BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

DOCKET NO. UE-20_____

EXH. SJK-7

SCOTT J. KINNEY

REPRESENTING AVISTA CORPORATION

Program Initiation Charter

Program Name: Energy Imbalance Market
Program Manager: Kelly Dengel
Business Case Name: Energy Imbalance Market
Expenditure Request (ER): 7141 – Energy Imbalance Market
Submit Date: 05/17/2019

1 Key Roles & Program Information

Program Sponsor(s):	Scott Kinney/ Mike Magruder	**Business Case Owner(s):**	Kelly Dengel
Business Program Manager:	Kelly Dengel	**Executive Steering Committee Members:**	Jason Thackston, Heather Rosentrater, Jim Kensok, Ryan Krasselt, Kevin Christie
Director Steering Committee Members:	Scott Kinney, Andy Vickers, Josh DiLuciano, Mike Magruder, Jim Corder, Hossein Nikdel, Adam Munson, Pat Ehrbar, Todd Colton	**Other Stakeholders:**	James Dykes, Robert Follini, Annette Brandon, Jacob Reidt, Kit Parker, Bob Weisbeck, Tom Dempsey, Alexis Alexander, Kristina Newhouse, Glen Farmer, Jeff Schlect, Brad Calbick, Craig Figart, Garth Brandon, Rip Divis, Rich Hydzik, Kenny Dillon, Jeff Schlect, Mike Andrea, Glenn Madden, Randy Spacek, Calvin Howard, Sheena Byerly, Ethan Jelinek, Elizabeth Arnold, Jason Pegg, Shanna Pagniano, Tim Davey, Nolan Steiner

2 Program Overview

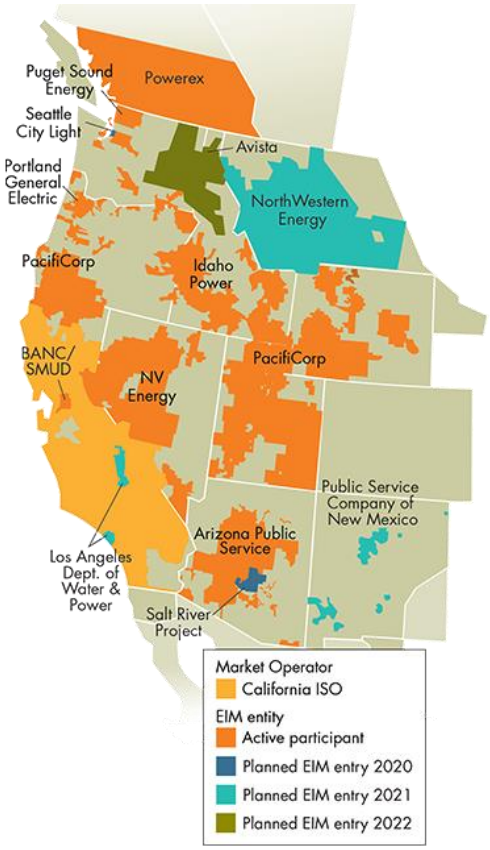
2.1 Business Need

As of 2014, Avista has progressively monitored the formation and expansion of the Western Energy Imbalance Market (EIM) administered by the California Independent System Operator (CAISO). The Western EIM, a real-time energy market producing substantial cost savings for renewable integration and system optimization, has grown to include over 75% of the load in the Western Interconnection. As western states promote and mandate increasing renewable portfolio standards and de-carbonization of the electric grid, Balancing Authorities Areas (BAA) will require interconnection-wide assimilation of available resources to maintain reliability and manage renewable integration costs. Avista has made substantial commitments to decarbonize its generation fleet, and along with recent Washington State de-carbonization legislation, will require new approaches to maintain its current optimization objectives, while containing the rising integration costs of renewable resources. On April 25, 2019, Avista signed the EIM Implementation Agreement with the CAISO and will officially join the market in April of 2022 in an effort to support its leadership as a low cost, customer-focused, energy service provider.

The Western EIM is an in-hour economic based regional resource dispatch program that allows participants to lower

energy costs by either dispatching less expensive resources to meet load obligations, or increase revenue through the bidding of excess energy into the market. The EIM dispatches the most economic resource across its entire market footprint based on bid prices to balance in-hour load and generation, resulting in lower overall dispatch cost for each individual participant. The EIM also lowers the amount of on-line regulation that each utility holds in excess every hour to make up the error between the forecasted load and resource plans, and what actually occurs during the operating hour. The reduced regulation can then be monetized creating additional revenue.

Several northwest utilities, (PacifiCorp, Portland General Electric, Puget Sound Energy, Idaho Power, Northwestern, and Seattle City Light) along with other western utilities, have either already joined the CAISO EIM or announced they will join in the near future. The Bonneville Power Administration (BPA) is conducting a customer stakeholder process and is expected to issue a formal Record of Decision in September of 2019 with the intention to join the Western EIM in April, 2022. If BPA joins the Western EIM over 75 percent of the load in the Western Interconnection will be participating in the market. This shift in market participation will impact daily market liquidity by reducing the number of available bi-lateral trading partners to conduct near term daily energy transactions. The risk of limited trading partners could drive daily market prices higher and/or cause reliability issues for Avista if energy can't be procured from the bi-lateral market during stressed conditions such as the loss of an Avista generating facility.



The factors influencing Avista's decision to join the Western EIM include a reduction in bi-lateral market liquidity, increased integration of third-party renewable resources and likely changes within state legislation that would drive additional renewable resources to be built within Avista's BAA. The EIM will allow Avista to reduce costs associated with integrating renewable resources, while maintaining the flexibility and optimization of its hydro generation, and ensuring Avista continues to serves its customers with reliable and cost-effective energy. In April of 2019, Avista announced its own clean energy goals that will transition resource mix to 100 percent clean by 2045.

Renewable generation requires additional regulation and load following to back up the intermittency of the resource. There is a tipping point where Avista's existing hydro flexibility can't sufficiently or economically supply the required load following for the amount of renewable resources integrated into the Avista BAA. Any additional renewable resource integrated in Avista's service territory results in a reduction of hydro flexibility to follow these variable resources, and the EIM is the most efficient and cost effective way to provide the required flexible ramping capability.

Currently Avista has only a single 100 MW wind facility and limited solar facilities within its BAA so there is adequate hydro flexibility to follow these plants. However, there are several third-party independent power producers that are in the Avista transmission interconnection queue that are exploring integration. In addition, Avista initiated a Request for Proposal for 150 MW of renewable resources in June of 2018 and if pricing is favorable, Avista may sign a 20-year power purchase agreement for up to 150 MW of renewable resources starting in 2020. Future Washington State emissions legislation could drive additional renewable resources to be built in our BAA. Finally, Avista continuously receives requests from smaller solar and wind resources that are seeking Public Utility Regulatory Policies Act contracts. Any additional renewable resource integrated in Avista's service territory may result in a reduction of hydro flexibility to follow the resource.

Utilities typically announce their formal decision to join the Western EIM two or three years prior to entry, and use that time to comply with CAISO and FERC requirements. The CAISO has historically allowed two utilities to join the market in April of each year. After a formal agreement is signed between Avista and the CAISO, a CAISO

provided project schedule with milestones and financial obligations will be finalized and followed. In order to prepare Avista for entry by April 1 of 2022, there is a substantial body of technical work, physical construction work and business process design for Avista to complete for the implementation. The implementation effort includes multiple new software applications, upgrades to existing software, generation metering and control upgrades, interconnection metering upgrades at substations and network infrastructure upgrades.

2.2 Who Benefits?

Joining the Western EIM would allow Avista to reduce costs associated with integrating renewable resources, while maintaining the flexibility and optimization of its hydro generation, and ensuring Avista continues to serve its customers with reliable and cost-effective energy. Once Avista is an active Western EIM participant, Avista intends for the costs and benefits of participation to be treated in a similar manner as other Avista Power Supply revenues and expenses. This includes some level of EIM costs and benefits included in the authorized Power Supply (once more financials are known), and the tracking of actual to authorized costs through the existing Idaho Power Cost Adjustment (PCA) mechanism in Idaho and the Washington Energy Recovery Mechanism (ERM) in Washington.[1]

2.3 Strategic Focus Area

Avista aims to tie everything we do back to our corporate Vision, Mission, Values and Areas of Focus. The EIM program focuses on the strategic areas of Our Customer, Our People, Perform and Invent.

Our Customers – We must hold our customers' interests at the forefront of all our decisions, operating our business by showing that we are transparent, genuinely care, and are easy to do business with. Joining the Western EIM will allow Avista to reduce costs associated with integrating renewable resources, while maintaining the flexibility and optimization of its hydro generation, and ensuring Avista continues to serve its customers with reliable and cost-effective energy.

Our People – Our employees are essential: Through them we deliver value to our customers and the communities we serve. Joining the Western EIM has a tremendous impact on the employees at Avista with day-to-day operational changes and the re-engineering of business processes to conform with market standards.

Perform – Our focus on performance today is critical to serving our customers well and unlocking pathways to growth. In order to join the Western EIM, Avista has to commit to three solid years of planning and delivery of generation, substation and technology projects, and continue to prioritize the effort in order for on-time market entry.

Invent – The activities that yielded yesterday's successes will not be sufficient to meet the challenges of tomorrow. The way Avista has historically operated in a bi-lateral market won't be sufficient for cost-effective operations in the future – joining the Western EIM will help Avista balance renewable energy integration, while providing reliable and cost-effective energy.

Areas of Focus:	
Our Customers	X
Our People	X
Perform	X
Invent	X

[1] For initial setup costs incurred prior to the go-live date in 2022, it is Avista's intention that capital costs would be recovered in general rate proceedings, just like all other utility capital additions. If allowed in Idaho, any incremental expense related to initial EIM setup may be included in the PCA (Avista has requested such treatment in the 2019 Idaho General Rate Case). The treatment for incremental setup expense in Washington is under evaluation by Avista.

2.4 Program Tracks

The following outlines the planned tracks for this Program. In keeping with the CAISO's project management expectations, the Program will be structured through various tracks, with multiple efforts/projects under each track. Progress reporting to the CAISO will be in terms of these tracks. The CAISO track schedule will be in place about 18-22 months prior to go-live initiation. Between Q1 2019 and that time, Avista will prepare for the EIM entry with program planning, design, requirements gathering, the selection of a third party organized market System Integrator and the procurement of EIM-related software. See Appendix A for the CAISO Track Timeline.

- **Avista Track 0 – Avista EIM Program Preparation:** This track represents the body of work Avista must complete to be ready to join the CAISO schedule. It includes program planning, requirements gathering and design, System Integrator selection and software procurement.
- **CAISO Track 1 – Planning and Project Management:** This track will ensure project management and oversite coordination between CAISO and Avista. It includes developing planning documents, project schedule, status reports, issue and risk tracking, overall readiness checklists and any other planning and controlling documents, process and activities to support a successful implementation of the program.
- **CAISO Track 2 – Policy, Legal and Support Track:** This track will ensure Avista reviews and signs the appropriate CAISO entity agreements – a combination of EIM Entity (Transmission System Operations) and EIM Participating Resource (Merchant) – based on a joint Avista-CAISO schedule. Changes to Avista's Open Access Transmission Tariff (OATT) will be accommodated within this track.
- **CAISO Track 3 – Modeling of Transmission and Generation Assets:** This track ensures Avista's transmission and generation assets are integrated with several CAISO systems, specifically Avista's Transmission Full Network Model with the CAISO's Energy Management System (EMS) and the Master File. The Master File specifies many generation and intertie resources for the purposes of scheduling, bidding and settlements.
- **CAISO Track 4 – System Integration and Testing:** This track ensures the required Avista's EIM-related software integrates with the CAISO systems and are functioning as designed to ensure the EIM runs successfully for existing and new participants. Prior to, and concurrent to this track, Avista will need to implement the various EIM-related software solutions, enhance in-house applications and build integrations. This currently includes implementing several new software solutions that impact Enterprise Technology, Generation Production and Substation Support, Transmission System Operations, Power Supply and Resource Accounting.
- **CAISO Track 5 – Metering and Settlements:** This track ensures various Avista metering activities are successful in the EIM for physical metering and meter data accuracy. Physical metering, associated with a market resource like a generation facility or an interconnection point, and the identification and classification of relevant metering components must meet existing CAISO metering standards and accuracy ratings. Meter data accuracy speaks to the validation of market resource configurations and related metering components in alignment with the market resources' physical characteristics and participation level within EIM.
- **CAISO Track 6 – Operations Training and Readiness:** This track provides a series for training events throughout the EIM implementation time. This includes computer-based training, in-person training, EIM workshops, trainer visits to the CAISO and training support for phased steps to production: Day in the Life, Parallel Operations and Go-Live initiation.

2.4.1 Program Requirements by Track

Track	Scope
Track 0 Avista EIM Program Preparation	Avista program structure, leadership, documentation, change management plan, internal project schedule, software procurement and contracting

Program Initiation Charter

Track 1 Planning & Project Management	Joint Avista-CAISO project plan and schedule
	Joint impact assessment document
	Avista go-live support plan document
	Joint checkpoint, next step, progress evaluation meetings, etc.
	Joint monthly project leadership meetings
	Joint quarterly executive meetings
Track 2 Policy, Legal, Support	EIM Entity Implementation Agreement
	EIM Entity Agreement
	EIM Entity Scheduling Coordinator (EESC) Agreement
	EIM Participating Resource Scheduling Coordinator (PRSC) Agreement
	EIM Participating Resource Agreement
	Avista Open Access Transmission Tariff (OATT)
Track 3 Transmission & Generation Modeling	Transmission Full Network Model (FNM) creation & maintenance
	Master File creation
	EIM Transmission System Operations desk & remodel
Track 4 System Integration & Testing	Acquire & configure Generation Outage Management software
	Acquire & configure Transmission Outage Management software
	Acquire & configure Participating Resource Scheduling Coordinator (PRSC) bidding & scheduling software (merchant)
	Acquire & configure EIM Entity Scheduling Coordinator (EESC) scheduling software (transmission)
	Acquire & configure PRSC settlement software (merchant)
	Acquire & configure EESC settlement software (transmission)
	Acquire & configure reporting software
	Enhance Avista Decision Support System (ADSS) functionality
	Enhance Nucleus functionality
	Integrate EIM software systems
	Integrate EIM software with CAISO systems
	Integrate Avista Energy Management System (EMS) to CAISO EMS
	Pre-production testing with CAISO – Day in the Life phase
	Pre-production testing with CAISO – Market Simulation phase
	Pre-production testing with CAISO – Parallel Operations phase
Track 5 Metering & Settlements	Low-Side Metering (LSM) /unit level metering at some generation plants
	High-Side Metering (HSM) installation at some generation plants
	Current Transformer (CT) / Potential Transformer (PT) testing and applicable upgrades
	Installation of a Schweitzer Engineering Laboratories SEL-735 revenue quality meter at generation and substation/interconnection locations
	Interconnection meter upgrades at some substations
	Network and communications installations/upgrades
	Install new instance of Itron's MV90 xi for meter data collection
	Generation plant Programmable Logic Control (PLC) upgrades
	Modify Oracle Meter Data Management system for EIM meters
	Submission & approval of Settlement Quality Meter Data (SQMD) plans and metering portfolio to CAISO
Track 6 Operations Readiness & Training	Create internal EIM training plan
	Complete CAISO EIM computer-based training modules

	CAISO conducts hands-on training for Avista
	Develop internal operational EIM procedures
	File internal operational EIM procedures with CAISO
	Complete CAISO market readiness criteria worksheet
	CAISO provides planned go-live operations procedure documents
	Avista files market readiness certificate with FERC prior to go-live
	CAISO files market readiness certificate with FERC prior to go-live
	Develop & implement EIM operations & support model

2.4.2 Generation Production & Substation Support Requirements

In accordance with CAISO Track 5 Metering and Settlements, there are various High Side Metering (HSM) and Low Side Metering (LSM) metering improvements, PLC installations or upgrades, and accuracy testing of CTs/PTs that Avista must perform. This also requires the installation and upgrade of network communications. How Avista decided to register their generation plants with the CAISO will influence what metering and controls work is actually performed. There are various resource registration options, but the most common represent registering at the unit level or at the aggregate plant level. Avista will progressively work through resource registration decisions as market knowledge and generation asset details are known. In addition, a discussion with the CAISO about Avista's current metering and generation portfolio will also influence the resource registration and bidding strategy. Based on current plant capabilities and EIM understanding, the following body of work is planned for the Energy Production business line, specifically Generation Production and Substation Support (GPSS), with support from Enterprise Technology and Energy Delivery. The following sites are Electric Allocated North jurisdiction.

High Side Meters Projects	EIM PLC Projects
Noxon	Noxon
Cabinet	Cabinet
Rathdrum	Rathdrum
Coyote Springs	Coyote Springs
Lancaster	Lancaster
Boulder Park	Boulder Park
Kettle Falls	Kettle Falls
Long Lake	Long Lake
Little Falls	Little Falls

Low Side Meters Projects	CT/PT Testing Expense
North East	North East
Post Falls	Post Falls
Nine Mile	Nine Mile
Monroe St (only add MV90)	Monroe St
	Kettle Falls
	Long Lake
Little Falls (only add MV90)	Little Falls
Upper Falls	Upper Falls

2.4.3 Substation Interconnection & Third-Party Generation Requirements

In accordance with CAISO Track 5 Metering and Settlements, the upgrade to revenue-quality metering with the installation of an SEL-735 meter and the associated network communications is required. Based on the current capabilities at these sites and Avista's EIM understanding, the following sites are planned for the Energy Delivery business line, with support from Enterprise Technology and Energy Production. The following sites are Electric Allocated North jurisdiction.

Substation Interconnection Sites	Third-Party Generation Sites
Burke	Fighting Creek
Colbert	Spokane Waste-to-Energy
Dry Creek	Clearwater Paper Company
Deer Park	Plummer Saw Mill
Dry Gulch	Upriver
Kettle Falls	Palouse Wind (Thorton)
Lolo	Solar Select (Lind)
Loon Lake	
Mead	
Milan	
North Lewiston	
Noxon 13kV	
Noxon Switch	
Opportunity	
Orofino	
Priest River	
Sagle	
Spirit	
Stratford	
Warden	
Westside	
Wilbur	

2.5 Where will assets or technology be deployed?

The EIM Program has a range of physical assets that will be installed and a variety of technology applications that will be deployed. Physical assets, such as meters, and technology assets, such as networking and communications equipment, will be deployed at various locations, including Avista generation plants, third-party generation locations and substation facilities. Technology application assets will primarily be deployed at Mission campus, Avista's disaster recovery center in San Jose, CA, and through various cloud-based providers utilizing the Software as a Service or SaaS model.

3 EIM Program Milestones

The below milestones represent internal dates Avista must meet to coincide with the CAISO-driven milestone schedule in Section 4. All installation and development work must be complete in production by September 2021 in order to start a multiple phase 6-month testing obligation with the CAISO. Individual project schedules will be created and managed to drive internal and external resources to meet the September 2021 date.

Description	Target date for completion/approval
Program Initiation	
• CAISO implementation agreement signed	04/19
• System Integrator selected	05/19
Program Planning	
• EIM software requirements gathered	09/2019
• EIM software vendor RFPs & selections	12/2019
• Vendor agreements & SOWs signed	02/2020
Program Execution	

• EIM software installations	09/2021
• ADSS & Nucleus enhancements	09/2021
• EIM software integrations	09/2021
• GPSS meter installations	09/2021
• Substation meter installations	09/2021
• Network communication installations	09/2021
• GPSS generation controls installations	09/2021
• SCADA upgrades	09/2021
System Integration & Testing with CAISO	09/2021 to 03/2022
All EIM Systems Go-Live with CAISO	04/2022
All EIM Technology Systems Warranty	07/2022
Program Closing	
• Program level Lessons Learned	09/2022
• Program Level Approval to Close	10/2022

3.1.1 CAISO Project Milestones

The below schedule represents the CAISO driven project schedule for EIM entry by April 2022. The milestones listed reflect payment to the CAISO of $50k per milestone, for a total, one-time fee of $300k to join the EIM market. In order to meet these milestone dates, Avista must perform the work listed in the Section 2.5.

CAISO-Avista Project Scope and Milestones	Project Delivery Dates supporting April, 2022
Detailed Project Management Plan The Parties will develop and initiate a final project management plan that describes specific project tasks each Party must perform, delivery dates, project team members, meeting requirements, and a process for approving changes to support completion of the Project. This phase will include a detailed IT system review to assist Avista in development of a detailed metering plan, bid-to-bill system and coordination with Avista EMS. Work will be initiated on the Avista staff training program using the foundational and detailed system computer-based training module, as well as on the resource data templates needed during Milestone 2.	March 2019- December 2019
• **Milestone 1** – This milestone is completed when the Agreement has been made effective in accordance with Section 1 of the Agreement.	April 2020
Full Network Model Expansion Full Network Model expansion for Avista and EMS/SCADA including: proof of concept of export/import of EMS data, complete model into the CAISO test environment, complete validation for all SCADA points from Avista, testing of the new market model and validation of the Outage and State Estimator applications.	November 2020
• **Milestone 2** – This milestone is completed upon modeling Avista into the CAISO Full Network Model through the EMS which will be	July 2021

deployed into a non-production test environment using the CAISO's network and resource modeling process.	
System Implementation and Connectivity Testing System requirements and software design, the execution of necessary software vendor contracts, development of Market network model including Avista, allow Avista to connect to a non-production test system.	August 2021
• **Milestone 3** CAISO to promote market network model including Avista area to non-production system, and allow Avista to connect and exchange data in advance of Market Simulation.	September 2021
Construction, Testing and Training in Preparation for Market Simulation - This task includes IT infrastructure upgrades, security testing, training, Day-in-life simulation and functional testing.	September 2021
• **Milestone 4a** Start of Joint Integration Testing with CAISO, Interface testing with minimum data requirements and functional integration testing. CAISO will make the test environment available for Avista connectivity testing prior to the delivery date assuming Avista has provided all prerequisite data and non-production system availability does not conflict with CAISO production system Spring Release schedule.	September 2021
• **Milestone 4b –** Begin 'Day in the Life' scenario testing	November 2021
• **Milestone 4c –** Begin Structured Market simulation (Milestone 4 payment due at this point)	December 2021
Activate Parallel Operations During January 2022**,** the CAISO will activate a parallel operation environment to practice production grade systems integration as well as market processes and operating procedures in anticipation of the impending Avista activation as an EIM Entity and to confirm compliance with the EIM readiness criteria set forth in the CAISO tariff.	January 2022
• **Milestone 5** – Start of parallel operations	February 2022
System Deployment and Go Live Implementing the Project and going live will include resource registration, operating procedures and updates, execution of service agreements, completion of the Avista tariff process, applicable board approvals, the filing	March 2022

and acceptance of service agreements and tariff changes with FERC, and completion and filing of a readiness criteria certification in accordance with the CAISO tariff.	
• **Milestone 6** – This milestone is complete upon the first production Avista EIM trade date.	April 1, 2022

4 Assumptions, Risks, Constraints & Dependencies

4.1 Assumptions

The following assumptions have been made:

a) All Avista required program/project resources will be available for the duration of the program.
b) All the necessary funding to complete the program will be available.
c) All Avista business users will be available for application and system User Acceptance Testing (UAT).
d) Avista will hire a third-party System Integrator to provide EIM subject matter expertise.
e) For EIM systems that must integrate directly with the CAISO systems, Avista will select software solutions under a SaaS model. It's anticipated Avista will chose on premise solutions for Itron's MV90 xi software for metering and General Electric software needed for the Full Network Model. Under the SaaS model, Avista will pay for vendor services, but not purchase software application licenses.
f) The technology system selection and procurement process will have priority within the Supply Chain and Legal departments.
g) The Avista Decision Support System (ADSS) will be enhanced for EIM functions.
h) The Nucleus application will have minor modifications for EIM functions.
i) The existing customer Oracle Meter Data Management (MDM) application will be enhanced for EIM meters and functions.
j) A new instance of MV-90 xi will be installed for EIM meters, with the intent that a consolidation effort will be conducted in three to five years to transfer non-Advanced Metering Infrastructure (AMI) meters from the existing MV-90 instance to the new EIM MV-90 instance.
k) The MDM EIM-related enhancements and the proposed Oracle Customer Care and Billing (CCB)/MDM upgrade should not present priority or development conflicts with EIM.
l) After Avista has signed the CAISO implementation agreement, a discussion with the CAISO will occur about the state of Avista's generation/interchange metering portfolio. It's assumed this meeting will occur within two months of signing the agreement and the some level of negotiation will occur regarding metering upgrades prior to go-live.
m) For EIM purposes and funding, if Avista registers generation facilities at the aggregate level, each facility will either have HSM or LSM improvement work, but not both funded by EIM. Directionally speaking, and for the purpose of GPSS outlined work, the metering approach assumes aggregate resource registration.
n) Avista will receive the needed permissions from various third-party generation and metering entities to perform EIM-related upgrades. Avista will fund EIM-related upgrades at various third-party sites.
o) Avista will procure an Energy Management System (EMS) plug-in for EIM market dispatch integration, but a complete EMS upgrade will not be required.
p) Avista has plans to fund a 24-hour operations center within the next three-five years, and house various operational business units, including Transmission System Operations. As such, the construction effort and costs for the EIM transmission operations desk at Mission campus and the Backup Control Center (BuCC) should be kept minimal.

q) The in-flight GPSS funded Human Machine Interface (HMI) project and the EIM-related PLC projects, have independent scope. The HMI project's goal is to standardize plant control screen display for plant operators, and the EIM PLC projects will capitalize on that standardization to display EIM data. If the HMI project is complete at the site where an EIM PLC project is needed, the new HMI screens will be updated to incorporate EIM data. If the HMI project has not begun at a site where an EIM PLC project is needed, the existing HMI screens will be updated with EIM data until the HMI project is available to update that site.

r) The Outage Management software projects for transmission and generation will start Q1 2020 and finish in Q3 2020, as the features/software is used and useful in today's business environment regardless of EIM participation.

4.2 Risks

Program level risks will be managed through a spreadsheet and posted to a common work space accessible by EIM project team members. Program risk will be discussed at steering committee meetings for mitigation recommendations and decisions. A Risk Management plan will be documented as necessary to identify mitigation plans the Director and Executive Steering Committee members may take action on. The following are potential risks for this program:

a) Interdependencies and integrations between EIM software projects will add complexity and may delay completion.

b) Competing priorities amongst other Avista programs/projects may constrain funds and resource availability. Resource areas that are likely to be constrained include network engineers, substation engineering and design, and generation engineers.

c) This program requires multiple, concurrent projects to be in flight at the same time, while competing for the same business resources and possibly technology resources.

d) The CCB/MDM application upgrade is scheduled to begin in 2019 and will likely take 14 months to complete. The complexity and timing of the upgrade may adversely affect EIM-related enhancements.

e) Avista may not be able to meet all the meter upgrades across all generation facilities by the given April 2022 go-live date.

f) If all the software Request for Proposal documents aren't issued by Q4 2019, the software implementation timeline will be at risk.

g) If resources across multiple business units aren't available for EIM planning and implementation, the April 2022 date will be a risk.

h) Delays in business processes re-engineering based on EIM requirements and complexities will impact the program/project schedule.

i) Joining the Western EIM presents a large amount of organizational business change that will require an Organizational Change Management (OCM) plan. Avista doesn't have a dedicated OCM champion and this role is critical to the program's success and employee adoption of the EIM practices.

j) Third-party generation sites don't have clear business ownership – a business owner must be identified to ensure these projects are completed.

k) It's unknown as to who will perform EIM-related work at third-party generation sites – Avista contracted, external contract or the generation owner.

l) The in-flight HMI project utilizes the same ET resources needed for EIM-related projects that could cause delays in completing work.

4.3 Constraints

The program schedule is the hard constraint. Avista has signed the CAISO implementation agreement with an EIM entry date of April 1, 2022. As such, we will conform to the CAISO implementation schedule and dates. In order to meet that date, Avista will chose to adjust scope and budget as necessary.

- Given a fixed schedule, we will choose a scope and adjust resources as necessary.

Place one "X" in each column (one per row) to provide a visual queue as to this project's Flexibility Matrix.

Flexibility Matrix	Low Flexibility	Medium Flexibility	High Flexibility
Scope		X	
Schedule	X		
Budget			X

- *Note: Quality is always expected to be high*

4.4 Dependencies

Given the vast business impact of the EIM program, there are multiple and concurrent projects that rely on other portions of a project being complete, or must be satisfied in order for EIM work to be completed.

4.4.1 GPSS Dependencies

a) The EIM dispatch of Little Falls depends on Long Lake EIM dispatch, however does not depend on Long Lake for HSM or PLC projects.
b) The Long Lake LSM, HSM and PLC projects all depend on the Long Lake Overhaul project. The schedule for this project is TBD.
c) The Cabinet Gorge LSM, HSH and PLC projects all depend on the Cabinet Gorge Automation Project for Unit 2, 3 and 4.
d) Network assessments are required for LSM projects at Cabinet, Coyote Sprints, Lancaster, Boulder Park, Northeast, Post Falls, Nine Mile and Upper Falls.
e) All LSM, HSM and PLC projects have some level of dependency on each other across the plants
f) Both LSM and HSM projects will require outages.
g) The CT/PT accuracy testing efforts will require outages and must be started by Q3 2019.
h) The needed transformer repairs must be complete at Coyote Sprints 2 before HSM can be started.
i) Coyote Springs 2 and Lancaster both rely on third-party PTs and will Avista will need permission prior to performing EIM-related work.
j) The completion of HSM projects will require completion of the PLC and network projects.

4.4.2 Network Dependencies

a) Wide Area Network (WAN) Performance Improvement Project – improve routing integration of Avista Private Transport network and Carrier Transport network. This project is not within the EIM Program.
b) SIP Project– Session Initiation Protocol – increase network bandwidth to Backup Control Center (BUCC). This project is not within the EIM Program.

4.4.3 Transmission System Operations/SCADA Dependencies

a) The Avista management and operation of the Transmission Full Network Model (FNM) should be complete and operational prior to deployment of Transmission Outage Management software

4.4.4 Substation Dependencies

a) The substation metering site projects must be conducted in the following sequence – integration design, substation design, circuit delivered to site and construction.
b) All substation project scheduling is dependent on the network team delivering Internet Provider (IP) circuits.
c) The Colbert substation Critical Infrastructure Protection (CIP) project must be complete before EIM-related work can begin.

5 Compliance and Controls

Each individual project under the EIM Program will conform to the Avista compliance and control standards.

Area	Required (Y/N)

Compliance Impact Assessment (contact: James McDougall)	Y
Business Continuity Plan (contact: Erin Swearingen)	Y
Reliability Compliance (NERC) (contact: Erin McClatchey)	Y
SOX Business Controls Impact Assessment (contact: Stacey Wenz)	Y
SOX Computer Controls Impact Assessment (contact: Matt Williams)	Y
PCI (Payment Card Industry) Compliance Assessment (contact: Matt Williams)	Y

6 Program Financial Structure & Cost Estimates

6.1 Program Financial Structure

The EIM Program will follow one Expenditure Request (ER), with multiple Budget Items (BI) grouped by business area and vice president. The Expenditure Request (ER) organization E55 is Power Supply. Multiple projects will be established under each Budget Item (BI). For financial tracking, each EIM project will reference the Parent Project ID of EIM422.

Energy Imbalance Market / Parent Project ID – EIM422									
ER	ER 7141 – Energy Imbalance Market / ER Sponsor ORG E55								
VP	**Heather Rosentrater**			**Jim Kensok**		**Heather Rosentrater**	**Jason Thackston**		
BI	Transmission Substation Engineering	System Ops SCADA Upgrades	Transmission High Side Metering	Network	Hardware/ Software	Transmission Remodel	Low Side Metering	High Side Metering	Generation Controls
BI	XS907/M08	YS908/D56	XS909/M08	19N09 / N09	20N09 / N09	19N07/H07	AG19/A07	AG020/A07	AG021/A07

6.2 Total Program Cost Estimates

The EIM Program costs have been estimated and refined with input from engineers, developers and subject matter experts from Generation Production and Substation Support, Transmission Substation Engineering, Enterprise Technology, Transmission System Operations and Power Supply. In addition, our estimates have been refined with input from Utilicast, a third-party EIM System Implementer Avista has engaged with. The estimating effort resulted in a range, and the numbers below represent the low side of the range with a 25% contingency assigned.

EIM Program Estimates	**Implementation**	**Contingency**	**Totals**	**Annual O&M Expense**
Capital	$18,129,000	$4,532,250	$22,661,250	
Expense	$2,380,000	$595,000	$2,975,000	$3,534,000
Pre-Paid Expense	$840,000	$210,000	$1,050,000	
Total Costs	**$21,349,000**	**$5,337,250**	**$26,686,250**	**$3,534,000**

6.3 Program Cost Estimates by Business Area

The below estimates represent EIM cost estimates by business area and excludes contingency.

Business Area	**Implementation Capital**	**Pre-Paid Expense***	**Implementation Expense**	**Annual O&M Expense**
ET Applications	$4,640,000	$840,000		$593,000
Application Procurement			$1,180,000	
ET Network	$2,465,000			$271,000
GPSS	$5,164,000			
Transmission & Substation	$1,760,000		$420,000	

EIM Program	$4,100,000		$780,000	$120,000
New Avista FTEs**				$2,550,000
Total Costs	**$18,129,000**	**$840,000**	**$2,380,000**	**$3,534,000**

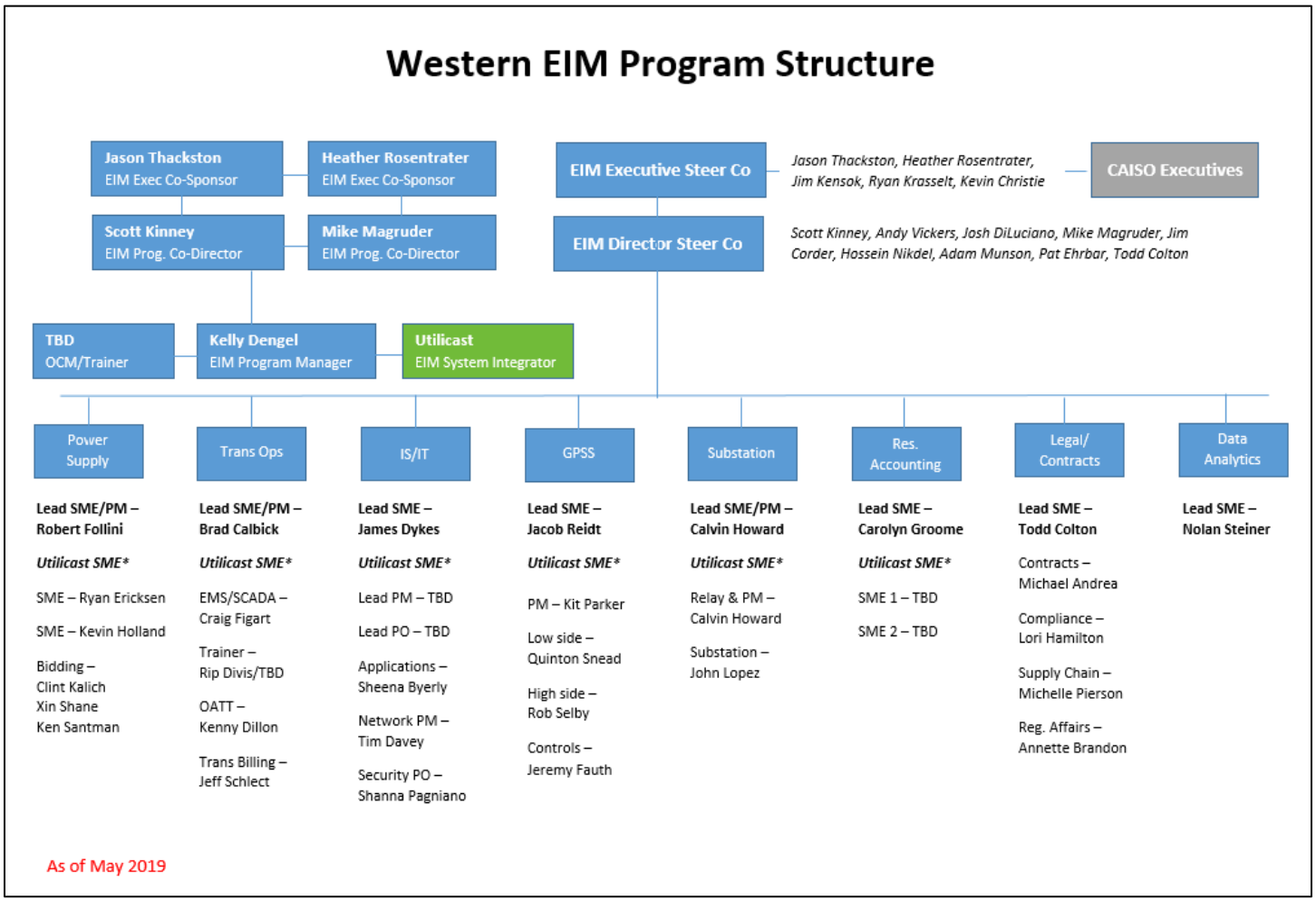
*The desired EIM software solutions will be purchased under a SaaS model, with the exception of the Itron's MV90 xi software for metering and the General Electric software needed for the Full Network Model. Under the SaaS model, Avista will pay for vendor services, but not purchase software application licenses. The Pre-Paid Expense estimate was based on 40% of the estimated software licensing costs of $2.1M.

**The above chart estimates 11-13 additional Avista FTEs amongst Power Supply, Transmission System Operations, Resource Accounting, Risk, Compliance and Enterprise Technology. These estimates, along with additional departmental impacts, are not final and will be reevaluated throughout the program.

7 Roles and Responsibilities

7.1 Program Organization Chart

The below program organization chart represents information known at the time of document submission. The organization chart will be a living document with updates and additions throughout the duration of the program. The organization chart(s) will be made available on an internal common work space.



7.2 Executive Sponsor(s)

The Executive Sponsors are ultimately accountable for the success of the EIM Program, but have delegated accountability for day to day activities to Program Sponsors. The Executive Sponsors will finalize fundamental program philosophies, provide a platform for decision making for the program, as required, and facilitate communication with executive leadership, as necessary. In accordance with the CAISO implementation plan, Avista executives will meet with CAISO executives about program schedule and performance on a monthly to quarterly basis throughout the implementation period. The Executive Sponsors for this program are Jason Thackston and Heather Rosentrater.

7.3 Program Sponsor(s)

The Program Sponsors have been designated as an accountable resource for the EIM Program. The Sponsors will provide support related to fundamental program philosophies, monitor overall progress of the program, provide guidance to the program manager, and facilitate communication with senior leadership and project sponsors. The Program Sponsors for this program are Scott Kinney and Mike Magruder.

The Program Sponsors have the following responsibilities:

- Championing the project and raising awareness at the senior level
- Approving strategies, implementation plan, project scope and milestones
- Approving key organization/business decisions for the program
- Resolving certain issues, policies, and change management
- Driving and managing change throughout the organization
- Meet regularly with CAISO management to ensure project is proceeding on schedule
- Manage the contract with the System Integrator

7.4 EIM System Integrator

To ensure a successful implementation, Avista must establish a detailed integration plan to implement the software, hardware, processes and strategies required to participate in the market. To support this effort, Avista sought a CAISO EIM knowledgeable third party System Integrator to assist with the End-to-End Program Implementation including Program Management, overseeing all aspects of the six CAISO integration tracks, software selection and integration for all business units, business process and strategy development and training.

Avista has chosen Utilicast as their Western EIM System Integrator. They will provide the professional services required to evaluate, design, implement and integrate EIM-related Commercial Off the Shelf (COTS) systems with current Avista systems. In addition, they will assist with evaluating business processes and providing recommended modifications to maximize efficiencies necessary to compile, analyze and deliver the necessary information effectively. Utilicast will provide Subject Matter Experts related to the CAISO tracks to work with Avista personnel.

Avista intends to sign two separate statements of work (SOW) with Utilicast for the EIM integration effort. The first SOW will cover EIM planning and project design initiatives in 2019 that will further determine and define actual integration efforts in 2020 through go-live in April of 2022. The 2019 focus will be on metering and generation control requirements and design, generation bidding strategies, development of technology application Request For Proposal (RFP) documents and selection of application vendors. After completion of the first SOW, Avista intends to sign a second SOW with Utilicast for actual EIM implementation efforts, which would include a 3-6 month warranty period. If Utilicast doesn't adequately perform and meet the System Integrator requirements in 2019, then Avista will have an opportunity to re-evaluate its relationship with Utilicast and potentially hire a new consultant to perform EIM integration efforts starting in 2020.

In terms of vendor management, performance and expectations, Utilicast be managed by Scott Kinney, EIM Program Sponsor.

7.5 Program Manager

The Program Manager (PgM) is responsible for managing the overall progress of the EIM Program and ensuring Avista adheres to the CAISO-set project schedule. The Program Manager will work with the program sponsors and

cross-department stakeholders to create a Program schedule that conforms with the CAISO schedule. The Program Manager works with the various business unit project managers to maintain project schedule and provide support, as needed, for the duration of the program. The PgM will make budget and scope decisions that will not impact fundamental EIM Program philosophies or the EIM business case. The Program manager is accountable to the EIM Program Sponsors and to both the Director and Executive Steering Committee. The Program Manager for this program is Kelly Dengel.

The Program Manager is responsible for:

- Championing the program and raising awareness at the senior level
- Driving and managing change throughout the organization
- Ensuring program priority is established and resources are allocated to the various projects.
- Ensuring the timely and effective cooperation of all departments in providing information, and other required assistance, to the project teams
- Helping to remove obstacles and solve problems that are beyond the control of the Project Managers
- Ensuring the various project are delivered on time within the CAISO project management plan

7.6 Lead Subject Matter Expert

The Lead Subject Matter Expert (SME) is responsible for learning EIM business requirements and processes, and relating them to their various business areas to assess impact and influence change management. The SME should have an overarching view of processes and functionality within their given business area, and know where to incorporate EIM impacts. They will represent their given business area's interests at EIM meetings, communicate EIM changes within their organization, be the main contact for the PgM, and help facilitate and develop EIM processes and business change for their areas.

7.7 Project Managers

The primary responsibility of the Project Manager (PM) is the complete and satisfactory execution of projects within the EIM program for their business units. The Project Manager works closely with all stakeholders to ensure risk is mitigated and contingency plans are created and delivered. The Project Manager will report monthly, and on an as-needed basis, to the Program Manager on all-project related activities such as schedule, scope, budget and risks. The Project Managers are accountable to their Departments and to the Program Manager. All stakeholders can identify a risk and offer a solution(s) for mitigation, with meetings held by the Project Manager to discuss recommendations. Delivery of risk assessment and contingency planning within the project is a responsibility of the PM, with input from the Delivery Managers and the Program Manager. Based on the severity of the risk, the contingency plan can be approved by the PM or the Program Manager, with ultimate approval, if needed, from the Director Steering Committee. The Project Manager has the following responsibilities:

- Project planning and execution
- Facilitate issue resolution
- Resolve scheduling issues
- Provide written plans and schedules templates
- Define, track and maintain project schedule and budget
- Ensure project follows project management principles
- Manage communication between stakeholders
- Ensure project is delivered to schedule and budget (report on deviations)
- Manage project execution
- Coordinate resource requirements

8 Steering Committee(s)

8.1.1 Executive Steering Committee

The primary function of the Executive Steering Committee is to ensure the EIM Program is given adequate priority throughout the organization to ensure the success of Avista joining the Western EIM by the scheduled April 1, 2022 date. The Executive Steering Committee will meet on a quarterly basis internally, and on an as-needed basis. In accordance with the CAISO implementation plan, Avista executives will meet with CAISO executives about program schedule and Avista performance on a monthly to quarterly basis throughout the implementation period. The Executive Steering Committee is responsible for taking recommendations from the Director Steering Committee and ultimately making Program level decisions for use of contingency funding. In the unforeseen event that the EIM Program schedule is at risk, the Executive Steering Committee has the right to review and adjust the EIM go-live date. The Executive Steering Committee would be responsible for this decision. Members of the Executive Steering Committee and the Program Sponsors would be responsible for this re-negotiation with CAISO.

8.1.2 Director Steering Committee

The primary function of the Director Steering Committee is to provide guidance and approval on key program issues such as program objectives, budgetary control, resource allocation, cross business unit decisions and decisions involving large expenditures. The Director Steering Committee will monitor and review the program status, as well as provide oversight of the program deliverable rollout. The Director Steering Committee will meet monthly.

The Director Steering Committee ensures program concepts and guidelines are established and maintained with a holistic view. They ensure business objectives are being adequately addressed and the program remains under control. In practice these responsibilities are carried out by performing the following functions:

- Monitoring and review of the project at regular Steering Committee meetings
- Providing assistance to the project when required
- Controlling project scope as issues force changes to be considered, ensuring that scope aligns with the agreed business requirements of project sponsor and key stakeholder groups
- Resolving project priorities and conflicts; reconciling differences of opinion and approach
- Address cross-functional issues
- Formal acceptance of project deliverables

8.1.3 Director Steering Committee Approval Responsibilities

The Director Steering committee members will be informed on Program and project level decisions, and will provide approval on Program documents. They are responsible for approving major program elements such as:

- Prioritization of Program objectives and outcomes as identified in the EIM Program Business Case;
- Deliverables as identified in the Program Charter
- Budget, ensuring that effort, expenditures and changes are appropriate to stakeholder expectations;
- Schedule adherence;
- Risk management strategies, ensuring that strategies to address potential threats to the project's success have been identified, estimated and approved, and that the threats are regularly re-assessed;
- Project management and quality assurance practices.

9 Program Governance and Reporting

9.1 Reporting

The purpose of these procedures is to provide effective mechanisms to control the scope of the program, manage issues and risks and monitor progress. Program level management of decisions and documents will be managed through Clarity Project and Portfolio Management System. Enterprise Technology projects, and their associated processes, will be managed within Clarity. Generation, transmission operations and substation projects will be managed through their established project management processes and procedures. Each project artifact will reference the EIM program with narrative related to EIM scope, CAISO track, requirements, and the financial

structure with the EIM Parent Project ID of EIM422 and the associated Expenditure Request (ER) and Budget Item (BI).

9.2 Financial Control

Financial Controls will be managed at the program level with monthly financial reporting through Oracle reports, with assistance from Financial Planning and Analysis team. The Program finances and forecasted spend will be reviewed monthly with the Director Steering Committee and quarterly with the Executive Steering Committee. The Capital Planning Group will also be kept informed of the Program Finances. The monthly financial reporting documents will be posted to Clarity.

9.3 Change Control / Approval Authority

Program level authority sits with the EIM Director Steering Committee, and the Executive Steering Committee. Ultimate approval authority sits with the Executive Steering Committee. The Executive Steering Committee is responsible for taking recommendations from the Director Steering Committee and ultimately making Program level decisions for use of contingency funding. In the unforeseen event that the EIM Program schedule is at risk, the Executive Steering Committee has the right to review and adjust the EIM go-live date. The Executive Steering Committee would be responsible for this decision. Members of the Executive Steering Committee and the Program Sponsors would be responsible for this re-negotiation of the EIM Implementation Agreement with the CAISO.

Approval Signatures

Approve EIM Program Charter Approval - Due May 22 - UPDATE - Scott Kinney - 05.21.19.msg

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Scott Kinney, Director of Power Supply

Approve EIM Program Charter Approval - Due May 22 - UPDATE - Andy Vickers 05.17.19.msg

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Andy Vickers, Director of Generation Production and Substation Support

Approve EIM Program Charter Approval - Due May 22 - UPDATE - Josh DiLuciano 06.03.19.msg

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Josh DiLuciano, Director of Electrical Engineering

Approve EIM Program Charter Approval - Due May 22 - UPDATE - Mike Magruder - 05.29.19.msg

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Mike Magruder, Director of Transmission Operations and System Planning

Approve EIM Program Charter Approval - Due May 22 - UPDATE - Jim Corder - 05.23.19.msg

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Jim Corder, Director of Information Technology and Secruity

RE EIM Program Charter Approval - Due May 22 - UPDATE - Hossein Nikdel - 05.22.19.msg

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Hossein Nikdel, Director of Applications and System Planning

Approve EIM Program Charter Approval - Due May 22 - UPDATE - Adam Munson - 05.29.19.msg

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Adam Munson, Director of Accounting

Approve EIM Program Charter Approval - Due May 22 - UPDATE - Pat Ehrbar - 05.22.19.msg

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Pat Ehrbar, Director of Regulatory Affairs

RE EIM Program Charter Approval - Due May 22 - UPDATE - Todd Colton - 05.29.19.msg

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Todd Colton, Senior Legal Counsel

Approve EIM Program Charter Approval - Due May 22 - UPDATE - Heather Rosentrater - 05.29.19.msg

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Heather Rosentrater, VP of Energy Delivery

Approve EIM Program Charter Approval - Due May 22 - UPDATE - Jason Thackston - 05.29.19.msg

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Jason Thackston, Senior VP of Energy Resoruces

Appendix A

The following CAISO provided timeline provides a generic overview of track activity between July 2020 through April 2022. In the legend, Avista is the Entity and CAISO is the Independent System Operator (ISO).