

City of Tacoma

Tacoma Power

Grid Modernization Trusted Advisor RFP Specification No. TP22-0297F

QUESTIONS and ANSWERS

All interested parties had the opportunity to submit questions in writing by email to Tad Carlson by 3:00 pm on September 29, 2022. The answers to the received questions are provided below and posted to the City's website at <u>www.TacomaPurchasing.org</u>: Navigate to *Current Contracting Opportunities / Services*, and then click *Questions and Answers* for this Specification. This information IS NOT considered an addendum. Respondents should consider this information when submitting their proposals.

Question 1:	Regarding section 5.4 and the 21 emerging capabilities (pages 9-10 in the RFP): Does TPU have metrics/criteria (e.g., ROI, benefit/cost, reliability metrics, etc.) to prioritize/select priorities among these 21 (and other) capabilities?
Answer 1:	TPU will looks to the selected grid modernization trusted advisor to help inform prioritization criteria and metrics.
Question 2:	The RFP references the Utility Modernization Strategy Plan (UMSP) that was published in 2019. Can you make that plan and any updates to that plan available?
Answer 2:	See TPU Grid Modernization Document on pages 3-42 of this QA document.
Question 3:	Can Tacoma Power's GMSC provide an example high-level business processes map?
Answer 3:	See Business Process Modelling Document on pages 43-71 of this QA document.
Question 4:	Section 4 "Desired Qualifications" appears to address only a subset of the twenty plus capability areas that have been identified by Tacoma Power. Do you expect the Grid Mod trusted advisor to focus mostly on those items listed in the desired qualifications or on the broader list of capabilities?
Answer 4:	TPU seeks to engage a trusted advisor with broad/deep experience in grid modernization efforts having experience with the capability areas listed in the RFP.

Question 5:What level of involvement and/or collaboration do you expect the
GM trusted advisor will have with Tacoma Power's ADMS trusted
advisor?Answer 5:The grid modernization trusted advisor does not need to collaborate
directly with the ADMS trusted advisor but should be prepared to

Answer 5: The grid modernization trusted advisor does not need to collaborate directly with the ADMS trusted advisor, but should be prepared to incorporate ADMS project timelines into the grid modernization roadmap and plan.

Question 6: Will the GM trusted advisor be restricted from bidding on any or all parts of any project implementations that arise later from this effort?

Answer 6: No

Utility Modernization

Strategic Plan & Roadmap



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Vision

Integrate technology and foster innovation to deliver affordable, flexible, secure, resilient, and sustainable power and water services for our customers...



Utility industry technologies



WATER

TACOMA PUBLIC UTILITIES

RAIL

Utility industry innovation





Utility modernization benefits







Enabling TPU's objectives

Equitable customer service



Economic development



Environmental stewardship



Reliability & resiliency





Utility Modernization Examples







The state of utility modernization















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Sacramento Municipal Utility District





LOUDOUN \delta WATER

Four step process for advanced leak detection:

- 1) Automated phone call providing initial leak notification
- 2) Follow up letter notifying the customer the leak is still happening
- 3) Physical property visit
- 4) Personal phone call attempting final contact before the next billing cycle





"Instead of being reactive to customer inquiries, the AMI smart water technology allows us to alert them proactively—before they receive a higher bill."





















Utility Industry Disruptive Forces



Ever-increasing customer expectations



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New market opportunities









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Integration of renewables onto the grid









Market shifts









Aging infrastructure









An evolving workforce









Rising cybersecurity threats





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Natural disasters & extreme weather









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Recommended Utility Modernization Initiatives



Initiatives in progress thru 2022

Equitable Access for All Customers

mytpu.org redesign

Enhanced customer portal



Customer analytics use cases

Enhanced customer outage notifications

Digital signage at TPU campus



Protect & Steward the Environment Natural resources analytics



ESRI GIS modernization

Asset management analytics use cases

Enhanced load forecasting



Enhanced customer load profiling

Economic & *Workforce Development*

Workforce Connect



Workforce analytics use cases

CRM for commercial/industrial customers

Office 365 & Microsoft Teams

Smart City use cases



Resilience & Reliability Advanced metering infrastructure



Security & network operations center

Cybersecurity program refinements

Energy Imbalance Market

Distribution automation



Empowering TPU customers thru advanced meters



ACOM

WATER

TACOMA PUBLIC UTILITIES

RAIL

TPU meter data mgmt. system TP22-0297F Page 28 of 70

Advanced meters benefit TPU customers

Value my time

- Improved outage/restoration times
- Water leak detection capabilities
- Remote turn-on/turn-off
- Advanced self-service capabilities

Value my money

- Automated billing
- Monthly billing
- Prepayment options
- Selectable bill date

Value me

- Lower cost of service model
- Reduction of manual processes
- Paperless billing capabilities
- Demand response capabilities
- Two-way communications

Value my preferences

- Near real-time usage information
- Alerts and notifications
- Billing and payment notifications
- Conservation options
- Multi-channel capabilities



Digital customer engagement

By Alert Type 🔻				
Paperless Bill	+ ADD CONTACT			
Payment Due	Paperless Bill Sign up and go paperless! Rather than receiving a bill in the mail, Citizens will send you an alert of your preference each month when your bill is ready to be viewed			
Payment Past Due	Contacts 👻			
Payment Posting	F Text			
SE Payment Arrangement	Text ON			
Disconnect	Text ON			
Service Notifications	+ ADD CONTACT			





Deliver a single TPU brand experience



Deliver a consistent TPU customer experience that accounts for our overlapping customer base, service offerings, and choice of channels our customers prefer to use.



Data-driven decision making

	Data Ove	erview Length	& Weight Resid	ence Time Interro	gations				
Cushman Fisheries Data Overview									
	Coho 18,479 All-Time # of Fish	Sockeye 7,958 All-Time # of Fish	Chinook 604 All-Time # of Fish	Unmarked Orphan 130 All-Time # of Fish	All 27,194 All-Time # of Fish				

Data Overview | # of Fish by Species







Data-driven decision making





Fish acoustic telemetry at Cushman





Water quality analytics

Water Quality Test Results





Improve resiliency thru cybersecurity program maturity





Unmanned aircraft systems for utility operations





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Future initiatives



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Recommended Utility Modernization Topics & PUB Schedule

Utility Modernization Topic	PUB Evening Session Timeframe	Presenting Departments / Sections	
Utility Modernization Strategy & Roadmap	May 22	Andrew Braeger, Andre Pedeferri, Joe Tellez	
Remote Connect & Disconnect	June 12 or 26	JD Smith, PowerT&D	
Customer Portal Platform	July 10	AMI Program Team or Market Development	
Advanced Analytics	July	UTS Data Engineering, Power Analytics, Water Analytics	
Customer Payment Options	August	Customer Assistance	
Demand Response	August	Power - Conservation	
Distribution Automation	September	T&D – Electric Planning	
Enhanced Outage Management	September	T&D – Electric Operations	
Smart Water	October	Water Distribution Engineering / Asset & Information Management	
Customer Health, Safety, & Privacy	October	Community & Media Services	
Commercial & Industrial Customers	November	Market Development – Major Accounts	
Distributed Generation & Renewables Integration	December	Power Management / T&D Electric Planning	
Energy Imbalance Market TP22-0297F Page 39 of 70	December	Power Management 37	

Utility modernization topic overview

Topic Introduction

Topic Definition & Examples

Industry Trends & Practices

Customer Benefits

Utility Benefits

TPU Current State & Gaps

Alignment with TPU Modernization Plan

Recommended Next Steps

Capabilities roadmap – utility modernization

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Technology roadmap – utility modernization

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Business Process Modelling: AMI Asset Management

30th October, 2018

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- 1. Meter to Bill
- 2. Deployment
- 3. Connect & Disconnect
- 4. Event Management
- 5. Asset Management
- 6. Meter Data Operations
- 7. Prepayment
- 8. Outage Management

F

- Test results will go into SAP
- Warranty management will be manual (with support from SAP)
- No sample testing upon receipt of meters and modules
- Registers will become separate assets (and need to be tracked on install/remove and service orders)
- Residential water meters will always include a new register
- Always get an in and out read, even if just AMI module change
- A residential service (E&W) inspection process will be established
- What else?

- Lack of coordination between Planning and meter forecasting
- Who is the AMI Product Manager?
- Electric meter shop procurement and installation of AMI meters prior to completion of AMI integration effort. Migration of test and other data.
- Meter programs are not associated with individual meters today.
- Where is the system of record for meter firmware?
- Will network devices go into SAP, or only Cherwell?
- Will you audit MIV warehouse for devices?
- Water needs to build a more robust warranty process
- SAP periodic replacement reports not used or needs update?
- What else?

- ▶ 1. Who is the BPM owner? Assigned to: TBD. Due: TBD
- ▶ 2. Who is the BPM approver? Assigned to: TBD. Due: TBD
- → 3. Validate which meter types, if any, will undergo acceptance testing upon receipt. (Requirement 3.1.7.c, Activity 420) Assigned to: TBD. Due: TBD
- ▶ 4. Will AMI Network devices be maintained in GIS? Where is the system of record for the network asset? (Requirement 3.1.7.f, and elsewhere throughout the BPM). Assigned to: TBD. Due: TBD
- 5. Will MDMS maintain visibility of non-AMI meters? (Requirement 3.1.7.q and Requirement 3.1.7.r). Assigned to: TBD. Due: TBD
- Review and approve Business Requirements, including requirements from BP sessions: Assigned to: TBD. Due: TBD

- ▶ 7. Review and update Reporting Requirements. Assigned to: TBD. Due: TBD
- Will all test data and test results go to SAP? (3.4 Data Requirements) Assigned to: TBD. Due: TBD
- Will TPU implement an "AMI Product Manager" to shepherd new products, new features and changes? If not, who will be responsible for this role? (Activity 100) Assigned to: TBD. Due: TBD.
- What will be the sparing policy for AMI network equipment? (Activity 210) Assigned to: TBD. Due: TBD.
- 11. Will Network equipment be tracked as an asset, or an assembly with field replaceable units? Assigned to: TBD. Due: TBD
- ▶ 12. Does TPU issue RFPs for meters? (Activity 320). Assigned to: TBD. Due: TBD.
- 13. Validate that Sensus receives MMF files directly and loads into RNI and TPU action is not required. (Step 440). Assigned to: TBD. Due: TBD.

- How will meters be received into SAP when they are being physically received at the MIV warehouse? Will a TPU person be required to support this receipt to get them into SAP? (Step 510) Assigned to: TBD. Due: TBD
- Will TPU audit the Meter Installation Vendor to validate proper accounting for the meters? (Activity 530). Assigned to: TBD. Due: TBD
- Will Service Orders be used for network equipment? (Activity 610). Assigned to: TBD.
 Due: TBD
- ▶ 17. Will TPU need to program electric meters in the field? (Activity 620). Assigned to: TBD. Due: TBD
- ▶ 18. Does SAP require opening and closing reads for AMI Module exchange? (Activity 630) Assigned to: TBD. Due: BluePrint
- Need updated processes for removing and installing meters where AMI modules are also involved. (Activity 650). Assigned to: TBD. Due: TBD.
- Need detailed SOP for planning and expansion as additional network may be required. (Activity 631). Assigned to: TBD. Due: TBD.

- ▶ 21. Will Communications repair any network equipment? (Activity 726). Assigned to: TBD. Due: TBD
- 22. Develop detailed process for sample testing, cleaning, calibration, resetting of AMI meters, including testing of AMI communications, in the Meter Shop. (Activity 750, Activity 760) Assigned to: TBD. Due: TBD.
- Develop detailed troubleshooting and validation processes for AMI meters and AMI modules. (Activity 730) Assigned to: Assigned to: TBD. Due: TBD.
- 24. Develop details process for repair and testing of AMI network devices (Activity 751). Assigned to: Assigned to: TBD. Due: TBD.
- 25. Document required testing and inspection for all electric and water meters and services (Activity 800). Assigned to: TBD. Due: TBD
- 26. Update standard processes for water meter inspections to account for AMI modules (Activity 820). Assigned to: TBD. Due: TBD.

- 27. Will TPU conduct residential electric service inspections? Is policy required? (Activity 830). Assigned to: TBD. Due: TBD
- ▶ 28. Will TPU conduct residential water service inspections? Is policy required? (Activity 830). Assigned to: TBD. Due: TBD
- > 29. Should water and electric test results be integrated into SAP? This was gap identified during "as is" review. Assigned to: TBD. Due: TBD.
- 30. Will AMI network devices be modelled/managed in SAP to support periodic maintenance? Assigned to: TBD. Due: TBD.
- > 31. Deliver template for meter configuration modelling and tracking during BluePrint. Assigned to: JOW. Due: BluePrint.
- 32. How will module assets be managed in SAP? Assigned to: System Integrator. Due: BluePrint.
- 33. Make sure that Blue Print evaluates all multi-meter/compound meter scenarios. Assigned to: System Integrator. Due: BluePrint.

- ▶ 34. Deferral/OptOut meters and handling should be included in this BPM. Assigned to: JOW. Due: 12/31/18
- Should Shipping and Test files be automatically loaded into SAP? Assigned to: AMI Asset Management Team. Due: 12/31/18
- 36. Will TPU audit the MIV warehouse for assets? If so, does this need to be formalized or informal? (Step 530). Assigned to: AMI Asset Management Team. Due: 12/31/2018
- 37. Need list of Service Orders (Step 610). Assigned to: Virginia DuPraw. Due: 11/15/2018
- > 38. Policy/Procedure required that residential water meters will always include a new register. Assigned to: Corey Bedient. Due: BluePrint
- 39. Update standard process for removing AMI meters from service. Assigned to: Electric Meter Shop/Water Meter Shop. Due: TBD

- 40. Develop standard troubleshooting and validation process for AMI electric meters in Electric Meter Shop. Assigned to: Electric Meter Shop. Due: TBD.
- 41. Develop standard troubleshooting and validation process for AMI water meters and modules in Water Meter Shop. Assigned to: Water Meter Shop. Due: TBD.
- 42. Update standard inspection and field processes to include management of the AMI modules on water meters. Assigned to: Water Meter Shop. Due: TBD.
- 43. Establish residential electric service inspection policy. Assigned to: TBD. Due: Blue Print.
- 44. Establish residential water service inspection policy. Assigned to: TBD. Due: Blue Print.
- 45. Does Sensus require any notification on required TGB inspections? Assigned to: John Zwosta. Due: TBD
- Add typical electric and water field maintenance activity numbers. Assigned to: JOW. Due: 11/15/18

- Presently, Water uses a custom database for maintaining test data captured from test systems while Electric provides test data from WattNet into SAP. Test data is required to be maintained in SAP going forward.
- Electric Meter shop plans to procure and deploy AMI meters once the contract is completed and prior to the completion of the configuration and integration of all the AMI systems. This will require migration of the "non-AMI meters" to be AMI meters upon go live and the post processing of data files (test and MMF files) obtained during the pre-go live period.
- Water metering has requested to begin tracking water meter registers as separate assets. Management of the receipt of new meters prior to go live as well as the migration of legacy data to new configuration will need to be considered.
- New process and capability is required where SAP will set warranty information on all incoming meters and modules.
- Presently, when meters are received from the field into the Meter shop, the meter status is changed to unprogrammed to indicate that the meter has been cleaned, zeroed and is ready to go back to the field. Will this cause issues moving forward since every AMI meter is programmed?
- For AMI Electric Meters which are measuring demand, these meters are programmed to self-read and reset daily.
 Consequently, the remove read will represent the demand since last midnite. SAP will need to recognize this case and request the removed demand read from the MDMS.
- SAP EHP8 includes time capabilities. What impact will this have on CT/PT changes (Step 950)?

- Warranty report: Identify devices failing under warranty and ensure that TPU is compensated for devices failing under warranty (H)
- Failure report: Identify devices which are failing in the field by type and frequency (H)
- ▶ 3. Configuration report: Provide details on firmware and hardware versions (H)
- 4. Retire report: Provide details on meters which are retired from service by type, years in service, etc. (H)
- ▶ 5. SAP is the asset reporting source for electric meters
- ▶ 6. ESRI + SAP provides asset reporting for water meters
- 7. WattNet provides failure reporting for Electric meters.
- ▶ 8. Failure reports by type of meters and year
- Anything else?

- AMI meters, AMI modules and AMI network equipment must be supported within SAP, MDMS and AMI HES (H)
- All programmable devices must have configurable over the air and support the upgrade of communications and metrology firmware (H)
- 3. All meters must be accurate within acceptable industry standards (H)
- 4. The location of any AMI device must be maintained in GIS (H)
- 5. The life cycle status of any AMI device must be tracked within SAP (H)
- 6. The solution must be able to plan for and acquire AMI meters and AMI network devices to support growth and maintenance (H)

- The solution must be able to receive, validate and configure new AMI network devices (H)
 - a) SAP must automatically, via file upload, receive new and repaired AMI meters and AMI modules (H)
 - b) The solution must process new AMI meters and AMI modules into SAP and MDMS upon receipt (H)
 - c) The solution must ensure that new AMI meters undergo acceptance testing (L) NOTE: TPU Power and Water do not perform acceptance testing on meters and will not start this as a new process
 - d) The solution must create Service Orders (in Cherwell) for the installation of a new AMI network device (M)
 - e) The solution must process the completed installation of an AMI network device (M)
 - f) SAP, or Cherwell, or manual procedure, via AMI Operations, must synchronize the AMI HES and GIS with the installation of AMI network device (H)
 - g) The solution must validate the correct operation and configuration of the new AMI device (H)
 - h) SAP must be able to receive new AMI meters prior to the intended rollout of AMI meters, reflect these meters as non-AMI meters and then migrate these meters to be AMI upon implementation of Release 1 (H)

- ▶ 8. The solution must be able to exchange AMI meters and modules (H)
 - a) The solution must create Service Orders for the exchange of an AMI meter or AMI module (H)
 - b) The solution must allow the exchange of a non-AMI meter with another non-AMI meter (M)
 - c) The solution must allow the exchange of an AMI meter with another AMI meter (H)
 - d) The solution must allow the exchange of an AMI meter with a non-AMI meter (M)
 - e) The solution must allow the exchange of a non-AMI meter with an AMI meter (M)
 - f) SAP must automatically process the completed exchange of an AMI meter (H)
 - g) SAP must automatically process the completed exchange of an AMI water meter with a separable AMI module (H)
 - h) SAP must automatically synchronize the MDMS with the exchange of AMI meter (H)

- 8. The solution must be able to exchange AMI meters and modules (H)
 - i) SAP must automatically synchronize the MDMS with the exchange of an AMI water meter with a separable AMI module (H)
 - j) SAP must automatically synchronize the MDMS with the exchange of AMI module, where the meter does not change (H)
 - k) The MDMS must provision the AMI HES with the exchange of an AMI meter (H)
 - I) The MDMS must provision the AMI HES with the exchange of an AMI water meter with a separable AMI module (H)
 - m) The MDMS must provision the AMI HES with the exchange of an AMI module where the AMI meter did not change
 - n) The MDMS must validate the correct operation and configuration of the new AMI meter or AMI module (H)
 - o) SAP must automatically synchronize the MDMS with the removal of an AMI meter (H)
 - p) SAP must automatically synchronize the MDMS with the removal of an AMI water meter with a separable AMI module (H)
 - q) SAP must automatically synchronize the MDMS with the replacement of an AMI meter with a non-AMI meter (M)
 - r) SAP must automatically synchronize the MDMS with the removal of an AMI module from an AMI water meter (turning the meter into a non-AMI meter) (M)

- ▶ 8. The solution must be able to exchange AMI meters and modules (H)
 - s) SAP must automatically synchronize the MDMS with the replacement of an AMI meter with an AMI meter or an AMI module (H)
 - t) SAP must automatically synchronize the MDMS with the replacement of a non-AMI meter with an AMI meter (H)
 - u) SAP must automatically synchronize the MDMS with the installation of an AMI module on a water meter (H)
 - v) The MDMS must provision the AMI HES with the removal of an AMI meter and/or an AMI module (H)
 - w) SAP must automatically synchronize the MDMS with the change of a CT/PT (H)
 - x) SAP must be able to reverse a meter install (H)
 - y) SAP must automatically synchronize the MDMS with a meter install reversal (M)
 - z) The MDMS must automatically provision the AMI HES with a meter install reversal (M)
 - aa) SAP must be able to reverse a meter removal (H)
 - bb)SAP must automatically synchronize the MDMS with a meter removal reversal (M)
 - cc) The MDMS must automatically provision the AMI HES with a meter removal reversal (M)
 - dd)The solution must correctly bill from data obtained from the a AMI meter (H)
 - ee)The solution must ensure that no meter or module removed from the field is re-installed prior to the completion of the exchange in SAP, the MDMS and the AMI HES (H)

- ▶ 9. The solution must allow for a device/premise to change rates (M)
 - a) SAP must support a rate change (M)
 - b) SAP must update the MDMS with any register or configuration change (M)
 - c) The solution must correctly bill the device on the new rate (H)

- 10. The solution must be able to validate, reconfigure and repair removed AMI meters, AMI modules and AMI network devices (H or M)
 - a) The solution must identify failed AMI meters or AMI modules (H)
 - b) The solution must be able to replace failed AMI meters or AMI modules (H)
 - c) The solution must identify AMI meters which fail while under warranty (M)
 - d) The solution must be able to return AMI meters under warranty (M)
 - e) The solution must identify failed network devices (H)
 - f) The solution must be able to replace failed network devices (H)
 - g) The solution must identify network devices which fail while under warranty (M)
 - h) The solution must be able to return network devices under warranty (M)

- 11. Requirements from Business Process Review sessions
 - a) The Technology Control Board will approve any new devices. (H)
 - b) Vendor training for all new devices is required(H)
 - c) New electric meter firmware will be analyzed by Electric Metering and new water meter firmware will be analyzed by Water Metering (H)
 - d) Shipping files will be received in Ariba which will then place data into SAP (M)
 - e) MMF files do not need to be received into TPU systems, other than the AMI HES (L)
 - f) CTR (Certified Test Results) will be automatically loaded into SAP and WattNET(M)
 - g) Single phase meters will be programmed at the factory and re-programming is not expected (H)
 - h) All single phase meters should support net metering as a default program (H)

- 11. Requirements from Business Process Review sessions
 - i) GPS location information will be captured with the AMI rollout, as well as on future new service installs(M)
 - j) GPS location information should be verified during maintenance of the meter and site (M)
 - k) Pictures will be captured during deployment as well as on future new service installs and during any field investigation (H)
 - Inspections on commercial customers (Verify CTs, wiring, etc.) will continue in deployment. (H)If a meter read fails during exchange, customer service will estimate the exit meter read and associated consumption. NOTE: Will need capability in SAP to do this, or a process for an estimated read to be created in MDM. Follow up during Design Phase (H)

- 11. Requirements from Business Process Review sessions
 - m) From the Gateway process, the diagnostics process where a meter can be remotely diagnosed prior to field investigation should be kept. Would like to see more diagnostics (H)
 - n) Meter Shop will continue the process of resetting all meters when they are brought back from field. This includes temporary meters (H)
 - o) CT/large meters will be inspected after installation.
 - p) Sample testing in the field will be halted during the deployment phase. (L)
 - q) Remote of disconnect/reconnects which do not complete should create a Service Order for a field visit and resolution (H)
 - r) Any CT change requires a meter change (H)

