![util-assist Solutions. Simplified.]

January 20, 2021

Proposal to Gainesville Regional Utilities for Professional Services to Support Systems Integration for the AMI Project

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Section 1: Introduction

Util-Assist is pleased to provide Gainesville Regional Utilities (GRU) with this proposal for Professional Services to support the integration of systems for the utility's AMI project. With the introduction of Advanced Metering Infrastructure (AMI) and Meter Data Management (MDM) technology, along with the planned upgrade of the customer information system (CIS) from SAP 4.7 to SAP IS-U HANA, nearly every aspect of the utility's daily operations will be affected. Util-Assist helps utilities adopt and integrate new solutions to complement existing business processes and work seamlessly with utility systems to function as a coordinated whole, and will work with your chosen vendors to make the transition to the new operating environment as smooth as possible while achieving your business goals.

Util-Assist is proposing an Owner's Engineer role acting as representative of the utility to make sure project goals and requirements are met. The proposal includes professional services, from project initiation through mass deployment, that are needed for the successful deployment of GRU's new processes and systems including their integration across the GRU enterprise.

These services include:

- **Project Management Services and Subject Matter Expertise Consulting:** Woven throughout this project are seasoned Subject Matter Expert (SME) and Project Management services committed to ensuring that the overall project stays on track, on budget, and avoids traditional project pitfalls that can be associated with projects, such as this one.
- **Business Process Development and Solution Architecture Design:** For many projects, the integration of systems can be the most difficult and challenging phase. New business processes will need to be introduced to take advantage of new capabilities, and many existing business processes will need to be improved, automated, retooled or streamlined. When updating and re-engineering business processes, utilities need to proceed strategically and follow best practices so that as both new and legacy requirements are satisfied, system dependencies and integrations are all thoroughly mapped and managed. Moreover, with integrated systems providing a wealth of new data and functionality, utilities need to consider how new business processes cross department boundaries and how data will flow across multiple systems.
- **End-to-End Testing:** Util-Assist's end-to-end testing services will ensure that the integrated systems are performing to full specification. Our team will develop a testing strategy and plan, prepare and execute test scripts, and create simulated meter data for GRU based on best practices honed across numerous smart grid deployments.
- **SOP Development and Knowledge Transfer:** Util-Assist will develop standard operating procedures (SOPs) to define the interactions required to support AMI system functionality and related AMI business processes for the AMI to CIS integration solution, and provide knowledge transfer to GRU's named resources, based on best practices, in the form of mentoring, coaching and training of AMI operations for the AMI solution in production, based upon a knowledge transfer plan.

Because GRU is already engaging several vendors (Itron, Aclara, SAP Consultant) in its smart grid initiative, Util-Assist will not develop any interfaces; instead, we propose to support GRU by providing subject matter expertise, project management, and related services as described above in the role of "owner's engineer." In this capacity, Util-Assist will act on your behalf to ensure that your smart grid solution and associated business transformation a) meets your requirements, b) delivers the necessary performance, and c) is thoroughly documented.

Util-Assist understands the business issues driving GRU's smart grid initiative: too often, systems integration projects take a narrow technical view. Rather than focusing on building interfaces between systems, Util-Assist will instead work with GRU's vendors to ensure that the various smart grid solutions are implemented, configured, and interfaced to meet GRU's

business needs, functioning reliably, efficiently, and economically while driving value as a coordinated solution. We have enjoyed working with GRU, we value the relationship we have built, and we look forward to continuing our services with the organization.

1.1 Util-Assist Experience

Util-Assist has extensive experience working with many utilities across North America on AMI-related projects, including Liberty Utilities, Tampa Electric Company (TECO), NB Power, and Nova Scotia Power.

Util-Assist Project Experience	Number of Projects
AMI	80+
MDM	70+
AMI Systems Integration Projects	15
Business Process Workshops and Development	50+
AMI Security Audits	50
CIS Deployments	15+
WFM	10+

1.2 References

Util-Assist has worked with dozens of utilities on AMI projects. We have provided two references for our systems integration work.

1.2.1 Liberty Utilities

Address	Liberty Algonquin Business Services 354 Davis Road, Suite 100 Oakville, ON L6J 2X1
Contact	Katy Cook Director, Transformation Customer Operation Strategy (905) 465-4465 (Work) (416) 716-8606 (Mobile) katy.cook@libertyutilities.com
Description of Services	Util-Assist is the prime system integrator for the Liberty Utilities AMI project. The project includes the implementation of the SAP Process Orchestration (PO) ESB software at Liberty Utilities. Util-Assist's systems integration work for Liberty Utilities covers much of the same ground as GRU's proposed project, a full-scope meter-to-cash automation project. Util-Assist also led the to-be business process/requirements development, E2E testing, SME/Itron support, ESB deployment, interface design and development, SOP development, training, and knowledge transfer.

1.2.2 Tampa Electric Company

Address	702 N Franklin St Tampa, FL 33602
Contact	David M. Lukcic, P.E. Director, AMI Strategic Solutions (813) 275-3280 (Work) (813) 275-3416 (Fax) dmlukcic@tecoenergy.com
Description of Services	Util-Assist is currently working with Tampa Electric Company (TEC) as the program manager for its AMI project. Util-Assist is participating in an advisory role, representing TEC and supporting the activities of the third-party systems integrator. To ensure the integrations are built to fulfil real needs and address actual gaps, Util-Assist is currently holding workshops to discuss design considerations in the context of TEC's business processes. Using TEC's enterprise service bus (BizTalk ESB), the Util-Assist technical team is overseeing each integration in accordance with the technical design documentation.

Section 2: Scope of Services

Util-Assist proposes a broad spectrum of services to assist GRU with its AMI systems integration. Util-Assist will act as the project's "Owner's Engineer," providing subject matter expertise and representing GRU's interests as it interacts with the various vendors that are providing and configuring the new IT systems. This proposal covers services as provided in four phases:

- Phase 0: Common services such as project management and subject matter expertise provision that span the full life of the project, from project start through mass deployment of smart meters
- Phase 1: Business requirements and solution architecture development
- Phase 2: Support and testing for the integration effort conducted by GRU's system vendors
- Phase 3: Procedure development and knowledge transfer to GRU

It is estimated that the entire scope of services will be carried out in a timeline of approximately thirty-one (31) months including full meter deployment; however, systems integration-related activities should be complete by October 2022. The proposed schedule assumes a project start date of February 2021 and a completion date of August 2023. The project approach includes a multi-release strategy that allows for a step-wise and risk-mitigating go-live. The figure below provides a high-level summary of the anticipated timeline.

Key Assumptions

- The project work will be completed on time per the schedule provided below. Any delays in the project timeline may incur additional costs if additional work is required from Util-Assist as a result of project delays beyond its control. Any such costs will be billed on a time and materials basis per the rate card provided in Section 3.3.
- The timeline shown below aligns with the Itron project schedule.
- GRU will be responsible for all data creation requirements except where described in this document.
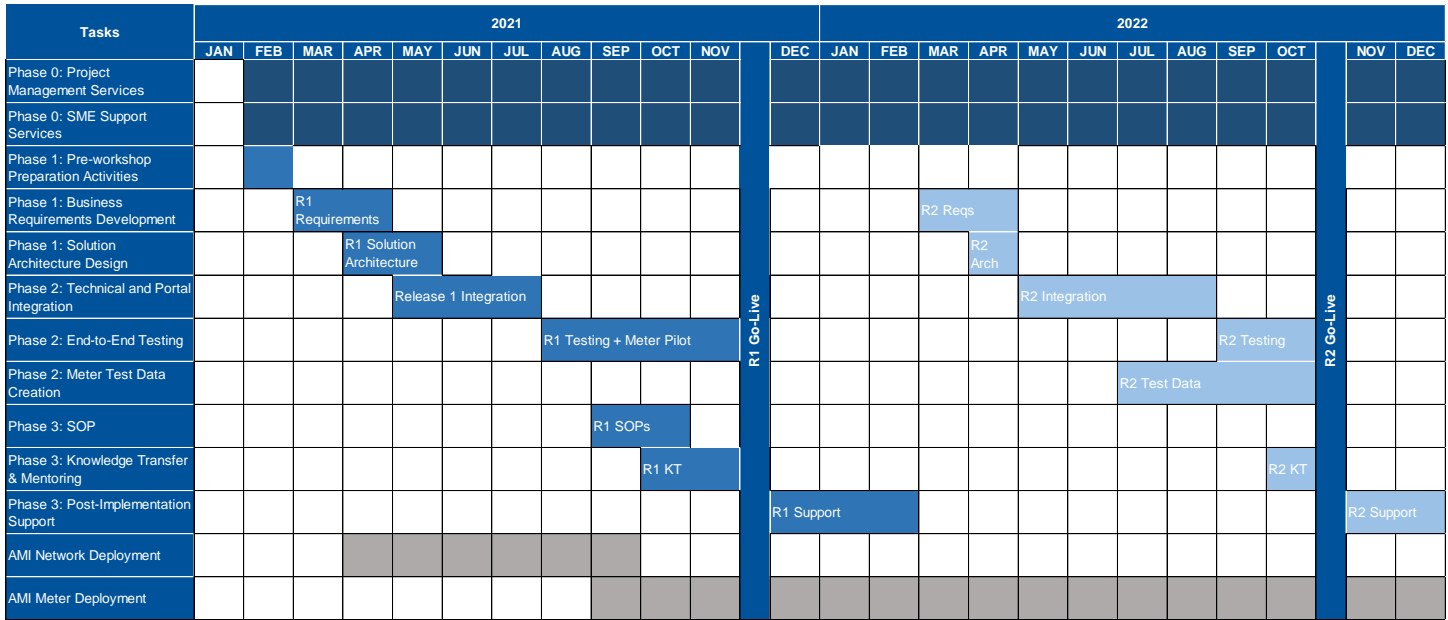
Figure 1: High-level Project timeline by task. Note that meter rollout and the associated project management and SME support continues for a further 8 months not shown on the timeline to complete mass meter deployment.

2.1 Release Strategy Overview

GRU is pursuing two significant IT projects simultaneously: the implementation of advanced metering and an upgrade of its customer information system (CIS) from SAP 4.7 to SAP IS-U HANA. The CIS upgrade has significant implications for the AMI system, as integration between the AMI, the installation vendor, and the CIS is required for meter deployment. Because SAP IS-U HANA will go live after the start but before the completion of meter deployment, it will be necessary to perform some integration with the existing SAP 4.7 CIS.

Util-Assist is therefore proposing a two-release strategy in which basic functionality would be deployed in tandem with the AMI head-end system, with full functionality following once the SAP IS-U HANA system has been deployed.

2.1.1 Release 1 – SAP 4.7 Integration

Release 1 is intended to provide a "minimum viable product" that will enable GRU to deploy smart meters and bill on the consumption recorded by those meters. It will consist of a very basic set of GRU-developed integrations that will deliver the functionality required to advance the AMI project. The following diagram illustrates the systems that must be integrated with SAP 4.7 in order to deploy AMI meters and generate bills.
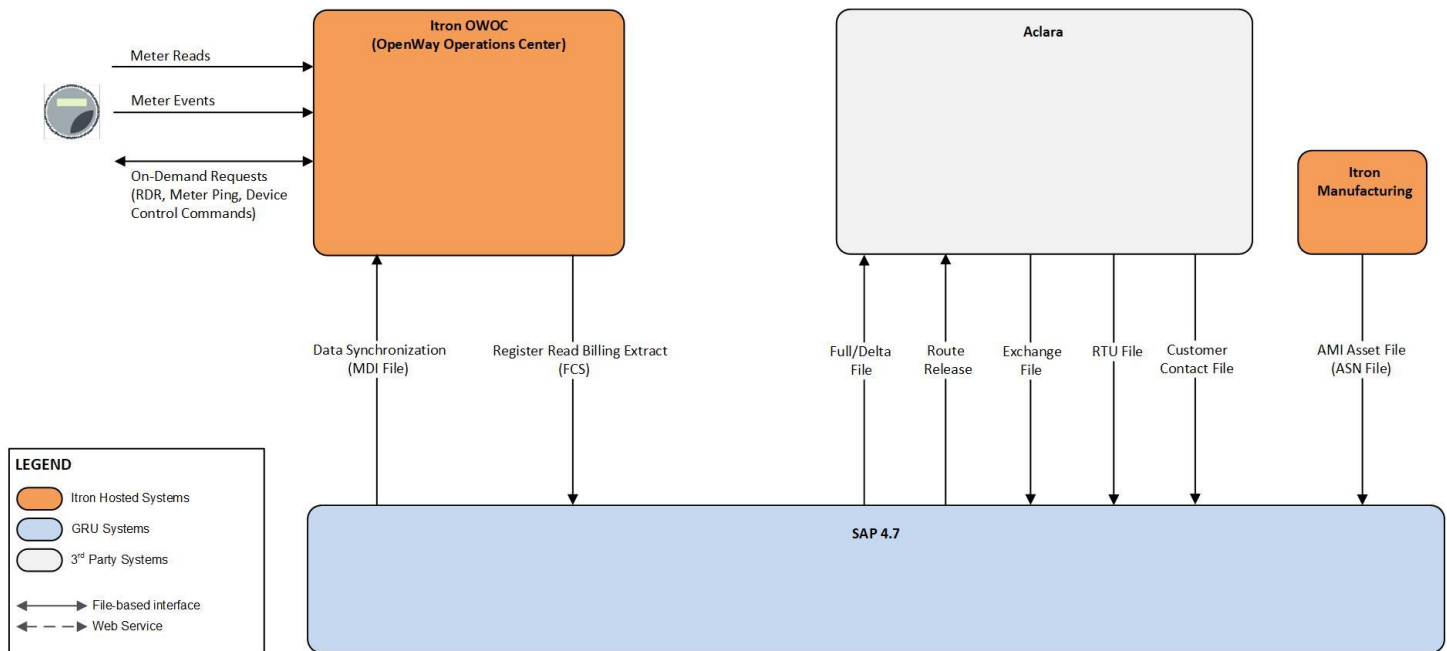
Figure 2: The basic integrations required to deploy AMI meters and gather billing data.

For meter deployment, integration is required to Itron Manufacturing (for asset management) and Aclara (for work orders). For billing, the CIS must exchange data with the Itron OWOC (that is, the AMI head-end system).

For this release, it is anticipated that all necessary modifications to SAP 4.7 will be completed in-house at GRU.

Release 1 is anticipated to go live at the end of 2021, to coincide with the deployment of the AMI network infrastructure, the meter pilot project and initial group of mass meters.

2.1.1.1 Util-Assist In-Scope Activities for Release 1

Business Requirements Development

- Util-Assist will conduct discovery sessions to understand GRU's existing processes in order to update the business processes appropriately.
- Util-Assist will create a business requirements document (BRD) for each in scope business process, estimated at 26 business processes and four additional workshop topics that do not required a formal business process. These will be based on the information provided in the workshops. The use cases are listed in Section 2.3.3.
- One technical design document (TDD) (e.g., file transfer) will be created for each interface to detail the end-to-end technical design (that is, the full integration across Aclara, Itron, and GRU systems). As the integration solution may not be using middleware for the interfaces, TDD responsibility/accountability will lie either with GRU or the vendor. Util-Assist will provide support to ensure the accuracy and completion of the TDDs required to support the in-scope business processes, but is not responsible for completing the TDDs.

SME Support of Itron Led Work

- Util-Assist team members will attend Itron workshops and provide SME support, review all Itron documentation, and provide knowledge transfer sessions to GRU where required.

SME Support of Aclara Led Work

- Util-Assist will attend the Aclara workshops and provide SME support, review all Aclara documentation, and provide knowledge transfer sessions to GRU where required.

Solution Architecture

- Util-Assist will develop the high-level solution design to support the AMI to CIS integration solution.

Testing (SIT/UAT)

- Util-Assist will be responsible for developing the master testing strategy and test plan that includes the testing schedule. Util-Assist will also develop and execute test scripts. Util-Assist will subsequently provide support to GRU during user acceptance testing.
- Since IEE will not be implemented during Release 1, no meter data creation will be required for R1.

Standard Operating Procedures (SOPs)

- Util-Assist will be responsible for developing standard operating procedures (SOPs), which define the interactions required to support AMI system functionality and related AMI business processes for the AMI to CIS integration solution.
- The number of SOPs required for Release 1 will depending on the managed service agreement GRU has with Itron and whether Aclara is responsible for any SOP development.
- Since there will be no IEE in R1, the list of SOPs will be limited to OWOC.

Training / Knowledge Transfer

- Util-Assist will provide knowledge transfer to GRU's named resources, based on best practices, in the form of mentoring, coaching and training of AMI operations for the AMI solution in production, based upon a knowledge transfer plan.
- Itron will provide full training on operation of the AMI solution.

2.1.2 Release 2 – SAP IS-U HANA Integration

In Release 2, SAP IS-U HANA will be deployed and integrated with the AMI system via SAP's MDUS adapter. The MDM will also be deployed during this release, at which time it will then be possible to complete full system integration between the Itron AMI and GRU's back-office systems. Because the mass deployment of AMI meters will not be completed by the end of Release 1, it will be necessary to recreate the Aclara and Itron Manufacturing integrations to continue deploying AMI meters under SAP IS-U HANA.

It is expected that all technical integration development work for SAP IS-U HANA will be conducted by the system vendor (Itron), installation vendor (Aclara) and SAP consultant. Util-Assist will act in support of GRU to provide subject matter expertise, testing services, and knowledge transfer.

2.1.2.1 Util-Assist In-Scope Activities for Release 2

Business Requirements

- Similar to Release 1, Util-Assist will conduct workshops to develop the business requirements for Release 2.

Solution Architecture

- Util-Assist will develop the high-level solution design to support the AMI to SAP IS-U HANA integration solution.

Testing (SIT/UAT)

- Util-Assist will be responsible for developing the master testing strategy and test plan that includes the testing schedule. Util-Assist will also develop and execute test scripts. Util-Assist will subsequently provide support to GRU during user acceptance testing.
- Util-Assist will create meter testing data to validate the performance of the MDM solution (IEE).
- Util-Assist will conduct testing of the end-to-end solution including all system components and integrations.

SOP Development

- Util-Assist will not develop any SOPs for Release 2; however, Util-Assist will support the other vendors in creating this information.

Training / Knowledge Transfer

- Util-Assist will provide knowledge transfer to GRU's named resources, based on best practices, in the form of mentoring, coaching and training of AMI operations for the AMI solution in production, based upon a knowledge transfer plan.
- Itron will provide full training.

2.2 Phase 0 – Project Management and SME Support of Itron-Led Work Services

Phase 0 consists of delivering services that persist across multiple phases of the project. There are two such services:

- Project Management Services: Working with GRU's AMI project management office (PMO), Util-Assist will provide project management support for the AMI project delivery which will include development and maintenance of the project plan, weekly and monthly project status reports, and logs for project risks, action items, and key decisions.
- Subject Matter Expert (SME) Support Services: Util-Assist will act as the AMI Subject Matter Expert ("SME"), on behalf of GRU, and thereby provide support of AMI vendor-led deliverables related to
  - o AMI/MDM/Install
  - o AMI network design
  - o Meter design and configuration
- Util-Assist will be responsible for creating an integrated project plan (IPP) encompassing the tasks, timelines, resources and deliverables and milestones pertaining to the Itron-led scope of activities (AMI network design and deployment, Aclara's scope of services (AMI meter planning and deployment) and the Util-Assist scope of services described in detail in this proposal. This project plan will also establish the detailed schedule and approach for the project.

2.2.1 Project Management Services

Working with GRU's AMI project management office (PMO), Util-Assist will provide project management support for the AMI system integration work. The estimated effort and costs associated with Util-Assist Project Management support for the entire AMI project scope of work in this project are included in this section of the proposal. Util-Assist will perform the following tasks as part of this effort:

- Facilitate regular project communications with GRU's AMI project stakeholders.
- Lead regularly scheduled status update meetings.

- Prepare and deliver weekly and monthly status reports on in-scope systems integration activities.
- Participate in decisions regarding AMI PMO processes and controls, including standards and templates for deliverables.
- Develop and maintain project resource requirement forecasts.
- Develop and maintain the integrated project plan for the AMI systems integration project.
- Liaise with vendors and monitor their adherence to the project plan.
- Prepare and deliver weekly and monthly status reports for the in-scope systems integration activities.
- Lead processes related to managing project risks, action items, decisions, and issues.
- Support the AMI project PMO in reviews and executive status meetings and reporting.
- Manage change control procedures in conjunction with GRU's project manager.
- Advise on risk mitigation related to the AMI to CIS integration solution.
- Document and track action items, risks, decisions, assumptions, and issues.
- Define and manage the Util-Assist workshop schedules in conjunction with other vendor-led workshops.
- Coordinate interviews with subject matter experts.
- Track documentation reviews and approvals.
- Manage the requirements traceability matrix for functional and non-functional system requirements.
- Develop a glossary of terms and abbreviations used in the business processes for participant reference in the business process sessions.
- Manage testing schedules.

2.2.1.1 Deliverables

Util-Assist will deliver an electronic copy of the following deliverables in an appropriate Microsoft Office or other mutually agreed-upon format. The tasks noted in this section support the development of the following deliverables:

- Weekly and monthly status reports
- Risk, action item, and decision log(s)
- Project plan
- Deliverable sign-off form
- Workshop schedules
- Test schedules
- Status reports on test results

2.2.1.2 Resources

Util-Assist Role	2021	2022	2023	Total Hours
Executive PMO	176	192	112	480
Senior Project Manager	1,760	1,920	280	3,960

2.2.2 Subject Matter Expert (SME) Support Services

Util-Assist will act as the AMI Subject Matter Expert (SME) on behalf of GRU and thereby provide support of the AMI vendor deliverables including the key design decisions required by AMI vendor for:

- AMI/MDM implementation and installation

- AMI network design
- Meter design and configuration

2.2.2.1 Resources

Util-Assist Role	2021	2022	2023	Total Hours
SMEs	176	192	0	368
Project Lead	1,760	1,920	280	3,960
Consultant	1,520	0	0	1,520

2.3 Phase 1: Business Requirements and Solution Architecture Development

Prior to embarking on the business requirements/business process discovery and development process, Util-Assist will work with the utility to create a complete project budget with updated hours, to create a statement of work and to determine the best system deployment models for the new utility systems. By engaging with key Util-Assist executives, either on-site or remotely, GRU will benefit from the current and relevant experience that Util-Assist will bring to the table to develop an effective and efficient deployment strategy. Util-Assist will utilize a standard and proven model for this project that will mitigate risk and ensure project success.

As Phase 1 continues, Util-Assist will lead business requirements gathering (including workshop planning and execution).

More specifically:

- Util-Assist will be responsible for developing and documenting future-state business processes and business requirements, based on industry best practices, which define the interactions between the AMI and existing CIS systems. Util-Assist will conduct business process development workshop sessions to gather the business processes and requirements and will subsequently produce business process flow diagrams and corresponding business requirements documentation.
- Util-Assist will act as the AMI Subject Matter Expert ("SME") on behalf of GRU and thereby provide support of AMI vendor-led Phase 1 deliverables related to the 'Core AMI vendor Systems' (AMI and MDM Head End Systems) implementation and deployment.

This phase includes the following activities:

- Prepare for Workshops with Solution Vendors and GRU
- Discover and Develop Business Requirements and Business Processes
- Design a Solution Architecture

2.3.1 Key Assumptions

- GRU will provide timely access to required subject matter experts and decision-making resources within its organization throughout the project and according to the project plan and schedule.
- GRU will provide feedback, in writing, on Written Deliverables.
- Written Deliverables for Phase 1 include a maximum of two (2) major iterations of revisions; additional major iterations, if requested by GRU in writing, may be subject to the project Change Order process.

- o For greater clarity, minor revisions to Written Deliverables within the Acceptance Period will not be subject to the project Change Order process. *Acceptance Period term and related clauses to be mutually defined in a Master Services Agreement.*
- Any references to 'business process levels', as stated within this proposal, are defined as follows:
  - o Level 1: Describes the AMI-related process at the enterprise business process level (i.e., meter to cash).
  - o Level 2: Describes the AMI-related process at the sub business process level (i.e., billing).
  - o Level 3: Describes the AMI-related process at the use case level as a flow-chart diagram (i.e., on-cycle billing).
  - o Level 4: Describes the AMI-related process at the use case level with detailed requirements.
  - o Level 5: Describes the AMI-related process at the SOPs level.
- Business process design and corresponding business process requirements will be defined using industry best practices for AMI. GRU will assess the recommended business process design for fit within the end state AMI to CIS integration solution.
- Deliverables produced in Phase 1 related to the 'Core AMI Vendor Systems' (AMI and MDM Head End Systems) implementation and deployment are the responsibility of the AMI vendor.
- Business process flow diagrams and corresponding business requirements documentation will be produced using the BlueworksLive (www.blueworkslive.com) tool.
- The Project Plan and Schedule will be hardened throughout Phase 1 as the project is defined.

2.3.2 Pre-Workshop Preparation

Util-Assist will hold a series of workshops to educate GRU's core AMI team and guide the team to make critical decisions in preparation for upcoming vendor workshops. In each workshop, Util-Assist will present best practices, identify key decisions that GRU will need to make, and present the risks associated with each decision.

The goal is to elicit the active participation of all attendees. Util-Assist encourages staff to stop working in "silos" and think about end-to-end business processes and cross-departmental impacts. As a side benefit, participants will walk away with a better understanding and a stronger commitment to the project.

2.3.2.1 Workshop Delivery

All workshops will be held remotely using Microsoft Teams.

2.3.2.2 Workshop Topics

The table below lists the workshop topics (in order) and the goal of each workshop.

Workshop	Goal
1. Data Collection	- To educate GRU on application groups and configuration groups - To educate GRU on interrogation, possible schedules and different read types - To educate GRU on the SLA measurement, sectors and performance management - To educate GRU on the workflow and process for stale meters - To discuss the difference between multicast and point-to-point and how processes are developed to overcome these challenges (demand reset, ODR, RCD)

2. Validation, Estimation and Editing (VEE)	- To educate GRU on VEE and VEE sets - To educate GRU on historic estimation and class load profile - To educate GRU on the workflows and processes for new service, meter exchange and meter removal - To guide GRU on configuration decisions with respect to historic estimation and class load profile - To guide GRU on decisions related to turning on validation checks and setting up VEE services
3. Meter Configuration	Note: Meter configuration may be the first big decision required but it will be addressed in the third workshop as there is benefit in understanding how data collection and VEE affect meter configuration decisions. - To educate GRU on over-the-air configuration changes - To help GRU make meter configuration decisions - To present the benefits of time-of-use registers in the meter - To discuss the benefits of different approaches to configuration
4. Billing	- To educate GRU on the workflow and process for billing with respect to register vs. interval billing (MRO, TSC, TSP) - To discuss register groups - To educate GRU on options for ownership of data and demarcation points between internal teams as it relates to bill-ready data - To advise GRU on how it can streamline billing processes - To guide GRU in making billing decisions so that the utility can provide configurations to Itron
5. Analytics	- To educate GRU on how the utility can use AMI data for advanced analytics - To understand the end state architecture and data storage requirements
6. Testing	- To help GRU determine its goals for testing - To educate GRU on what test results should be documented and how the documentation can be used for other purposes - To educate GRU on which tests require a test lab and which tests can be executed on deployed meters - To educate GRU on the Itron tests so that GRU can pose pertinent questions to the vendor - To discuss the end state architecture in the context of testing and any constraints that will be created by a particular architecture
7. Integration	To assist GRU in determining high-level integration plans

2.3.2.3 Reference Architecture

Util-Assist will track and document all decisions made during the workshops and subsequent discussions in the form of an initial reference architecture. A reference architecture outlines recommended structures and integrations to form a given solution and is based on best practices to set a foundation for a successful project.

The reference architecture will adhere to "guiding principles" to guide architectural decisions, such as security, performance, integrity, adaptability, and governance. Developed based on the decisions made in the workshops, the document will include architecture diagrams, a data strategy, and a strategy for business applications and functions. This document will give GRU an advantage in the upcoming vendor workshops. GRU can use the document as a record of key decisions or keep building on the document during the vendor workshops to evolve it into a comprehensive reference architecture for the project.

2.3.2.4 Deliverables

Util-Assist will produce two types of deliverables for this engagement.

1. Slide Decks: For each of the seven workshops listed above, Util-Assist will deliver a detailed slide deck.

2. Reference Architecture: Util-Assist will document all decisions and best practices in a reference architecture document.

2.3.2.5 Resources

For the workshops, the Util-Assist team will consist of a lead consultant and a PM. The lead consultant will lead the workshops. The project manager will schedule the sessions and document the decisions. GRU will have the benefit of multiple lead consultants—each session will be led by the consultant with the relevant subject matter expertise for the particular workshop

To prepare workshop materials and deliverables, additional Util-Assist resources (including technical writers and consultants) will assist.

Util-Assist expects that GRU's core AMI team will attend these sessions.

Util-Assist Role	Total Hours (2021)
Lead Consultant	68
Senior Project Manager	28
Consultant	28
Technical Writer	68

2.3.3 Business Requirements/Business Process Discovery and Development

Util-Assist will be responsible for developing and updating future-state business processes and business requirements which define the interactions between the CIS and the AMI. Util-Assist will hold business process sessions to gather the business processes and requirements and will use BlueworksLive (www.blueworkslive.com) to develop the flow diagrams and documentation.

Util-Assist will perform the following tasks as part of this effort:

- Conduct interviews with subject matter experts (SMEs) prior to business process workshops to streamline the discovery process.
- Prepare a schedule for the on-site business process workshops and identify the agenda and required attendees for each.
- Prepare and present industry and utility best practices for the "to be" business processes.
- Conduct business process sessions with stakeholders, SMEs and vendors to develop "to be" process definitions for levels 1 through 4. Develop level 4 "to be" business processes based on industry and utility best practices using BlueworksLive.
- Identify and capture business (including reporting) requirements for "to be" processes that should be incorporated in the technical design for systems integration. Identify and capture functional and non-functional system requirements in the form of a requirements traceability matrix.
- Document and track action items, risks, decisions, assumptions and issues.
- Develop a glossary of terms and abbreviations used in the business processes for participant reference in the business process sessions.
- Access AMI, MDM, and Aclara applications to take screen shots to update level 4 business processes to help develop standard operating procedures (SOPs). Note: Util-Assist will build the level 4 business processes so that they can feed into the requirements definition, but they will not become standard operating procedures (Level 5) until testing. Level 5 processes include system screen shots and user "keystroke" level details.
- Deliver final business process documentation for approval and sign-off.
- Support the transition of the business processes to support the technical design.

2.3.3.1 AMI Project Processes and Use Cases

The table below lists the anticipated business processes and use cases that will be included in the scope for the business requirements and workshop phase. Phase 1 – Business Requirements and Solution Architecture Development will confirm and finalize the list of business processes prior to implementation.

Release	Enterprise Process	Supporting Functions	AMI Use Case	BP Required?
1	Mass Deployment	Supply Chain	First Article Testing	Y
1	Mass Deployment	Supply Chain	Order and Receive AMI Meters/Modules	Y
1	Mass Deployment	Supply Chain	Order and Receive AMI Network Assets (CGRs, MNB)	Y
1	Mass Deployment	Supply Chain	AMI Asset Creation (Import Manufacturing File)	Y
1	Mass Deployment	Supply Chain	AMI Asset Returns (RMA)	Y
1	Mass Deployment	Supply Chain	Asset Return/Retire/Disposal	Y
1	Mass Deployment	Planning & Scheduling	AMI Sector Acceptance	Y
1	Mass Deployment	AMI Meter Deployment	Customer Data Export (Full / Delta)	Y
1	Mass Deployment	AMI Meter Deployment	Deployment Route Release	Y
1	Mass Deployment	AMI Meter Deployment	Daily Meter Exchange File Processing	Y
1	Mass Deployment	AMI Meter Deployment	Return to Utility (RTU)	Y
1	Mass Deployment	Network Deployment	Network Device Installation	Y
1	Mass Deployment	AMI Cutover	Post Install Data Exchange and Synchronization(OWOC)	Y
1	Meter to Cash	Meter Reads	On-Demand Reads(using OWOC GUI)	Y
1	Meter to Cash	Meter Reads	Demand Reset for Commercial Customers	N

Release	Enterprise Process	Supporting Functions	AMI Use Case	BP Required?
1	Meter to Cash	Billing	On-Cycle Billing	Y
1	Meter to Cash	Billing	Off-Cycle Billing	Y
1	Meter to Cash	Billing	Cancel Re-Bill	Y
1	AMI Operations	Meter & Network Management	AMI Work Order Management	Y
1	AMI Operations	Meter & Network Management	New Service / New Construction	Y
1	AMI Operations	Meter & Network Management	Remote Meter Configuration Change	Y
1	AMI Operations	Meter & Network Management	Firmware Upgrade	Y
1	AMI Operations	Meter & Network Management	On-Demand Status Check (Meter Ping, LSV) using OWOC GUI	Y
1	AMI Operations	Meter & Network Management	Stale Meters (Non-communicating Meters)	Y
1	AMI Operations	Remote Disconnection/Reconnection	Remote Disconnection (using OWOC GUI)	Y
1	AMI Operations	Remote Disconnection/Reconnection	Remote Reconnection (using OWOC GUI)	Y
1	AMI Operations	Meter Events	Meter Alarms and Events	Y
1	Customer Experience	Customer Communications	AMI Customer Communication	N
1	AMI Operations	Outage Management	Outage Management Discovery Session	N
1	Customer Experience	Web Presentment	AMI Web Presentment Discovery Session	N

2.3.3.2 Deliverables

This activity will be complete when the deliverables below have been successfully delivered and accepted by a designated representative from GRU's Project Management Team. Util-Assist will deliver an electronic copy of the following deliverables in an appropriate Microsoft Office or other mutually agreed-upon format at the end of the business process phase:

- To-be business process maps for level 3 processes
- To-be business process maps for level 4 processes
- Functional and non-functional system requirements (requirements traceability matrix)
- Business process definitions (glossary of terms)

2.3.3.3 Resources

Util-Assist Role	2021	2022	Total Hours
SMEs	80	80	160
Solution Architect	160	160	320
Test Lead	80	80	160
Technical Writer	320	320	640
Internal PM	160	160	320

2.3.4 Solution Architecture

Util-Assist will be responsible for developing the high-level solution design to support the AMI to CIS integration solution. Util-Assist will perform the following tasks as a part of this effort:

- Recommend Enterprise Information Management (EIM) best practices such as the policies, procedures, and guiding principles that will be used to define the AMI initiative architecture.[1]
- Recommend the adoption of applicable frameworks, reference architectures, best practices, and industry standards as necessary.
- Develop the AMI project High Level Design (HLD) document to include an interface catalog, system context diagrams, and interaction diagrams. The document describes the integration, application and security architecture needed to support the CIS-AMI interactions. Key topics include business and architecture drivers, functional and data decomposition, enterprise integration framework, infrastructure and database framework, monitoring, reporting and analytics, logging, auditing and exception handling, reliability, notification, tools and technology, operations model, and architecture governance.
- Conduct reviews of consolidated solution architecture deliverables and incorporate feedback.
- Review and provide feedback on detailed design deliverables created by AMI project vendors.
- Deliver final Util-Assist documentation in agreed-upon format for approval and sign-off.

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[1] A full EIM strategy is out of scope.

2.3.4.1 Deliverables

This activity will be complete when the deliverables below have been delivered and accepted by a designated representative from GRU's Architecture Team (with the AMI PMO to be informed). Util-Assist will support the High-Level Design of the solution, including:

- Solution Architecture
- Integration Strategy and Plan
- Environment Strategy and Plan
- Configuration Strategy and Plan
- Data Management (including data quality and governance) Plan

2.3.4.2 Resources

Util-Assist Role	2021	2022	Total Hours
SMEs	80	40	120
Solution Architect	160	80	240
Technical Writer	320	160	480
Internal PM	80	40	120

2.4 Phase 2: End-to-End Testing Support

Util-Assist will be responsible for developing the master testing strategy and a test plan that includes the testing schedule. Util-Assist will develop test scripts and create meter test data for Release 2. Util-Assist will subsequently provide support to GRU during user acceptance testing.

2.4.1 Key Assumptions

- GRU will provide timely access to required subject matter experts and decision-making resources within its organization according to the project plan and schedule.
- GRU will provide feedback, in writing, on Written Deliverables.
- Written Deliverables for Phase 2 include a maximum of two (2) major iterations of revisions; additional major iterations, if requested by GRU in writing, may be subject to the project Change Order process.
  - o For greater clarity, minor revisions to Written Deliverables within the Acceptance Period will not be subject to the project Change Order process.
- Working with GRU's AMI project management office (PMO), Util-Assist will provide project management support for the AMI project delivery which will include development and maintenance of:
  - o The project plan
  - o Weekly and monthly project status reports
  - o Project risk, action item, and key decision log(s)
- Util-Assist will not perform any test data creation in SAP

2.4.2 Meter Test Data Creation

Util-Assist will create meter test data for use with the Itron IEE meter data management (MDM) solution. This activity will take place in Release 2, once the MDM becomes available.

The Meter Data Testing Analyst will perform the following tasks:

- Standard Testing Process:
    - Review test case conditions.
    - Determine meter data requirements.
    - Identify creation method (IEE, XML update or manipulation).
    - Coordinate CIS record selection (e.g., Account ID, Meter ID, Meter Type, etc.).
    - Confirm CIS record successfully synchronized with IEE/MDM.
    - Create/validate data/event file(s) **OR** IEE insert/edit data:
        - Manually edit meter interval/registers in IEE to meet test criteria (this process does not require additional process of loading data files
        - Edit XML data elements (e.g., Meter ID, registers, intervals, unique file identifiers, etc.)
            - Create clean meter data (i.e., billable data) that does not have specific meter conditions (interval/register gaps, alarms/events)
            - Create conditional meter data for unique test conditions/elements (e.g., meter reading spike, low battery, etc.)
        - Confirm all meter data loads successfully
    - Track and report progress
- Coordinate with GRU, Itron and Util-Assist AMI Team on test data requirements.
- Provide weekly updates to Util-Assist and GRU Project Managers and Testing Teams on the following scenarios:
    - Test Data Creation Status (Queued, In Progress, Submitted for Loading)
    - Recreated Test Data Due to Failure
    - Etc.

2.4.2.1 Key Assumptions

- Master Data (CIS synchronization process with Itron OWOC/IEE) is required for tests using meter data
- Itron IEE testing environment must be available and Meter Data Testing Analyst access/credentials provided
- Associated test scripts (SIT and UAT) must be approved by GRU prior to test data creation start
- XML files will be loaded by Util-Assist AMI project team as per the Util-Assist AMI SOW with GRU
- Effort will follow the GRU AMI project schedule for SIT and UAT

2.4.2.2 Out of Scope

- **Creation of Master Data:** Util-Assist is not responsible for the creation, editing and/or synchronization of CIS accounts with OWOC/IEE.
- **Loading of XML files into MDM:** Util-Assist is not responsible for loading XML files into Itron IEE (MDM), effort captured in Util-Assist AMI SOW.
- **Performance Test Data**: Refers to the generation of meter data which mimics loading of daily production read collection. Util-Assist will not create XML testing data containing over 5 meters per file.

2.4.2.3 Resources

Util-Assist Role	Total Hours (2022)
Meter Data Test Analyst	640

2.4.3 End-to-End Testing

Util-Assist will be responsible for developing the master testing strategy and plan and testing schedule as well as overseeing the system/functional, integration, and user acceptance testing for the CIS-AMI integration use cases and business processes. The testing stages are defined as following:

- **(Functional/Technical) Unit testing**: during the build phase, individually validates each uniquely testable part.
- **Smoke Test**: verifies that the solution is functional and stable to proceed with further testing as it progresses across each landscape environment.
- **Integration Testing**: end-to-end testing across all interfaced systems.
- **Performance Testing**: validates or verifies quality attributes of the system like responsiveness, speed, scalability, stability under variety of load conditions.
- **User Acceptance Testing:** ensures the specific application meets end user requirements by testing in "real world" situations.
- **Release Testing**: proves that the solution meets all production verification testing and that it is ready for external use (validation testing) and deployment.
- **Regression Testing:** ensures the installed AMI solution can integrate with prior software changes.

Util-Assist will perform the following tasks as a part of this effort:

- Develop a master testing strategy and plan for the interfaces. The test plan will include schedules, data requirements, dependencies, environment requirements, and test team resources.
- Migrate simulated meter test data into IEE in the test environments.
- Define entry and exit criteria for each test phase.
- Advise GRU on testing risks and risk mitigation.
- Develop test plans for integration, system/functional, and user acceptance testing, which include test cases and high-level execution steps for each release and expected results.
- Work with GRU and vendors to review and validate the test strategy, test plans and test cases.
- Lead the integration test activities for the full scope of each release.
- Lead the system/functional regression testing.
- Execute a mutually agreed-upon number of system/functional test conditions specifically related to the required use cases (see *Section 2.3.3.1: AMI Project Processes and Use Cases*).
- Support the planning and execution of performance testing and applicable stress/volume testing (dependent on the vendor's ability to provide tools).
- Report progress on all testing activities.
- Provide orientation, training and ad-hoc assistance to testers during the user acceptance testing on the following:
  - User acceptance testing test plan and procedures
  - Test management tool for test execution and reporting
  - Overview of AMI systems being tested
- Prepare test data required to support testing activities.
- Verify the test data and other software and hardware requirements per the master test strategy and plan (conversion of data is out of scope and the creation of test data is out of scope).
- Oversee the loading of data into test environments (verify that the loading is complete).
- Develop test scripts for the integration layer performance/stress testing.

- Manage the execution of testing activities with GRU and AMI project vendors. For greater clarity, Util-Assist's scope does not include executing AMI System Acceptance Testing but does include executing AMI testing related to AMI deployment readiness to meet business requirements.
- Manage the defect tracking and resolution process.
- Resolve defects for items built by Util-Assist.
- Create summary test reports with test results for system/functional, integration, and user acceptance testing.

2.4.3.1 Deliverables

This activity will be complete when the Deliverables below have been successfully delivered and accepted by a designated representative from GRU's project management team. Util-Assist will deliver an electronic copy of the following deliverables in an appropriate Microsoft Office or other mutually agreed-upon format at the time specified below:

- Master test strategy and plan
- High level test plan for system/functional testing, integration testing, and user acceptance testing
- Test plans for:
  - System/functional testing
  - Integration testing
  - User acceptance testing
- Test results report for system/functional testing, integration testing, and user acceptance testing

2.4.3.2 Resources

Util-Assist Role	2021	2022	Total Hours
SMEs	180	64	244
Test Lead	640	160	800
Tester 1	640	320	960
Tester 2	640	320	960
Internal PM	256	128	384

2.5 Phase 3: SOPs and Knowledge Transfer

This phase includes the following activities:

- Develop Standard Operating Procedures
- Conduct Knowledge Transfer and Mentoring

2.5.1 Key Assumptions

- GRU will provide timely access to required subject matter experts and decision-making resources within GRU's organization according to the project plan and schedule.
- GRU will provide feedback, in writing, on Written Deliverables.
- Written Deliverables for Phase 3 include a maximum of two (2) major iterations of revisions; additional major iterations, if requested by GRU in writing, may be subject to the project Change Order process.

- o For greater clarity, this assumption does not apply to SOPs documentation deliverables (SOPs documentation includes one (1) revision only).
- o For greater clarity, minor revisions to Written Deliverables within the Acceptance Period will not be subject to the project Change Order process.
- Information to be included in SOPs documentation related to GRU CIS (i.e., screen shots, tasks, execution steps, etc.) will be provided by GRU.
- Knowledge transfer activities related to the operation of the AMI solution will be provided to a set of named GRU users within the utility organization.

2.5.2 Out of Scope

- o Revisions to initial version of SOP documentation; Util-Assist will deliver the initial version of the SOPs and GRU will be responsible for producing final versions of SOP documentation and all future versions
- o Knowledge transfer/training on SOPs

2.5.3 Standard Operating Procedures

Util-Assist will be responsible for developing standard operating procedures (SOPs), which define the interactions required to support AMI system functionality and related AMI business processes for the AMI to CIS integration solution.

Util-Assist will perform the following tasks as a part of this effort:

- Conduct planning activities which includes finalizing the scope and schedule, aligning SME resources, preparing kick-off materials, and conducting the kick-off session
- Conduct working sessions to validate processes, identifying gaps per each business area
- Document standard operating procedures (Level 5 processes), followed by validation sessions to socialize and confirm the procedures
- Deliver final documentation in agreed-upon format for approval and sign-off

2.5.3.1 Deliverables

This activity will be complete when the deliverables below have been successfully delivered and accepted by a designated representative from GRU's project management team. Util-Assist will deliver an electronic copy of the following deliverables in an appropriate Microsoft Office or other mutually agreed-upon format at the end of the SOP work stream by release:

- Standard operating procedures (level 5 process maps)

2.5.3.2 Resources

Util-Assist Role	Total Hours (2021)
SMEs	32
Technical Writer 2	320
Tester 1	320
Internal PM	32

2.5.4 Knowledge Transfer and Mentoring

Provide knowledge transfer to GRU's named resources, based on best practices, in the form of mentoring, coaching and training of AMI operations for the AMI solution in production, based upon a knowledge transfer plan.

Conduct knowledge transfer to GRU's named resources that include instructions on maintaining daily routines and operations for the AMI solution (i.e., managing meter data exceptions in MDM) and support training. Deliverables

Util-Assist will deliver an electronic copy of the following written deliverables in an appropriate Microsoft Office or other mutually agreed-upon format:

- Knowledge transfer plan, based on best practices, that specifies named resources from GRU, schedule, format, duration and content

2.5.4.1 Resources

Util-Assist Role	2021	2022	Total Hours
Trainer	160	80	240
Sync Ops SME	160	80	240
Internal PM	64	32	96

Section 3: Pricing

3.1 Total Project Costs

Util-Assist is pleased to provide the following fixed-fee pricing to GRU, enabling cost certainty.

The table below shows total costs by phase.

Project	Total in US Dollars
Phase 0 – Project Management and Subject Matter Expert Services	$1,866,760
Phase 1 – Business Requirements and Solution Architecture Development	$404,720
Phase 2 – End-to-End Testing Support	$544,640
Phase 3 – SOPs and Knowledge Transfer	$179,040
Total	**$2,995,160**

3.2 Project Costs by Task

3.2.1 Phase 0 Costs

Project Management

UA Resources	Hours	Rate	Total in US Dollars
Executive PMO	480	$200	$96,000
Senior Project Manager	3,960	$175	$693,000

Total			**$789,000**

SME Support Services

UA Resources	Hours	Rate	Total in US Dollars
SMEs	368	$195	$71,760
Project Lead	3,960	$200	$778,000
Consultant	1,520	$150	$228,000
Total			**$1,077,760**

3.2.2 Phase 1 Costs

Pre-Workshop Preparation

UA Resources	Hours	Rate	Total in US Dollars
Senior PM	28	$175	$4,900
Project Lead	68	$200	$13,600
Technical Writer 1	68	$115	$7,820
Consultant	28	$150	$4,200
Total			**$30,520**

Business Requirements Gathering

UA Resources	Hours	Rate	Total in US Dollars
SME	160	$195	$31,200
Solution Architect	320	$195	$62,400
Test Lead	80	$190	$15,600
Technical Writer 1	640	$115	$73,600
Internal PM	320	$150	$48,000
Total			**$230,800**

Solution Architecture Development

UA Resources	Hours	Rate	Total in US Dollars
SME	120	$195	$23,400
Solution Architect	240	$195	$46,800
Technical Writer 2	480	$115	$55,200
Internal PM	120	$150	$18,000
Total			**$143,400**

3.2.3 Phase 2 Costs

Meter Test Data Creation

UA Resources	Hours	Rate	Total in US Dollars
Meter Data Test Analyst	640	$135	$86,400
Total			**$86,400**

End-to-End Testing

UA Resources	Hours	Rate	Total in US Dollars
SMEs	172	$195	$37,440
Test Lead	800	$190	$152,000
Tester 1	960	$110	$105,600
Tester 2	960	$110	$105,600
Internal PM	384	$150	$57,600
Total			**$458,240**

3.2.4 Phase 3 Costs

Standard Operating Procedures Development

Util-Assist Resources	Hours	Rate	Total in US Dollars
SME	32	$195.00	$6,240.00
Technical Writer 2	320	$115.00	$36,800.00
Tester 1	320	$110.00	$35,200.00
Internal PM	32	$150.00	$4,800.00
Total			**$83,040.00**

Knowledge Transfer and Mentoring

Util-Assist Resources	Hours	Rate	Total in US Dollars
Trainer	240	$190	$45,600
Sync Ops SME	240	$150	$36,000
Internal PM	96	$150	$14,400
Total			**$96,000**

3.3 Rate Card

Util-Assist's proposed rates are shown below. Project costs reflect Discounted Hourly Rates for this specific project scope; future business will be quoted at the then-current standard rates.

#	Util-Assist Project Roles	Standard Hourly Rate	Discounted Hourly Rate
1	Subject Matter Experts (for all disciplines)	$235	$195
2	Project Lead	$235	$200
3	Solution Architect	$235	$195
4	Testing Resources	$180	$110
5	Internal Project Manager	$190	$150
6	Executive PMO Oversight and Support	$235	$200
7	Senior Project Manager	$210	$175
8	Technical Writers (to support business process, requirements and SOP development)	$165	$115
9	Testing Lead	$195	$190
10	Meter Data Test Analyst	$190	$135
11	Consultant	$200	$150
12	Sync Ops SME	$190	$150
13	Trainer	$235	$190

3.3.1 Pricing Notes

Please note:

- All prices in US dollars.
- If the exchange rate between Canadian and US currency changes by more than 5% Util-Assist reserves the right to renegotiate its rates.
- Prices do not include applicable taxes.
- Terms of payment: Net 30 days.
- Eligible out-of-pocket expenses will be charged separately. This includes, but is not limited to, costs associated with travel, conference calling, mileage and meeting facilities.
- Pricing assumes availability of GRU resources to participate in and manage change control and change enablement. Util-Assist deliverables will feed into the process and will include knowledge transfer, but it is assumed GRU resources will be responsible for Change Enablement. Should Util-Assist need to supply additional personnel to augment GRU resources, hours will be separately billed.

Section 4: Conclusion

Util-Assist appreciates the opportunity to re-engage with GRU on this critical initiative. We believe that we can help GRU economically roll this complex initiative out over the shortest time possible, saving the utility significant time, resources, and money.

Util-Assist is committed to providing value to customers and controlling costs. Assuming the proposed scope and schedule are adhered to, we stand behind the overall project cost for Phases 0-3 as a not-to-exceed value. However, the costs for individual tasks may vary above or below the estimates provided in *Section 3: Pricing*. This flexibility enables us to deliver the project to the high standard of quality demonstrated by Util-Assist in dozens of successful consulting engagements.

Thank you for the opportunity to provide this proposal and we look forward to assisting you with this initiative. Should you have any questions, please do not hesitate to contact me.

Sincerely,

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util-assist