Public Service Commission of Wisconsin
Surrebuttal Testimony of Enrique Bacalao
Division of Regional Energy Markets

American Transmission Company, LLC, ITC Midwest, LLC, and Dairyland Power Cooperative
Docket 5-CE-146

June 11, 2019

Q. Please state your name, business address, and occupation.

A. My name is Enrique Bacalao. My business address is 4822 Madison Yards Way, North Tower – 6th Floor, P.O. Box 7854, Madison, Wisconsin 53707-7854. I am employed as an economist in the Division of Energy Regulation and Analysis of the Public Service Commission of Wisconsin (Commission).

Q. Please describe your educational background, professional qualifications, and work experience.

A. I have a Bachelor of Arts degree with a major in Economics from Columbia College, Columbia University in the City of New York. I also have a Master of Business Administration with a concentration in Finance and Financial Markets from the Graduate School of Business Administration, Columbia University in the City of New York.

Prior to joining the Commission staff, I was Assistant Treasurer of Alliant Energy Corporation. In this capacity, I was responsible for acquiring capital funds through securities issuance and other long- and short-term financing transactions. I also determined the hurdle rates applied in capital budgeting decisions. I provided regulatory testimony as an expert witness on behalf of both of Alliant Energy Corporation's utility operating companies on cost of capital and capital structure for contested proceedings in Iowa, Wisconsin, Minnesota, and Illinois, and before the Federal Energy Regulatory Commission (FERC). Prior to that, I served in various investment and commercial

banking positions with Bank of America and The Industrial Bank of Japan, and as a management consultant for Booz, Allen & Hamilton. I am a registered securities dealer and former Board member of the Society of Utility and Regulatory Financial Analysts (SURFA), under which I qualified as a Certified Rate of Return Analyst.

Since joining the Commission in July 2016, I have assisted with the development of risk management analysis, financial analysis and public utility holding company auditing procedures, and have participated in the economic evaluation of Wisconsin utility proposed investments. I have also participated in regional energy matters on behalf of the Commission, primarily relating to transmission planning, cost allocation, and wholesale market design. I am also contributing to the proposed responses to FERC's Notices of Investigation regarding its electric transmission incentives policy (Docket No. PL19-3-000) and policy for determining return on equity (Docket No. PL19-4-000).

Q. What are your responsibilities in this docket?

A. I am reviewing the economic justification for the proposed Cardinal-Hickory Creek 345 kilovolt (kV) transmission line project (Cardinal-Hickory Creek) on behalf of the Commission. More specifically, I am reviewing the alternative present value calculations prepared and submitted by the applicants and by Commission staff.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to assist the Commission in evaluating the accuracy and relevance of the respective present value calculations submitted in rebuttal testimony by all parties in considering the economic justification of Cardinal-Hickory Creek.

Q. Did you submit direct or rebuttal testimony in this docket?

A. No.

Q. Please identify the alternative present value calculations that you are reviewing.

A. The applicants incorporated their present value calculations, and/or underlying descriptions and assumptions underpinning their present value calculations, into the following rebuttal testimony of Tom Dagenais, Mike Degenhardt, Andrew Schaeve, and Corey Proctor. In addition, I have reviewed testimony submitted by Commission staff and other parties to this docket that touched on the present value calculations and/or their underlying assumptions. My surrebuttal testimony is intended to assess the various approaches to present value calculations described in Applicants' and other parties' rebuttal testimony.

Q. Please describe the applicants' approach to estimating the economic justification of Cardinal-Hickory Creek.

A. The applicants' approach intends to answer the following question: how much are the net benefits worth to the customers? The applicants focused on the costs and benefits of Cardinal-Hickory Creek, and its various alternatives, to Wisconsin customers.[1] Having decided which alternatives warranted further study, the applicants analyzed each of those alternatives from both a quantitative and a qualitative perspective.[2] The quantitative perspective was crystallized by both the Mr. Dagenais and Mr. Degenhardt. The net present value revenue requirement (PVRR) was estimated to represent the impact to customers in Wisconsin.[3] The cost of financing the project, including debt and equity, was included in the annual revenue requirements calculation.[4] The present value was

[1] Dagenais Direct, page 21, lines 4-6.
[2] *Ibid*, page 31.
[3] Ex-Applicants-Degenhardt-1
[4] Direct-Applicants-Degenhardt-8.

calculated using a 6.4 percent discount rate, as opposed to the companies' weighted average cost of capital, in order to reflect the customers' approximate time value of money. The 6.4 percent discount rate calculation is based on FERC's methodology in calculating customer refund rates.

Q. Please describe Commission staffs' approach to estimating the economic justification of Cardinal-Hickory Creek.

A. Commission staff used the classical capital budgeting approach[5] in estimating the present value of the net cash flows over the assumed economic life of the project (40 years), using an estimated weighted average cost of capital as the discount rate (8.41 percent) to evaluate the net benefits (the net energy cost savings) for the project.[6] Any net present value that is negative indicates that the project is uneconomic, and should not be pursued unless there is a non-economic reason to do so.

Q. Please describe the differences you found in the two approaches.

A. The applicants' approach addresses which alternative is the most attractive from the customers' perspective. The Commission staff's approach determines whether the proposed project adds economic value from the perspective of its owners. In essence, they are attempting to answer two different questions, and in doing so, use different approaches and apply different discount rates in their present value calculations.

[5] The classical capital budgeting approach refers to the capital budgeting decision analysis and decision rules that have been developed and perfected over the years. The following citations are to well-respected and widely-used economics and corporate finance textbooks that describe that classical approach:

a) Paul A. Samuelson and William D. Nordhaus, *Economics*, 16th edition (New York: McGraw-Hill, 1998)
b) Richard A. Brearley, Stewart C. Myers and Franklin Allen, *Principles of Corporate Finance*, 9th edition (New York: McGraw-Hill, 2008)
c) Jonathan Berk and Peter De Marzo, *Corporate Finance*, 4th edition (Boston: Pearson, 2017)

[6] Direct-PSC-Vedvik-6-10, Ex.-PSC-Grant-4 and Ex.-PSC-Vedvik-2

Q. You describe the two approaches as answering two different questions. Which question is the relevant question in this docket?

A. That is a decision that the Commission should make. One can make a reasonable case for both, but in my view, the preponderance of evidence supports Commission staff's view that the economic value of the project itself is more central in this docket. In short, I believe the Commission decision to be made is whether or not to approve the project being proposed. I base my view on Wis. Stats. 196.49(3)(b), Wis. Stats. 196.491(3)(d), Wis. Admin. Code § PSC 111.55, and on its publication, *Application Filing Requirements – Electric Transmission Lines*, dated October 2017, Section 2 – Project Need and Engineering.

Q. Are both sets of calculations accurate?

A. No, not entirely.

The applicants follow a concept that has merit, namely, that of comparing the identified alternatives to establish which one has the lowest revenue requirement for customers, discounted at a societal rate of discount that would reflect the opportunity cost incurred by customers. This approach aligns more closely with the approach taken in rate case decisions. However, there are two material shortcomings in the calculations made:

1. The future cash flows should accurately reflect future expected revenue requirements, including the correctly projected marginal return on capital associated with each alternative. One would need to verify that the applicants correctly estimated the marginal return on capital for each of the three owners associated with each alternative they analyzed.

2. The discount rate applied to calculate the present value of the alternatives is inappropriate.

   a. Relying on the precedent of the FERC refund rate is inappropriate because it was designed to compensate customers for shorter-term use of their funds, not for the longer-term (*i.e.*, 40-year) investment.

   b. The calculation made by the applicants is historical, as opposed to being prospectively estimated, which is fundamentally incorrect in capital budgeting; and,

   c. The 6.4 percent discount rate[7] is based on a pre-set margin above an overnight interbank Federal Funds rate, as opposed to reflecting a more fixed-rate long-term debt financing that more accurately reflects the type of financing one would use in financing a long-lived transmission asset of the type contemplated in this application.

Commission staff followed a concept that has merit, and their assumptions and calculations were accurate when completed. However, as with any estimate, that accuracy may suffer if the calculations are not updated with the passage of time.

Q. Should both sets of calculations be consistent?

A. Ideally, yes: both sets of calculations should be consistent in general terms, meaning that the proposed project should have positive present values under both sets of calculations if the project is worth pursuing, from an economic perspective (leaving aside non-economic considerations). However, the following conditions would be required:

[7] See Rebuttal-Applicants-Degenhardt- 3

1. In both cases, all parties would apply the marginal weighted average cost of capital estimated for the particular project[8], and, ideally, the same value applied in the respective calculations[9].
2. The projected future cash flows associated with the proposed project should be consistent in both sets of calculations.
3. The future cash flows associated with those alternatives evaluated should reflect the marginal weighted average cost of capital estimated for each alternative, which should differ if the risk profiles materially differ among the alternatives identified and evaluated.
4. The comparative analysis should cover the complete life cycle of the longest-lived alternative evaluated. In other words, if one compares a 40-year project with a 20-year alternative, one should assume that the 20-year alternative is renewed for another 20 years in order to produce comparable results.
5. The discount rate used in the applicants' analysis to calculate the present values for each alternative should be a reasonable estimate for the opportunity cost incurred by the rate-paying customers over the projected life of the longest-lived alternative analyzed. That estimate should be a projected rate, as opposed to a historical rate.

[8] In the applicants' analysis, the witnesses evaluate a project from the customers' perspective, so the discount rate used should reflect the customers' cost of capital, which is the opportunity cost incurred by having their funds tied up funding the project, with its associated risks.
[9] The net cash flows, and the uncertainties associated with those projected cash flows, are a function of the use of funds, not of the source of funds, so the discount rates applied should be the same.

Q. What do you conclude from your review?

A. The applicants offer a thought-provoking alternative analysis that suggests that the Commission's decision should consider the relative customer benefits of the proposed project, but in calculating their set of estimated present values used methods that suffer from the shortcomings I describe above. Commission staff offers a standard analysis that suggests that the Commission should consider the absolute economic merit of the proposed project, and offer a correctly calculated estimated present value for staff's preferred approach.

Q. Are there any recommendations you would offer, based on your findings, analysis and conclusions?

A. Yes, I would offer the following recommendations:

1. The Commission could determine which of the two questions underpinning the two approaches taken, as described above, is the relevant question in this docket.
2. If the Commission determines that the question answered by the applicants in their present value calculations is the relevant question, it should take into account the shortcomings I have described. It could also consider clarifying the rules governing this type of application with respect to the economic evaluation of future projects submitted for approval by this Commission.
3. If the Commission determines that the question answered by Commission staff in its present value calculation is the relevant question, it could consider making that decision the guidance that all parties should follow with respect to the economic evaluation of future projects of this type submitted for approval by this Commission.

Q. Does this conclude your testimony?

A. Yes, it does.

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