

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

DOCKET UE-240006

DOCKET UG-240007

EXH. SJK-5

SCOTT J. KINNEY

REPRESENTING AVISTA CORPORATION

Energy Trade & Risk Management (ETRM) Implementation

EXECUTIVE SUMMARY

Avista's business processes and complexities have expanded significantly over the last five years with western organized market expansion, the tightening of emission and renewable regulations and uncertainties in supply and demand. As state's carbon policies evolve and mandate a decarbonized grid, Avista needs an efficient and capable system to satisfy current and future gas and electric market operations.

For the last 20 years, Avista has relied on Nucleus – a custom developed application supporting core market functions across Energy Supply, System Operations, Transmission Services, Risk/Credit, Resource Accounting, and Compliance. Avista acquired the application in 2001 and conducted years of custom development, expanding use well beyond its original intent and creating a complex data system with interdependent processes on an obsolescing platform.

Nucleus was not designed to handle the complexity of organized markets, or the level of tracking required for carbon compliance and multi-jurisdictional energy requirements. Commercial systems have native functionality that allows utilities to handle regulatory and compliance obligations that legacy systems or spreadsheets cannot. As Oracle's end-of-life support is planned for December 2025, now is the time to replace Nucleus with a commercial Energy Trade and Risk Management (ETRM) system. When end-of-life support is reached, vendors cease development and no longer provide updates for data fixes, security alerts, critical patches, vulnerabilities, and performance. In addition, there are compatibility risks with integrated systems, knowledge risks as key personnel retire, and staffing risks associated with attracting and retaining developers who are not interested in building a skillset on an obsolete system.

As Avista continues to operate in complex organized markets, evaluate participation in future markets (Day-Ahead or a Regional Transmission Organization), balance multi-jurisdictional energy laws and grid decarbonization – all while providing cost-effective reliable energy – a modern and integrated ETRM system is required for the utility. An ETRM will reduce manual processes and the opportunity for human error, decrease reliance on extraordinarily complex spreadsheets, accommodate current and future market operations, improve the user experience, increase automation, and provide a modern integrated platform to reduce siloed business workflows. A vendor-supported ETRM allows Avista to transfer the risk and responsibility of system enhancements, upgrades, and maintenance to the vendor, while leveraging industry-wide utility features and functionality common in a commercial ETRM.

In the fall of 2022, a Nucleus/ETRM assessment was conducted by Utilicast, identifying risks, key business processes and a range of implementation cost estimates and estimated on-going license/maintenance costs. This BC requests funding at \$25 million over a four-year implementation period beginning in 2024, with a planned completion date three years after Oracle's December 2025 end-of-support date. If this BC is not funded, Avista may be at risk for not meeting the necessary system requirements for joining additional expanded organized markets and capturing market data for emission reduction

Energy Trade & Risk Management (ETRM) Implementation

requirements, and thus, hinder resource optimization and the opportunity to continue as a cost-efficient energy provider for Avista's customers.

VERSION HISTORY

Version	Author	Description	Date
1.0	Kelly Dengel	Initial draft of original business case	05/24/2023
BCRT	BCRT Team Member	Reviewed by BCRT and meets necessary requirements Steve Carrozzo	05/23/2023

GENERAL INFORMATION

YEAR	PLANNED SPEND AMOUNT (\$)	PLANNED TRANSFER TO PLANT (\$)
2024	\$2,000,000	
2025	\$10,000,000	\$9,200,000
2026	\$10,000,000	
2027	\$3,000,000	\$15,800,000
2028		

Project Life Span	4 years
Requesting Organization/Department	Energy Supply
Business Case Owner Sponsor	Kevin Holland Scott Kinney
Sponsor Organization/Department	Energy Supply
Phase	Initiation
Category	Project
Driver	Asset Condition

Definitions for the Category and Driver can be found on the Business Case Review Team Team's site see link.

[Investment Drivers](#)

Energy Trade & Risk Management (ETRM) Implementation

- BUSINESS PROBLEM** - *This section must provide the overall business case information conveying the benefit to the customer, what the project will do and current problem statement.*

1.1 What is the current or potential problem that is being addressed?

Nucleus is a legacy custom-coded system that allows Avista to conduct energy trading for both gas and electric, bill transmission customers, track wholesale risk/credit obligations, manage energy schedules, interface complex data sources with multiple internal and external systems/entities, and conduct financial accounting. It is at the center, literally “the Nucleus,” of Energy Supply, System Operations, Transmission Billing, Risk and Resource Accounting.

As a mission critical operations application in use for more than two decades, Nucleus has significant long-term operating risks due to the approaching end of life support date of December 2025, developer scarcity, and software limitations that encourage spreadsheets, manual input and may hinder energy market opportunities or mandated state regulations. As a highly integrated system, the risk of software incompatibility is present, as commercial systems provide upgrades for performance and vulnerabilities that may not be compatible with Nucleus architecture.

Critical business functions, including energy market hedging, market position reports and resource optimization are conducted on highly complex and sophisticated spreadsheets using Nucleus data. These have been refined over many years and require understanding of the technology and a deep understanding of the business logic to support and maintain. Nucleus is custom developed and requires continual maintenance and support by internal staff whose skillset is becoming scarce, as the fundamental code and architecture is complicated and obsolete. As more Avista personnel retire, use of these business-critical and highly complicated spreadsheets is a risk and may be better suited for a commercial system.

Over the last 20 years, Avista chose to develop additional functionality in Nucleus instead of pursuing commercial products, including system operations functions such as tag calculations, metering calculations, and inadvertent energy management that are better suited for a balancing authority operations application. The application has reached a point where additional development and support is not advantageous for Avista, as the software is approaching end of life and robust commercial products are readily available.

In order to successfully support future operations, seize opportunities in organized market expansion, comply with regulatory obligations and mitigate the above risks, a commercial ETRM implementation and associated software is needed to proactively replace Nucleus functionality.

Energy Trade & Risk Management (ETRM) Implementation

2. Discuss the major drivers of the business case.

The primary investment driver for this BC is Asset Condition, as the Nucleus system is an aging and obsolescent application approaching end-of-life vendor support in December 2025. A secondary investment driver is Performance and Capacity, as this system allows Energy Supply and System Operations to perform their core job functions in providing reliable cost-effective power and gas, as well as allocate settlement and transmission charges for Resource Accounting and Transmission Billing. As Avista continues to operate in complex organized markets, evaluate participation in future markets (Day-Ahead or a Regional Transmission Organization), balance multi-jurisdictional energy laws and grid decarbonization – all while providing cost-effective reliable energy – a modern and integrated ETRM system is required for the utility. In an already fast-paced, high stress and high stakes environment, the Energy Supply department will benefit from a reduction in manual processes for deal capture and energy scheduling, and provide greater continuity between Term, Day Ahead, Real Time and organized market operations.

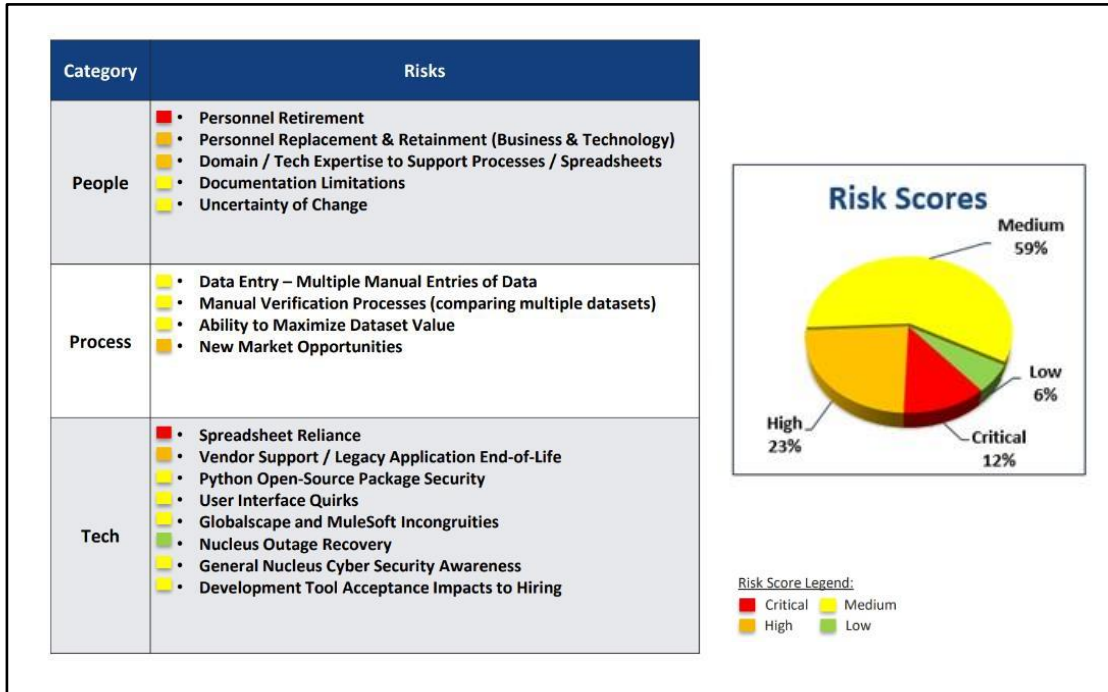
3. Identify why this work is needed now and what risks there are if not approved or if deferred or risks being mitigated by the request.

The Nucleus application has been in use for more than two decades and is approaching technology obsolescence in December 2025. Oracle Forms & Reports is the technology upon which the Nucleus interface is built and is considered a legacy application. End-of-life support by Oracle is planned for December 2025, with an extended date of December 2027 for an additional fee (see Section 2.5, Alternative 2). Although it is possible for Oracle to continue to extend the end-of-support date further into the future every few years, it doesn't change the long-term risks associated with continuing with Nucleus. Nor does it change the fact that it is a highly customized aging and outdated system that will be increasingly difficult to support with developers who are both competent in the technology and the business processes.

The [2022 Utilicast Nucleus/ETRM assessment](#) identified risks in terms of personnel, process and technology, and by severity of critical, high, medium and low. Each risk severity was based on business impact and likelihood of occurrence. Of the 17 identified risks, two were categorized as critical and four categorized as high (see *Chart 1*).

Energy Trade & Risk Management (ETRM) Implementation

Chart 1 – Nucleus Risk Summary



If this request is not approved, nor a proactive replacement implementation project begun in advance of end-of-life-support and/or additional key personnel retirements, the energy supply and delivery of natural gas and power to Avista’s customers may be hindered. Starting this complex implementation in advance of the software obsolescence date and additional retirements, will allow Avista to continue reliable and cost-effective operations while implementing a modern system that can leverage new market opportunities and reduce spreadsheet reliance.

As the future of organized markets evolves, the Company does not want to be in a position to integrate an ETRM, while also integrating with another organized market. If the project began in 2024, it would not be complete until 2028, which would be three-years beyond the planned December 2025 Oracle end-of-life support date. With Avista’s Western Energy Imbalance Market (WEIM) implementation complete in March 2022, the Company is now in a position to conduct an ETRM implementation and prepare for future organized market options.

1.4 Discuss how the proposed investment, whether project or program, aligns with the strategic vision, goals, objectives and mission statement of the organization. See link.

[Avista Strategic Goals](#)

Energy Trade & Risk Management (ETRM) Implementation

Mission Statement excerpt: “By delivering energy safely, responsibly, and affordably, Avista helps empower our customers to live their lives to the fullest.” Given the ever-changing organized market landscape, Avista’s trading and risk management system needs to be in a position to support the supply and delivery of gas and power and integrate and capture benefits from organized market expansion to allow Avista to continue as a cost-effective energy provider. Implementing a modern ETRM will reduce the risk of manual input error, spreadsheet reliance, failed system performance and reliability and reduce double entry through automation. In addition, it will allow the Company to leverage contemporary industry wide ETRM solutions and features, while transferring compliance changes associated with organized markets and state’s decarbonization policies to the software vendor.

Energy Trade & Risk Management (ETRM) Implementation

1.5 Supplemental Information – please describe and summarize the key findings from any relevant studies, analyses, documentation, photographic evidence, or other materials that explain the problem this business case will resolve.¹

In the fall of 2022, Avista contracted Utilicast – an energy and utility consultant and proven system integrator in Avista’s Western Energy Imbalance Market (WEIM) implementation – to conduct a [Nucleus/ETRM assessment](#). The assessment identified risks, key business processes, ETRM vendor options and an estimate of implementation costs over a three-to-four-year period.

The identified 17 risks across the areas of personnel, process and technology, with two risks categorized as critical and four risks categorized as high (see Section 1.3). Through an inventory of business processes, Utilicast identified core ETRM functionality versus functionality better suited for another system, including market settlements, meter data management and balancing area functions. The estimated funding requested in this BC includes costs for migrating some Nucleus functionality to non-ETRM systems which may already be in Avista’s environment or may need to be purchased.

The assessment provided a total implementation estimate of \$21.5 million to \$26.3 million, including integration capital and expense costs, system integrator and vendor(s) costs, and annual software license/maintenance costs between \$0.6 million and \$1.2 million. This BC requests \$25 million for capital implementation costs. In parallel, the project will also request \$1.8 million for implementation expense for the Request for Proposal (RFP) process (estimated at \$1.2 million) and various non-capital implementation costs. Cost estimates and project timeline will be updated after the system integrator and software RFP(s) are complete.

¹ Please do not attach any requested items to the business case, rather be sure to have ready access to such information upon request.

Energy Trade & Risk Management (ETRM) Implementation

2. PROPOSAL AND RECOMMENDED SOLUTION - *Describe the proposed solution to the business problem identified above and why this is the best and/or least cost alternative (e.g., cost benefit analysis).*

2.1 Please summarize the proposed solution and how it helps to solve the business problem identified above.

An ETRM will allow for an integrated platform that manages front office (merchant/system operations/transmission services), middle office (risk/credit) and back office (financial accounting) task and likely transfer the remaining Nucleus functionality to other industry standard commercial solutions to accommodate energy accounting and balancing authority operations. Proactively implementing this four-year project will allow Avista to mitigate the known risks and use a modern system that can support future organized market expansion and state/regulatory compliance obligations.

Avista foresees a modern ETRM system with an improved and vendor-supported user interface, increased system automation and verification, seamless integration of systems and data sources, and a configurable interface that can adapt to jurisdictional obligations or organized market changes. With tightening emission regulations, and uncertainties in supply and demand, Avista is facing a complex energy future and needs to adopt a commercial ETRM system to support future operations.

Avista has made the corporate decision that it is not a software development company and will instead purchase and configure industry-standard applications to reduce the risks and costs of owning and maintaining custom applications. Implementing a vendor-supported ETRM allows Avista to transfer the risk and responsibility of system enhancements, upgrades and maintenance to the vendor, while leveraging industry-wide utility features and functionality common in a commercial ETRM, including those Avista has traditionally conducted on spreadsheets. Commercial ETRMs have native functionality that allows utilities to handle regulations and compliance obligations that legacy systems or spreadsheets are not well-equipped to handle. As state's carbon policies evolve and mandate a decarbonized grid, Avista will need a system to monitor and report carbon emissions, track compliance instruments or credits and optimize offsets. Instead of developing Avista specific tools in Nucleus, the Company should be in a position to leverage vendor provided changes, as they are servicing multiple customers with the same needs. An effective and accurate system will be needed in order to effectively comply with carbon and renewable policies while managing the impact to customer costs.

Energy Trade & Risk Management (ETRM) Implementation

- 2.2 Describe and provide reference to CIRR/IRR analyses, relevant studies, documentation, metrics, data, analysis, risk reduction, or other information that was considered when preparing this business case (i.e., samples of savings, benefits or risk avoidance estimates; description of how benefits to customers are being measured; metrics such as comparison of cost (\$) to benefit (value), or evidence of spend amount to anticipated return).²**

The risks associated with continuing use of Nucleus are highlighted in Section 1.3 based on the [2022 Utilicast Nucleus/ETRM assessment](#) with a focus on technology obsolescence, personnel retirements and spreadsheet reliance. In order for the Company to continue as a cost-efficient gas and electric power provider for customers, Avista must have access to a reliable and contemporary industry-wide compliant software to conduct gas and electric market operations. An ETRM is foundational to the utility. Without it and associated systems, the Company would not be able to conduct operations and provide reliable gas and power to customers.

- 2.3 Summarize in the table and describe below the DIRECT offsets³ or savings (Capital and O&M) that result by undertaking this investment.**

There may be direct offsets related to this BC, and there will be a review of offsets after the software RPF is conducted and the vendor(s) and applications(s) are selected.

Offsets	Offset Description	2024	2025	2026	2027	2028
Capital		\$0	\$0	\$0	\$0	\$0
O&M		\$0	\$0	\$0	\$0	\$0

- 2.4 Summarize in the table and describe below the INDIRECT offsets (Capital and O&M) that result by undertaking this investment.**

Although an ETRM will allow Avista to continue to conduct wholesale energy sales, any associated O&M costs/benefits will flow through the state's energy recovery mechanisms. Any O&M offsets captured through the ETRM are indirect and flow through Idaho's Power Cost Adjustment and Washington's Energy Recovery Mechanism.

² Please do not attach any requested items to the business case, rather be sure to have ready access to such information upon request.

³ Direct offsets are defined as those hard cost savings Avista customers will gain due to the work under this business case. Such savings could include reductions in labor, reduced maintenance due to new equipment, or other.

Energy Trade & Risk Management (ETRM) Implementation

In addition, there may be an indirect capital offset by transferring software risk and compliance obligations to a vendor instead of hiring additional technology staff to develop the tools internally. As organized market participation and state's carbon emission monitoring and reporting requirements evolve, Avista will benefit from a vendor-provided solution servicing the needs of the utility industry.

Offsets will be reviewed after the software RPF is conducted and the vendor(s) and applications(s) are selected.

Offsets	Offset Description	2024	2025	2026	2027	2028
Capital		\$0	\$0	\$0	\$0	\$0
O&M		\$0	\$0	\$0	\$0	\$0

2.5 Describe in detail the alternatives, including proposed cost for each alternative, which were considered, and why those alternatives did not provide the same benefit as the chosen solution. Include those additional risks to Avista that may occur if an alternative is selected.

Alternative 1: Rewrite Application

Replacing Nucleus with commercial software was discussed in 2017, but the business drivers were not strong enough at a time when the Company was considering joining the WEIM, which would become a multi-year, multi-million-dollar project with significant business change. As an alternative, keeping the database and re-writing the application layer in house was discussed, however software development is not a core business practice at Avista. Such an undertaking would require a skill set Avista doesn't generally staff and the existing database may pose a limitation to implementing functionality that supports future organized market operational requirements. No costs estimates were provided, as Avista has made a corporate decision that it is not a software development company and will instead purchase and configure industry-standard applications to reduce the risks and costs of owning and maintaining custom application.

Nucleus is a mission critical system. The software was acquired through a merger in the late 1990s at a time when Avista did not have an energy trading and risk management system and chose to custom-develop Nucleus. If Avista were to continue to custom-develop and re-write the application, many unknowns would be discovered, increasing timelines, costs and risks. In addition, Avista would carry the sole responsibility for resolving performance, accuracy and reliability issues with a first-generation application and be required

Energy Trade & Risk Management (ETRM) Implementation

to stay current with the organized market enhancements and state policy changes.

Alternatives 2, 3, 4: The following alternatives continue with in-house development and support of Nucleus. Based on information available as of May 2023, the O&M support for Nucleus is approximately \$0.05 million a year and capital is \$0.70 to \$0.95 million a year.

Alternative 2: Purchase Extended Support

Based on a call with Oracle in May 2023, end-of-life support is planned for December 2025, with an option to purchase extended support to December 2027 for an additional fee. The incremental cost to purchase extended support is estimated at 10 percent of the current licensing/support costs for year one and 20 percent for year two. Based on the May 2023 Oracle product costs, two years of extended support is estimated at \$0.03 million. Purchasing this extension in the future would be based on future Oracle costs, which are currently unknown and are anticipated to increase annually.

Continuing with Nucleus does not resolve any of the issues identified in this BC narrative, however it does allow Avista additional time to plan and prioritize for a large capital investment.

Alternative 3: Expect Oracle to Extend Support

Although Oracle has extended the end-of-life support date in the past, there is no guarantee Oracle will continue to do so in the future. When the future of Nucleus was discussed in 2017, the end-of-life support date was planned for October 2020 with an extended support date of October 2023. Delaying the project in hopes that Oracle will continue to extend the support deadline increases the risk to expanding organized market participation and jurisdictional compliance, as well as system security and performance. Avista needs to proceed with the project now in order to prepare for the next 20 years of Avista operations.

Alternative 4: Operate Without Support

Avista may also chose to continue use of Nucleus beyond the current Oracle end-life-life support date of December 2025 and/or chose not to purchase the “extended support.” Although the application will still function (barring a critical security vulnerability or integration incompatibility), it does not position Avista well for operating in expanding organized markets, protecting against cyber security threats and integrations limitations, or receiving benefits from system performance upgrades and improvements. It does not alleviate personnel or retirement risks, and it does not well prepare Avista for the next 20 years of supplying cost-effective gas and electricity for customers.

Energy Trade & Risk Management (ETRM) Implementation

6. Identify any metrics that can be used to monitor or demonstrate how the investment delivered on remedying the identified problem (i.e., how will success be measured).

Although early in the initiation phase of this ETRM implementation, the following metrics may be leveraged to measure success including the Company's ability to maximize organized market participation and benefits, optimize transmission sales, the ability to supply and deliver affordable gas and power and the ability to meet compliance and program obligations under NERC, FERC or the Western Resource Adequacy Program (WRAP). Metrics will be reviewed and updated after the RPF phase.

7. Please provide the timeline of when this work is schedule to commence and complete, if known.

The 2022 Nucleus/ETRM assessment conducted in partnership with Utilicast, provided an estimated implementation of three-to-four years. The project must first conduct an ETRM Request for Proposal and select a ETRM vendor(s), which is planned for early 2024 with the capital project beginning in late 2024. If capital funding for this BC is not approved in 2024, the project would be delayed to 2025. If expense funding for the RFP is not funded in 2024, this effort would also be delayed to 2025. Utilicast provided a proposed timeline for delivery between gas and electric, however that schedule is dependent on chosen vendor capabilities and possible shifting business priorities. An updated delivery timeline will be provided after the system integrator and software vendor(s) agreements have been contracted.

8. Please identify and describe the Steering Committee/governance team that are responsible for the initial and ongoing approval and oversight of the business case, and how such oversight will occur.

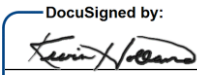
This BC will have two levels of governance: the Director Steering Committee and the Executive Steering Committee. The committees will review monthly project status reports, which identify project scope, schedule, and budget, as well as risk or issues the project team has identified.

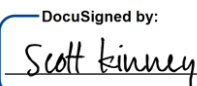
Status reports to the steering committees will be used as the official review and approval process for prioritization and change requests. Risk, issues and change requests will be documented in project logs and kept as artifacts of each project within Enterprise Technology's project management software system.

Energy Trade & Risk Management (ETRM) Implementation

3. APPROVAL AND AUTHORIZATION

The undersigned acknowledge they have reviewed the Energy Trade & Risk Management Implementation BC and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:  DocuSigned by: Date: May-24-2023 | 7:43 AM PDT
 Print Name: Kevin Holland
 Title: Director, Energy Resources
 Role: Business Case Owner

Signature:  DocuSigned by: Date: May-25-2023 | 6:38 AM PDT
 Print Name: Scott Kinney
 Title: Vice President Energy Resources
 Role: Business Case Sponsor

Signature: _____ Date: _____
 Print Name: _____
 Title: _____
 Role: Steering/Advisory Committee Review