric Utilities with Generation Ownership Exposure Methodology (August, 2019), adjusted debt ratio accounts for 10% of the scorecard, with further adjustments possible for an issuer's debt structure and reserves.

US Public Power Electric Utilities with Generation Ownership Exposure Sector Scorecard Overview

Factor	Factor Weighting	Sub-factor	Sub-factor Weighting
Cost Recovery Framework Within Service Territory	25%	--*	25%
Willingness and Ability to Recover Costs with Sound Financial Metrics	25%	--*	25%
Generation and Power Procurement Risk Exposure Procurement Risk Exposure	10%	--*	10%
Competitiveness	10%	--*	10%
Financial Strength and Liquidity	30%		
		Adjusted Days Liquidity on Hand (three-year average)	10%
		Adjusted Debt Ratio (three-year average)	10%
		Adjusted Debt Service Coverage Ratio OR Fixed Obligation Charge Coverage Ratio (three-year average)	10%
Total	**100%**		**100%**

Preliminary Outcome

Notching Factor	Notching Range
Operational Considerations	(-2 to +1)
Debt Structure and Reserves	(-2 to +2)
Revenue Stability and Diversity	(-2 to +1)

Scorecard-Indicated Outcome

*This factor has no sub-factors.

S&P: U.S. Public Finance Wholesale Utilities and General Criteria: Rating Government-Related Entities: Methodology And Assumptions. These are brief descriptive articles, without scorecards, ratios or weights.

Appendix 3: Ratio Reconciliation Analysis

Ratio Reconciliation Analysis	*This analysis uses BPA's 2020 accounts. It asks the question: if we hold all other calculation inputs constant, and achieve the following Debt-to-Assets Ratios by changing the Debt level only, what would be the resulting relevant rating agency-defined ratios?*							
	Ratio	**Aa Range**	**A Range**	**Baa Range**				
Bonneville	*Debt to Assets (%)*				**82% (current level)**	**80%**	**75%**	**70%**
Fitch	*Leverage (x)*	< 10x	10x-12x	12x-15x	9.3x	9.1x	8.5x	7.9x
Moody's	*Adjusted Debt Ratio (%)*	35%-60%	60%-80%	80%-100%	83.2%	81.6%	76.4%	70.7%

Appendix 4: Peer Comparisons

	Bonneville	Fingrid Oyj	Hydro-Quebéc	Statnett	Tennessee Valley Authority
Supporting Government	*USA*	*Finland*	*Province of Quebéc*	*Norway*	*USA*
Supporting Government's Rating (Fitch/Moody's/S&P)	AAA/Aaa/AA+	AA+/Aa1/AA+	AA-/Aa2/AA-	AAA/Aaa/AAA	AAA/Aaa/AA+
Stand-Alone Utility Rating (F/M/S)	AA-/Aa2/A+	A/A2/A+	AA-/Aa2/AA-	not rated/Baa2/BBB	AA/Aa1/AA-
Type of Government Support	Treasury Borrowing & Appropriations	Majority Ownership and Potential Supportive Financial Intervention	Provincial Guarantee	Potential Supportive Financial Intervention	Potential Supportive Financial Intervention
Notches Uplift (F/M/S)	1/0/1	0/1/1	0/0/0	not rated/3/4	2/1/2
Final Rating Incorporating Support (F/M/S)	AA/Aa2/AA-	A/A1/AA-	AA-/Aa2/AA-	not rated/A2/A+	AAA/Aaa/AA+
2020 Debt Ratio per BPA Formula	82%	73%	70%	80%	67%
Funding Mix	Debt	Debt & Equity	Debt	Debt	Debt
Latest Key Rating Drivers - Fitch	Very strong revenue defensibility and very low operating costs, which support a financial profile assessment of 'aa'; degree of volatility to Bonneville's leverage	Continuing strong business profile of the company; cash flow visibility; supportive features of regulatory framework; larger planned capex which could lead to a breach of net leverage sensitivity in 2023; comfortable interest coverage and leverage ratios	Strong ownership by Province; very strong support track record; high political and financial implications of a default; stable revenues based on monopoly status; well-identified cost drivers and low operating costs; low resource management risks; strong financial profile	N/A	Status as a wholly owned corporation of the U.S. government; expectation that bond repayment would ultimately receive federal support if needed; very strong revenue defensibility; low operating costs; very strong financial profile
Latest Key Rating Drivers - Moody's	Expansive network of hydro and transmission assets; access to competitive power; long-term power supply contracts; Treasury line and ability to defer payments; hydrology and wholesale market price risk; 'regulated utility' like ratemaking process; environmental burdens; low consolidated financial metrics	Well-established regulatory framework; one of the most efficient electricity transmission operators in Europe; modest investment needs; good cash flow visibility; expectation of slight deterioration in financial metrics due to lower operating cash flows, high shareholder distributions, and capital spend.	Provincial Guarantee	Strong likelihood of Statnett receiving support if needed; well-established and transparent regulatory environment; good cash flow visibility; weak credit metrics due to high investment	High probability of extraordinary support from the US government; governing legislation that provides protections from competition; statutory authority to set TVA's electric rates; long-term contractual arrangements with creditworthy counterparties
Latest Key Rating Drivers - S&P	Sizable capital needs; shrinking federal debt borrowing capacity; limits on its indirect avenues for accessing capital markets; breadth of service territory; regional essentiality of the firm power; long-term power sales contracts with customers	Increasing funds from operations; slight increase in debt given increased capex and dividends; favorable operational environment, including a very supportive regulatory framework; expectation of continued stable operations and income and no significant changes to the regulatory framework; declining FFO to debt	Provincial Guarantee	Expectation that the company will capture in full the revenue cap of its cost base; ample rating headroom with average FFO to debt close to 9% and debt to EBITDA at about 8.5x; supportive regulatory environment	Extremely high likelihood of timely financial support if needed; low environmental and social risk; broad revenue stream; debt reduction; lengthier customer contracts; decarbonization

Appendix 5: Author Bio

Bart Oosterveld is an independent advisor to companies and governments in the areas of macroeconomic, credit, and country risk. He is affiliated as a Senior Fellow with the Atlantic Council thinktank in Washington, DC, where he has also served as the Director of the Global Business & Economics Program. In the latter capacity, he led the Council's work on global trade, growth, and finance, including the Council's flagship EuroGrowth and Economic Sanctions initiatives.

Bart previously worked at Moody's Investors Service for almost two decades. He was an infrastructure and utilities analyst early in his career and served as the lead analyst for

Snohomish PUD and other large municipal utilities. In 2009, Bart led the work on an updated set of global utility methodologies for both the regulated and unregulated industry segments. Between 2010 and 2014, he served as the rating agency's global head of sovereign ratings. In his final role as chief credit officer, Bart was responsible for the credit strategy in the Americas across all asset classes. Among other positions, he served as chair of the company's Macroboard, its chief credit officer for governmental ratings, as well as management representative to the Moody's Corporation's board of directors.

Bart graduated with degrees in the philosophy of law and the history of Spanish literature from the University of Amsterdam. He holds master's degrees in public policy from Columbia University and in economics from Georgetown University.