



OFFICIAL NOTICE AND AGENDA
of a meeting of a City Board, Commission, Department
Committee, Agency, Corporation, Quasi-Municipal
Corporation, or Sub-unit thereof.

A Meeting of Wausau Water Works Commission will be held in the
Council Chambers, 1st Floor City Hall, Wausau, WI 54403 at 1 : 30 p.m. on
Tuesday, December 7th, 2021.

Members: Katie Rosenberg (President), Dawn Herbst, Jim Force, Joe Gehin, John Robinson

AGENDA

1. Approve Minutes of October 14th & November 2nd 2021 Meeting.
2. Director's Report on Utility Operations
 - DWTF Update
 - Existing Plant Operational Issues
 - 1st Main Break
 - Hydrants Maintained
 - Locates
 - Private Side LSL Updates
 - Water Plant Operation Technician Position
 - WWTF Update
 - **Dave Erickson's Last Commission Meeting as Superintendent of Wastewater Treatment Facility**
 - **Introduction of Ben Brooks**
 - Plant Permits
 - Sewer Maintainer & Wastewater Plant Operation Technician Positions
 - Summary Ongoing Projects
3. Discussion on the PIM (Public Information Meeting) Results for the Proposed Solar Project and Possible Action Moving Forward with the Design of a Solar Array and Landscaping Plan for the new Drinking Water Treatment Facility at 1010 Bugbee Ave.
4. Discussion and Possible Action on a Sole Source Request to Purchase Pipe and Fittings Immediately for 2022 Projects due to Material Delivery Delays and Possible Material Price Increases.
5. Discussion and Possible Action on Water Utility Vendor Agreement Contract with DOA for Low Income Household Water Assistance Program (LIHWAP).
6. Discussion and Possible Action on the Recommendation to Purchase a Tool Cat Type Utility Vehicle.
7. Discussion and Possible Action on the Recommendations for the Purchase of Hydrated Lime, Sodium Silicate and Sodium Hypochlorite for 2022.
8. Discussion and Possible Action on the Recommendation for the Purchase of a Forklift. See Quote Summaries Attached: Staff Recommends the Octane Forklift.
9. Discussion and Clarification for Private Side Lead Service Line Replacement Funding.
10. Discussion and Possible Action on Resolution Designating Director of Public Works & Utilities or Water Superintendent to Apply for Private LSL Replacement Funding.
11. Discussion and Possible Action on the Proposals to Purchase the Existing Wastewater Standby Generator.
12. Discussion and Possible Action on an Amendment to the Clark Dietz Services Agreement to Complete Design & Bid Services for the Sanitary Sewer Interceptor at 48th Ave.

Adjourn.

Next meeting scheduled for **January 4, 2022 at 1:30 P.M.*

THIS NOTICE POSTED AT CITY HALL AND EMAILED TO CITY PAGES AND DAILY HERALD: December 2nd, 2021 at 2:00 p.m.

This meeting is being held in person and via teleconference by calling 1-408-418-9388. The Access Code is 2482 069 9909 and the password is WausauH2O. All public participants' phones will be muted during the meeting. Members of the public who do not wish to appear in person may view the meeting live over the internet on the City's YouTube Channel <http://tinyurl.com/WAAMedia>, live by cable TV, Channel 981, and a video is available in its entirety and can be accessed at <https://tinyurl.com/wausaucitycouncil>. Any person wishing to offer public comment who does not appear in person to do so, may e-mail michelle.weasler@ci.wausau.wi.us with "Water Commission public comment" in the subject line prior to the meeting start. All public comment, either by email or in person, will be limited to items on the agenda at this time. The messages related to agenda items received prior to the start of the meeting will be provided to the Chair.

In accordance with the requirements of Title II of the Americans with Disabilities Act of 1990 (ADA), the City of Wausau will not discriminate against qualified individuals with disabilities on the basis of disability in its services, programs or activities. If you need assistance or reasonable accommodations in participating in this meeting or event due to a disability as defined under the ADA, please call the ADA Coordinator at (715) 261-6590 or ADAServices@ci.wausau.wi.us to discuss your accessibility needs. We ask your request be provided a minimum of 72 hours before the scheduled event or meeting. If a request is made less than 72 hours before the event the City of Wausau will make a good faith effort to accommodate your request.



Minutes of October 14, 2021

A meeting of the Wausau Water Works Commission was called to order at 12:30 p.m. but due to technical issues was called to order again at 12:52 p.m. in City Hall on Thursday, October 14th, 2021. In compliance with Wisconsin Statutes, this meeting was posted and receipted for by the Wausau Daily Herald on October 13th, 2021.

Members Present: President Rosenberg, Commissioners Robinson, Herbst, Gehin, Force.
Others Present: Eric Lindman, Scott Boers, Valerie Swanborg, Dave Erickson, Nate Miller, Toni Vanderboom. Via Webex: MaryAnne Groat, Debra Ryan, Tonia Westphal-Clark Dietz, Amrou Atassi- CDM Smith

1. **Discussion and Possible Action Awarding a Proposal for the Development of a Lead Service Line Replacement Program.**

WEBEX TECHNICAL ISSUES- MEETING CALLED TO ORDER AT 12:52 p.m.

Robinson questioned if there would be a reduction in the contract if the Commission or the City was doing the ordinance and how they would engage others.

Atassi replied saying the effort is to identify ordinances you may want to consider and encourage participation in identifying Lead Lines and providing input but drafting would be referred to the city's attorney to write up the ordinances. There would be an outreach strategy that starts with the stakeholders to help identify the best strategies to reach residents. This may include flyers, town hall meetings or library events based on what the best communication plan is for your community. We could include the implementation plan to provide a roadmap to exceed the goals outlined with you.

Force questioned if the \$20k differential for inventory of the lead service lines is a repeat of what we've already done.

Boers replied it is not a repeat. We followed up on lead service line inventory mentioned from the last meeting and those numbers were just provided to Lindman.

Lindman states there are 13,763 residential properties, of that number the ones built 1970 or earlier are 10,723.

Boers added those are our starting numbers. We can overlay those with our records to know what was done on city's side but it was never required to have what was done on the private side. We could ask inspections or scan lateral permits to see what was done manually from their 2015 records forward but we would need to see what was done from those permits, whether it be a full replacement, just a partial patch or a meter brought out of a pit. Inspections records go back to 1967, we would only have a portion to follow up on. Per EPA's new rule, anything identified as possibly lead or unknown is considered lead.

Atassi adds that the inventory would entail which are confirmed lead and which are unknown per Fed/State requirements for the DNR. If it's zero unknown, the inventory would not be needed. We recommend developing a strategy of reducing the number of the unknown.

We can look at building records, tax records, plumbing requirements, interviewing city staff and collecting all information, then developing a strategy for next steps to take that may include sending surveys to homeowners. You would need to improve inventory because it plays a huge role in the funding to be received. But the two go hand in hand, developing a plan and refining inventory.

Lindman states we can look at bringing that back with the inventory but each service would have to be looked at individually whether it be going home to home or through other sources.

Force moved to adopt this plan for Clark Dietz less inventory for the time being. Seconded by Herbst.

Motion carried 5-0.

2. Discussion and Possible Action on the Purchase of Trucks/Trailers for Hauling Class A Biosolids.

Lindman started on the option available to purchase quad axle trucks to handle dry biosolids but the challenge is what would be long term. We do have equipment replacement funding that could be used but it's a \$300k item and with the unknown we would not recommend the commission move forward with the purchase but advised there are costs to us because we are contracting out the removal of the biosolids in the interim. We have costs estimated from Donohue.

Gehin questioned the \$50k, whether it was a monthly or annual cost.

Lindman replied this would be an annual cost but hopefully we would know by then the volume of the biosolids.

No action needed on this item.

3. Discussion and Possible Action Approving Recruitment and Retention Initiatives.

Vanderboom summarized the discussion that was held at the October Human Resources Meeting with the conclusion of approving new hires to borrow up to one week vacation time without having to wait for time off to accrue and increasing the amount of personal holidays and vacation time that is earned. Another concern employees brought up was pay. What we can do now is temporarily remove steps 1 & 2 of the pay scale and start everyone at step 3 of the pay scale. Any current employee in step 1 or 2 would be moved to step 3 with the thought that with the next wage study salaries will be equalized with market trends. Looking at budget increase, there is a cost of living increase of 2% but the salary ranges would be moved up 2% as well. HR approved fully funding Option 3 of the last wage study. Next year HR would begin looking into a culture survey and identify items that need improvement. HR will also look into development training next year and into a CDL trainer position. Next year's budget considerations would be pay adjustments for employees because it takes too long for them to reach the midpoint pay ranges. HR had a discussion on maybe looking at 2 increases every 6 months until the midpoint range is reached, if employees were hired at the minimum salary. Another item to be considered for next year are for those that are already above midpoint. This could include a percentage lump sum increase and ARPA funding could be utilized. All items recommended for immediate implementation were approved by the HR Committee and expected to go to the finance committee then council. Items for next year's budget would have supplemental requests to budget and would be considered one by one.

Robinson questioned what the projected cost would be.

Vanderboom replied the suspension of steps 1 & 2 would cost less than \$20k. The 6 month increases would cost quarter of a million dollars.

Gehin questioned if we had a timeframe for new employees to acquire their CDL.

Vanderboom replied Water has a timeframe but not Wastewater.

Erickson explained that they require new hires to have a CDL as they are needed on the streets on day one of hire.

Robinson moved to implement changes consistent with the City and its policies. Seconded by Force.

Motion carried 5-0.

4. Adjourn.

There being no further business to discuss, motion to adjourn by Gehin. Seconded by Herbst.

The meeting is adjourned.

Link to view meeting in its entirety: <https://tinyurl.com/wausaucitycouncil>

Gina Vang, Recording Secretary

S:\WaterWorks\Common\WaterCommission\2021\November\WWWC_20211014_Minutes.doc.



Minutes of November 2, 2021

A meeting of the Wausau Water Works Commission was called to order at 1:30 p.m. in City Hall on Tuesday, November 2nd, 2021. In compliance with Wisconsin Statutes, this meeting was posted and receipted for by the Wausau Daily Herald on October 28, 2021.

Members Present: President Rosenberg, Commissioners Robinson, Herbst, Gehin, Force.
Others Present: Eric Lindman, Scott Boers, Valerie Swanborg, Dave Erickson, Ryan Dwelly, Tonia Westphal/Clark- Dietz, Lisa Zahrt/ Clark- Dietz, Chris Collins/ SunVest, Ryan Yentz/ Strand & Associates, Jake Collins/Strand & Associates, Via WebEx: Anne Jacobson

1) Approve Minutes of October 5th & 14th 2021 Meeting.

Gehin moved to approve the minutes of the October 5th, 2021 meeting. Seconded by Herbst.

Robinson moved to bring back October 14th 2021 minutes with request to amend/ remove discussion prior to start of true meeting after technicality issue.

Motion to approve the minutes of October 5th and amend October 14th minutes and bring back to the next Commission Meeting scheduled for December 7th 2021 for approval.

Motion carried 5-0.

2) Director's Report on Utility Operations.

Lindman asked if there were any questions on the specific items.

Robinson questioned financial report that was in packet.

Swanborg responded that water had two rate increase July 2020 and January 2021, sewer had two rate increases October 2020 and recently July 2021.

Force questioned the Lead Service Line replacements.

Boers replied we are now over by \$40k. But we just received approval from DNR today and they would provide us the funding ahead of other municipalities ahead of the rating schedule for next year.

Lindman reiterates this just happened in the last week, we would be spending more than what DNR has provided us but on the next cycle they will give us a priority for the funds.

Director's Report placed on file.

3) Discussion and Possible Action Requesting Approval of the Sole Source Purchase of Clar-Ion 415 for year 2022.

Boers requested the following items be approved as they are needed for Water Plant Treatment Facility.

Robinson questioned why this was brought to the Commissioners as these are operational items.

Lindman stated these were procurement policy exclusions, so they need to go through sole

source purchasing. We need approval through Commission for sole source purchasing. We can put it in the procurement policy to maybe be included.

Force moved to approve sole source purchase of Clar-Ion 415. Seconded by Gehin, with a request to follow up with legal/finance as part of an exception.

Motion carried 5-0.

4) Discussion and Possible Action Requesting Approval of the Sole Source Purchase of Clar-Ion 700 for year 2022.

Force moved to approve sole source purchase of Clar-Ion 700. Seconded by Herbst.

Motion carried 5-0.

5) Discussion and Possible Action Requesting Approval of the Sole Source Purchase of Aqua Ammonia for year 2022.

Herbst moved to approve sole source purchase of Aqua Ammonia. Seconded by Gehin.

Motion carried 5-0.

6) Discussion and Possible Action Requesting Approval for a Purchasing Agreement Extension for Liquid Carbon Dioxide for 2022

Boers explained this was an extension of contract. There is a 3.7% increase for next year but this is 33% lower than the last bids received.

Gehin moved to approve the extension for Liquid Carbon Dioxide for 2022. Seconded by Herbst.

Motion carried 5-0.

7) Presentation on Solar Options for the DWTF.

Westphal and Zahrt from Clark Dietz and Collins from Sunvest presented on the options for the Solar Array for the new Drinking Water Treatment Facility on Bugbee Avenue. Presentation slides were attached in the packet.

Force questioned if there would be any noise associated with the Solar Array.

Collins replied the inverters would make the sound of a fan but it would be located 200 yards in field and the transformer would have a humming sound.

Lindman states this would be presented at the Public Information Meeting scheduled at NTC for Wednesday, November 17th, there might be a slight difference, but this would be the presentation to the public. We are missing RENEW's presentation, but we are hoping to get something from them to present as well. RENEW is a nonprofit organization that promotes renewable energy.

No action required.

8) Presentation on the Inflow/Infiltration Study Results.

Yentz & Collins from Strand and Associates presented on the findings of the I&I Study. Presentation slides were attached in the packet.

No action required.

9) Discussion and Possible Action on the Contract for Treatment of Raw Sewage with Schofield.

Erickson states this was a renewal of the 5 Year contract with the city of Schofield' sewage with no changes other than the dates.

Force moved to approve the renewal of the contract for treatment of raw sewage with Schofield. Seconded by Herbst.

Motion carried 5-0.

10) Discussion and Possible Action a Change Order for the Industrial Park Lift Station Construction and Force Main Cleaning Project.

Lindman presents that the delay of the project was due to securing of the railroad permits and access easements for the force main with proposed completion date set for ending of April 2022 and an 8% contract price increase.

Gehin moved to approve change order for the industrial park lift station construction.
Seconded by Robinson.

Motion carried 5-0.

11) Adjourn.

There being no further business to discuss, motion to adjourn by Herbst, seconded by Robinson.

Link to view meeting in its entirety: <https://tinyurl.com/wausaucitycouncil>

Gina Vang, Recording Secretary

S:\WaterWorks\Common\WaterCommission\2021\December\WWWC_20211102_Minutes.doc.



MEMORANDUM

TO: President Rosenberg
Commissioner Herbst
Commissioner Force
Commissioner Gehin
Commissioner Robinson

FROM: Eric Lindman, P.E.
Director of Public Works & Utilities

SUBJECT: Director's Report – November 2021

WATER DIVISION:

1. Drinking Water Treatment Facility Update: See attached.
2. Staff is anxiously awaiting start up for the new facility. The existing plant is showing signs of age continually, with many operational issues.
3. First main break of the season occurred on the afternoon of Sunday November 28th.
4. Staff has checked, maintained and/or repaired approximately 1660 hydrants in the last couple weeks. Getting all the hydrants in the city ready for Winter.
5. Locate Update.
 - a. 8,844 completed as of 11/30/21
 - b. 762 done in the last 23 working days
 - c. 2,834 over 2020
6. Private LSL Update.
 - a. We have met our \$320,000.00 limit with 76 replacements.
 - b. 18 additional replacements have been completed totaling \$84,600.00.
 - c. Additional replacements will receive reimbursement priority when applying for 2022 funds.

7. We are having difficulty recruiting for our Water Plant Operations Technician Position. The position has been advertised four separate times since the position was vacated in August. The first posting didn't yield any qualified candidates. The second posting had one candidate who would have been very qualified but accepted another position at a rate of more than \$11.00 an hour over what we offered. The third posting, again, didn't render any candidates who met the position qualifications. The fourth posting will be closing on December 13th.

WASTEWATER DIVISION:

1. Wastewater Treatment Facility Update: See attached.
2. This is Dave Erickson's last Commission meeting as Superintendent of the Wastewater Treatment Facility. Dave has served the City for over 30 years and has spent over a decade at the Wastewater Facility. Thank You Dave for your continued service to the City and Utility, it has been a pleasure working with you.
3. I would like to welcome and introduce Ben Brooks, to our team. It is great to have you here Ben!!!
4. The plant is on track to meet permit limits for November, except for 4 days where the effluent pH was below the 6.0 effluent limit. The pH problems were related to the startup of our new blower and aeration tanks; and will be resolved when the new system is fully operational.
5. We have two Sewer Maintainer positions and one Wastewater Plant Operations Technician position open. We removed the Commercial Driver License (CDL) requirement from the posting for the Sewer Maintainer and still had only one qualified applicant, who we interviewed last Friday. We are reviewing the requirements for the Operations Technician position and reposting for both positions. It is essential that we can recruit to fill these positions, and retain our experienced employees, to keep up with our workload and maintain a reasonable rotation cycle for employees on standby.

WATER & WASTEWATER ONGOING PROJECTS:

1. As we near the end of 2021 I thought it would be beneficial to provide some narrative to projects we have ongoing:
 - a. Wastewater Treatment Facility Upgrade – Final completion scheduled for February 2023
 - i. Underground work is nearly complete
 - ii. Equipment has begun to go online and training of equipment is being completed as it is started up
 - iii. Original Contract Price \$77,732,000; Current Contract Price \$76,737,484.14

- b. Drinking Water Treatment Facility
 - i. Underground work is nearly complete
 - ii. Estimated to begin flowing water to the new facility in spring 2022
- c. Water main extension on Bugbee/Burek/E. Campus for new treatment facility
 - i. Project is being designed in house
- d. Proposed solar array project
 - i. Two PIM's have been held, both PIM's were held to gather information on the project from the public prior to any decisions being made.
 - ii. Project will be discussed on the agenda today
- e. Lead Service Line Replacement Plan
 - i. Kickoff meeting was held on Nov 16, Consultant has requested information and will be setting up next meeting to begin discussion on public outreach and inventory.
 - ii. Lead & Copper Rule Revisions are effective as of Dec 2021 and compliance date of October 2024
- f. Corrosion Control Study
 - i. Request for Qualifications (RFQ) is currently being advertised. Scope of services and description of qualifications is due Dec 14, 2021.
 - ii. The proposals will be scored by staff and brought to the January commission with a recommendation for award.
 - iii. Once an award is made staff will work with the selected consultant to finalize a scope of services with the WDNR and finalize costs for the proposed work.
- g. Asset Management Software Selection
 - i. Staff is currently looking at different AMS for the utility
 - ii. The decision for AMS is essential as it would be beneficial to have one software for all City entities and it also needs to be compatible with the ne ERP software, Workday.
 - iii. The utility would like to move ahead with City Works versus Cartegraph as the functionality seems to be better, more user friendly and compatible with both our vertical and horizontal infrastructure as well as with ESRI/GIS.
 - iv. We are currently working with IT and finance to continue to compare Cartegraph and City Works
- h. Washington St siphon crossing
 - i. RFP is out for advertisement for design and bidding of the work
 - ii. Looking at the current alignment and also an alternative alignment
- i. Multiple Lift Station Upgrades
 - i. RFP is currently being prepared for soliciting engineering design and bidding services
 - ii. LS's include: 32nd Ave, Cherry St, Crocker St, Airport, NW Ave, and Greenwood Hills
 - iii. Work will be divided into separate bud packages as appropriate and in best interest of budgeting work
 - iv. It is proposed to have one engineering firm complete the design and bid documents

- j. Jonson Controls Inc. - Performance Contracting for Energy projects
 - i. Initial meeting with JCI was held on Nov 16 to determine what JCI had done with other communities
 - ii. Second meeting with JCI was conducted on Dec 1
 - iii. JCI is a company who is under Source Well, a cooperative purchasing program through the state, and the city may initiate a performance contract with them without soliciting proposals. We sue Source Well often for purchasing equipment and sometimes selecting vendors
 - iv. JCI can assist the city preparing energy improvement projects, not just with the utility, but city wide. Typically, JCI will establish a energy savings for a project and then it is proposed to use the savings from that project to pay for the capital improvement over time. This is similar to what they did with the City of LaCrosse.
- k. Annual street projects with W&S replacement will start bidding in January 2022, after public hearings on assessments are conducted. There have been supply chain shortages for materials so bidding early is our best chance to not have delays in our projects. It is in the best interest of the utility to order materials immediately as there is likely to be more delays as demand increases in 2022.
- l. Staff has been preparing potential projects that may be eligible for ARPA funding. The City is in the process of establishing a process for submitting requests and having the City Council review them for consideration. Staff is also looking at the Federal Infrastructure Investment and Jobs Act (IIJA) to determine what funding may be available in the coming months and for what types of projects. The IIJA has significant funds for W&S infrastructure to include specific funding for LSL replacement. It appears the W&S funding will be available through the WDNR but no state allocations have been determined as of yet. There is also some direct EPA funding that may be available to help reduce water loss and provide survey detection as well as reducing SSO's resulting from combined storm and sanitary sewers.

Wausau Drinking Water Treatment Facility - Project Status

November 30, 2021

Drinking Water Treatment Facility

Treatment process piping, pump and equipment installation, HVAC, electrical, and painting continue throughout the facility. Boiler installation is nearly complete. The permanent lighting is operational throughout the building. The contractor has received delivery of the laboratory cabinets and floor tile installation has started.

Nearly all the underground piping on the site is complete and the contractor has begun performance testing.

The contractor has installed the first layer of pavement on most of the site. The remaining pavement will be placed in spring, after the last underground piping is installed.

Administration Building and Garage

Windows, exterior doors, roofing is nearly complete. Insulating, electrical and HVAC work are ongoing. After insulating is complete, the contractor will start up the heating system so interior finish work can continue.

The project team (owner / engineers / contractor) continue to meet weekly to plan for equipment demonstration and coordinate with system integrators and computer-control programmers.

Site - looking Southwest



Retaining Wall



Site – looking Northwest



Site – looking East



Site Entrance – from Burek Avenue



Chemical Storage Room – Floor Coating Complete



Electrical Room – Much of the equipment is operational



High Service Pump Area – Prepping for painting



Lockers in Administration / Vehicle Storage Building



Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53

Engineer Activities This Period

- Construction administration services related to technical review of contractor shop drawings, responding to contract interpretation questions (RFIs), initiating requests for proposals (RFPs), attending weekly and monthly construction progress meetings, processing work change directives to the contract, and contractor monthly payment requests.
- Prepared and submitted Clean Water Fund disbursement request and provided CWF administration.
- Provided full time Resident Project Representative (RPR).
- Provided part time on-site observation of selected work by Becher-Hoppe.
- Becher-Hoppe also provides input into appropriate shop drawing reviews, RFI responses, and RFP requests.
- Prepared Work Change Directives to address unforeseen work that needed to be expedited to allow the Contractor to maintain their construction scheduled progress.
- Design Team participating in weekly coordination calls to facilitate contractor startup of the various systems that are being scheduled for near-future startup, discussions pertaining to system commissioning and how all systems tie together to provide further detail to the construction schedule.
- The Engineer's application engineering staff are working on the various systems programming that will need to be completed as the new unit process systems are brought into operation.
- Donohue continues working with the WDNR and Owner to add a Class A [biosolids] outfall to the WPDES permit.
- Processed Change Order 11, and prepared Change Order 12 and 13.
- Preparing SOPs and Training materials.
- Department of Natural Resources air permitting for equipment (microturbines, boilers, generators, biogas flare, biosolids dryer) that will produce air emissions. Preparation of calculations of maximum theoretical, potential and expected actual emissions of criteria pollutants, federal hazardous air pollutants and additional compounds regulated under Wis. Admin. Code Chapter NR 445.

Engineer Near-Term Activities

- As the project proceeds, the engineer will continue to provide construction administration services including the technical review of shop drawings, responding to RFIs, preparing RFPs, attending weekly and monthly construction progress meetings, processing change orders, reviewing contractor payment requests, and providing full-time on-site resident engineering services.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53

- Application Engineering programming.
- Prepare Change Order 14 and 15 for Contractor review.
- Screening handling alternative discussion.
- Dried Biosolids handling discussions.

Contractor Progress to Date

- The Notice to Proceed with Construction was issued to the Contractor on June 18, 2020 and established the final completion date as June 3, 2023.
- Construction on the improvements to the Wastewater Treatment Facility (WWTF) began on July 6, 2020.
- Structure 100 (Main Building):
 - o Van Ert, Fabick and Eaton completed tie-in of the new power from the transformers, CT cabinets and switchboards to the new 100 Switchgear and generators.
 - o Painting complete in training room area, bathrooms, and other additional rooms.
 - o August Winter & Sons, Inc. continues with HVAC and ductwork, as well as the biogas piping in the gas compressor room.
 - o Ceiling tile grid work completed in new training room, bathrooms, other rooms in the area, the old locker room.
 - o EPS completed the removal of old lead based paint in the lower level rooms.
 - o Plumbing fixtures, stalls and tile work completed in men's and women's rest rooms.
 - o Tile work completed in the training room.
 - o Miron has completed coring in the raw wastewater (RWW) pump control room.
 - o As usual, mechanical, electrical and plumbing work continues inside the structure.
 - o The transformer blast wall extension work is complete.
 - o Insulation continues for piping and ductwork.
 - o Doors, hardware and painting has been completed in most areas.
 - o Roofers have started the replacement of the roof over the south portion of the structure and have placed the skylights as well.
- Structure 110 (Vehicle Storage Building)—no work at this structure.
- Structure 120 (Administration Building):
 - o Punchlist items on the exterior continue to be reviewed and documented.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53

- Structure 200 (Grit Building):
 - o Van Ert Electric continues with the placement of equipment in the new electrical room.
 - o The delivery of the motor control center will allow for the completion of electrical to the structure.
 - o August Winter & Sons has started to place interior process piping.
- Structures 310, 320, 330 and 340 (Primary Clarifiers 1, 2, 3, and 4) along with Structure 350 (Primary Effluent Channel)— Structure 310 is back in operation. All mechanical and painting for Structure 330 has been completed. Demolition has started on Structure 340 along with the painters starting on the coating of the mechanical equipment and coating of the effluent trough. August Winter & Sons continues to rework and install the new piping in Tunnel 900 for the clarifiers.
- Structure 400 (Activated Sludge Building):
 - o August Winters continues on mechanical piping in the lower level.
 - o Insulators have been placing the pipe insulation where they can get in.
 - o Miron has started demo for the new south entryways and doors.
 - o The Aerzen blower representative was on site to check out the new Blower #1 so that it can be placed into operation.
- Structure 405 (Anoxic Selector Tank)— Precision completed the excavation for the basin and Miron has completed the formwork and concrete pouring for the structure.
- Structure 406 (Mixing Tank)—No additional work at this structure; waiting for the completion and backfill around Structure 405 (Anoxic Selector Tank).
- Structure 410 (Activated Sludge Basins):
 - o Aeration basin diffuser systems have been placed and tested in Aeration Basins 4 (2A), 5 (2B) and 6 (2C).
 - o The south side basins (2A, 2B and 2C) have been filled and are waiting for the addition of mixed liquor.
- Structure 420 (Mixed Liquor Channel) and Structure 500 (Secondary Splitter): Grating placement has started at Structure 500.
- Structure 535 (Secondary Scum Manhole 3): Van Ert Electric has completed the conduit runs and wiring associated with the structure.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53

- Structure 540 (Secondary Clarifier 4):
 - o Dewatering for the tank has continued to keep the tank dry.
 - o August Winter and Miron have nearly completed punchlist items for the structure.
 - o Miron and August Winters are filling the tank with ground water to prevent freezing and ice buildup.
- Structure 600 (Effluent Building)— Demolition work and concrete saw cutting continue in the structure. Removal of old pipe, pumps and equipment continues in the sand filter/filtration area and the pump room on the north side of the building. Concrete formwork has started in the new W3 and Secondary Effluent areas. Removal of the old roof stone and demolition of HVAC equipment has started. August Winter & Sons, Miron and Van Ert are preparing for the move and temporary set up of the effluent flowmeter, sampler, ortho-P equipment from the current UV room. Rib Mountain wastewater has salvaged UV Lights and equipment for their facility. Quality Roofing returned to installation of the roof.
- Structure 610 (Chemical Building): Van Ert working in electrical room checking out VFDs, wiring and installation of 610 MCC, PLC and Network Rack. HVAC Testing and Balancing has occurred.
- Structure 700 (Digester Building) and Structures 710, 720, 730 and 740 (Digesters 1, 2, 3 and 4):
 - o The new roof has been lifted and placed into the 720 Digester.
 - o Omni has started on the finishing the coating on the cover.
 - o Mechanical, electrical and plumbing work continues in Structure 700.
 - o Piping to the digester heat exchangers, digester gas boilers and natural gas boilers is ongoing and almost complete.
 - o August Winters has been continuing with digester gas, hot water supply and return lines, glycol supply and return lines, natural gas piping and the placement of equipment.
 - o Pipe insulators have been installing alongside August when time and space permits.
 - o The 710 Digester has been cleaned, with demolition of interior piping complete and the start of new internal piping begun.
 - o Van Ert continues with work in the new electrical room with the placement and check out of 700-MCC-1.
 - o Roofers have continued the placement of the new roof.
 - o HVAC start-up, testing and balancing has occurred.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53

- Structure 760 (Biosolids Storage Building)— Foundations and containment walls construction has begun and rebar has been placed for the new floor in the sewer cleaning area.
- Structure 770 (Solids Building):
 - o Doors frames, doors and windows are completed.
 - o Mechanical, electrical and plumbing work continues in lower level and has been ongoing in both the grade and upper levels.
 - o Pumps and chemical feed systems are completed in the lower level waiting for check out and start up.
 - o HVAC ductwork, heaters and equipment being finalized in all areas and HVAC system testing and balancing has occurred.
 - o Rooftop access dog house construction complete.
 - o Dryer equipment installation is almost complete, and exterior steel frame structure is complete.
 - o New bridge crane has been installed at the east end of the dryer.
 - o Work within the electrical room continues, with wiring being pulled to all equipment throughout the structure
 - o Systems/equipment are also being checked out.
 - o The Control Room, Lab and Locker Room area work including electrical, plumbing, steel stud walls, drywall, floors, metal stairway, painting and casework are essentially completed.
 - o Grating, piping and conduit placed around the Gravity Belt Thickeners and Belt Filter Presses.
 - o Equipment and piping are placed in the Sludge Handling Room.
 - o Biosolids handling platform is set and equipment, controls and electrical are being installed.
 - o Thermal oil equipment is set, with the start of piping, venting and conduit runs.
 - o New dry biosolids dust collection system has been installed and completed.
- Structure 755 (Waste Gas Burner)—Biogas flare has been check out and started up, waiting for connection to biogas feed.
- Structure 760 (Biosolids Storage Building) is currently sitting idle.
- Structure 775 (PSD Thickener) and Structure 776 (Basin Drain Pump Station 2) – Structure 775 has remained idle with Structure 776 having electrical and equipment wiring completed.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53

- Tunnel 900— August Winters has run the 20-inch return activated sludge (RAS) lines out the west wall of the tunnel to tie into the new Structure 405 (Anoxic Selector Tank). Associated piping runs in the racking continue to be placed as well. Demolition of the existing piping has continued. Pipe insulators continue to insulate piping. Existing primary sludge pumps demolition has started with piping and valving being looked at for placement. Hot water return and supply pumps have been placed.
- Tunnel 910— Work in the 910 Tunnel has been fairly idle with the exception of the Van Ert Electric installing new lighting.
- Site Work:
 - o Integrity Grading & Excavating completed the storm water outfall structures for the new storm water detention system to the river.
 - o Construction has started on the new storm water detention system.
 - o Poor subgrade soils were encountered during the excavation for the detention system.
 - o Miron poured a portion of the concrete paving and curb and gutter along the east side of Structure 770 (Solids Building).
 - o Sidewalk from Structure 350 (PE Channel) to Structure 100 (Main Building) has been completed.
 - o American Asphalt placed the binder course for the area from the Structure 350 (PE Channel) sidewalk to the gas ball. Binder has been placed between Department of Public Works and the WWTF.
 - o Binder and surface paving courses were placed on the north half of the southern parking area at Department of Public Works.
 - o Van Ert continued with the placement of site lighting conduit.
- Construction progress photographs are located at the end of this progress report.

Construction Schedule

- The Contractor has developed a detailed construction schedule that defines a timeline for the orderly completion of the work and a breakdown by structure of the work to be done in the various work areas. We continue to review the timeline and work tasks against the various constraints identified in the project manual to confirm that the contractor has adequately addressed them and accounted for shutdown time limits as their work proceeds.

Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

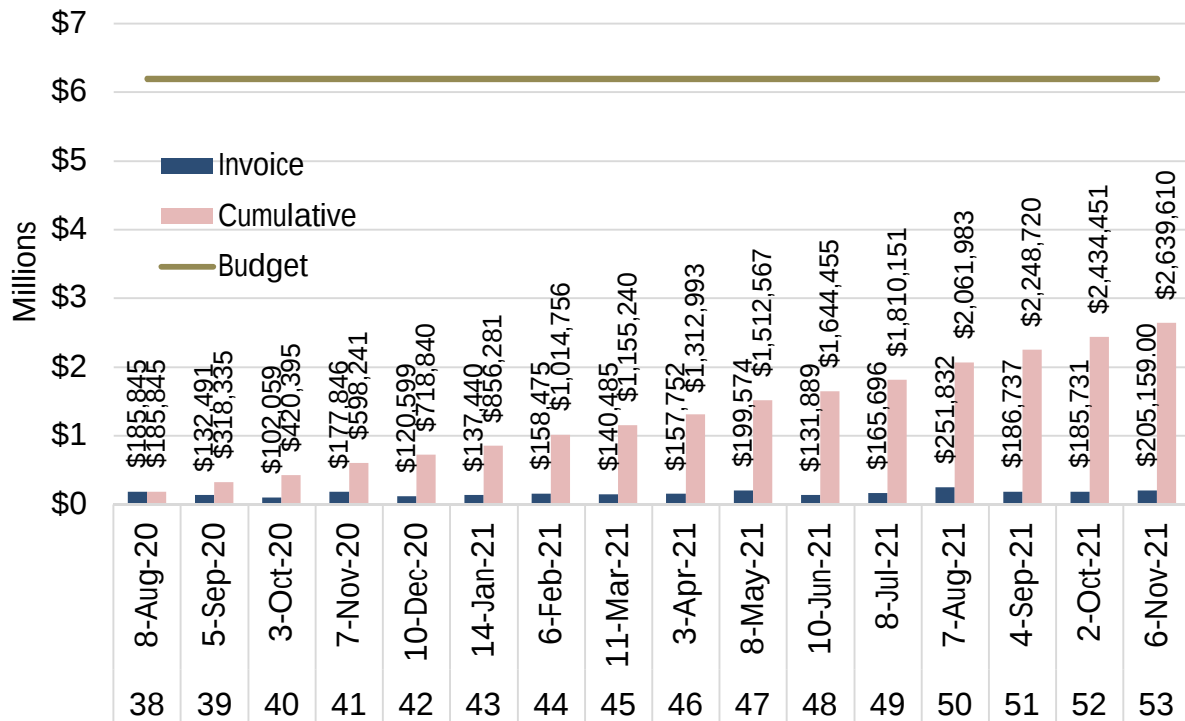
Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53

Project Related Budget Snapshot

Construction Engineering Budget



Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

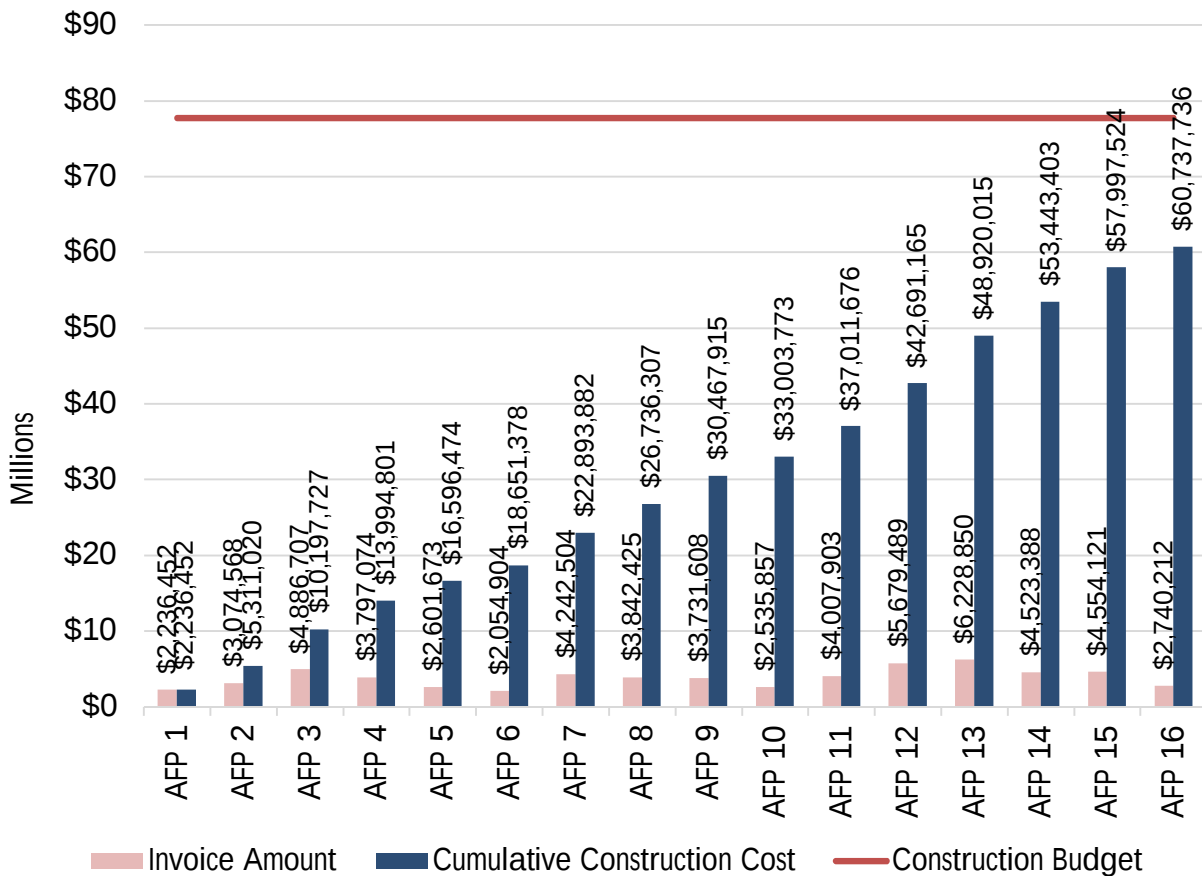
City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53

Construction Budget: Pay Applications Approved by Engineer



Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

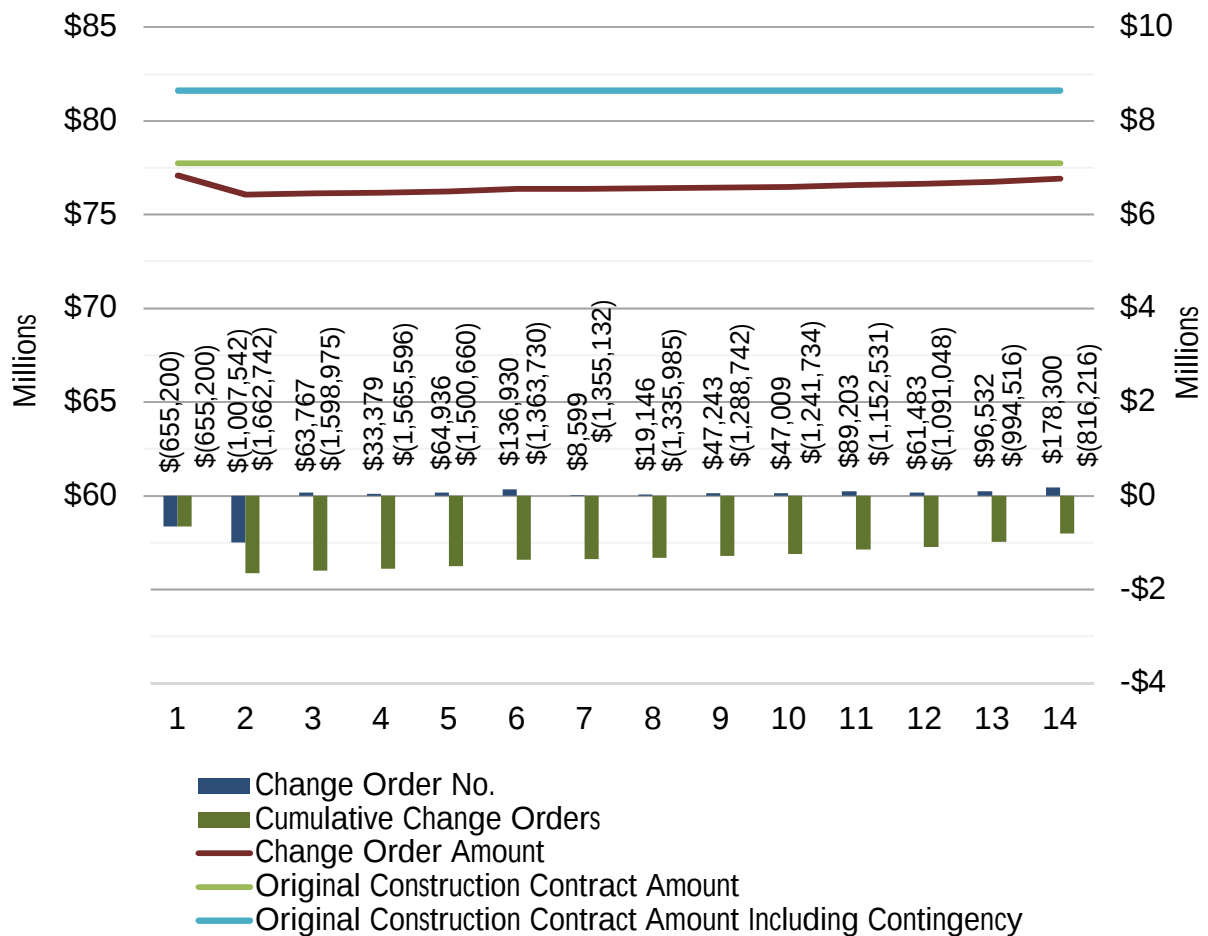
City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53

Overall Project Budget



Budget Notes:

1. No budget issues at this time.

Remarks

1. None.

Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53

Construction Photographs



Roof demolition and work has been the started at Structure 100 (Main Building).



Grading, mulch and seeding around the paved areas of Structure 120 (Administration Building) has started.

Project Status Report

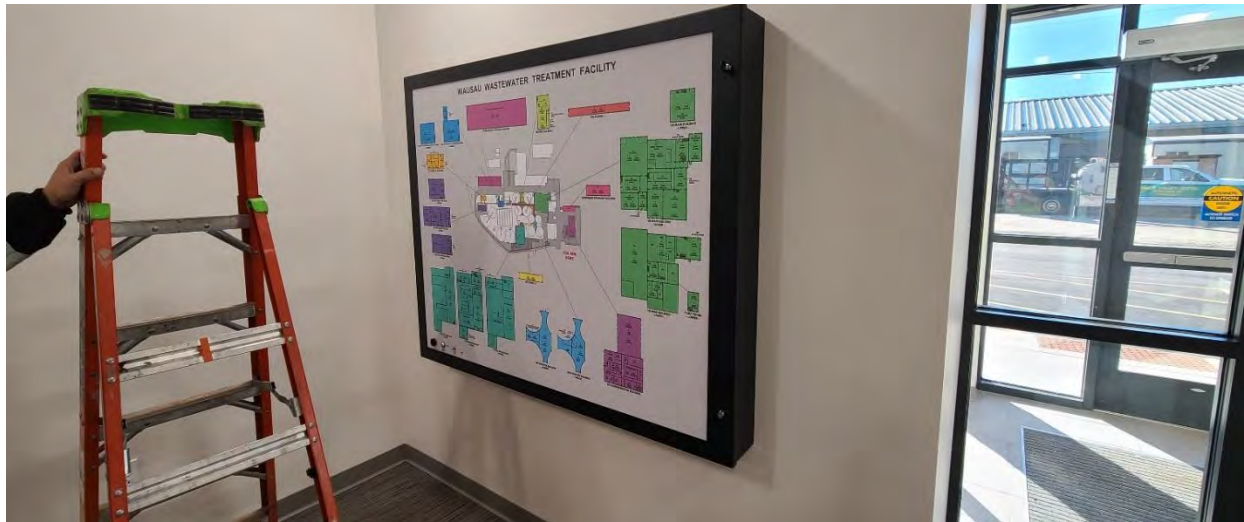
Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



The Graphics Annunciator Panel has been placed in the lobby area of Structure 120 (Administration Building).



Structure 200 (Grit Building): new overhead garage door placed and progressing toward completion of interior fiberglass reinforced panels.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



Removal of the existing mechanical equipment complete in Structure 340 (Primary Clarifier 4) and Omni prepping trough for coating



Donohue and Aerzen working in Structure 400 (Activated Sludge Building) for Blower #1 startup.

Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



Foundation and concrete walls have been completed for the Structure 405 (Anoxic Selector Tank).



Structure 410 (Activated Sludge Basins): filled south aeration basins and the new 4-inch aeration header pipe and valves.

Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



Blower and diffusers at Structure 410 (Activated Sludge Basins) running on full basin to check system out.



Structure 500 (Secondary Splitter) with new grating being placed.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



Aeration headers prior to entry into Structure 500 (Secondary Splitter).



Filling Structure 540 (Secondary Clarifier 4) with W3 water.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



New Secondary Effluent area hatches for the pumps to be placed below at Structure 600 (Effluent Building).



Concrete demolition work continues in the old sand filter area of Structure 600 (Effluent Building).

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



New electrical room and equipment for wiring Structure 610 (Chemical Building).



The temporary effluent flowmeter dog house has been completed and waiting on Effluent Flow Monitoring equipment to be installed

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



Lifting new Structure 720 (Digester 2) cover.



Placement of the Structure 720 (Digester 2) cover almost complete

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



August Winters and Omni completing the internal and top side work on the new Structure 720 (Digester 2) cover.



New Digester Gas accumulator, piped up and ready for action

Project Status Report



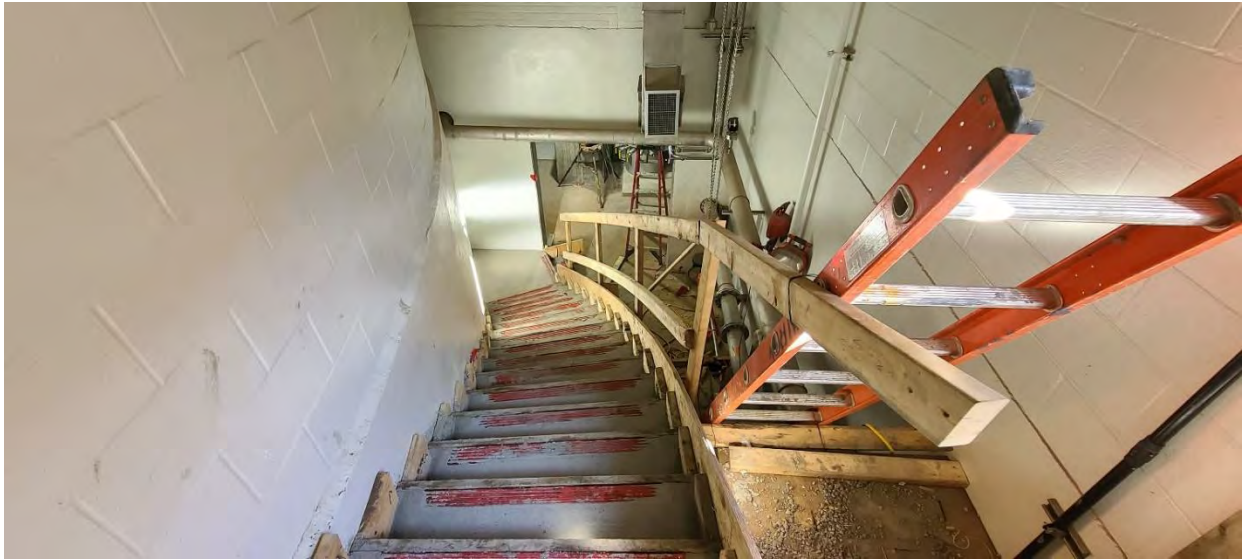
Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



New stairway to the Digester Gas Room in Structure 700 (Digester Building).



Interior of the cleaned Structure 710 (Digester1) waiting for new pipe

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



August Winters removing old piping out of tank wall for Structure 710 (Digester 1).



Concrete floor coated in chemical room of Structure 770 (Solids Building).

Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

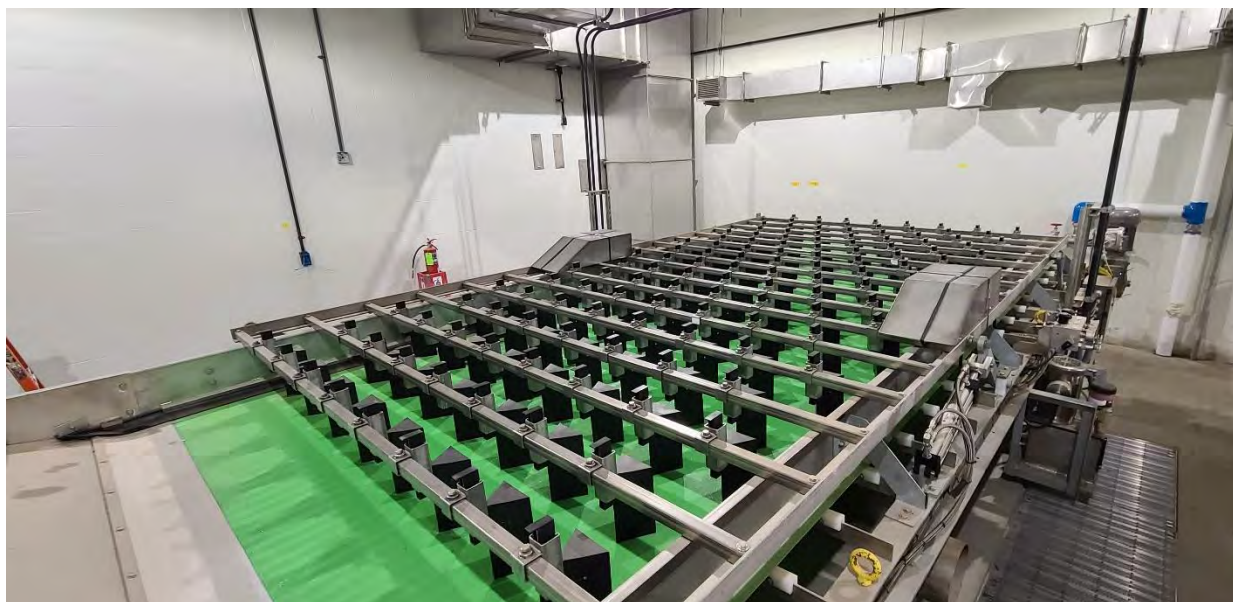
Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



Thermal oil piping being placed in pipe gallery trench of Structure 770 (Solids Building).



Structure 770 (Solids Building) Gravity Belt Thickeners plumbed in and uncovered.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



Structure 770 (Solids Building) TWAS Hopper and pump being placed waiting on parts and equipment.



Lighting in the lower level of Structure 770 (Solids Building) has been installed by Van Ert Electric.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



Structure 770 (Solids Building) return activated sludge pumps in lower level being checked out and started by the vendor.



Bridge crane installed over the top of the dryer at Structure 770 (Solids Building).

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



Structure 770 (Solids Building) dust collection system has been installed.



Hot Water Return/Supply Pumps set in Tunnel 900.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



New lighting placed in Tunnel 910.



Installation of the storm water detention system on the east side of the site.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



Placement of pavement around the east and northeast sides of Structure 770 (Solids Building) has started.



South side of Structure 100 (Main Building): concrete sidewalk placed over the top of the 900 Tunnel, asphalt binder has also been placed.

Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



Asphalt binder course has been placed between the side walk for Structure 100 (Main Building) to the gas ball.



Surface and binder course placed at the north half of parking lot at Department of Public Works facility.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | October 3, 2021 – November 6, 2021

Invoice 53



Poor subgrade material for the base layer of the storm water detention system.



Parting Shots – A double rainbow over the Wausau WWTF and Improvement Project Site

INVOICE



3311 Weeden Creek Road
Sheboygan, WI 53081
Phone: 920-208-0296
www.donohue-associates.com

Invoice To:

City of Wausau
Attn: Dave Erickson
407 Grant Street
Wausau, WI 54403

Invoice Date:

November 11, 2021

Donohue Project No.:

13229

Invoice No:

13229-53

Project Manager:

Mike Gerbitz

Terms:

Net 30 Days

Billing Period:

10/03/21 - 11/06/21

Project Description:

Wastewater Facilities Plan & Design

Your Authorization:

Engineering Services Agreement, Signed 03/29/17
Amendment No. 1, Signed 06/28/18
Amendment No. 2, Signed 03/05/19
Amendment No. 3, Signed 01/27/20
Amendment No. 4, Signed 05/07/20
Permit Review Fees Payment Request, 02/27/20

Compensation:

Time and Expense	\$	129,220.00
Time and Expense	\$	984,565.00
Time and Expense	\$	3,323,900.00
Time and Expense	\$	4,351,831.00
Time and Expense	\$	1,843,325.00
Permit Review Fees	\$	12,534.50
Total	\$	10,645,375.50

Billing Summary:

Total Charges to Date	\$	7,089,845.21
Charges Previously Billed	\$	6,884,686.21
Current Charges	\$	205,159.00

Summary of Current Charges

Labor (1051.5 hours)	\$	183,312.50
Reimbursable Expenses	\$	4,214.00
Permit Review Fees	\$	500.00
Subconsultants	\$	17,132.50
Total	\$	205,159.00

Current Charges Due	\$	205,159.00
----------------------------	-----------	-------------------

Please Remit to:

Donohue & Associates, Inc.
3311 Weeden Creek Road
Sheboygan, WI 53081
Phone: 920-208-0296
Fax: 920-208-0402

Aged Receivables

<u>Current</u>	<u>31 - 60 Days</u>	<u>61 - 90 Days</u>	<u>91 - 120 days</u>	<u>>120 days</u>
\$205,159.00	\$185,730.57	\$0.00	\$0.00	\$0.00

CITY OF WAUSAU WAUSAU WATER WORKS

REQUEST FOR PROFESSIONAL ENGINEERING QUALIFICATIONS & SCOPE OF SERVICES

Demonstrative Corrosion Control Treatment Study



November 2021

Table of Contents

I.	General Information.....	3
II.	Background.....	3
III.	Utility Goals and Description of Deliverables	4
IV.	Project Progression (Estimated Timeline)	6
V.	Method of Measurement and Payment.....	6
VI.	Submission and Review of Proposals	7
VII.	Statement of Intent	7
VIII.	Point of Contact	7

APPENDIX

Appendix A: Wausau Optimal CCT Modification	8
Appendix B: Components of a Corrosion Control Treatment Study.....	11

REQUEST FOR ENGINEERING PROFESSIONAL QUALIFICATIONS & SCOPE OF SERVICES

Demonstrative Corrosion Control Treatment Study

I. General Information

Wausau Water Works is soliciting engineering services associated with an assessment of water quality and system parameters as it relates to Optimizing Corrosion Control Treatment. The assessment must also include distribution system analysis and a lead line loop study. The objective of the project is to conduct a demonstrative Corrosion Control Treatment (CCT) Study that meets the requirements of WDNR so that subsequent actions can be taken by Wausau Water Works to optimize lead and copper corrosion.

The intent of this request is to have engineering firms prepare a statement of their qualifications explaining their capability and experience to complete a CCT Study meeting the requirements of the WDNR. Firms are also asked to develop a detailed scope of services outlining their approach for completing the work as identified.

Qualifications and scope of services for this work must be received before 10:00 AM, December 14, 2021. Three printed copies and a jump drive with a pdf copy shall be delivered to:

City of Wausau – Engineering
City Hall
407 Grant St
Wausau, WI 54403

II. Background

In 2020, Wausau Water Works (WWW) began construction of a new Drinking Water Treatment Facility. Some changes regarding treatment will be made at the new facility, raising questions as to how these improvements will change source water quality as it relates to CCT and existing Lead Service Lines. In September, anticipating the potential for water quality changes, the WDNR is requiring Wausau Water Works to complete a demonstrative CCT Study utilizing harvested lead service lines (LSLs), and to submit a report to the WDNR no later than March 22nd, 2023, recommending Optimal CCT. The new Drinking Water Treatment Facility will be online and begin generating treated water in spring 2022. Water will be treated, tested and wasted until such time as the WDNR provides approval to begin distributing water to the residents.

III. Utility Goals and Description of Deliverables

The primary goal of this project is the successful completion of a demonstrative lead and copper CCT Study, submission of recommendations to the WDNR, and ultimately approval by the WDNR of proposed recommendations.

Key tasks, at a minimum, will include the following:

- Ongoing communication and coordination with the WDNR.

The Consultant shall regularly communicate with the WDNR throughout the project to ensure the CCT Study meets the expectations of the WDNR and complies with their requirements. Periodic, virtual or in-person meetings shall be held throughout the CCT Study.

- Review current practices utilized by the WWW for lead and copper corrosion control.
- Review WWW's history of compliance with the LCR, including sampling protocol, test results, water quality parameters and reporting. Also, review previous research completed by WWW. (Process Research Solutions 2007, Clark Dietz, 2015)
- Evaluate the existing water quality and anticipated new water quality with the treatment process changes and identify potential areas of changes and concerns. WWW can provide additional water quality testing if existing data is not available.
- Research and review best practices nationally.
- Provide recommendations for evaluation of opportunities for improvement in relation to potential CCT changes.
- Identify changes to the existing CCT plan that are feasible and most likely to reduce lead corrosion.
- Design a CCT Study. This should include the following elements:
 - Evaluate water quality parameters that relate to treated water, and distribution water. Specifically address deterioration of disinfection levels out in the distribution system.
 - Evaluate the efficacy of current corrosion control treatment and generate a baseline prior to any proposed changes.
 - Identify potential causes of elevated lead and copper levels in distribution/premise plumbing.
 - Evaluate multiple corrosion treatment options in addition to the current practice.
 - Identify physical and chemical constraints of each treatment type evaluated.

- Determine if distribution practices may be contributing to or reducing lead and copper levels
- Conduct pipe scale analysis to determine efficacy of current corrosion control treatment.
- WWW will harvest and provide lead pipe from the distribution system.
- Design pipe loop apparatus using existing distribution system plumbing to evaluate proposed corrosion control treatment processes and determine the impact of any proposed changes.
- For the purpose of completing the scope of services please presume WWW will be building the pipe loops. Consultant shall prepare a design and plans for building the pipe loop system.
- Provide necessary instructions, monitoring schedules, and other necessary information for conducting experiments using the designed apparatus.
- Sampling responsibility will be determined after a firm is selected. For the purpose of completing the scope of services please presume WWW staff will complete all required sampling.

The Consultant is expected to have a deep understanding of lead and copper regulations and the manner in which corrosion control studies should be conducted to gain the approval of the WDNR. The Consultant should consider changes to the existing CCT as required by the WDNR, these may include adjustments to pH, alkalinity, hardness, and phosphate addition. The Consultant should consider other changes that could reduce lead and copper corrosion based on relevant experience and research.

After evaluating proposed CCT changes, the Consultant shall work with WWW to mutually select treatment changes that are likely to be efficacious and feasible; the selected treatment changes should be included in the CCT Study. As well as any parameters that will be necessary to meet USEPA Lead and Copper Rule Revisions. The actual design of any recommended changes are beyond the scope of this project.

The Consultant will design any necessary apparatuses (i.e. pipe loops), select the parameters to investigate (in addition to lead and copper), and develop a monitoring schedule. As part of the design, the Consultant should define a process by which data will be shared.

- Prepare periodic reports to show progress.
- Produce a report with findings and recommendations.
- Suggest corrosion control treatment doses and provide an implementation timeline if the recommendation is to change current practice.

- Describe water treatment plant upgrades that correspond with approved corrosion control change(s).

During the operation of the pipe loops, the Consultant will need to periodically process and analyze monitoring data so that all interested parties can track the progress of the study. If findings reveal a problem with a proposed CCT change or with the design of the study, it may be necessary for the Consultant to troubleshoot and recommend various changes.

The Consultant will determine when the CCT Study can conclude and will prepare a final report for WWW and the WDNR. The consultant is expected to present the report at a WWW Commission meeting and to meet with the WDNR as necessary to explain the findings of the report and to answer any questions.

IV. Project Progression

❖ Qualification/Scope of Services due	December 14 , 2021
❖ Expected Award	January 4, 2022
❖ CCT Study Proposal to the WDNR (prior to)	January 31, 2022
❖ Proposal Meeting with the WDNR (prior to)	February 28, 2022
❖ Begin construction of pipe loops	February 28, 2022
❖ WWW begin harvesting lead pipe	March 31, 2022
❖ Sequential sampling begins	June 30, 2022
❖ CCT Study Progress Meeting with the WDNR	July-September 2022
❖ CCT Study Completion	March 22, 2023

V. Method of Measurement and Payment

Costs for the proposed scope of services will be determined once the utility has selected an engineering firm.

Proposals will be evaluated using the following weighted criteria:

- **25% Detailed scope of services**
- **15% Progression of the project and timeline for milestones**
- **25% Communication plan with the WDNR and WWW**
- **35% Experience completing CCT studies in general and CCT study experience with WDNR**

VI. Submission and Review of Proposals

Qualifications and scope of services for this work must be received by 10:00 am on December 14, 2021. Three printed copies and a jump drive with a pdf copy shall be delivered to:

City of Wausau – Engineering
City Hall
407 Grant St
Wausau, WI 54403

The review committee will be made up of the Water Operations Superintendent, Water Distribution Supervisor and Director of Public Works & Utilities. The following items will be considered in the selection of a firm:

- ❖ List of key personnel involved in the proposal
- ❖ Examples of similar previously completed projects
- ❖ Consultant's scope of services description and timeline
- ❖ Fee schedule
- ❖ Page Limit – 24 pages total

VII. Statement of Intent

The utility believes it is important to identify concerns and communicate to all interested parties. The work outlined in this request is based on the minimum amount of data collection and review the utility feels is appropriate to complete a usable final report deliverable. Each firm should feel free to propose any additional work they feel will be required to ensure an adequate proposal and establish a thorough scope of services. The final goal of the utility is to have a final CCT Study report approved by the WDNR.

VIII. Point of Contact

The following is the point of contact for necessary information:

Eric Lindman, P.E
City of Wausau – Director of Public Works & Utilities
407 Grant St
Wausau, WI 54403
715-261-6740
eric.lindman@ci.wausau.wi.us

THE CITY OF WAUSAU RESERVES THE RIGHT TO REJECT ANY AND ALL PROPOSALS

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
101 S. Webster Street
Box 7921
Madison WI 53707-7921

Tony Evers, Governor
Preston Cole, Secretary
Telephone: 608-266-2621
Toll Free: 1-888-936-7463
TTY Access via relay: 711



September 22, 2021

Ms. Leslie Kremer – City Clerk Wausau Waterworks
407 Grant Street
Wausau, WI 54403

PWSID: 73701023
MC System- Marathon County

SUBJECT: Department Modification of Optimal Corrosion Control Treatment Determination

Dear Ms. Leslie Kremer,

The Department acknowledges receipt of a proposed pilot testing protocol for the new City of Wausau (Wausau) Water Treatment Facility (WTF), which included evaluation of three different corrosion control treatment (CCT) strategies in an effort to optimize CCT system wide. Based on Wausau's historical lead and copper monitoring results, water system infrastructure/materials, and/or water quality parameters (WQPs), the Department is in agreement that lead and copper concentrations may not be minimized to the greatest extent possible in accordance with section NR 809.04(59) Wis. Adm. Code. After further discussion, it was agreed that while Wausau's CCT may not be optimized and an updated CCT Study effort should be completed – it would be best to wait until the new WTF is nearing completion and the improved entry point water quality can be utilized for testing the different CCT strategies.

Given the upcoming improvements and changes in source water quality, from the existing WTF to the new WTF, there is potential for changes in the rate of lead and copper corrosion throughout the distribution system. A demonstrative CCT Study utilizing harvested lead service lines (LSLs) will provide valuable insight into potential impacts from the change in source water quality, the effectiveness of the existing CCT, as well as evaluation of other CCT technologies that may have the ability to minimize lead and copper concentrations more effectively. Understanding it takes upwards of 6-12 months to design, harvest LSLs, build and condition a demonstrative pipe loop apparatus, it would be advantageous to begin the CCT Study at this time and condition the LSL pipe rig using the existing WTF water quality. As a result, the Department is modifying any previous determinations of optimal CCT for Wausau in accordance with s. NR 809.543(9), Wis. Adm. Code. **Wausau is hereby required to complete a demonstrative CCT Study, within 18 months, and submit a report to the Department no later than March 22nd, 2023, recommending optimal CCT.**

As stated, a demonstrative CCT Study requires a system to demonstrate through use of pipe-loops or other similar technologies that a given treatment will be effective in their system. Additionally, a CCT Study includes a thorough evaluation of distribution system materials (water mains, service connections, and service lines including: lead goosenecks, lead services, and galvanized pipe formerly downstream of lead) and premise plumbing (lead piping and copper with lead solder), an evaluation of current CCT efficacy in minimizing lead and copper concentrations in the drinking water, if applicable, consideration of other treatment options that may be more effective at reducing lead and copper, and an evaluation of WQPs that can impact lead and copper releases and CCT efficacy.

Note that an evaluation of the corrosivity of the water alone is not a substantial enough analysis to determine the likelihood of lead and copper release and whether corrosion control is optimized. The Department strongly recommends using EPA's Guidance: *Optimal Corrosion Control Treatment Evaluation Technical Guidance for Primacy Agencies and Public Water Systems* (online at <https://www.epa.gov/sites/production/files/2016-03/documents/occtmarch2016.pdf>). An additional Department resource, *Components of a Corrosion Control Study*, has been enclosed for your reference.

As part of your CCT Study your system must conduct 'baseline' sequential sampling at four (4) sites. These sampling results will be used to evaluate service line materials, CCT efficacy as well as provide lead and copper profile concentrations [s. NR 809.543(4)(b), Wis. Adm. Code]. **Sequential sampling must be conducted by October 31st, 2021, or between June 1st and September 30th, 2022.**

Sequential sampling results must include two 125 mL sample, and twelve additional 1-liter samples (for a total of 14 samples) from a single-family residence with a full lead service line. The intent is to continue using these sites for sequential sampling following the implementation of CCT to track optimization progress over time. The frequency of sequential sampling at these sites following CCT installation is anticipated to be an additional 1-2 times until optimization has been demonstrated.

Following submittal of the CCT Study and recommendation of an optimal CCT, the Department will either approve or assign CCT in accordance with s. NR 809.543(4), Wis. Adm. Code. This treatment must be installed within 24 months of the date of the Departments designation. As a result of the optimal CCT Modification, your system does not have lead and copper compliance monitoring requirements until after you have installed the optimal CCT that the Department assigns. Following installation of optimal CCT, you will be provided with additional information and notified in writing of your upcoming compliance monitoring requirements.

If you would like to have a follow up discussion with the Department regarding these requirements, please contact your DNR Representative, Jordan Lisowe at jordan.lisowe@wisconsin.gov or by phone at (715) 315-8094, to set up a date and time for a conference call. Your continued efforts to maintain a safe drinking water system are greatly appreciated.

Sincerely,



Brendon Peppard
Corrosion Control Engineer Public Water Engineering Section
Drinking Water and Groundwater Program 608-575-6162

cc:

Eric Lindman – Director of Public Works, City of Wausau
Scott Boers – Wausau Waterworks
Jordan Lisowe – DNR, Wisconsin Rapids
Troy Stapelmann – DNR, Eau Claire
Ann Hirekatur – Lead and Copper Rule Coordinator, DNR, Madison
Colin Sinclair – Lead and Copper Rule Specialist, DNR, Madison
Adam DeWeese – Public Water Supply Section Chief, DNR, Madison
Brad Siefker – Public Water Plan Review Engineer, DNR, Madison

CORROSION CONTROL TREATMENT STUDY

Components of a Desktop and Demonstrative Corrosion Control Treatment Study



The purpose of this document is to serve as a reference for systems required to conduct a Corrosion Control Treatment Study and outlines the differences between *Desktop* and *Demonstrative* studies. This may **not** encompass all the content necessary for a Corrosion Control Study but serves to highlight some of the major components and expectations for each study type. Each system's study components will depend on system specifics. Refer to the EPA's *Optimal Corrosion Control Treatment Evaluation Technical Guidance for Primacy Agencies and Public Water Systems* for additional information.

Components of a CCT Study May Include:

- 1) Evaluation of the efficacy of all treatments described in s. NR 809.543(3), as follows:
 - a. Alkalinity and pH adjustment.
 - b. Calcium hardness adjustment.
 - c. The addition of a phosphate or silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test samples.
- 2) For demonstrative studies systems should:
 - a. Evaluate each of the corrosion control treatments listed above using either pipe rig or loop tests, metal coupon tests, partial-system tests (see page 13 *Corrosion Control Study – Demonstration Study Types*).
 - b. Collect water quality data before *and* after the evaluation of a given treatment; the list of applicable WQPs will be discussed further in later correspondence.
 - c. Recommendation for implementation of CCT that minimizes lead and copper at consumer's taps based a demonstrative study conducted using your system's water.
- 3) For desktop studies systems should:
 - a. Evaluate raw, entry point, and distribution system water quality information for the determination of key water quality parameters and their potential impacts of water quality on lead and copper release and treatability.
Note: This is not just a determination of the corrosivity of water, but an evaluation that considers all aspects of water quality and other non-corrosion control treatments.
 - b. Determine primary causes of elevated lead and/or copper: review materials inventories to determine primary sources of lead and copper in drinking water as well as other materials which may contribute to lead and copper releases (i.e., galvanized services/plumbing, brass fixtures, etc.).
 - c. Review customer complaint history to identify potential water quality issues that may be contributing to lead and/or copper releases.
 - d. Discuss multiple corrosion control treatment types and how the selected treatment and proposed dosing aligns with EPA guidance. Note that some treatment types may require piloting before the Department can approve treatment implementation.

- e. In cases where blended phosphates are selected, discussion of the blend percentage and justification of polyphosphate in the system should be addressed.
Note: A survey of analogous treatments at other systems will not be accepted.
- 4) Data and documentation collected during the study including:
 - a. Water Quality Parameters impacted by given treatments.
 - b. Identification of all chemical and/or physical constraints of the proposed treatment.
 - c. Evaluation of the treatment's effect to other water quality treatment processes.
 - d. For a detailed list, see Exhibits 4.3, 4.4, 4.5, 4.6, and 4.8 in the OCCT Guidance.
- 5) Proposed doses and treatment chemicals that will be used to reduced lead and copper at consumer's taps. Plan Review is required for any treatment changes.
- 6) A detailed schedule of the System's plan/timeline for treatment start-up.
- 7) See table *Desktop Study vs. Demonstrative Study Comparisons* (see page 13)

Desktop Study vs. Demonstrative Study Comparison		
Corrosion Control Study Content	Desktop Study	Demonstrative Study
Evaluate Raw, Entry Point, and Distribution system water quality parameters and how the various parameters relate to corrosion control.	✓	✓
Conduct profile sampling to determine efficacy of current Corrosion Control Treatment and generate a baseline for any proposed changes.	✓	✓
Identify causes of elevated lead and copper in the system and include an inventory of plumbing materials in the system	✓	✓
Evaluate Multiple Corrosion Control Treatment types including but not limited to phosphate addition, silicate addition, and pH adjustment. ¹	✓	✓
Identify chemical and physical constraints associated with all examined Corrosion Control Treatment types and substantiate all decisions and constraints with data and documentation.	✓	✓
Evaluate distribution system maintenance and flushing programs; determine how level of distribution system cleanliness may be contributing to lead and copper issues.	✓	✓
Conduct Pilot Scale testing to evaluate and substantiate corrosion control treatment constraints and determine the effect proposed treatments will have on system water quality.	Not Required ²	✓
Conduct Pipe Scale Analysis to determine effectiveness of existing corrosion control treatment.	Not Required ²	Not Required ²
Operate a Pipe Loop to evaluate multiple Corrosion Control Treatments over an extended period of time with harvested distribution system plumbing materials to determine potential impacts a corrosion control treatment change could have on existing plumbing.	Not Required ²	✓
Suggest corrosion control treatment dose, and timeline for implementation in final Corrosion Control Study submitted to Department for evaluation. ¹	✓	✓

¹ During evaluation and study of any blended phosphate or silicate products, which have the potential to sequester lead and copper, substantiation of the blend percentage and product will be required if proposed for Corrosion Control Treatment.

² These items are not required for completion of their respective Corrosion Control Studies; however, they may provide significantly more information during treatment evaluations and allow for increased confidence in Corrosion Control Treatment determinations.

Corrosion Control Study – Demonstrative Study Types

The description below are purely informational. A Corrosion Control Study must be tailored to meet the needs of each specific water system and will depend on a number of different variables including sources of lead and copper, source water, and existing treatment in place.

Water system's that will be conducting a Corrosion Control Study are advised to contact a consultant and/or treatment supplier regarding the proper construction, maintenance, and situational use of the proposed demonstration study types. It is also strongly recommended to schedule a meeting with the Department to discuss the details of a Corrosion Control Study prior to implementation.

- 1) **Pipe Loop Studies.** A pipe loop study includes development of a system constructed with excavated lead service lines installed in a flow through or recirculating system. Valves located throughout the loop allow for water to be circulated at various flow rates to simulate typical use. Pipe loops may require between 3 and 9 months to develop scales consistent with the water system. Lead and/or copper samples should be taken monthly until lead and/or copper level changes are less than or equal to 5%, to ensure scale stabilization. Small scale treatment modifications can be implemented in pipe loop configurations to determine the impact on the water system.

OR

- 2) **Coupon Analyses/Monitoring Stations.** Coupon studies and monitoring stations use samples of lead and/or copper (usually flat metal pieces) to mimic the exposure of system infrastructure to the system's drinking water. Coupon studies and monitoring stations that are maintained properly can provide information to help determine if treatment modifications installed at the station have the potential to decrease the release of lead and/or copper within the distribution system. Coupon studies and monitoring stations have limited uses in predicting exposure of lead and/or copper at consumer's taps given that "fresh" metal coupons lack the scale and treatment seen in consumer's service lines.

OR

- 3) **Scale and Solid Analysis.** Lead services excavated from the water system and opened to examine pipe scales. Scales can be examined visually, via X-ray diffraction (XRD), X-ray fluorescence (XRF), X-ray emission spectroscopy, Raman spectroscopy, inductively coupled plasma mass spectroscopy (ICP-MS) and scanning electron microscope (SEM). Elemental analysis and images of excavated pipes can provide indications about the effectiveness and nature of corrosion control and guide recommendation decisions for corrosion control recommendations.

OR

- 4) **Partial System Testing.** In hydraulically isolated areas of the distribution system, Department approved treatment modifications and accompanying monitoring for lead and/or copper and water quality parameters can help to optimize corrosion control treatment for larger systems. This partial system testing can be done in connection with a Pipe Loop Study following conditioning of pipe loops. Partial system testing should only be done in consultation with the Department, as there are substantial risks to consumers associated with modifying treatment which has not been properly tested by use of other



TO: Wausau Waterworks Commission

FROM: Eric Lindman, P.E.
Director of Public Works & Utilities

DATE: December 7, 2021

SUBJECT: Solar PIM Results – Design Concepts moving forward

The results of the two PIM's are attached for your review and discussion. Almost all comments we received came from the neighborhood with many of the comments related to aesthetics and removal of the trees. Three separate solar array sizes were looked at and presented. Each had different capital costs and each had different rates of return based on assumptions over 30 year design life.

Based on the comments from the PIM's the largest solar array was not well received by the neighborhood but the two small arrays were more acceptable by some if there was landscaping and trees were left on the property to shield the array from view of the neighbors.

There are several approval steps that would need to be completed before this project may be constructed.

1. Approval to continue with design of a solar array would be needed by the Commission. The design would include the solar array along with the landscape plan.
2. The design and final size of the array along with the ROI and capital costs would come back to the Commission for approval.
3. It is anticipated a third PIM would be held to get feedback on the concept from the public before final approval.
4. The zoning of the property would need to be changed. This would include a public hearing at Plan Commission and then approval by City Council.
5. A conditional use for the property would also be required by Plan Commission with an additional Public hearing.

Today staff is requesting approval to move ahead with a design concept of a solar array that would include keeping the trees along Bugbee Ave and creating a landscape screening plan along the east side of the property. Concepts would be brought back for final approval through the commission and then through zoning with plan commission.



A public information meeting regarding the Proposed Solar Array for the Drinking Water Treatment Facility was held at NTC on Wednesday, August 31, 2021 at 5:30 p.m.

Presenters: Eric Lindman, Tonia Westphal/Clark Dietz, Lisa Zahrt/Clark Dietz

Others Present: Mayor Rosenberg, John Robinson/Wausau Water Works Commission, Lisa Rasmussen/District 7, Sarah Watson/District 8.

Residents Present: 22

A short PowerPoint presentation was provided detailing the location, size, aesthetics and estimated power production of the solar array. Billboards were also on display showing ideas of layout and aesthetics. Lindman spoke on the history of the land purchased and the reasoning behind this location, for wellhead protection. He reiterated that none of this has been approved. Estimated cost is \$2 million and we are exploring a partnership with the WPS. We've looked at the history of partnerships with 3rd parties and they have not seemed to pencil out economically. There are other options but right now this is what we are looking at. WPS would build it, operate it and maintain it with no capital costs to the city. We would then purchase power from the NatureWise program (WPS) but it does come at a premium cost, it would cost more than just coming off the grid.

Lindman explained that we are looking at things that could possibly be coming in the future, such as carbon tax that will push people to use alternative energy. We are trying to get ahead of that.

As far as aesthetics, there will be fencing as the site does need to be secured and there could also be berms, a landscaping buffer, etc.

Another Public Information Meeting will be held in 4-6 weeks.

Resident Feedback:

1. We're building a new treatment plant off of Burek. That cost was projected to be passed along and added to the water/sewer bill. Powering that new plant should've been thought about in the plans and included in the proposal right away. Wausau isn't a young community and a lot of people are on fixed incomes. Are solar panels absolutely necessary?
2. How much electricity does the current plant use compared to what is projected for the new plant? What is the cost difference for purchasing the solar power?

Lindman: If we go with the NatureWise program there is a premium cost which is

why we're trying to decide whether it's feasible to go with the NatureWise program. We don't know all of the costs yet. The current plant averages a usage of approximately 1.8 million kWh annually and the new plant, at peak capacity, would use 3 million kWh annually.

If we built this ourselves it would cost \$2 million and that cost would be passed on to the users. Right now we're estimating \$50,000-\$60,000 in savings on electrical costs. If we built this ourselves, the cost would be passed on to the users. Payback is estimated at 20+ years but that's estimated making some assumptions.

3. Why wouldn't we just continue with what we have through WPS, they just installed a high line on Burek? Lindman stated that is another viable option, that we just don't do anything. If there isn't a benefit to the rate payers, maybe it just doesn't happen. The plant will run without this solar array. The idea is long term and how to offset some power costs.
4. With the building of the new plant, they were originally told there wasn't going to be an access road off of Tierney Rd., so they wouldn't see increased traffic. Now there is a gravel access road right at the top of their driveway. Wouldn't it be better if the access road was at the end of the road?

Lindman: That can still be adjusted, that was just an option at this point. There is access off of the west side as well.

5. Looking at the aesthetics along Bugbee, the trees between Becher and Tierney will have to come down? There will be landscaping in that area as well?

Lindman: The majority of them would need to come down because of the shade they produce. Considerations for landscaping along Bugbee has been brought to the commission. It could be for Tierney as well.

6. Wausau is not a good neighbor to have. We are talking about a solar array that doesn't even power the whole plant and doesn't pay for itself. Find some land somewhere that is not smack in the middle of town. It's an eyesore and a disaster for the neighborhood. The plant has to be there, it has to go somewhere but this is over the top. He's taken pictures of buildings in Wausau and there is nothing aesthetically pleasing anywhere. Nothing is done to make things look good. Building are in disrepair.
7. Was something said about the northern end of the property being unstable? So that's not a good alternative to keep this solar array further away from the residential area?

Lindman: We ended up putting in a storm water pond and soils are not good there. Westphal added that it's more unsuitable than unstable as there is buried construction material. The nature of constructing a solar array is to drive in pylons so that would have to be over-excavated and investigated.

8. What does it cost per month to run the old plant per month? How much do we pay, you

must get a break because you use so much electricity?

Lindman: We do pay a different rate but we definitely pay higher rates during peak loads and times.

9. Has that area been rezoned?

Lindman: No, nothing has been rezoned.

10. Approximately what percent of capacity does the old plant run at?

Lindman: At about 60%.

So if the plant runs at 60% capacity and the solar array can generate approximately 1.2 million kWh, how much closer does that bring those numbers.

Lindman: It does bring it closer but the challenge is the load profile. If we're generating peak power during the day but we're not using it, we'd sell that back to WPS. Currently the tariffs with WPS is about 2.4 cents per kWh.

11. Looking into the future if the new plant is expected to last 50 years and the solar array is estimated to have a payback of 22-25 years, it starts to make more sense economically and it's good for the environment.

12. What about incorporating walking trails with trees planted?

13. When was the original plant built?

Lindman: It was built in 1961.

14. How high and visible would the panels be from Bugbee?

Zahrt: They are 12-14 feet on the high side. It would be on a tracking system so they will move with the sun.

15. If WPS needs power, why don't they build this themselves somewhere?

Lindman: They are building a lot of these in other areas. That's how they came up with this NatureWise program. Right now, we could purchase the NatureWise program but to pay additional for power just doesn't make sense. We anticipate the arrays to have a 30 year life span. The panels at that point may have to be replaced and there will be maintenance on those. I don't speak for WPS but they have relayed that with the NatureWise program they anticipate the premiums to go down over time.

As they get rid of their coal-fire plants and do more wind/solar, this is how they will power the majority of their grid. One thing we don't want to get into, which WPS has talked about, is a carbon tax in the future. WPS is proposing their next rate increase in

2023. We're just looking at ways to diversify what we have to use.

16. What happens in winter when there is less light and the panels might get snowed under?

Lindman: They will generate less, they have done those calculations.

Westphal: Because of less sunshine and the hours at nighttime during the winter, no matter what size you put for this array, it cannot power the entire plant because the plant still runs all night long and the solar array doesn't. Storage technology is happening but it's not affordable to put a gigantic battery on site yet, maybe down the road.

17. So 5 years from now, will the technology that's solar based be that much better? If we kick the can down the road 5 years, left the trees and build the solar array with new technology, maybe it would have a battery option but we've spent our money on the old technology.

Westphal: solar panel technology has advanced so much in the last two decades, the cost of the panel has come down up to 85% in some areas. The prediction by people that are experts is that panel technology is not going to significantly improve over the next couple of decades. So even if you were to change out panels that were broken, you're not going to get a much higher production from what's placed there today. As far as battery technology, doing a project like this does not negate the ability to put storage in later if you choose to do that.

18. Why wouldn't the City of Wausau put the solar in a place where it's cost effective and doesn't impact so many people and they can make it as big as they want? You're trying to get something done that could be done anyplace for the same amount of money, you can have the option of making it as big as you want in 5 or 10 years and you won't have to cut trees down.

Westphal: I can't speak on behalf of City but the location is adjacent to large user of electricity (new Water Plant). That's what makes this property more appealing.

19. Are there any thoughts on downsizing the array? I'm guessing one of the peak times for the plant would be in the morning when there's not much sunlight, so is it possible to do a smaller array and leave the trees there?

Lindman: The concern about leaving the trees is the height and shading at different times of the day and we have talked about downsizing the array as well. We're just trying to zero in on capital costs. If we downsize it, there would be more room for landscaping.

20. Have we addressed any windmills or anything to supplement overnight?

Lindman: The utility has not looked into wind generation.

21. I hope you have someone that makes use of the tree if they cut them down and just doesn't throw them in the garbage.

22. How about all the wildlife in that area?

Lindman: There's not going to be excessive trucking or use of the area, it would be quiet.

23. You had mentioned that there is a possibility of purchasing carbon offsets in the future, is that what we are seeing across the country, are other municipalities having to purchase carbon offsets?

Lindman: It would be for almost everybody, WPS is talking about it now but they don't have any commitment. They are regulated by the Public Service Commission as well, but it's something that has come up recently.

24. What is carbon offsets, and who makes the final decision on this and when?

Lindman: The Utility Commission will make the final decision. Staff is working with Clark-Dietz to zero in on viability economically. We are getting feedback from the neighborhood and if this does move forward, what else needs to happen to make it palatable for the area. If it doesn't play out economically, they'll have to make a decision.

25. Basically we have no say in this? What is the timeline for this decision?

Lindman: This is your public comment period. Public comment will be provided to the Commission who will take note of it, we are hoping to bring numbers to the Commission for consideration in beginning of October and hopefully have a final decision by November at the Commission meeting, which is the 1st Tuesday of every month.

26. How can we make our voice stronger?

Lindman: All of these comments are being recorded and we will bring it to the Commission. John Robinson is in attendance and is on the Water Commission as well so he'll know too. I would recommend that you guys come to the Commission Meeting and bring your friends.

Robinson: We haven't made a decision yet, whether we build it ourselves or work with WPS or we don't build it. Those are the options we are evaluating. We are awaiting a pro forma to better understand the costs and to look at short term and long term implications to make a decision. The zoning of that property will have to go to full City Council. We are struggling with it because of the cost/benefit analysis and we've put it on hold to try to get more information before we make decisions. Once we do make a decision we still have to go to zoning, there's a lot of comments here in terms of aesthetics and those will all get weighed in at that time.

27. There's always this cost/benefit scale, it's going to cost 2/3 for something bigger or faster later on. Why in the city. Are there grids like these near homes like in other cities where there are houses and trees?

Resident: Madison has a huge one.

Resident: Right in the city?

Resident: No by their airport.

Resident: Well that's a whole different thing, we are talking about our houses are right there and a school. We are trying to make a neighborhood prettier and are paying a lot of taxes to live there and to not be heard is a bummer. What about buying some land in the country or putting it by the airport?

Lindman: We will have another public information meeting in 4 to 6 weeks.

28. Are there any sound associated with this or any mechanical sounds when they are functional?

Zahrt: There will be a transformer associated with it but that would be towards the middle of the array and you won't be able to hear anything from the road.

Resident: Is there any lighting associated with it?

Lindman: There can be, but we don't have anything that would be part of the landscaping plan. Again, that would be feedback from the neighborhood if we want/need lights.

Resident: I don't want 24/7 lights.

Lindman: Not unless the neighborhood needed additional lighting but otherwise it would only be for late night maintenance. We will send out notices for the next meeting and will have some more information, there's been a lot of questions.

29. Will there be added security on Tierney?

Lindman: we can incorporate things with that, small lighting and/or other ideas that you have.

30. I'm concerned about the removal of trees because our lot line was the end of Tierney Road and it was wooded beyond that. Over the course of 2 years, all the trees are cut down. It was just gone one day.

31. Can we get a residential group to work with you guys?

Lindman: We can try to set that up, we can get some of that feedback too and set up something like that at the next public information meeting.

32. I received a letter. Was there any other information published anywhere else.

Lindman: We did it through social media and public outreach, like we typically would do. We sent out a wide range of notices, similar to the drinking water facility. We'll do the same thing for the next meeting as well.

Michelle Weasler

From: Eric Lindman
Sent: Thursday, September 2, 2021 8:32 AM
To: Michelle Weasler
Subject: FW: [EXTERNAL] Solar Array Public Comment

Hi Michelle,

Public comment on the solar array

Eric Lindman, P.E.
Director of Public Works & Utilities
City of Wausau
407 Grant St.
Wausau, WI 54403-4783
P: 715-261-6745
C: 715-292-2606

-----Original Message-----

From: Lori Wunsch
Sent: Thursday, September 2, 2021 7:59 AM
To: Eric Lindman <Eric.Lindman@ci.wausau.wi.us>
Subject: FW: [EXTERNAL] Solar Array Public Comment

-----Original Message-----

From: Sarah Sabatke [mailto:slang13@charter.net]
Sent: Thursday, September 2, 2021 7:58 AM
To: Lori Wunsch <Lori.Wunsch@ci.wausau.wi.us>
Subject: [EXTERNAL] Solar Array Public Comment

I was not able to attend the meeting. By looking at this location on a map it appears there are a lot of trees on this lot. If there is a large loss of trees to install solar it seems to be a conflict. Not very green. Is there any spot that is already cleared that this will work?

Also, how long will it take to break even? Seems like by the time this would make any money it would be time for repairs. I would be curious to see any of the information if it could be shared.

Thank you,

Sarah Sabatke

Michelle Weasler

From: Eric Lindman
Sent: Wednesday, September 8, 2021 11:10 AM
To: Michelle Weasler
Subject: FW: [EXTERNAL] re: possible solar

Public Comment for solar. Please keep a file with all electronic/email correspondence. Thanks.

Eric Lindman, P.E.

Director of Public Works & Utilities
City of Wausau
407 Grant St.
Wausau, WI 54403-4783
P: 715-261-6745
C: 715-292-2606

From: Dustin Kraege
Sent: Wednesday, September 8, 2021 10:55 AM
To: Eric Lindman <Eric.Lindman@ci.wausau.wi.us>
Subject: FW: [EXTERNAL] re: possible solar

From: bill.mceachen@gmail.com [<mailto:bill.mceachen@gmail.com>]
Sent: Wednesday, September 1, 2021 8:31 AM
To: DG_DPW <DPW@ci.wausau.wi.us>
Subject: [EXTERNAL] re: possible solar

ref: <https://wsau.com/2021/08/31/public-information-session-held-for-proposed-solar-array-in-wausau/>

Please copy this to Mr Eric Lindman as well.

I lived in WI from 1972 thru 1980 and all of my family still does.

I worked at a sewage treatment facility in Calif for 22 years where they had a cogen facility. Now retired, I also just started up my own roof solar Aug 21 2021.

I am not familiar with your plant, but alternate power is very useful. PV panel efficiencies have really improved over the past decade.

Here when we feed back to the grid, it is kWh for kWh credit. We can monitor our production over the internet.

You should commit to planting as many trees as might be lost, and I think the software to estimate probable solar production annually is quite good now, so of course you know to do the proper payback computation which should be public knowledge. Another thing to consider would be to add some EV charging stations for the area to the site, my last employer has now added (6) in the parking lot. There might be tax incentives for that as well. Make them fast-charging (240V or higher).

For our residential system, a battery storage system was too pricey, but I think prices will go down and improvements will be seen going forward. The federal tax credit helped our costs, as the video mentioned, pursue any&all of those, and have any proposal for funds from the infrastructure bill ready to go.

The article didn't mention the capacity of the array, what would that be please (eg 180KW DC or ??)

Hopefully local residents realize the difference between the impact say of a paper mill vs the lack of odor, noise etc from a solar array.

As an aside, I would be very curious about what control/SCADA system you might be using, as that was the focus of my career. Perhaps someone might email me that basic info ?

Bill McEachen, BS,MSEE,PE
bill.mceachen@gmail.com

Michelle Weasler

From: Eric Lindman
Sent: Wednesday, September 8, 2021 11:13 AM
To: Michelle Weasler
Subject: FW: [EXTERNAL] Re: Wausau Waterworks - Solar Array PIM, Bugbee Ave. trees will be destroyed

More public comment for the file.

Eric Lindman, P.E.

Director of Public Works & Utilities
City of Wausau
407 Grant St.
Wausau, WI 54403-4783
P: 715-261-6745
C: 715-292-2606

From: Charlotte Doescher [mailto:charldash@aol.com]
Sent: Tuesday, September 7, 2021 11:12 AM
To: Eric Lindman <Eric.Lindman@ci.wausau.wi.us>; Katie Rosenberg <Katie.Rosenberg@ci.wausau.wi.us>; Lisa Rasmussen <Lisa.Rasmussen@ci.wausau.wi.us>
Cc: jlschroeder@gmail.com; pastorrob@mac.com; wfranzen@frontier.com; pastorrob@mac.com; bob.pocwau@yahoo.com; Charlotte Doescher <charldash@aol.com>
Subject: [EXTERNAL] Re: Wausau Waterworks - Solar Array PIM, Bugbee Ave. trees will be destroyed

Based on the information that was given at the last meeting, it appears that all the trees on Bugbee Ave. will be removed for the solar panels.
I am in favor of alternate energy sources, but not in a residential neighborhood, and destroying trees in the process.

Questions:

1. All of the solar panel arrays that I have seen are in remote areas and required no tree removal. There would be plenty of farmers with land available to sell that would not require tree removal and have much better sun exposure, perhaps right along a highway or busy road.
Why would you want to put solar panels in residential area, such as Bugbee Ave?
2. I just walked along Bugbee Ave and paced out 450 ft. on the North side of Bugbee Ave, my estimate is that this area has 2,250 trees.
It seems that your plan is to destroy 2,250 trees, is that correct?
3. I have pictures of the cranes that are on the north side of Bugbee Ave.
I can send these pictures to you.
It seems that these cranes and other wildlife will be disregarded as casualties in your plan?
4. It seems that the plan is to put up 12-14 ft. fencing around the solar panels, this will be unattractive and undesirable to the neighborhood.
I also feel that the glare back into residential homes is a real concern, why would you allow this?

5. There is information available that gives health issues for solar panels and then tells that normal exposure should not be a concern, but how do you know this?
Is the City of Wausau prepared to cover any future potential health issues from neighbors living right next to the solar panels you plan to expose us to?

From thesolarnerd.com

Do solar panels emit radiation? Electromagnetic fields and solar inverters

Modern electronics emit very low levels of electromagnetic (EM) fields and radiofrequency (RF) radiation. In a photovoltaic system, the solar inverter that converts direct current (DC) power from your solar panels into alternating current (AC) power is a source of EM and RF radiation.

Charlotte Doescher
1005 Bugbee Ave.
715-409-0946
charldash@aol.com

-----Original Message-----

From: Eric Lindman <Eric.Lindman@ci.wausau.wi.us>
To: Robert Weise <pastorrob@mac.com>
Cc: Katie Rosenberg <Katie.Rosenberg@ci.wausau.wi.us>; Charlotte Doescher <charldash@aol.com>; Lisa Rasmussen <Lisa.Rasmussen@ci.wausau.wi.us>; jlschroeder@gmail.com <jlschroeder@gmail.com>
Sent: Tue, Sep 7, 2021 7:41 am
Subject: RE: [EXTERNAL] Wausau Waterworks - Solar Array PIM, 2 questions

As soon as a date is selected we will let you know.

Eric Lindman, P.E.
Director of Public Works & Utilities
City of Wausau
407 Grant St.
Wausau, WI 54403-4783
P: 715-261-6745
C: 715-292-2606

From: Robert Weise [<mailto:pastorrob@mac.com>]
Sent: Friday, September 3, 2021 11:01 PM
To: Eric Lindman <Eric.Lindman@ci.wausau.wi.us>
Cc: Katie Rosenberg <Katie.Rosenberg@ci.wausau.wi.us>; Charlotte Doescher <charldash@aol.com>; Lisa Rasmussen <Lisa.Rasmussen@ci.wausau.wi.us>; jlschroeder@gmail.com
Subject: Re: [EXTERNAL] Wausau Waterworks - Solar Array PIM, 2 questions

Thanks for your responses. Can you let us know as soon as possible when the next meeting will be?

Keep Looking Up!

Rob Weise
pastorrob@mac.com

On Sep 3, 2021, at 9:07 AM, Eric Lindman <Eric.Lindman@ci.wausau.wi.us> wrote:

Hi Robert,

Based on the assumptions we are currently making related to the financing and power generation you are correct:

22-24 year payback

The majority of the trees on Bugbee would be removed and replaced with other types landscaping

Cost is about \$2 million

We are currently looking at all avenues for other funding to pay for the capital costs but nothing is in place at this time. The utility customers would pay for this through their rates. I would point out that alternative power generation is a long term cost savings measure. We are finalizing the economics and we should be able to present more definitive numbers at the next meeting.

Our street crews are working in other areas of the city but they are aware of the issues that are still on Bugbee and it is on their list for repairs.

Eric Lindman, P.E.

Director of Public Works & Utilities

City of Wausau

407 Grant St.

Wausau, WI 54403-4783

P: 715-261-6745

C: 715-292-2606

From: Robert Weise [<mailto:pastorrob@mac.com>]

Sent: Friday, September 3, 2021 8:34 AM

To: Katie Rosenberg <Katie.Rosenberg@ci.wausau.wi.us>

Cc: Charlotte Doescher <charldash@aol.com>; Lisa Rasmussen

<Lisa.Rasmussen@ci.wausau.wi.us>; Eric Lindman

<Eric.Lindman@ci.wausau.wi.us>; jlschroeder@gmail.com

Subject: Re: [EXTERNAL] Wausau Waterworks - Solar Array PIM, 2 questions

Thank you! Katie!

Eric & Katie - Couple questions...

So what I am hearing, this would be funded by tax payers money - there is no Federal Money for this project?

The trees on Bugbee would all be removed?

Cost would be 2 million and the payback would be 22-24 years?

Eric - Do you know when they are going to work on the road at Bugbee?

Thank you for all you do for the city!

Keep Looking Up!

Rob Weise

pastorrob@mac.com

Cell: 715-498-7288

<image001.png>

On Sep 2, 2021, at 11:14 AM, Katie Rosenberg <Katie.Rosenberg@ci.wausau.wi.us> wrote:

Greetings Rob.

Here's the link to the public information meeting -> <https://youtu.be/zSF3QmfYzAI>

Katie Rosenberg
Wausau Mayor
She/Her/Hers
407 Grant Street
Wausau, WI 54403
katie.rosenberg@ci.wausau.wi.us
715-261-6800

From: Robert Weise [<mailto:pastorrob@mac.com>]
Sent: Wednesday, September 1, 2021 7:14 PM
To: Katie Rosenberg <Katie.Rosenberg@ci.wausau.wi.us>
Cc: Charlotte Doescher <charldash@aol.com>; Lisa Rasmussen <Lisa.Rasmussen@ci.wausau.wi.us>; Eric Lindman <Eric.Lindman@ci.wausau.wi.us>; jlschroeder@gmail.com
Subject: Re: [EXTERNAL] Wausau Waterworks - Solar Array PIM, 2 questions

Katie - Can you confirm that they taped it and put it in YouTube?
We looked tonight and its not there. The meetings for 9/1 are there but not 8/31/21

Keep Looking Up!

Rob Weise

Cell: 715-498-7288

On Aug 30, 2021, at 3:55 PM, Katie Rosenberg <Katie.Rosenberg@ci.wausau.wi.us> wrote:

Good afternoon, everyone.

We do plan on having Pubic Access at tomorrow's public information meeting to record. You will be able to watch the replay on both cable access and YouTube.

Have a great day – and nice vacation.

Katie Rosenberg
Wausau Mayor
She/Her/Hers
407 Grant Street
Wausau, WI 54403
katie.rosenberg@ci.wausau.wi.us
715-261-6800

From: Charlotte Doescher [<mailto:charldash@aol.com>]
Sent: Sunday, August 22, 2021 3:58 PM
To: Lisa Rasmussen <Lisa.Rasmussen@ci.wausau.wi.us>; Eric Lindman <Eric.Lindman@ci.wausau.wi.us>; Katie Rosenberg <Katie.Rosenberg@ci.wausau.wi.us>
Cc: Charlotte Doescher <charldash@aol.com>; pastorrob@mac.com; jlschroeder@gmail.com
Subject: [EXTERNAL] Re: Wausau Waterworks - Solar Array PIM, 2 questions

Thank you for this information, as luck would have it, we will be in Canada on Aug 31st, at least that is the plan.
Will you be able to have a second meeting after Sept 4th?
I have talked to some neighbors who plan to attend.
My main concern is the solar panels.
Two items that I hope you cover:
1. Once installed I fear that they will reduce our property value, as they are not attractive.
Either do not install solar panels across the street from my house or tell me how I will not lose property value appeal.
2. Energy value provided by these solar panels seems small in Wisconsin, how do you justify spending any money on solar panels?
If you want solar panels, I suggest putting them on the roof of the Water plant and office building.

Charlotte Doescher
1005 Bugbee Ave.
715-409-0946
charldash@aol.com

-----Original Message-----

From: Lisa Rasmussen <Lisa.Rasmussen@ci.wausau.wi.us>
To: Mary Lebrun <mmlebrun@aol.com>; Paul Svetlik <paulsvetlik@icloud.com>; Charlotte Doescher <charldash@aol.com>
Sent: Thu, Aug 19, 2021 2:14 pm
Subject: Fw: Wausau Waterworks - Solar Array PIM

Hi Mary, Paul & Charlotte,
Sending you this update since you all are interested in the solar array near the water plant.
The meeting is coming up at the end of this month at NTC.
Mary & Paul: Can you get word out to the neighborhood group? They will also mail notices, but I feel like the sooner the better so people can plan.

Thanks,
Lisa

From: Eric Lindman
Sent: Thursday, August 19, 2021 10:53 AM
To: Dawn Herbst; Debra Ryan; James Wadinski; Lisa Rasmussen; Lou Larson; Michael Martens; Patrick Peckham; Becky McElhaney; Sarah Watson; Tom Kilian; Tom Neal; Katie Rosenberg; John Robinson; James Force; Joseph L. Gehin
Subject: Wausau Waterworks - Solar Array PIM

Alderspersons/Commission members/Mayor,

A PIM will be held at NTC on August 31, 2021, 5:30pm to provide information on the proposed viability of a solar array to be constructed at 1010 Bugbee Ave. Please find attached the public notice which will be shared as a press release and on social media. Specific notices will be mailed to residents nearby the property to be developed. The clerks office will also be posting notices for possible quorum of the Wausau Waterworks Commission and also a possible quorum of the COW. Any questions please let me know.

Eric Lindman, P.E.

Director of Public Works & Utilities
City of Wausau
407 Grant St.
Wausau, WI 54403-4783
P: 715-261-6745
C: 715-292-2606

=====
Statement of Confidentiality

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you are not the intended recipient of this email, any use, dissemination, forwarding, printing, or copying of this email is prohibited. Please notify the sender of this email of the error and delete the email.

=====
=====
Statement of Confidentiality

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you are not the intended recipient of this email, any use, dissemination, forwarding, printing, or copying of this email is prohibited. Please notify the sender of this email of the error and delete the email.

=====

Statement of Confidentiality

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed.

If you are not the intended recipient of this email, any use, dissemination, forwarding, printing, or copying of this email is prohibited. Please notify the sender of this email of the error and delete the email.

Statement of Confidentiality

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed.

If you are not the intended recipient of this email, any use, dissemination, forwarding, printing, or copying of this email is prohibited. Please notify the sender of this email of the error and delete the email.

=====

=====

Statement of Confidentiality

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed.

If you are not the intended recipient of this email, any use, dissemination, forwarding, printing, or copying of this email is prohibited. Please notify the sender of this email of the error and delete the email.

=====

Michelle Weasler

From: Eric Lindman
Sent: Thursday, November 4, 2021 3:09 PM
To: Michelle Weasler; Gina Vang
Subject: FW: [EXTERNAL] Proposed solar field

Public comment related to the solar field, please place in a file as this will be included with other written comments in the Dec 7 Commission packet.

From: Pete & Marion Sells <mrsells@charter.net>
Sent: Thursday, November 4, 2021 2:05 PM
To: Eric Lindman <Eric.Lindman@ci.wausau.wi.us>
Subject: [EXTERNAL] Proposed solar field

From: Pete & Marion Sells <mrsells@charter.net>
Date: November 4, 2021 at 1:39:56 PM CDT
To: Katie Rosenberg <mayor@ci.wausau.wi.us>
Subject: Proposed solar field



November 4, 2021

Dear Eric,

This is the view from our kitchen window. You will recognize it as the view of the East side of the new Water Treatment Facility.

In 2019 residents were notified of the plant location. The neighborhood supported the project because of the benefit to the whole community. We were assured that the City of Wausau wanted to be a good neighbor.

We were told specifically that:

- access to the plant would be off of Burek Avenue only
- there would be minimal weekly truck traffic to the site
- there would be minimal noise impact
- a security fence would be installed around the facility with landscaping
- neighborhood input would be considered

Fast forward to 2021. Informational meetings were held and blue prints were presented for a proposed solar field. The site is adjacent to the East side of the Water Treatment Facility. It borders on Bugbee Avenue and Tierney Road, both residential streets in a residential neighborhood. A significant number of trees would be removed and fencing would be installed, including an access gate on Tierney Road.

Our concerns include:

- increased truck traffic and noise in residential neighborhood
- wireless reception interference caused by the solar panels
- the proposed site had been zoned residential until recently
- loss of the green space buffer between the Water Treatment Facility and nearby homes
- loss of trees
- attractiveness and ambiance of the several block long stretch of fence
- negative impact on property values in our neighborhood

Please drive down Bugbee Avenue and Tierney Road to view the site from the residents perspective.

Our neighborhood is not the place for this solar field.

Sincerely,

Peter and Marion Sells
1721 Tierney Road
Wausau, WI

Sent from my iPad

From: [Eric Lindman](#)
To: [Gina Vang](#)
Subject: Solar Public Comment - Phone Call Minutes
Date: Tuesday, November 23, 2021 4:21:47 PM

Gina, I had a call from Peter Sells on Tierney Rd who stated he spoke with his neighbors on Tierney Rd and had some requests for consideration if the solar array were to move forward:

1. Would like a smaller array to keep the trees to the south
2. Would like to have a dirt berm on the east set back a minimum of 40ft from the road
3. The berm they would like to be about 12ft high and with plantings
4. If a fence is necessary then the fence could be placed on the west side of the berm and out of site
5. Primarily the residents along Tierney do not want to see the solar array, a visual barrier is what they would prefer

Please add this to public comment for the Dec 7 commission meeting.

Eric Lindman, P.E.

Director of Public Works & Utilities

City of Wausau

407 Grant St.

Wausau, WI 54403-4783

P: 715-261-6745

C: 715-292-2606

From: [Eric Lindman](#)
To: [Gina Vang](#)
Subject: FW: [EXTERNAL] Solar Array Public Comment
Date: Wednesday, December 1, 2021 2:10:59 PM

Public comment

Eric Lindman, P.E.

Director of Public Works & Utilities
City of Wausau
407 Grant St.
Wausau, WI 54403-4783
P: 715-261-6745
C: 715-292-2606

From: Lori Wunsch <Lori.Wunsch@ci.wausau.wi.us>
Sent: Wednesday, December 1, 2021 12:30 PM
To: Eric Lindman <Eric.Lindman@ci.wausau.wi.us>
Subject: FW: [EXTERNAL] Solar Array Public Comment

From: Dan Barth <dmbarth57@gmail.com>
Sent: Wednesday, December 1, 2021 12:17 PM
To: Lori Wunsch <Lori.Wunsch@ci.wausau.wi.us>
Subject: [EXTERNAL] Solar Array Public Comment

I applaud the city of Wausau for taking this important first step into the world of renewable energy. I am in full support of this array. I know of the opposition from some folks in the neighborhood who dislike cutting down all the trees to make room for the largest array possible because they don't want to have to see the solar panels, calling them an "eyesore". I can assure you that many other people love the looks of a well designed solar garden, especially when planted to attract pollinators like Monarch Butterflies, and would be happy to have such a solar array across the road.

As property owners we all know our rights end at our property lines, that's just a fact of life.

I hope this will be the first of many solar projects in Wausau. They seem ideally suited to the brownfields properties once remediated. I also hope Wausau will take the neighbors concerns into consideration and build the largest, possible array while leaving or planting a strip of trees around it's perimeter. Friends are better than angry neighbors as Wausau moves courageously forward.

Thank you,
Dan Barth
715-630-1949
206540 Hrebik Lane
Mosinee, WI

From: [Eric Lindman](#)
To: [Gina Vang](#)
Subject: FW: SOLAR POWER!
Date: Monday, December 6, 2021 7:51:23 AM
Importance: High

Public comment on solar.

Eric Lindman, P.E.

Director of Public Works & Utilities
City of Wausau
407 Grant St.
Wausau, WI 54403-4783
P: 715-261-6745
C: 715-292-2606

From: Lori Wunsch <Lori.Wunsch@ci.wausau.wi.us>
Sent: Monday, December 6, 2021 7:48 AM
To: Eric Lindman <Eric.Lindman@ci.wausau.wi.us>
Subject: FW: SOLAR POWER!
Importance: High

From: Mary Kay Schneider <maks1@hotmail.com>
Sent: Monday, December 6, 2021 7:24 AM
To: Wausau WaterWorks <Wausau.WaterWorks@ci.wausau.wi.us>
Cc: Lori Wunsch <Lori.Wunsch@ci.wausau.wi.us>; Katie Rosenberg <Katie.Rosenberg@ci.wausau.wi.us>; Patrick Peckham <Patrick.Peckham@ci.wausau.wi.us>
Subject: [EXTERNAL] SOLAR POWER!
Importance: High

Dear Commissioners:

Please accept this email in vigorous support to purchase the largest possible solar panels for the new water treatment plant.

As stewards and fiduciaries on behalf of the taxpayers of Wausau in this area it is incumbent upon WWofW going with the largest option, 3,230 panels so that there a savings for its taxpaying residents. \$500,000 is a huge sum, particularly when there has recently been a such dramatic, sudden increase in the cost of water to us as property owners.

Please do the right thing and invest in the largest possible solar panels. As property taxpayers we both appreciate it, and expect nothing less.

Thank you in advance for your consideration,
Mary Kay Schneider
125 Ross Avenue
Wausau

From: [Eric Lindman](#)
To: [Gina Vang](#)
Subject: FW: [EXTERNAL] Solar !
Date: Monday, December 6, 2021 8:03:24 AM

Solar public comment

Eric Lindman, P.E.

Director of Public Works & Utilities
City of Wausau
407 Grant St.
Wausau, WI 54403-4783
P: 715-261-6745
C: 715-292-2606

From: Lori Wunsch <Lori.Wunsch@ci.wausau.wi.us>
Sent: Monday, December 6, 2021 7:58 AM
To: Eric Lindman <Eric.Lindman@ci.wausau.wi.us>
Subject: FW: [EXTERNAL] Solar !

From: Susan English <beldingenglish@yahoo.com>
Sent: Saturday, December 4, 2021 11:27 PM
To: Lori Wunsch <Lori.Wunsch@ci.wausau.wi.us>
Subject: [EXTERNAL] Solar !

Attn Wausau City Council and Wausau Waterworks Commission,

I am writing prior to the 12/07/21 meeting of the City Council and Wausau Waterworks Commission.

A 45 year Wausau resident, I enthusiastically support a proposed solar system to help power Wausau's new drinking water treatment plant. Discussion amongst SES neighbors, alderman Pat Peckham, and others using solar is that the best choice to get significant savings and return on investment over the life of the system is to choose the largest (singular) option of 3,230 solar panels where savings is projected to be around \$500,000 for the city and taxpayers.

Thank you for considering my letter as you make this very wise choice bringing in solar!

Respectfully,

M. Susan English
1045 St. Austin Avenue
Wausau, WI 54403
715-212-5659
Beldingenglish@yahoo.com

[Sent from Yahoo Mail for iPad](#)







A Public information meeting regarding the Proposed Solar Array for the Drinking Water Treatment Facility was held at NTC on Wednesday, November 17, 2021 at 5:30 p.m.

Presenters: Eric Lindman, Tonia Westphal/Clark Dietz, Lisa Zahrt/Clark Dietz

Others Present: Mayor Rosenberg, John Robinson/Wausau Water Works Commissioner, Jim Force/Wausau Water Works Commissioner, Lisa Rasmussen/District 7, Sarah Watson/District 8.

Residents Present: 25

A PowerPoint Presentation was provided from RENEW Energy with Heather Allen detailing the benefits of a Solar Array via WebEx.

A PowerPoint Presentation was provided from Clark-Dietz detailing the location, options on the sizes of the arrays, and aesthetics and estimated power production of a solar array. Billboards were also on display showing ideas of layout and aesthetics.

Resident Feedback:

1. What's the noise level, does the snow need to be cleaned off, and what about dust or dirt on the arrays?

The only noise would come from the Inverters but those would be in the center of the solar arrays. There are solar panels that tilt to follow the sun, so the snow would fall off as they tilt. It doesn't need to be dusted because the rain would wash it away.

Allen: I will provide some decibel levels of inverters.

2. The noise level generated, how many decibels would that be? What happens at the end of 25-30 year of the life of the Arrays?

Allen: I don't have the decibel offhand but we can look into it. At the end of the life of the arrays, they can be replaced and could be recycled.

3. Can this solar array be placed to the North of the plant in the Village of Maine where you say it's unbuildable? How about government funds, could this be used for the cost of the solar arrays? When do we have a say in this and where would it go from here.

Westphal stated any land is usable but it's the feasibility and the cost. There were analysis completed and there were many fill materials in the area that included asphalt, concrete, and other wastes. The trees were too tall and would cause shading but we can build a smaller or medium sized array if knocking down the trees is a big concern but it would generate less power because the power .

Lindman replied we looked at using the land to the North that is in the Village of Maine but there is too much debris buried and would not allow foundations to be placed without excessive excavation and replacement of material; depth of this material is unknown. The area owned by the utility to the north is under a mining permit and there is a reclamation plan for the area. This is a long term goal for the utility beyond 10-years to reclaim the property and eliminate the mining permit. Any other use of the property would need to be approved by the Village. It is anticipated funding will be available for this project, the utility wants to get a point we have a project that is agreeable to the commission and residents and we would apply for grant funds when they become available. Comments from this evenings PIM and the previous PIM will be summarized and brought to the December 7 Commission meeting for review and discussion. The Commission will need to make a recommendation to City Council related to the size of the project. The property would also need to be rezoned which would require a public hearing at Plan Commission and also approval by City Council.

4. Where are the panels made? What if we don't go with the largest option and we choose the small or medium sized arrays, is there an option to expand it in the future?

Westphal states the panels are made elsewhere.

Lindman states we can always expand it in the future. The O&M costs over the 30-year is built into the estimates that are presented in the presentation.

Zahrt states if it is a smaller array, then the Inverters can be placed anywhere and it would not be in the center anymore as the proposed larger solar array field.

5. It seems looking at the water plant go up, now there is an admin building and a garage that went up, are there any current photos and when did you guys sneak in an admin building, this was not discussed? Can anyone come to the Commission Meeting, is it open to the public?

Lindman states on the city website, you can find the most current photos of the updates in the Wausau Water Commission packets. Updates of the projects are provided on a monthly basis at each regular scheduled commission meeting. The most current ones are from the November 2nd Commission meeting. We did not sneak in an admin building, this was in the 2018 proposal of the whole water plant facility that included the plant itself, the meter shop which has a garage to store equipment used. Anyone can come to the Wausau Water Works Commission Meeting, it's open to the public, and they meet the 1st Tuesday of the Month at City Hall at 1:30pm.

6. Rasmussen states this is why there are a couple of Council Members here, so we can hear from the residents firsthand how and what they feel about this Solar Array. The Water Commission can be provided the two alternatives (small or medium sized arrays), then they recommend to us (Council) and we can stop the project at the council.
7. A resident named Bob presented his photos of what an area looks like with a fence around it along with photos of wildlife that would not be around anymore if more trees were to be taken down. As this area was a wooded area and there were trees that are more than 100 years old. He stressed that trees and aesthetics were super important to the neighboring area of the new water plant facility.

From: [Eric Lindman](#)
To: [Gina Vang](#)
Subject: FW: [EXTERNAL] Re: Thank you
Date: Tuesday, November 23, 2021 11:09:17 AM
Attachments: [Maine Solar Noise Eval_100MW.pdf](#)

Please include this email along with the attachment.

The noise levels for the attached example are related to a 100MW array project, 100 times larger than Wausau's and noise levels are still under the 45dBA for recommended nighttime noise.

Eric Lindman, P.E.

Director of Public Works & Utilities
City of Wausau
407 Grant St.
Wausau, WI 54403-4783
P: 715-261-6745
C: 715-292-2606

From: Heather Allen <heather@renewwisconsin.org>
Sent: Thursday, November 18, 2021 10:37 AM
To: Eric Lindman <Eric.Lindman@ci.wausau.wi.us>
Subject: [EXTERNAL] Re: Thank you

Hi Eric,

Here is a PDF of my presentation - feel free to share and distribute. Thank you for the invite, I hope my info was helpful!!

The noise question is super interesting. I looked into a few references today and found lots of info some of which may or may not be useful.

[Here is a general overview of dBA level comparisons.](#) 45 dBA is around the level of a quiet library or bird calls. Most regulations limit nighttime noise to those levels and the project reviews I have seen meet or are less noisy than 45 dBA.

Noise at any solar project site will depend on how many and what types of inverters and transformers. There may or may not be any transformers in your project. Project noise can be minimized by locating this equipment in the project center or far away from noise receivers.

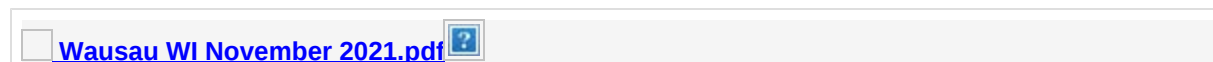
Here is [a noise analysis from a large solar farm proposal in San Diego CA](#). This analysis shows noise levels wouldn't exceed 45 dBA - a standard regulation level for nighttime noise. This is an imperfect resource because - but the project details here are quite different (much bigger and larger distances to residences).

Here is another noise analysis from a [large solar farm in Maine](#). This is a 100 MW project, approximately 100 times larger than the proposed Wausau project with the comparable increase in total inverters and other equipment. On page 19 of the document you can see

the residences (noise receivers) will not experience noise levels above 40 dBA.

[Here is some more general info on inverters](#)

This document explains that inverters are only operational in the daytime and will not make noise at night, because the sun is not shining, so there is no power to convert from DC to AC.



Best, Heather

On Thu, Nov 18, 2021 at 8:05 AM Eric Lindman <Eric.Lindman@ci.wausau.wi.us> wrote:

Hi Heather,

Thank you for the presentation and information last night. Also for sticking around and answering questions and listening to complaints. Trees and aesthetics are really the issues and it was really great to have you talk about house values and other myths about solar arrays. The noise issue, is just something we have to address with any decibel level readings you may be able to share with us.

Would it be possible for me to get a copy of your presentation to put on our website for the public?

Thanks again for your assistance!

Eric Lindman, P.E.

Director of Public Works & Utilities
City of Wausau
407 Grant St.
Wausau, WI 54403-4783
P: 715-261-6745
C: 715-292-2606

=====

Statement of Confidentiality

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed.

If you are not the intended recipient of this email, any use, dissemination, forwarding, printing, or copying of this email is prohibited. Please notify the sender of this email of the error and delete the email.

=====

2.2.1 Operational Noise Levels On-site

The Project is proposing two different small-scaled transformers as part of the 46 proposed inverter / transformer sites. The two smaller transformers consist of a 1 MVA from 200V to 12 kV and a 1 MVA from 12V to 34.5 kV. A larger transformer is proposed as part of the Project's site substation and a 20 MVA from 34.5 to 69 kV. The unshielded noise levels for these two small-scaled transformers and the larger transformer are provided below, respectively (*Source: National Electric Manufactures Association (NEMA) Publication No. TR 1-1993*):

1. 1 MVA from 200V to 12 kV - guaranteed 58 dBA @ 5 feet
2. 1 MVA from 12V to 34.5 kV - guaranteed 58 dBA @ 5 feet
3. 20 MVA from 34.5 to 69 kV - guaranteed 71 dBA @ 5 feet

As mention above, there will be up to 46 locations throughout the site with an inverter along with a small transformer. The proposed Satcon PowerGate Plus 1 MW Commercial Solar PV Inverter, or equivalent, has an unshielded noise rating of less than 65 dBA at 5 feet (*Source: Satcon PowerGate Specifications, 2009*). The NEMA test results for transformers and the proposed Satcon inverters manufacturer's specifications are provided as **Attachment A** of this report.

Based upon the Project site layout and the adjacent property zoning two potential impacts may occur. The first potential impact is located along the western property line where the transformer/inverter locations are 60 feet from the property line. The second potential impact is located along the southern and eastern property lines where the site Substation and the transformer/inverter locations could combine to create a cumulative impact. All other proposed pieces of equipment on the site are located farther from the property line and no impacts are anticipated. The two worst case scenarios were analyzed separately below to determine if impacts would occur and if additional analysis of more pieces of equipment is warranted and if any mitigation measures will be required.

Transformer and Inverter Noise Levels

The worst case property line noise levels will occur where a transformer/inverter location is 186 feet from the western property in the fixed array configuration which is zoned S-92 and has a nighttime property line standard of 45 dBA. Under the tracker array configuration the transformer/inverters are located over 400 feet from the nearest property line. The location and relationship to the western property line for the fixed array configuration is shown in Figure 2-C below. The two noise levels of 58 dBA for the transformer and 65 dBA for the inverter were combined and propagated out to the western property line without any shielding. The results of the propagated noise levels are shown in Table 2-2.

Figure 2-C: Worst Case Property Line Orientation (Western PL)

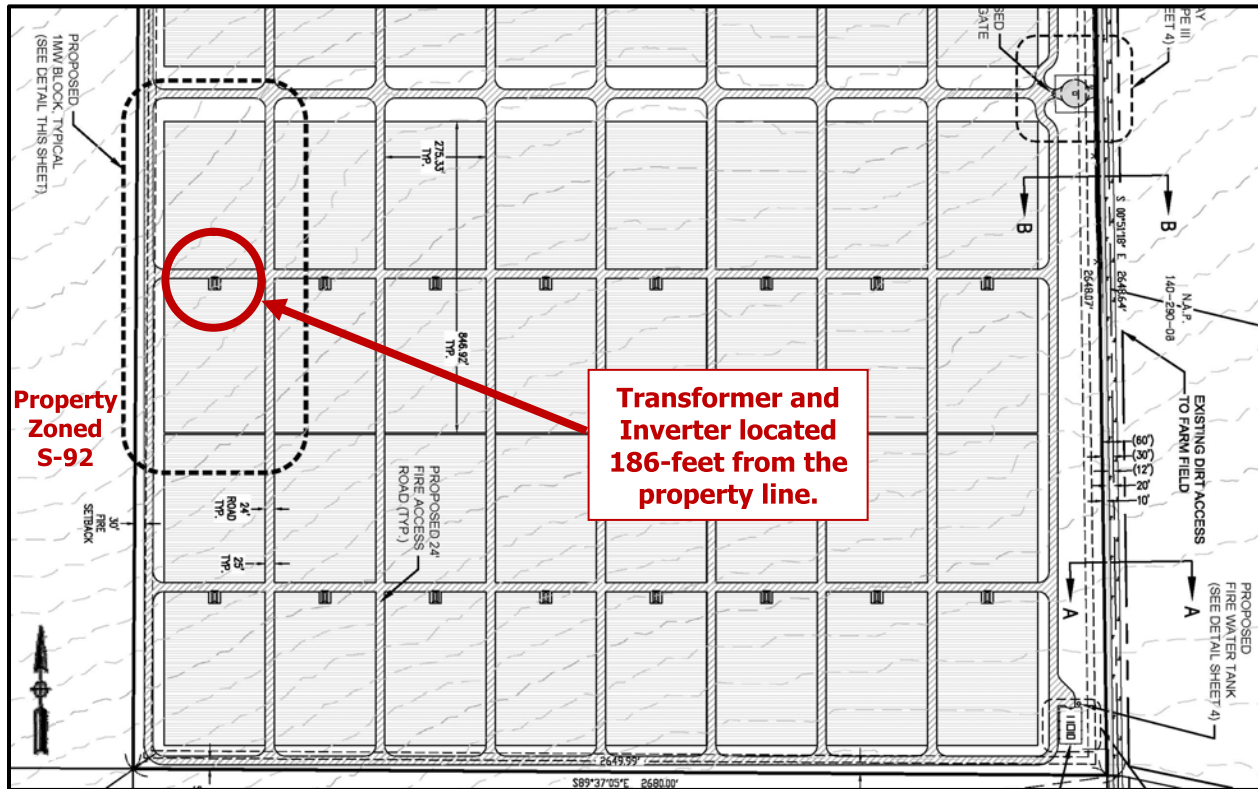


Table 2-2: Transformer/Inverter Noise Levels – Nearest Property Line

Source	Noise Level @ 5-Feet (dBA) ¹	Distance to Nearest Property Line (Feet)	Noise Reduction due to distance (dBA)	Resultant Noise Level @ Property Line (dBA)
Transformer	58.0	186	-31.4	26.6
Inverter	65.0	186	-31.4	33.6
Cumulative Noise Level @ Property Line (dBA)				34.4
¹ Noise data provided as an attachment to this report				

The combined noise level at the nearest property line was projected to be 34.4 dBA Leq and no impacts are anticipated. In fact, at a distance of 55 feet or more the transformers/inverters, unshielded, will comply with the most restrictive property line standards and no future analysis is needed for the transform/inverters. The transformers/inverters will be covered by shade structures which will further reduce the noise levels. Additionally, the transformers/inverters are located 280 feet or more from each other and will not cumulatively raise the noise levels at the nearest property line due to distance.

Substation Noise Levels

The worst case property line noise levels will occur near the southwest corner of the Project site where the site Substation is proposed. In the fixed array and track array configurations the Substation is located 105 feet from the southern property line and 145 feet from the eastern property line. A single small-scaled transformer/inverter location is between 370 feet to 580 feet from the nearest property line depending on the configuration. The location and relationships of the Substation, nearest transformer/inverter, and the southern and eastern property lines for the fixed and tracker array configurations are provided in Figure 2-D and 2-E, respectively.

Figure 2-D: Property Line Orientation (Fixed Array)

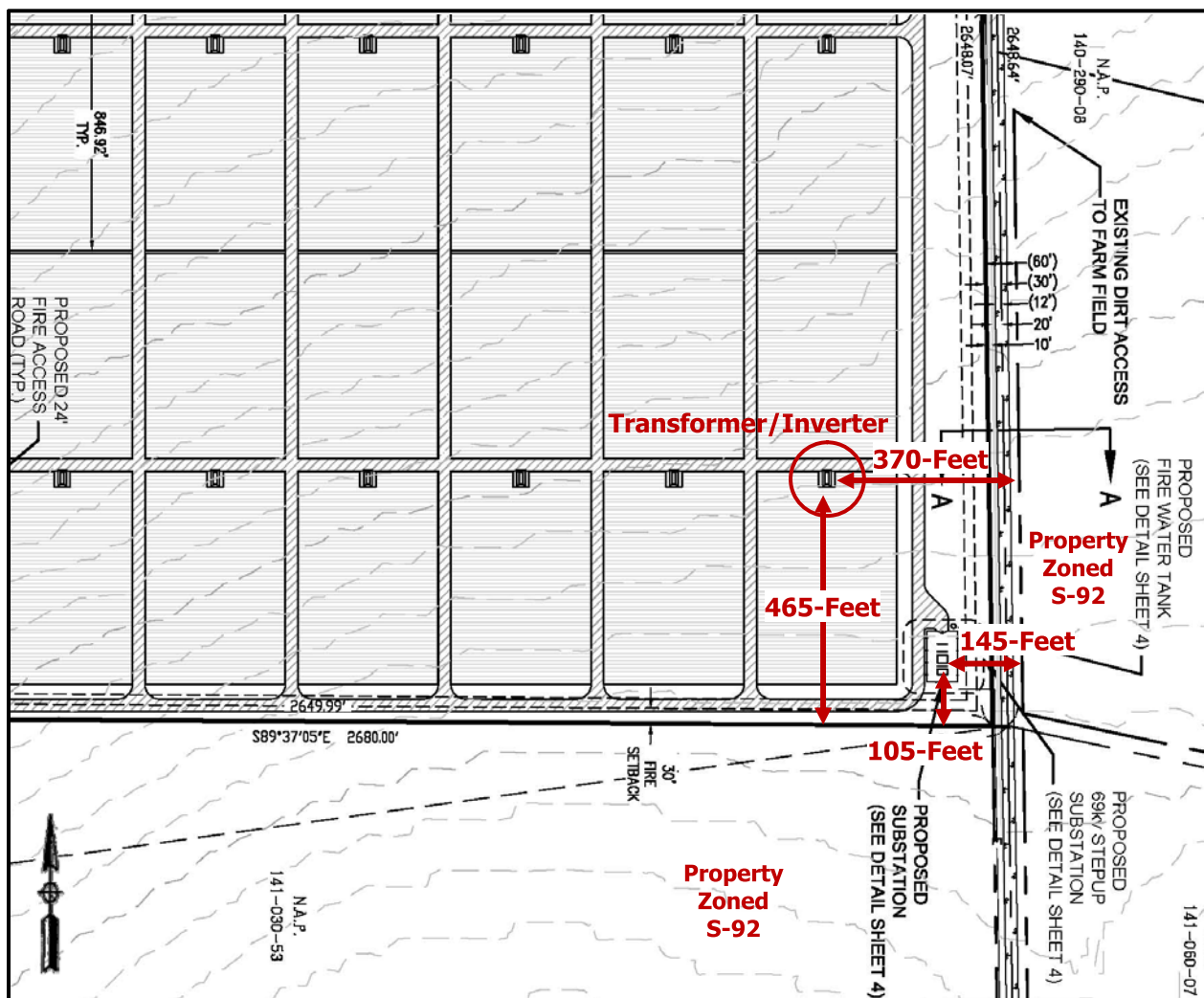
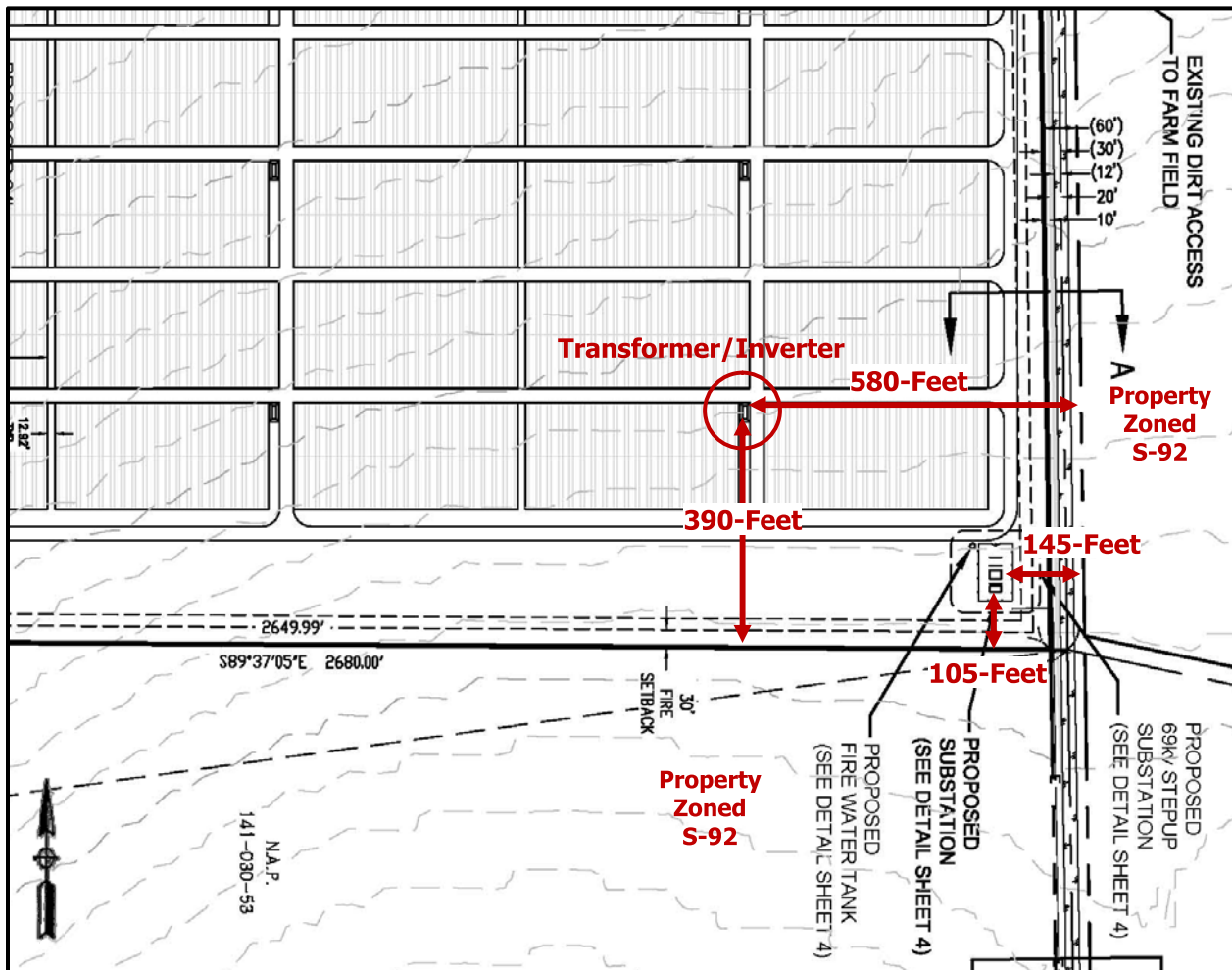


Figure 2-E: Property Line Orientation (Tracker Array)



The Substation has the highest noise level and is closest to the property lines. As can be seen in both Figures 2-D and 2-E, the worst case property line noise levels will occur at the southern property line if due to the proximity of the Project Substation. To determine the cumulative noise levels at the property line, the noise levels of 58 dBA from the transformer, 65 dBA from the inverter and 71 dBA for the larger transformer at the Substation were combined and propagated out to the nearest property line (southern) without any shielding from the proposed buildings. The results of the propagated noise levels for both the fixed and tracker array configurations are provided in Tables 2-3 and 2-4 below.

Table 2-3: Substation Property Line Noise Levels (Fixed Array)

Source	Noise Level @ 5-Feet (dBA) ¹	Distance to Nearest Property Line (Feet)	Noise Reduction due to distance (dBA)	Resultant Noise Level @ Property Line (dBA)
Transformer	58.0	465	-39.4	18.6
Inverter	65.0	465	-39.4	25.6
Substation	71.0	105	-26.4	44.6
Cumulative Noise Level @ Property Line (dBA)				44.6
¹ Noise data provided as an attachment to this report				

Table 2-4: Substation Property Line Noise Levels (Tracker Array)

Source	Noise Level @ 5-Feet (dBA) ¹	Distance to Nearest Property Line (Feet)	Noise Reduction due to distance (dBA)	Resultant Noise Level @ Property Line (dBA)
Transformer	58.0	390	-37.8	20.2
Inverter	65.0	390	-37.8	27.2
Substation	71.0	105	-26.4	44.6
Cumulative Noise Level @ Property Line (dBA)				44.6
¹ Noise data provided as an attachment to this report				

The combined noise levels at the southern property line were projected to be 44.6 dBA Leq and no impacts are anticipated from the Substation located in the southeast corner of the Project site. Therefore at a distance of 105 feet or more from the Substation in combination with the pad mounted transformer/inverters will comply with the most restrictive property line standards without shielding and no future analysis is needed. The transformers/inverters will be housed inside a concrete or steel building which will further reduce the noise levels. Additionally, all remaining small-scale transformers/inverters are located 280 feet or more from the Substation and will not cumulatively raise the noise levels at the nearest property line due to distance.

2.2.2 Corona Affect Noise Levels

The Corona Affect (Corona) is a phenomenon associated with the electrical ionization of the air that occurs near the surface of the energized conductor and suspension hardware due to very high electric field strength. This is audible power line noise that is generated from electric corona discharge, which is usually experienced as a random crackling or hissing sound. The amount of corona produced by a transmission line is a function of the voltage of the line, the diameter of the conductors, the locations of the conductors in relation to each other, the

elevation of the line above sea level, the condition of the conductors and hardware, and the local weather conditions.

Corona increases at higher elevations where the density of the atmosphere is less than at sea level. Audible noise will vary with elevation with the relationship of $X/300$ where X is the elevation of the transmission line above sea level measured in meters (EPRI 2005). Audible noise at 600 meters (~2,000 feet) in elevation will be twice the audible noise at 300 meters, all other things being equal. Typically for transmission lines of 138 kV and less, the maximum corona noise during wet weather conditions is usually less than 40 dBA at the edge of the ROW (*Source: Miguel-Mission 230 kV #2 Project, Aspen Environmental Group, 2004*). Corona typically becomes a design concern for transmission lines at 345 kV and above and is less noticeable from lines like those proposed for the Project that are operated at lower voltages.

The electric field gradient is greatest at the surface of the conductor. Large-diameter conductors have lower electric field gradients at the conductor surface and, hence, lower corona than smaller conductors. The conductors chosen for the Gen-Tie Lines were selected to have larger diameters and thus a reduced potential to create audible noise. Irregularities, such as nicks and scrapes on the conductor surface, concentrate the electric field at these locations and increase the electric field gradient and thus the resulting corona. Similarly, dust or insects on the conductor surface can cause irregularities and are a source for corona along with moisture from fog or raindrops. Corona noise is primarily audible during wet weather conditions such as fog and rain. Heavy rain will typically generate a noise level from the falling rain drops hitting the ground that will be greater than the noise generated by corona and thus mask the audible noise from the transmission line.

Corona produced by a transmission line can be reduced by changing the design of the transmission line and through the selection of the conductors and hardware used for the construction of the line. For instance the use of conductor hangers that have rounded rather than sharp edges and no protruding sharp edges will help reduce corona.

To determine the corona of the proposed Gen-Tie transmissions line, noise measurements were taken along an existing 69 kV transmission lines in the Borrego Springs area. The short-term measurements were conducted by Ldn Consulting December 4, 2009. The noise measurements were conducted along an SDGE easement south of Borrego Springs as depicted previously in Figure 1-E. Due to ambient noise sources consisting of airplanes, automobiles and birds only one-minute measurements could be taken without the results being affected by factors other than the existing 69 kV transmission lines. During the noise measurements, the crackling or hissing of the transmission lines was slightly audible and the weather conditions were dry and calm. The results of those short-term measurements are provided in Table 2-5 below.

Table 2-5: Measured Corona Noise Levels along 69 kV Lines

Location	Time	One Hour Noise Levels (dBA)					
		Leq	Lmin	Lmax	L10	L50	L90
69 kV Transmission Lines – Borrego Springs	9:35–9:36 a.m.	17.6	16.7	22.7	18.7	17.0	16.8
69 kV Transmission Lines – Borrego Springs	9:37–9:38 a.m.	18.3	17.4	27.2	19.3	18.1	17.7
Source: Ldn Consulting, Inc. December 4, 2009							

As can be seen in Table 2-5, during the dry conditions the noise levels from the Corona were very low, below 20 dBA. Typically during moist or wet conditions the Corona noise can double. This would result in a noise level of 35-37 dBA which is consistent with previous studies and modeling efforts conducted by the Electric Power Research Institute (EPRI) and CH2M Hill for the Cross Valley Transmission Line Project conducted for Southern California Edison 2008.

2.3 Conclusions

Based on the empirical data, the manufactures specifications and the distances to the property lines the unshielded cumulative noise levels from the proposed transformers/inverters and the proposed Substation were found to be below the most restrictive nighttime property line standard of 45 dBA at the S-92 zoning. No impacts are anticipated and no mitigation is required.

The measured Corona Affect noise levels were found to be below the County of San Diego's most restrictive nighttime standard of 45 dBA. This was also consistent with previously measured and modeled noise levels on transmission line projects throughout California. No impacts from the Corona Affect are anticipated from the new transmission lines associated with the Project.



RENEWABLE ENERGY IN WISCONSIN

CITY OF WAUSAU

NOVEMBER 17, 2021

HEATHER ALLEN, EXECUTIVE DIRECTOR, RENEW WISCONSIN



30 YEARS
1991-2021



RENEW
WISCONSIN

FIGHTING FOR CLEAN ENERGY NEVER GETS OLD

SUPPORT FOR:

- SOLAR
- WIND
- BIOMASS & BIOGAS
- GEOTHERMAL
- HYDROPOWER
- ELECTRIC VEHICLES
- ENERGY STORAGE
- BUILDING ELECTRIFICATION



RENEW WISCONSIN



RENEWABLE ENERGY IN WI

- Energy Costs and Trends
- Gas Price Volatility
- Communities in WI shifting to clean energy
- Energy and Health
- Utility commitments to clean energy and planned projects
- Economic benefits for homeowners and manufacturers
- Common misconceptions about solar farms
- Jobs, Jobs, Jobs!



LOCAL ADVOCATES AND COMMUNITIES LEAD THE WAY!



147 Wisconsin communities committed to 25% clean energy by 2025

Beloit, Brown County, Janesville and LaCrosse, Middleton, Menominee, Madison, Eau Claire (City and County), Fitchburg, Monona, and Green Bay have all made recent ambitious commitments to renewable energy!



PUBLIC HEALTH RISKS



COAL Mining causes ecological damage, stresses nearby communities, increases risk of mudslides, and contaminates water. Transport causes air pollution, noise, and injuries. Combustion results in significant air pollution including particulate matter, ozone, and mercury. Coal waste contains toxic metals and radioactive materials.



OIL Communities near refineries are exposed to a range of air toxics. Large-scale spills can cause injuries and fatalities, food contamination, and mental health disorders. Combustion yields a range of air pollutants as with coal. Waste may have health effects similar to those of coal waste.



GAS Conventional gas: Air pollution from power plant operations. Unconventional gas: Hydraulic fracturing is highly water intensive and can contaminate water. Communities near production sites could also be exposed to air pollution, seismic activity, and radioactivity.



NUCLEAR Each step in nuclear energy production leads to radioactive and chemical emissions and waste streams, which carry a low risk of water contamination and cancer in nearby communities. Accidents are rare but result in highly damaging radiation exposure.



BIOFUELS Combustion creates less air pollution compared to fossil fuels. Diversion of farmland can threaten nutrition and food security. Depending on the feedstock, biofuel production may result in land use changes, high water consumption, water contamination, and ecological damage.



HYDROELECTRIC Large hydro: Construction can displace vulnerable populations. Alteration of local hydrology may increase risk of infectious diseases. Dam failures can be catastrophic to downstream communities. Small hydro: Public health risks are not well-documented but assumed to be minimal.



GEOTHERMAL Relatively low public health risks from air pollution, water contamination, water use, and land use in modern systems with appropriate controls. Some systems generate air pollutants and hazardous waste.



SOLAR Public health risks are likely far lower than that of any fossil fuel, as there are no emissions during operation and no routine waste stream. Health concerns center around the management of toxic materials during manufacturing and end-of-life disposal.



WIND Public health risks are likely far lower than that of any fossil fuel, as there are no emissions during operation and no routine waste stream. Health concerns center on noise from moving gear trains and turbine blades, which can disturb sleep or contribute to stress-related disorders.



OCCUPATIONAL HEALTH RISKS

Accidents, silica and coal dust, carcinogens, heat, noise, and vibration.



Accidents, chronic musculoskeletal repetitive stress, noise, vibration, airborne hydrocarbons, and carcinogens.



Varies by drilling method; includes accidents, air-borne particulates, carcinogens, and pulmonary asthmagens and irritants.



Accidents, heat stress, leaks causing airborne carcinogens including ionizing radiation, and psychological stress.



Injuries, ultraviolet radiation, exposure to dust and other toxins, and other risks from commercial forestry.



Toxic chemical exposures, diesel fumes, drowning, electrocution, noise, and other hazards involved in construction and operation, primarily for large dams.



Injuries, silicosis, noise, and toxic chemical exposures.



Hazards typical of manufacturing industries, including injuries, noise, and toxic chemical exposures.



Hazards typical of manufacturing industries, including injuries, noise, and toxic chemical exposures.



CLIMATE RISKS

44% of global CO₂ from fuel combustion; methane, and short-lived pollutants.



35% of global CO₂ from fuel combustion; methane, and short-lived pollutants.



20% of global CO₂ from fuel combustion; methane, and short-lived pollutants.



Minor climate impact from construction and mining-related land use changes.



Climate benefit from reduced combustion emissions may be negated by fossil fuel inputs, land use changes, and other factors.



Variable climate impact from construction and operation, including significant emissions from reservoirs.



Minor climate impact from construction and operation. Open-loop systems emit relatively small amounts of CO₂ and methane.



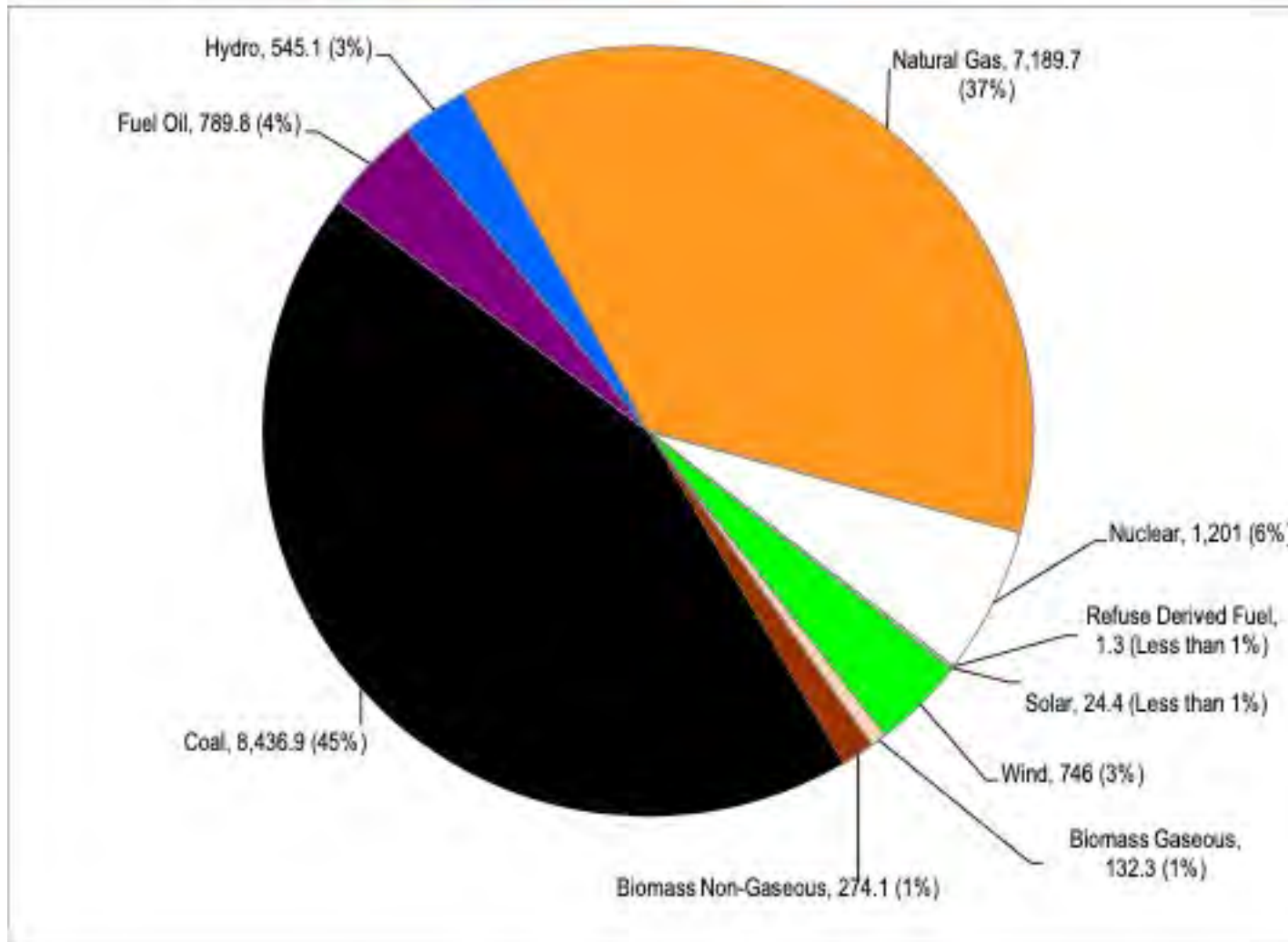
Minor climate impact from equipment manufacture.



Minor climate impact from equipment manufacture.



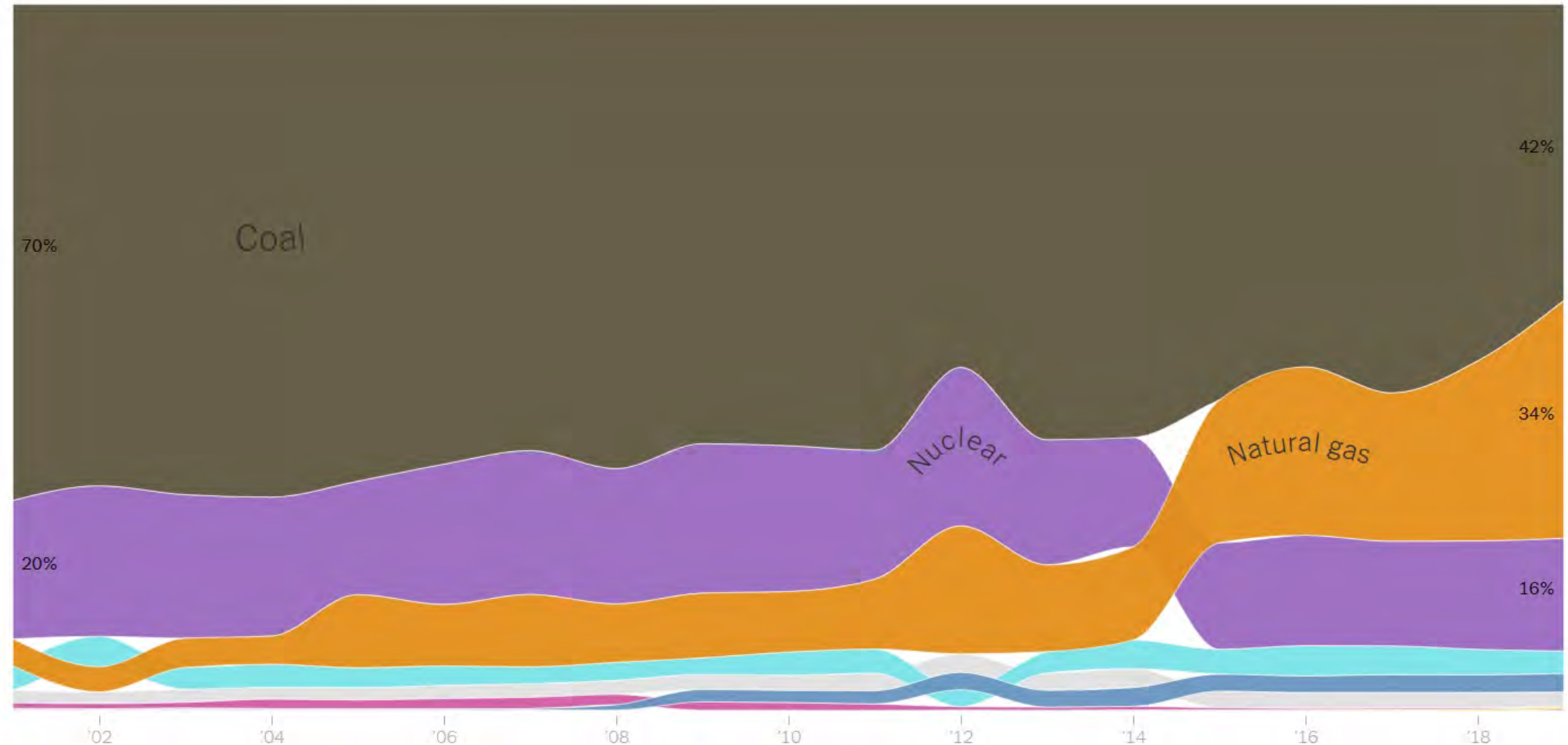
WI 2018 Electric Generation Mix



Source: Public Service
Commission Strategic
Energy Assessment

How **Wisconsin** generated electricity from 2001 to 2019

Percentage of power produced from each energy source

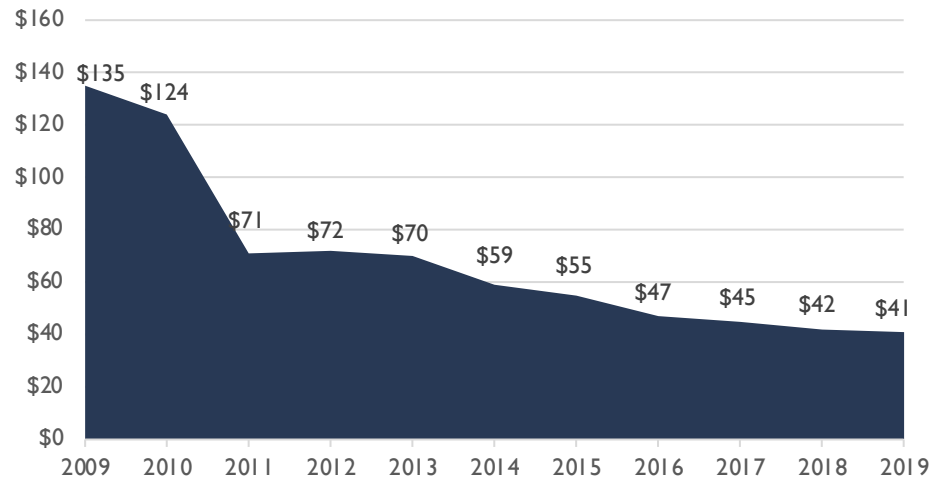


The bulk of electricity produced in Wisconsin still comes from coal,

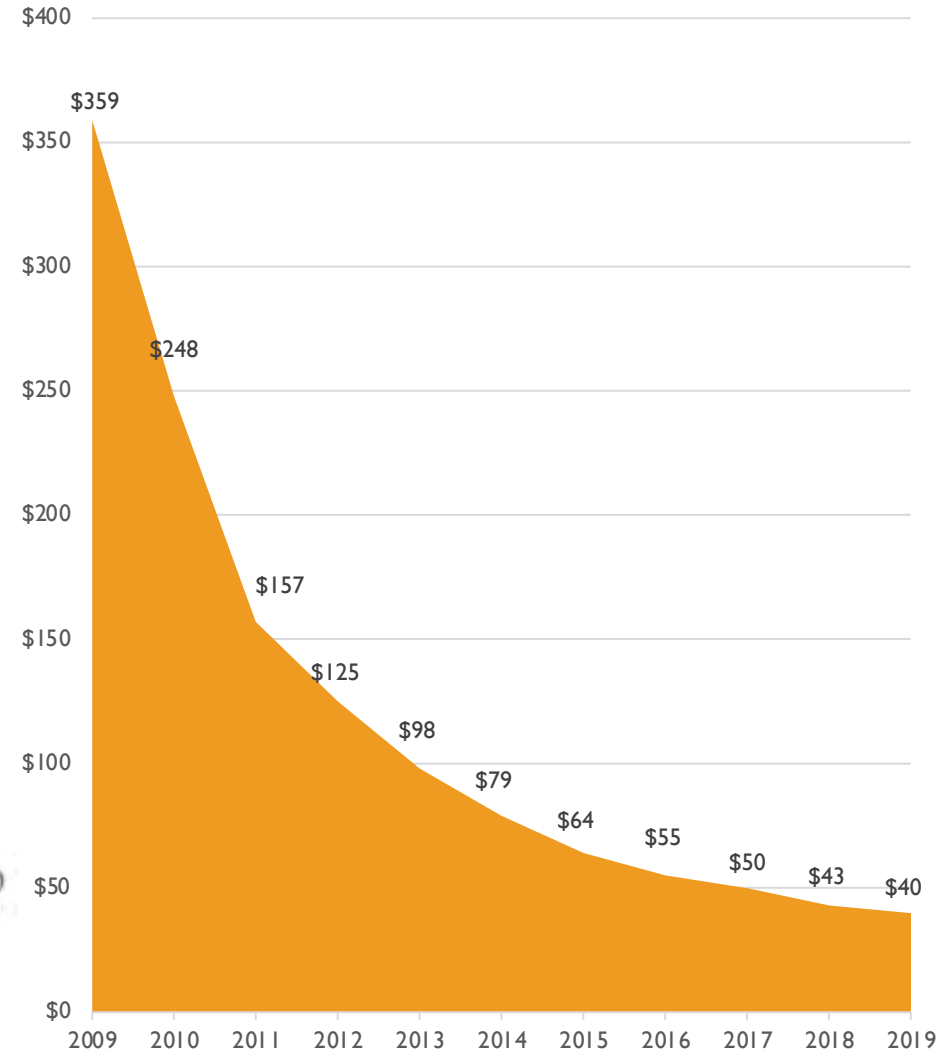
FF: 76%

Image credit: New York Times

MAJOR TREND: WIND & SOLAR PRICES HAVE DECLINED DRAMATICALLY



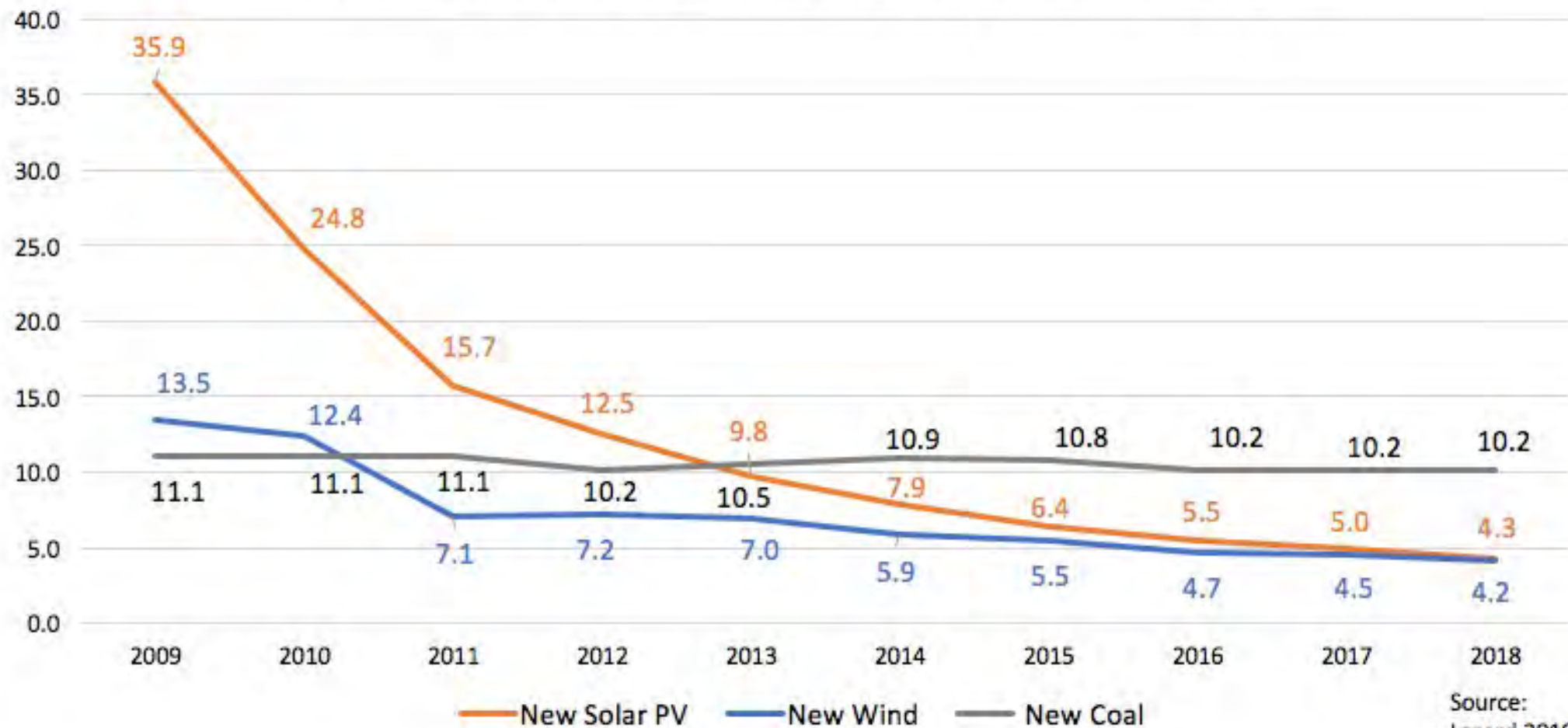
WIND: ▼ 70%



SOLAR: ▼ 89%

Historical Unsubsidized "Levelized Cost of Energy" of Utility-Scale Electric Generation (cents per kilowatt-hour)

Mean LCOE:
Cents / kWh



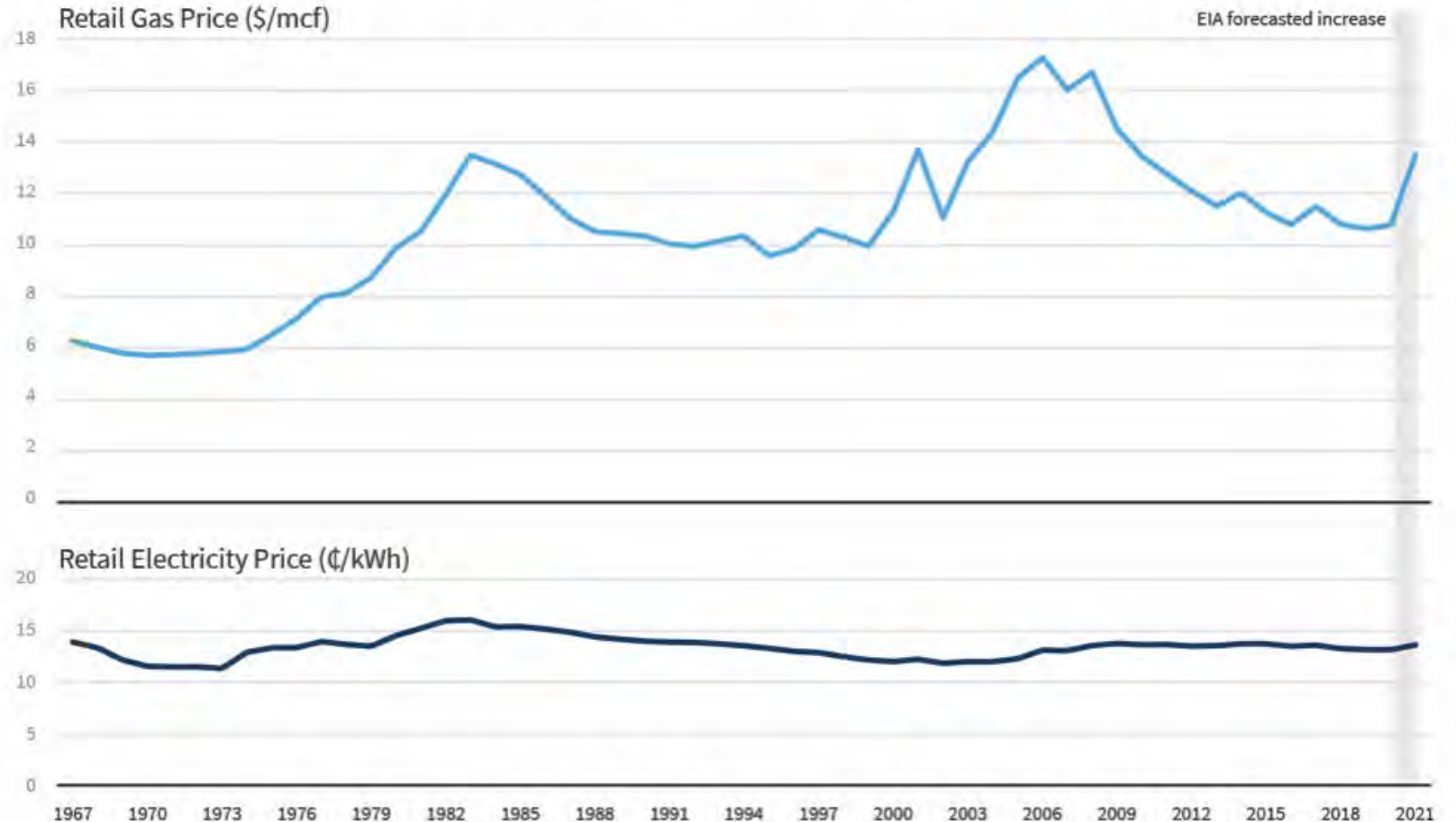
Source:
Lazard 2018

GAS PRICE VOLATILITY

HOUSEHOLDS THAT CAN
LEAST AFFORD EXPENSIVE
BILLS WILL PAY A GREATER
SHARE OF THEIR INCOME
TOWARD ENERGY COSTS
THIS WINTER DUE TO GAS
SPIKES – ROCKY
MOUNTAIN INSTITUTE

Gas prices are historically more volatile than electricity prices

HISTORICAL GAS AND ELECTRICITY RETAIL RESIDENTIAL PRICES, INFLATION-ADJUSTED



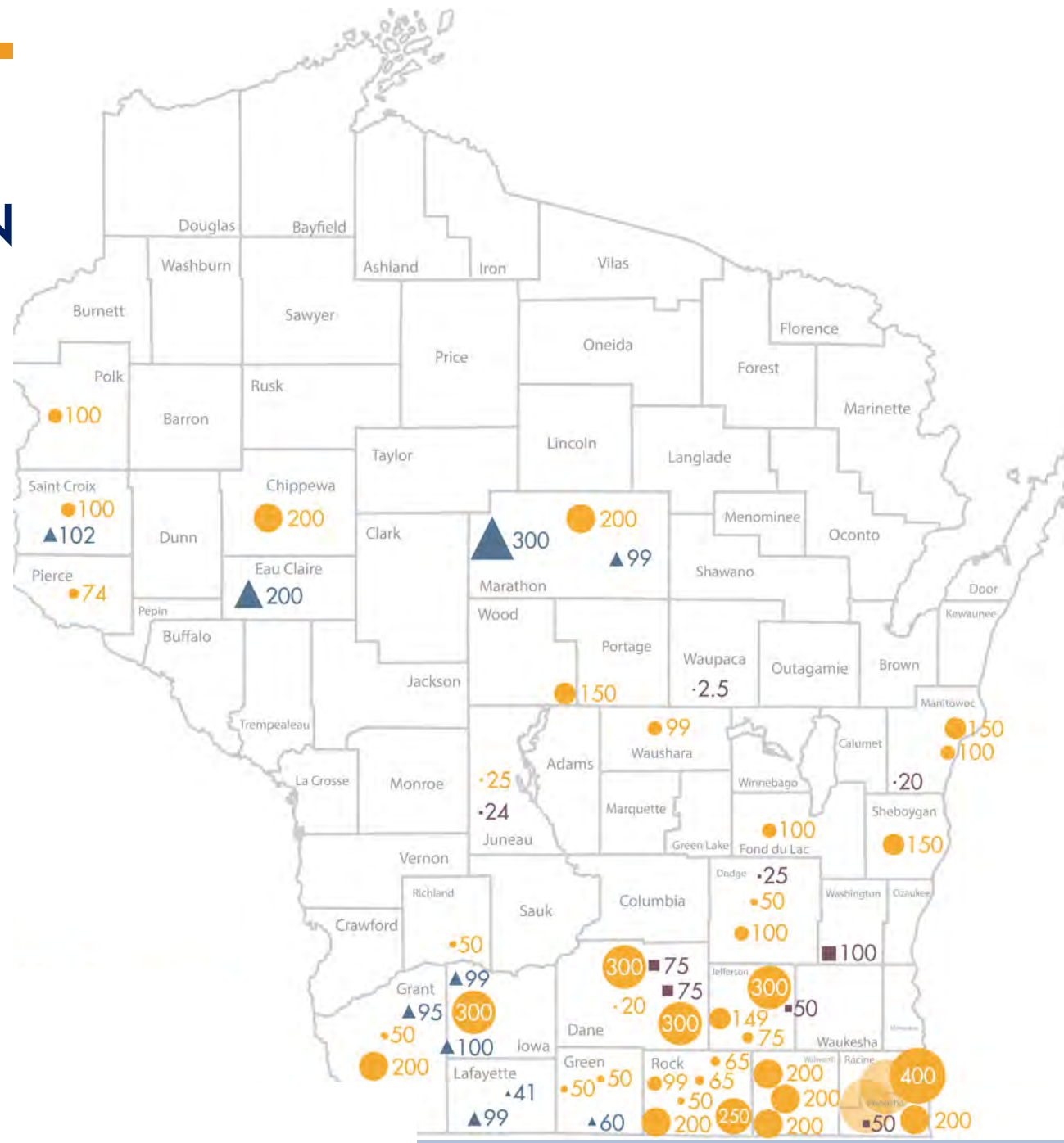
Source: RMI analysis of EIA retail gas and electricity prices and forecasts and Federal Reserve Economic Data inflation adjustment factors

MAJOR UTILITY COMMITMENTS TO RENEWABLE ENERGY BY 2050

Utility	Customers	2019 Total Renewables Mix	Stated Goal
Madison Gas and Electric (MGE)	153,000	12.3%	30% renewables by 2030 Net Zero emissions by 2050
Alliant	470,000	13.5%	33% renewables by 2024 100% CO2 reduction by 2050
Xcel Energy	241,000	24.7%	80% CO2 reduction by 2030 Carbon Free by 2050
WPPI	200,000+	15.0%	PPAs for 132 MW Wind (2018) 100 MW Solar (2021)
Wisconsin Public Service (WPS)	446,000	6.7%	80% CO2 reduction by 2050
Dairyland Power	263,000	16.1%	PPAs for 98 MW Wind (2017) 149 MW Solar (2020)
WE Energies	1.4 million	5.4%	80% CO2 reduction by 2050

© 2015 Pearson Education, Inc. or its affiliate(s). All rights reserved. Pearson Education, Inc., publishing as Pearson Benjamin Cummings, 101 Philip Drive, Assinippi Park, New York, NY 10984-2135

Under Development
2697 MW Solar
99 MW Wind
350 MW Storage

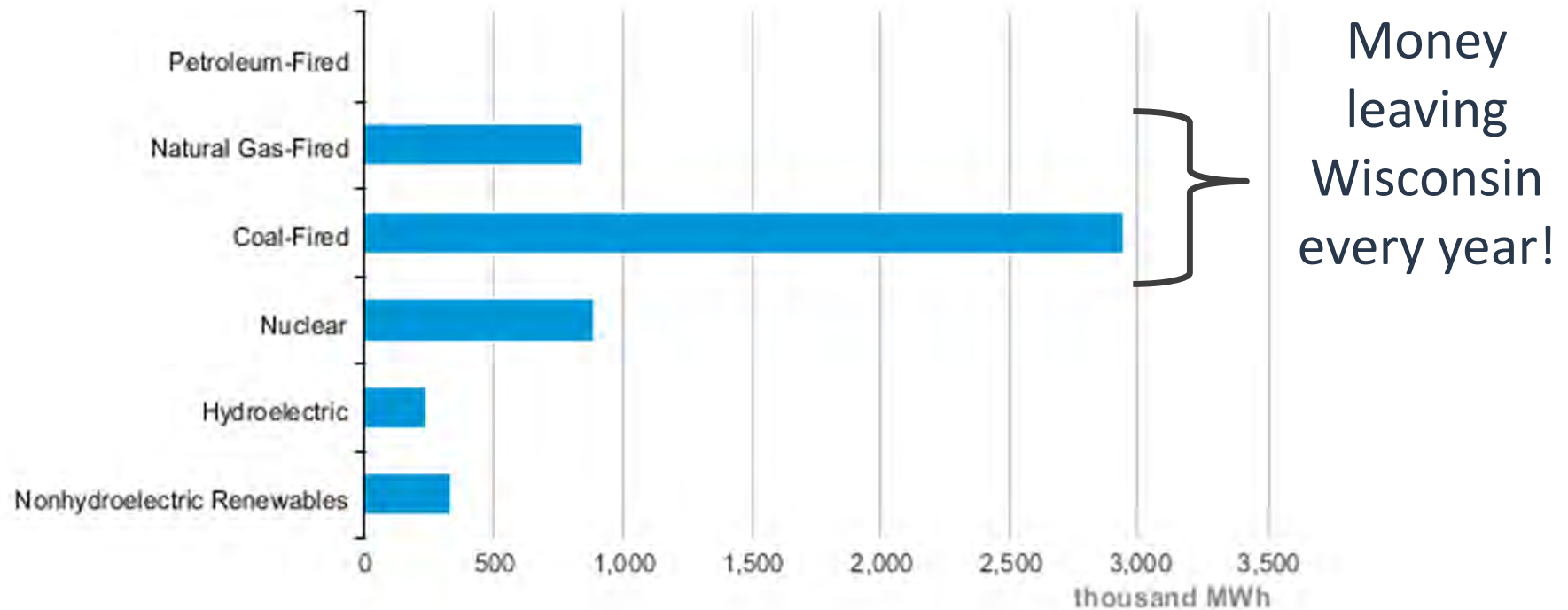


Solar Farms



More Reasons to Shift to Renewable Eenergy

Wisconsin Net Electricity Generation by Source, Dec. 2016



Home Value Increases!

Solar homes sold 20% faster and for 17% more than equivalent non-solar homes across several subdivisions (construction by different builders).

NREL (National Renewable Energy Laboratory)

In a study across six states, Berkeley National Lab found that home buyers will pay a premium for solar homes.



Lawrence Berkeley National Laboratory



CORPORATIONS WITH RENEWABLE COMMITMENTS AND WISCONSIN OPERATIONS



Hoffman Manufacturing 2019 Solar Installation

133 kW system - Arch Electric Installer

Financial Metrics			
Total Project Costs	\$220,809	PV Degradation Rate	0.5%
30-Year IRR	20.96%	Discount Rate	5%
30-Year NPV	\$398,348	Electricity Escalation Rate	3.5%
Payback Period	4.5 Years	Federal Income Tax Rate	21%
30 Year ROI	454.6%	State Income Tax Rate	7.9%





IKEA
July 2018
1.6 MW

**ROOFTOP
SOLAR IS
GROWING
TOO!**



American Family Insurance
Aug/Sept 2017
1.2 MW



Madison College
December 2018
1.85 MW

UTILITY-SCALE SOLAR PV PROJECTS

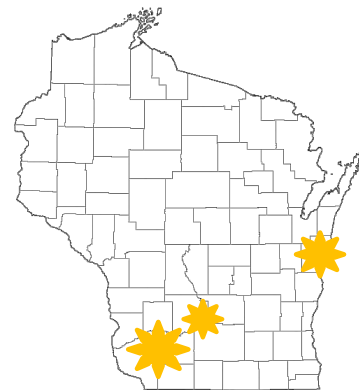


Invenergy

300 Megawatts Solar



Richland Co. Solar Farm
Savion (Tradewind)
49.9 Megawatts Solar



Two Creeks Solar, LLC

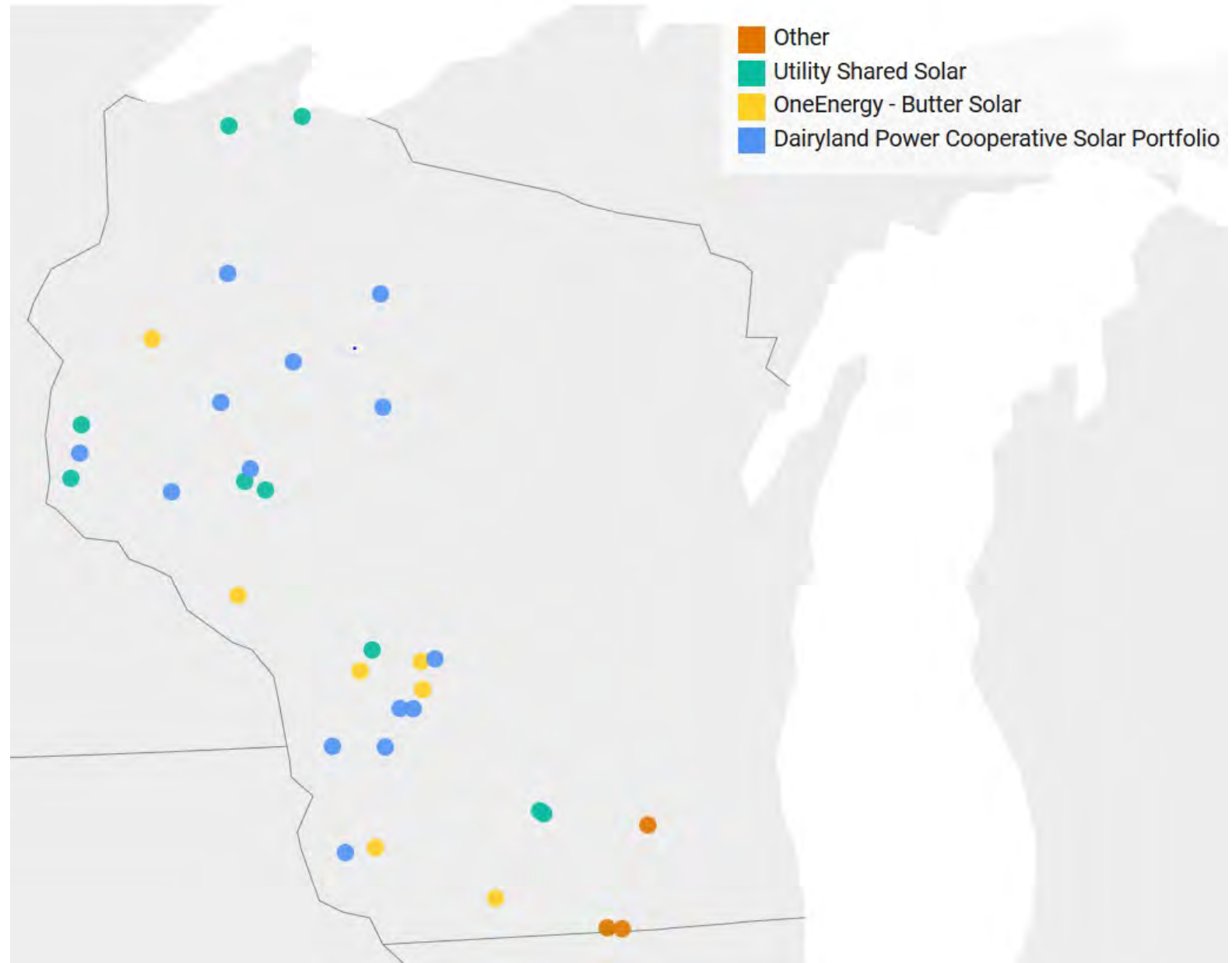


150 Megawatts Solar
(Energized)

WISCONSIN'S SMALL SOLAR FARMS

33 installations

35 MWAC
capacity

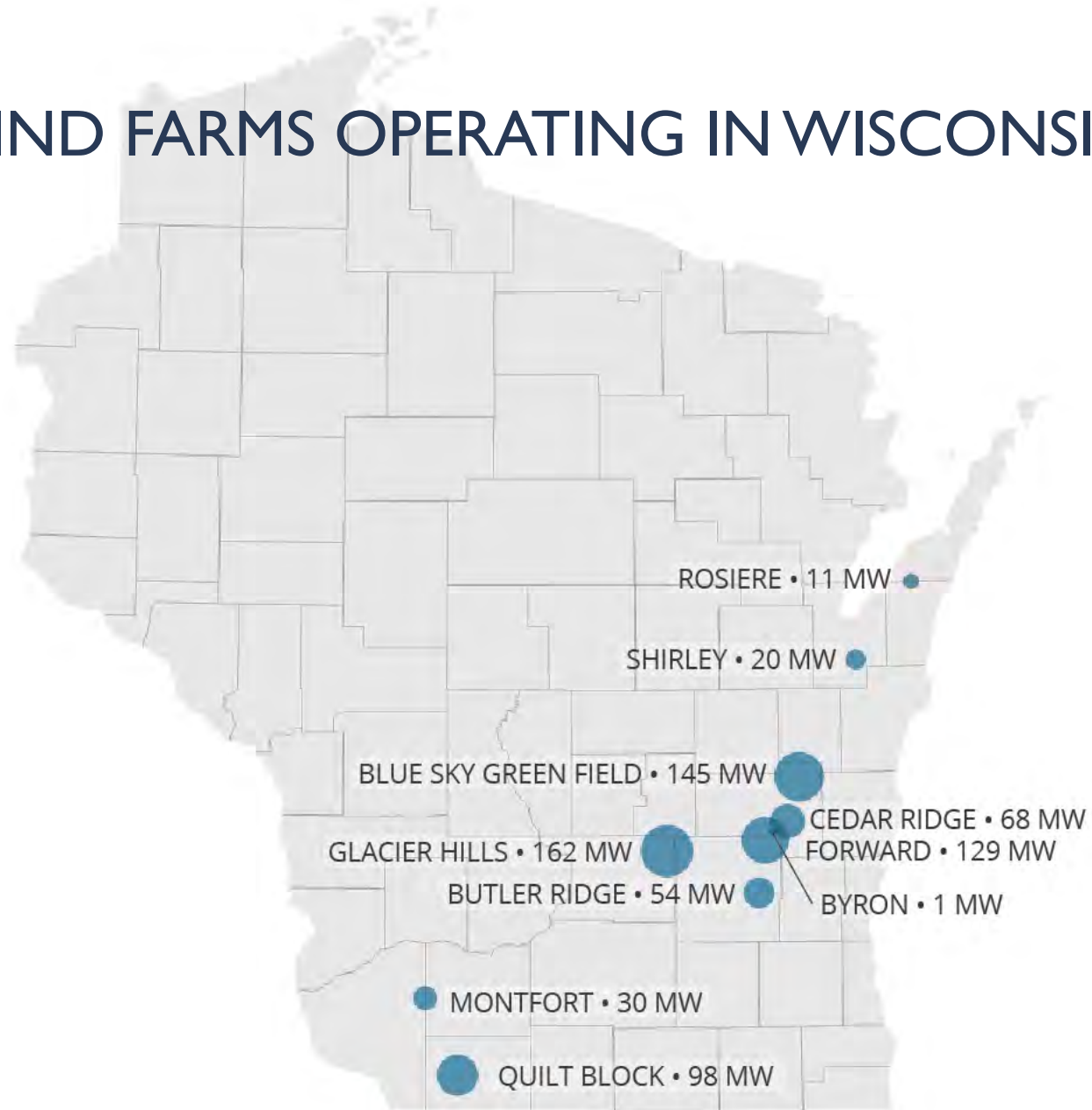


WIND TURBINES ARE MORE EFFICIENT TODAY

Large wind turbines today are both taller and have longer blades than they did 10 years ago. With taller towers, the turbines are able to access stronger and steadier wind speeds higher in the air.



WIND FARMS OPERATING IN WISCONSIN



ECONOMIC BENEFITS OF RENEWABLE ENERGY PROJECTS

Utility Local Aid Fund Formula

\$4,000 per MW annually

**\$2,333 per MW
to the County**

**\$1,667 per MW
to the Township**

TOP 5 LARGE SCALE SOLAR MYTHS – NATIONAL RENEWABLE ENERGY LABORATORY

LEARN MORE AT [HTTPS://WWW.NREL.GOV/STATE-LOCAL-TRIBAL/BLOG/POSTS/TOP-FIVE-LARGE-SCALE-SOLAR-MYTHS.HTML](https://www.nrel.gov/state-local-tribal/blog/posts/top-five-large-scale-solar-myths.html)

- 1) Solar Farms are Like Factories

- 2) Glare

- 3) Noise

<https://www.cedgreentech.com/article/electrical-noise-emissions-solar-pv-inverter-charger>

- 4) Property Values

<https://www.seia.org/research-resources/solar-property-value>

- 5) Electro-magnetic Fields

Learn more at <https://www.nrel.gov/state-local-tribal/blog/posts/top-five-large-scale-solar-myths.html>



PROPERTY VALUE IMPACT STUDY

MCLEAN COUNTY, IL AUGUST 7, 2018

PAIRED SALE ANALYSIS: SOLAR FARMS AND ADJOINING LAND

“Based upon our examination, research, and analyses of the existing solar farm uses, the surrounding areas, and an extensive market database, we have concluded that ***no consistent negative impact has occurred to adjacent property that could be attributed to proximity to the adjacent solar farm***, with regard to unit sale prices or other influential market indicators. This conclusion has been confirmed by numerous County Assessors who have also investigated this use’s potential impact.”

<https://www.mcleancountyil.gov/DocumentCenter/View/13192/Patricia-L-McGarr--Property-Value-Impact-Study?bidId=>

CLEAN ENERGY WORKERS: BRODIE, APRIL, & TIM





76,000 CLEAN
ENERGY JOBS
IN WISCONSIN

FASTEST
GROWING:

ADVANCED
TRANSPORTATION
WIND
STORAGE



RENEWABLE ENERGY IN WISCONSIN

HEATHER ALLEN, EXECUTIVE DIRECTOR, RENEW WISCONSIN





CITY OF WAUSAU
SOLE SOURCE PURCHASE JUSTIFICATION
REQUIRED FORM PURCHASE OF GOODS OR SERVICES EXCEEDING \$5,000

Purchase of goods or services for no more than \$25,000 may be made without competition when it is agreed *in advance* between the Department Head and the Finance Director. Sole source purchasing should be avoided unless it is clearly necessary and justifiable. The justification must withstand public and legislative scrutiny. The Department Head is responsible for providing written documentation justifying the valid reason to purchase from one source or that only one source is available. Sole source purchasing criteria include: urgency due to public safety, serious injury financial or other, other unusual and compelling reasons, goods or service is available from only one source and no other good or service will satisfy the City's requirements, legal services provided by an attorney, lack of acceptable bids or quotes, an alternate product or manufacturer would not be compatible with current products resulting in additional operating or maintenance costs, standardization of a specific product or manufacturer will result in a more efficient or economical operation or aesthetics, or compatibility is an overriding consideration, the purchase is from another governmental body, continuity is achieved in a phased project, the supplier or service demonstrates a unique capability not found elsewhere, the purchase is more economical to the city on the basis of time and money of proposal development.

1. Sole source purchase under \$5,000 shall be evaluated and determined by the Department Head.
2. Sole source purchase of \$5,000 to \$25,000 a formal written justification shall be forwarded to the Finance Director who will concur with the sole source or assist in locating additional competitive sources.
3. Sole source purchase exceeding \$25,000 must be approved by the Finance Committee.

-
1. Provide a detailed explanation of the good or service to be purchased and vendor.

Purchase pipe and fitting materials for 2022 reconstruction and utility projects. Pipe materials must be purchased through a supplier as it is not possible to purchase directly from the manufacturer. The supplier we use for pipe and pipe materials is Core & Main and they have indicated large order supplies are 6-7 months out for delivery.

2. Provide a brief description of the intended application for the service or goods to be purchased.

Based on the projected delivery times it is in the best interest of the utility to purchase pipe and materials for 2022 construction projects now rather than waiting for the bidding of projects. This will allow for materials to begin being made and on a schedule for delivery to start projects on time. Waiting for project bids and contract awards would delay the ordering of materials by 3-4 months.

3. State why other products or services that compete in the market will not or do not meet your needs or comply with your specifications.

Core & Main is our primary supplier for pipe and pipe materials. We would not plan to solicit quotes or bids for these materials as time is of the essence to move forward with the order. Core & Main has always provided us competitive pricing and delaying the order may result in higher prices due to higher demand in the spring months along with further delays.

4. Describe your efforts to identify other vendors to furnish the product or services.

There is only one other supplier in the area, Ferguson and we have not purchased pipe or pipe materials from them in a considerable amount of time. We do purchase some other types of materials specific to Ferguson as required. We have good competitive pricing with Core & Main as we purchase from them frequently. Dependability has also been very good through Core & Main.

5. How did you determine that the sole source vendor's price was reasonable?

Based on other market pricing and general pricing in the industry, prices we are receiving are very competitive and delivery from Core & Main has been dependable.

6. Which of the following best describes this sole source procurement? Select all that apply.

- ☐ Product or vendor is uniquely qualified with capability not found elsewhere.
- ☒ Urgency due to public safety, serious financial injury or other. (explain)
Long lead time for delivery and high risk of pricing increases on materials due to future high demand
- ☐ Lack of acceptable quotes or bids.
- ☐ Product compatibility or the standardization of a product.
- ☐ Continuation of a phased project.
- ☐ Proposal development is uneconomical.

Department: W&S Utility

Preparer: Eric Lindman

Vendor Name: Core & Main

Expected amount of purchase or contract: ESTIMATED \$200,000 depends on actual footage purchased

Department Head Signature:

Date:

Finance Director Signature:

Date:



State of Wisconsin Department of Administration
Division of Energy, Housing and Community Resources (DEHCR)



Low Income Household Water Assistance Program (LIHWAP)
PO Box 7970
Madison WI 53707-7970
heat@wisconsin.gov

CONTRACT FOR SERVICES BETWEEN THE STATE OF
WISCONSIN DEPARTMENT OF ADMINISTRATION AND

Wausau Water Works

VENDOR NAME

This Vendor Contract is entered into by and between the State of Wisconsin, Department of Administration, Division of Energy, Housing and Community Resources hereinafter the "Division", under the following terms:

1. Definitions

- a) Agency means the entity that administers LIHWAP.
- b) Department means the Wisconsin Department of Administration.
- c) Division means the Division of Energy, Housing and Community Resources.
- d) LIHWAP means the Low Income Household Water Assistance Program.
- e) LIHWAP payment includes home drinking water and wastewater benefits.
- f) Vendor means any private or public entity in the business of supplying water and/or wastewater related services to customers.
- g) WHEAP means the Wisconsin Home Energy Assistance Program.

2. The Division agrees to the following:

- a) To provide funds for LIHWAP.
- b) To assign a vendor number/business code to each Vendor after the contract is signed.
- c) To issue to a vendor a single check or Automated Clearing House (ACH) payment that includes benefits for all LIHWAP eligible households. A payment register, accessed via the secured Home Energy Plus System, precedes the check or ACH deposit. The register includes the name of the LIHWAP applicant, the account name and number, the amount(s) to be applied to each customer, and the address and county of residence of the applicant.

3. The Vendor agrees to the following:

- a) To provide water and/or wastewater services to each eligible residential household in an amount equal to the LIHWAP payment received in the current program year.
- b) To charge LIHWAP eligible households using the Vendor's normal billing process.
- c) To charge all LIHWAP eligible households the price normally charged for home drinking water and/or wastewater supplied to non-eligible households.
- d) Not to discriminate against a LIHWAP eligible household with respect to terms, deferred payment plans, credit, conditions of sale or discounts offered to other customers.
- e) To provide to the Division, upon request, with written reconciliation and confirmation that benefits have been credited appropriately to households and their services have been restored on a timely basis or disconnection status has been removed if applicable.
- f) To apply LIHWAP crisis payments identified in the Payment Register as directed by the Agency and/or Division.
- g) To post all payments to customer accounts within 3-5 business days.
- h) To clearly enter, on LIHWAP households' bill, the amount of LIHWAP payment(s) received in a manner which identifies the payment as received from the Wisconsin Low Income Household Water Assistance Program or LIHWAP.
- i) To provide a statement to LIHWAP households clearly indicating the cost of home drinking water and/or wastewater services provided.
- j) To, annually send all refunds, in compliance with LIHWAP Vendor Refund Policies, no later than 60 days following the end of the program year (September 30).
- k) To comply with LIHWAP Vendor Refund Policies and to maintain an accounting system and supporting fiscal records for five years and to provide records to Division representatives upon request.
- l) To fully cooperate with the Division's monitoring practices; including but not limited to providing requested documentation within set time frames, as well as communicating with Division staff.

- m) To provide at no cost to the Division, customer, or agency, written information on an applicant household's home drinking water and/or wastewater costs, bill payment history, and/or arrearage history for no more than the previous 12 monthly billing periods even when it may be from a prior occupant household.
 - n) To comply with all Wisconsin laws, regulation or other requirements pertaining to the supply of home drinking water and/or wastewater services for residential use. In the event of any dispute between the Division and the Vendor, the venue for any legal action arising out of the Contract shall be Dane County Wisconsin.
 - o) To provide at no cost to the Department, or an authorized agent to the Department, for the purposes of research, evaluation, and analysis, information on household water and/or wastewater costs and usage for participants of LIHWAP.
 - p) To report, to the Agency and/or the Division, situations that threaten life, health or safety.
 - q) To cooperate with the Agency and/or the Division in developing procedures to respond to immediate and potential emergencies which includes the provision of household water and/or wastewater services based on the documented promise to pay using LIHWAP funds.
 - r) To cooperate with the Agency in providing home drinking water and/or wastewater services to eligible households.
 - s) To provide the Division with business practice and contact information and to notify the Division of any changes.
 - t) To comply with the terms of this contract for customers who have LIHWAP payments transferred from another vendor.
 - u) To notify the Division of mergers and/or acquisitions. Mergers and/or acquisitions may affect the company's policies and service areas. Submission of a new vendor contract reflecting such policy and service area changes may be required as indicated in this contract.
 - v) To provide the contents of this contract to all applicable Vendor staff.
 - w) To hold the Division harmless and to indemnify the Division, the Department, its Agencies, officers and employees against any and all claims, suits, actions, liabilities and costs of any kind, including attorney's fees, for personal injury or damage to property arising from the acts or omissions of Supplier, or its agents, office, employees or subcontractor. Notwithstanding anything else herein to the contrary in no event with either party be liable to the other for any incidental, indirect, special, consequential or punitive damages or lost profits.
4. Length of Contract
- a) This contract is in effect until terminated as described in the 'Termination' section. Both parties have executed this contract as of the day and year indicated by the Division agent's signature.
5. Termination
- a) This contract will terminate effective immediately upon determination by the Division that the Vendor is not in compliance with the terms of this contract. The Vendor will be notified within ten days of termination.
 - b) Either the Division or the Vendor may terminate this contract by giving the other party at least ten days written notice.
6. Entire Contract
- a) It is understood and agreed that the entire contract between the parties is contained in this Vendor Contract.
 - b) This contract supersedes all previous commitments, promises, representations either oral or written, between the parties relating to the subject matter hereof.
 - c) The person signing this Contract, on behalf of the Vendor, certifies and attests that they have full and complete authority to bind the Vendor, on whose behalf they are executing this document.

By typing my name in the provided field, I indicate that I am the person named, and this entry is the legal equivalent of a manual/handwritten signature. I further understand that I may print the document and sign by hand.

Eric Lindman

Vendor Signature

11/23/2021

Date (mm/dd/ccyy)

Division of Energy, Housing and Community Resources Signature

Date (mm/dd/ccyy)

Low Income Household Water Assistance Program (LIHWAP) Vendor Refund Policy

1. Credit Balances - If no change occurs in the residence of the LIHWAP recipient and the recipient retains the same supplier with an active account, the credit balance of LIHWAP funds remains with the Vendor until exhausted.
2. Unclaimed Credit Balances - In the event there is a balance of LIHWAP funds remaining on an account AND the account becomes inactive, AND the Vendor is unable to locate the customer, the balance of the funds is to be returned, by check, to the Division by the end of each program year (September 30). The returned check shall include all information listed in item number seven of this Refund Policy.
3. Move Within State and Change of Water and/or Wastewater Services Provider - If the LIHWAP recipient changes water and/or wastewater services providers or moves to another residence within the state and has a relationship with a new provider, the Vendor holding the credit balance of the LIHWAP payment(s) must transfer the balance to the new water and/or wastewater services provider (Vendor) or new account.
4. Move and No Relationship with Vendor - When a LIHWAP recipient moves his or her household and as a result the recipient has no direct relationship with a Vendor, any credit balance of LIHWAP payments is to be returned by check to the Division with the information listed in number seven of this Refund Policy.
5. Move Out of State - When a LIHWAP recipient moves out of Wisconsin any credit balance of LIHWAP payments shall be returned by check to the Division with the information listed in number seven of this Refund Policy.
6. Deceased Recipient - In the event a credit balance remains, and the account is closed, the credit balance will be refunded to the program no later than the end of the program year (September 30). Submit a check to the Division with the information listed in number seven of this Refund Policy.
7. Return Address for Refunds to the State of Wisconsin - Mail refunds to:
DOA/DIVISION OF ENERGY, HOUSING AND COMMUNITY RESOURCES
ATTN: LIHWAP REFUND
PO BOX 7970
MADISON WI 53707-7970
Refunds must include the following information: Customer name, Customer address, Date of LIHWAP payment to Vendor, Reason for the return
8. Vendor Payments – All LIHWAP payments made to a Vendor shall be applied to current water and/or wastewater services costs. LIHWAP payments that exceed current costs shall be applied as credit to the customers' account. Credit balances shall be handled in accordance with the policies of this contract. Any balance remaining shall be credited to the customers' account.
9. Incorrect Payments – All Vendors are required to review the weekly payment register for accuracy of LIHWAP payments. In the event a payment is made in error, the Vendor shall contact the Division's Help Desk at (608) 267-3680 or heat@wisconsin.gov. Contact must occur within 30 days to correct the error. If payments are made in error corrections needed will be determined by the Division.



Water Utility
Vendor Number
(Department Use
Only)

Water Utility Vendor Information

Water Utility Vendor Name (payment is issued in this name)

Wausau Water Works

Primary Contact Terry Larsen	Primary Contact Phone 715-261-6531	Customer Service Phone* 175-261-6530	
Primary Fax 715-261-6535	Primary Contact E-mail terry.larsen@ci.wausau.wi.us		
Primary Contact Address 407 Grant St.	City Wausau	State WI	Zip 54403
Payment/Check Contact Emily Ley	Payment/Check Contact Phone 715-261-6642		
Payment/Check Fax 715-261-6626	Payment/Check Contact E-mail emily.ley@ci.wausau.wi.us		
Payment/Check Contact Address 407 Grant St.	City Wausau	State WI	Zip 54403

*Appears on customer notices

Legal Name **Wausau Water Works**

Taxpayer Identification Number (TIN) **39-6005648** Identify the TIN type below

☒ Employer ID Number (FEIN) ☐ Individual Taxpayer Identification Number (ITIN) ☐ Social Security Number (SSN)

Type of Entity:

☐ Individual/Sole Proprietor ☐ Corporation ☐ Limited Liability Company ☒ Government Entity

Counties/Tribes served (Please check all that apply)

☐ 1-Adams	☐ 2-Ashland	☐ 3-Barron	☐ 4-Bayfield	☐ 5-Brown
☐ 6-Buffalo	☐ 7-Burnett	☐ 8-Calumet	☐ 9-Chippewa	☐ 10-Clark
☐ 11-Columbia	☐ 12-Crawford	☐ 13-Dane	☐ 14-Dodge	☐ 15-Door
☐ 16-Douglas	☐ 17-Dunn	☐ 18-Eau Claire	☐ 19-Florence	☐ 20-Fond du Lac
☐ 21-Forest	☐ 22-Grant	☐ 23-Green	☐ 24-Green Lake	☐ 25-Iowa
☐ 26-Iron	☐ 27-Jackson	☐ 28-Jefferson	☐ 29-Juneau	☐ 30-Kenosha
☐ 31-Kewaunee	☐ 32-La Crosse	☐ 33-Lafayette	☐ 34-Langlade	☐ 35-Lincoln
☐ 36-Manitowoc	☒ 37-Marathon	☐ 38-Marinette	☐ 39-Marquette	☐ 40-Milwaukee
☐ 41-Monroe	☐ 42-Oconto	☐ 43-Oneida	☐ 44-Outagamie	☐ 45-Ozaukee
☐ 46-Pepin	☐ 47-Pierce	☐ 48-Polk	☐ 49-Portage	☐ 50-Price
☐ 51-Racine	☐ 52-Richland	☐ 53-Rock	☐ 54-Rusk	☐ 55-St. Croix
☐ 56-Sauk	☐ 57-Sawyer	☐ 58-Shawano	☐ 59-Sheboygan	☐ 60-Taylor
☐ 61-Trempealeau	☐ 62-Vernon	☐ 63-Vilas	☐ 64-Walworth	☐ 65-Washburn
☐ 66-Washington	☐ 67-Waukesha	☐ 68-Waupaca	☐ 69-Waushara	☐ 70-Winnebago
☐ 71-Wood	☐ 72-Menominee	☐ 85- Red Cliff Tribe	☐ 86-Stockbridge-Munsee Tribe	
☐ 88-Lac du Flambeau Tribe	☐ 89-Bad River Tribe	☐ 91-Mole Lake/ Sokaogon Tribe	☐ 92-Oneida Tribe	☐ 94 - Lac Courte Oreilles Tribe

Recommendation to Purchase a Tool Cat Type Utility Vehicle for the Water Utility:

Recommendation to purchase A Tool Cat Type Utility Vehicle. Quotes were opened at the November 30th Board of Public Works Meeting. Swiderski Equipment Inc. was the only vendor to supply a quote. Quote was in the amount of \$84,491.00. Staff would recommend the purchase of this vehicle plus a 5-year extended warranty (\$3,290.00) for a total cost of \$87,781.00.

Discussion and Possible Action on the Recommendations for the purchase of Hydrated Lime, Sodium Silicate and Sodium Hypochlorite for 2022. Staff recommends purchase of:

- a. Hydrated Lime from Graymont Western Lime Inc.
- b. Sodium Silicate from Milport Enterprises Inc.
- c. Sodium Hypochlorite from:
 - i. Hydrite Chemical Co. if Commission is comfortable with the risk associated with quarterly pricing.
 - ii. Milport Enterprises if annual pricing is preferred.

2022 Chemical Bids

Wausau Water Works - Drinking Water Division

HYDRATED LIME		
Vendor	Unit Price	Ton
Alexander Chemical		Ton
Brenntag Great Lakes LLC		Ton
Carmeuse Lime & Stone	399.60	Ton
Chemtrade		Ton
Deltak		Ton
Graymont Western Lime Inc.	182.00	Ton
Hydrite Chemical Co.		Ton
Lhoist	365.50	Ton
Milport Enterprises Inc.		Ton
Occidental Chemical Corp.		Ton
Olin		Ton
PVS Chemicals		Ton
Shay Enterprise		Ton
Synagro		Ton
USALCO, LLC		Ton
Wausau Chemical		Ton

SODIUM SILICATE		
Vendor	Unit Price	lb/gal
Alexander Chemical		lb.
Brenntag Great Lakes LLC		lb.
Carmeuse Lime & Stone		lb.
Chemtrade		lb.
Deltak		lb.
Graymont Western Lime Inc.		lb.
Hydrite Chemical Co.		lb.
Lhoist		lb.
Milport Enterprises Inc.	0.1480	lb.
Occidental Chemical Corp.		lb.
Olin		lb.
PVS Chemicals		lb.
Shay Enterprise		lb.
Synagro		lb.
USALCO, LLC		lb.
Wausau Chemical		lb.

SODIUM HYPOCHLORITE		
Vendor	Unit Price	lb/gal
Alexander Chemical		gal.
Brenntag Great Lakes LLC		gal.
Carmeuse Lime & Stone		gal.
Chemtrade		gal.
Deltak		gal.
Graymont Western Lime Inc.		gal.
Hydrite Chemical Co.	1.6500	gal.
Lhoist		gal.
Milport Enterprises Inc.	1.6900	gal.
Occidental Chemical Corp.		gal.
Olin		gal.
PVS Chemicals		gal.
Shay Enterprise		gal.
Synagro		gal.
USALCO, LLC		gal.
Wausau Chemical		gal.

Quarterly, 1.90/yearly (firm)

Quarterly, 1.85/yearly (firm)

Forklift Quotations

November 2, 2021

<u>Octane</u>	\$30,276.00
3 year Warranty	\$2000.00
15 person training	\$2500.00
Total	\$34,776.00

<u>Herc-u-lift</u>	\$34,079.54
3 year warranty	\$850.00
15 person training	\$1425.00
Total	\$36,354.54

<u>Congar</u>	\$41,528.00
3 year warranty	\$0.00 included as standard
15 person training	Not Offered
Total	\$41,528.00

Octane appears to be the best value. Parts and service are from Fairchild Eq. of St. Point, WI. Octane exceeds specs. 48-volt battery vs 36-volt battery, 40 in. carriage vs 36 in. and 4400 pound lift capacity.

Staff recommends purchase of the Octane Forklift.

Discussion and Clarification for Private Side Lead Service Line Replacement Funding:

Staff would like to clarify that funds can be offered to residents, doing sewer lateral replacements, to change the lead water lateral out at the same time.

CITY OF WAUSAU, 407 Grant Street, Wausau, WI 54403

RESOLUTION OF THE WAUSAU WATER WORKS COMMISSION

Approving application for and administration of funds from the Safe Drinking Water Loan Program

Committee Action: Approved 4-0

Fiscal Impact:

File Number: 16-0704

Date Introduced: December 14, 2021

FISCAL IMPACT SUMMARY

COSTS	<i>Budget Neutral</i>	Yes ☐ No ☐	
	<i>Included in Budget:</i>	Yes ☐ No ☐	<i>Budget Source:</i>
	<i>One-time Costs:</i>	Yes ☐ No ☐	<i>Amount:</i>
	<i>Recurring Costs:</i>	Yes ☐ No ☐	<i>Amount:</i>
SOURCE	<i>Fee Financed:</i>	Yes ☐ No ☐	<i>Amount:</i>
	<i>Grant Financed:</i>	Yes ☐ No ☐	<i>Amount:</i>
	<i>Debt Financed:</i>	Yes ☐ No ☐	<i>Amount</i> <i>Annual Retirement</i>
	<i>TID Financed:</i>	Yes ☐ No ☐	<i>Amount:</i>
	<i>TID Source: Increment Revenue ☐ Debt ☐ Funds on Hand ☐ Interfund Loan ☐</i>		

RESOLUTION

WHEREAS, The Safe Drinking Water Act (SDWA) Amendments of 1996 were signed into law on August 6, 1996, part of which authorized the US Environmental Protection Agency (EPA) to establish the Drinking Water State Revolving Fund (DWSRF) Program to assist public water systems with financing the costs of infrastructure needed to achieve and maintain compliance with the requirements of the SWDA and to protect public health; and

WHEREAS, the SDWA requires each state to prepare an annual Intended Use Plan (IUP) that identifies the uses of the funds in the DWSRF and describe how those funds support the goals of the Act; and

WHEREAS, as part of the State of Wisconsin IUP, the Department of Natural Resources (DNR) and the Department of Administration (DOA) jointly administer the Safe Drinking Water Loan Program (SDWLP), and operate it as a direct loan program; and

WHEREAS, the issue of lead leaching into drinking water from older lead pipes and being released in scale during system repairs has received recent public attention and the best solution is to replace all pipes, joints, and fixtures that contain lead, including privately-owned service lines; yet this solution is costly for municipalities and homeowners alike; and

WHEREAS, in Wisconsin, municipalities are not allowed to incorporate the cost of privately-owned lead service line replacements into user rates; and

WHEREAS, the City of Wausau, as a local governmental unit, may receive financial assistance for lead service line (LSL) replacements on private property, which is a long-term program goal – to facilitate the replacement of all remaining lead service lines, in their entirety, in the State - through a principal forgiveness fund; and

WHEREAS, the City received \$368,000 in State Fiscal Year 2017, \$300,000 in State Fiscal Year 2018, and \$320,000 in State Fiscal Year 2021; and

WHEREAS, the current fund amount for approval and expenditure in State Fiscal Year 2022 available is \$32 million, and the City will be required to apply for a principal forgiveness loan on an annual basis in the fall; and

WHEREAS, the Wausau Water Works Commission, at its December 7, 2021, meeting, discussed the availability of DNR funding for this purpose.

NOW THEREFORE, BE IT RESOLVED, by the Common Council of the City of Wausau that the Director of Public Works and Utilities and the Water Operations Superintendent are hereby authorized and directed to do all things necessary to apply for and administer principal forgiveness funds through the SDWLP for lead service line replacement.

Approved:

Katie Rosenberg, Mayor

Department of Public Works



Eric Lindman, P.E.
Director of Public Works and Utilities

TO: Wausau Waterworks Commission

FROM: Eric Lindman, P.E.
Director of Public Works & Utilities

DATE: December 7, 2021

SUBJECT: Clark Dietz Amendment – 48th Ave Sanitary Interceptor Design & Bid

Clark Dietz has been working on design of sanitary sewer upgrades at the Industrial Park LS, FM upgrades as well as design of a new force main for the 72nd Ave LS along Stewart Ave. This work is being prepared for the 2024 Stewart Ave reconstruction project, 48th Ave to 72nd Ave. This amendment is for the upgrade of the sewer interceptor from 48th Ave to the Industrial Park LS.

Stewart Ave is to be reconstructed in 2024, during the reconstruction the new FM from 72nd Ave LS will be installed as well as other sanitary sewer upgrades. The Stewart Ave reconstruction project is funded through STP Urban funds from the DOT and the interceptor at 48th Ave is outside the project limits of the Stewart Ave project. Because the cost of DOT projects is more and because this work will require RR coordination it is in the best interest of the utility and city to complete this portion of the needed work outside of the DOT funded project and ahead of the project. It is proposed to complete this work in 2022 ahead of the Stewart Ave project. Starting this process in 2022 will provide us time to coordinate with the RR for any necessary easements/permits and have this work completed prior to the Stewart Ave project.

PROFESSIONAL SERVICES AGREEMENT

Project Name ("Project")

48th Avenue Sanitary Interceptor Replacement

This Agreement is by and between

City of Wausau ("Client")

407 Grant Street
Wausau, WI 54403

and

Clark Dietz, Inc. ("Clark Dietz")

500 N. 3rd Street, Suite 703
Wausau, WI 54403

Who agree as follows:

Client hereby engages Clark Dietz to perform the services set forth in PART I - SERVICES BY CLARK DIETZ, and Clark Dietz agrees to perform the Services for the compensation set forth in PART III - COMPENSATION. Clark Dietz shall be authorized to commence the Services upon execution of this Agreement and written or verbal authorization to proceed from Client. Client and Clark Dietz agree that this signature page, together with Parts I - IV and attachments referred to therein, constitute the entire Agreement between them relating to the Project.

Agreed to by Client

By: _____

Title: _____

Date: _____

Agreed to by Clark Dietz



By: _____

Title: Senior Vice-President

Date: December 2, 2021

PART I SERVICES BY CLARK DIETZ

A. Project Description

The project includes the design and preparation of bidding documents for the installation of a new interceptor sewer from 48th Avenue to the Industrial Park lift station. The sewer has been sized to handle the expected 20-year design flow from the Industrial Park and 72nd Avenue lift station service areas, based on calculations completed as part of the Stewart Avenue Force Main and Interceptor Sewer project. The work will replace the existing sewer between 48th Avenue and the Industrial Park lift station. The project will also include permitting from the two railroads with jurisdiction over the force main easement.

Clark Dietz will utilize the topographic survey, wetland delineation, and geotechnical report that were completed as part of the Stewart Avenue Force Main and Interceptor Sewer project to complete the 48th Avenue interceptor design. This project will continue and revise the work that was completed as part of the Stewart Avenue project.

B. Scope

1. Meetings
 - a. One Intermediate Design Meeting
 - b. Final Design Meeting
 - c. Clark Dietz will be responsible for recording notes from the above meetings and sending them to the City of Wausau and meeting participants.
2. Preliminary Design
 - a. Prepare preliminary construction plans consisting of the following:
 - 1) Title Sheet
 - 2) Project Overview
 - 3) General Notes
 - 4) Plan and Profile Sheets
 - 5) Erosion Control Plan
 - 6) City of Wausau Erosion Control Details
 - 7) City of Wausau Standard Details
 - b. Prepare the preliminary Project Manual (Table of Contents).
 - c. Submit the 50% complete project plans and specifications to City staff for review.
 - d. Meet with City staff to discuss desired revisions.
3. Permitting
 - a. Coordinate with the Wisconsin Department of Natural Resources (DNR) for storm water compliance under NR151/216.

- b. Coordinate with DNR for the sanitary sewer and apply for the associated permit.
 - c. Coordinate with Marathon County and apply for the associated sanitary permit.
 - d. Coordinate with Union Pacific Railroad and CN Railroad for right-of-way construction permits.
4. Final Design
- a. Prepare final construction plans consisting of the following:
 - 1) Title Sheet
 - 2) Project Overview
 - 3) General Notes
 - 4) Details
 - 5) Erosion Control Plan
 - 6) Plan and Profile Sheets (1" = 20' scale)
 - b. Prepare the Project Manual utilizing standard specifications for the City of Wausau and applicable Standard Specifications for Sewer and Water Construction in Wisconsin.
 - c. Prepare Opinion of Probable Construction Cost based on the final bid plan quantities and comparable average bid prices.
 - d. Modify the City's front-end construction contract documents specific to the interceptor sewer project and submit to City staff for review and approval.
 - e. Submit 90% complete project plans and specifications to City staff for review.
 - f. Meet with City staff to discuss any necessary revisions to the Contract Documents.
 - g. Finalize the project documents and submit to City staff. These documents shall constitute the final bidding documents.
5. Bidding Services
- a. Assist the City with advertising and obtaining the bid for a single prime construction contract.
 - b. Provide the final Bidding Documents in electronic format. The City will manage distribution of and payment for plan sets and bid documents. The list of plan holders will also be maintained by the City.
 - c. Address bidders' questions concerning the project and prepare addenda as necessary.
 - d. Attend the bid opening and prepare a bid tabulation.
 - e. Review the bids submitted and provide a written recommendation of contract award to the City.
 - f. Prepare a Notice of Award and the final contracts for signatures.

6. Construction Services are not included but can be provided upon request.

C. Schedule

Notice to Proceed	December 8, 2021
Submittal of 50% Construction Documents	December 22, 2021
Meet with City Staff	January 12, 2022
Submittal of 90% Construction Documents	February 11, 2022
Submit Construction Cost Estimate	February 11, 2022
Local Permit Submittals	February 11, 2022
Submit WDNR Permit Documents	February 11, 2022
Meet with City Staff	February 25, 2022
Final Plan Submittal	March 14, 2022
Project Bid	March 30, 2022
Notice of Award	April 6, 2022

D. Assumptions/Conditions (if applicable)

This agreement is subject to the following assumptions/conditions:

1. This Agreement and any legal actions concerning its validity, interpretation and performance shall be governed by the laws of the location of the project.
2. This agreement does not include the preparation of right-of-way or temporary construction easement drawings, descriptions or negotiation/acquisition services.
3. Local permits for this project (street cuts, utility relocations, etc.) will be obtained by the Client with information provided by Clark Dietz. All permit fees will be paid by the Client.
4. State permits as noted for this project will be obtained by the Client with information provided by Clark Dietz. All permit fees will be paid by the Client.

The tasks below can be performed for an additional fee:

1. Flood studies and mitigation;
2. Preparation of right-of-way or temporary construction easement drawings, descriptions or negotiation/acquisition services;
3. Preparation of assessment roles or schedules;
4. Processing of Federal permits;
5. Contaminated site Phase I or Phase II environmental assessment investigations or remediation activities;
6. Cultural, historic, archeological, or wetland assessment investigations or remediation activities.
7. Retrieval and procurement of records required pursuant to a Freedom of Information Act request.

The list above is not all-inclusive.

PART II
CLIENT'S RESPONSIBILITIES

Client shall, at its expense, do the following in a timely manner so as not to delay the Services:

A. Information/Reports

Provide Clark Dietz with reports, studies, site characterizations, regulatory decisions and similar information relating to the Services that Clark Dietz may rely upon without independent verification unless specifically identified as requiring such verification.

B. Representative

Designate a representative for the project who shall have the authority to transmit instructions, receive information, interpret and define Client's requirements, and make decisions with respect to the Services. **The Client representative for this Agreement will be the City of Wausau's Wastewater Operations Superintendent or Director of Public Works.**

C. Decisions

Provide all criteria and full information as to Client's requirements for the Services and make timely decisions on matters relating to the Services.

D. Other

1. The City shall provide their current front end and construction contract documents for modification by Clark Dietz.

PART III COMPENSATION

A. Compensation

1. Compensation to Clark Dietz for services rendered by employees working on the Project in accordance with PART I, SERVICES BY CLARK DIETZ, Item B.3.d of this Agreement (related to railroad permitting coordination) will be on a Time and Materials Basis at Clark Dietz' current standard Billing Rates, as shown on the attached Schedule. The total compensation authorized by this section of the Agreement is estimated at \$12,000.
2. Total compensation to Clark Dietz for services rendered on the Project in accordance with the other items included in PART I – SERVICES BY CLARK DIETZ of this Agreement will be a lump sum amount of \$27,900.00. This lump sum compensation includes salaries, payroll taxes and insurance, employee fringe benefits, general overhead costs, profit, and project related expenses.

The following breakdown is for information purposes only.

Preliminary Design	\$8,800
Permitting	\$2,800
Final Design	\$11,100
Bidding	<u>\$5,200</u>
Total	\$27,900

Additional work requested by the City of Wausau shall be compensated at Clark Dietz' current standard Billing Rates, as shown on the attached Schedule.

B. Billing and Payment

1. Timing/Format
 - a. Invoices shall be submitted monthly for Services completed at the time of billing. Invoices shall be considered past due if not paid within 45 calendar days of the date of the invoice. Such invoices shall be prepared in a form supported by documentation required by the Client.
 - b. If payment in full is not received by Clark Dietz within 45 calendar days of the date of invoice, invoices shall bear interest at one-and-one-half (1.5) percent of the past due amount per month, which shall be calculated from the date of the invoice.
 - c. If the Client fails to make payments within 45 calendar days of the date of invoice or otherwise is in breach of this Agreement, Clark Dietz may suspend performance of services upon seven (7) calendar days' notice to the Client. Clark Dietz shall have no liability to the Client for any costs or damages as a result of suspension caused by any breach of this Agreement by the Client. Upon payment in full by the Client, Clark Dietz shall resume services under this Agreement, and the time schedule and compensation shall be equitably adjusted to compensate for the period of suspension plus any other reasonable time and expense necessary for Clark Dietz to resume performance.
2. Billing Records

Clark Dietz shall maintain accounting records of its costs in accordance with generally accepted accounting practices. Access to such records will be provided during normal business hours with reasonable notice during the term of this Agreement and for 3 years after completion.

PART IV STANDARD TERMS AND CONDITIONS

1. **STANDARD OF CARE.** Services shall be performed in accordance with the standard of professional practice ordinarily exercised by the applicable profession at the time and within the locality where the services are performed. No warranty or guarantee, express or implied is provided, including warranties or guarantees contained in any uniform commercial code.
2. **CHANGE OF SCOPE.** The Scope of Services set forth in this Agreement is based on facts known at the time of execution of this Agreement, including, if applicable, information supplied by Clark Dietz and Client. Clark Dietz will promptly notify Client of any perceived changes of scope in writing and the parties shall negotiate modifications to this Agreement.
3. **DELAYS.** If events beyond the control of Clark Dietz, including, but not limited to, fire, flood, explosion, riot, strike, war, process shutdown, act of God or the public enemy, and act or regulation of any government agency, result in delay to any schedule established in this Agreement, such schedule shall be extended for a period equal to the delay. In the event such delay increases the cost or time required for Clark Dietz to perform its services, Clark Dietz shall be entitled to an equitable adjustment in compensation and extension of time.
4. **TERMINATION/SUSPENSION.** Either party may terminate this Agreement upon 30 days written notice to the other party in the event of substantial failure by the other party to perform in accordance with its obligations under this Agreement through no fault of the terminating party. Client shall pay Clark Dietz for all Services, including profit relating thereto, rendered prior to termination, plus any expenses of termination.
5. **REUSE OF INSTRUMENTS OF SERVICE.** All reports, drawings, specifications, computer data, field data notes and other documents prepared by Clark Dietz as instruments of service shall remain the property of Clark Dietz. Clark Dietz shall retain all common law, statutory and other reserved rights, including the copyright thereto. Reuse of any instruments of service including electronic media, for any purpose other than that for which such documents or deliverables were originally prepared, or alteration of such documents or deliverables without written authorization or adaptation by Clark Dietz for the specific purpose intended, shall be at Client's sole risk.
6. **ELECTRONIC MEDIA.** In accepting and utilizing any drawings, reports and data on any form of electronic media generated and furnished by Clark Dietz, the Client agrees that all such electronic files are instruments of service of Clark Dietz, who shall be deemed the author, and shall retain all common law, statutory law and other rights, without limitation, including copyrights.

The Client agrees not to reuse these electronic files, in whole or in part, for any purpose other than for the Project. The Client agrees not to transfer these electronic files to others without the prior written consent of Clark Dietz. The Client further agrees that Clark Dietz shall have no responsibility or liability to Client or others for any changes made by anyone other than Clark Dietz or for any reuse of the electronic files without the prior written consent of Clark Dietz.

Any changes to the electronic specifications by either the Client or Clark Dietz are subject to review and acceptance by the other party. If Clark Dietz is required to expend additional effort to incorporate changes to the electronic file specifications made by the Client, these efforts shall be compensated for as Additional Services.

In addition, the Client agrees, to the fullest extent permitted by law, to indemnify and hold harmless Clark Dietz, its officers, directors, employees and subconsultants (collectively, Clark Dietz) against all damages, liabilities or costs, including reasonable attorneys' fees and defense costs, arising from any changes made by anyone other than Clark Dietz or from any use or reuse of the electronic files without the prior written consent of Clark Dietz.

The Client is aware that differences may exist between the electronic files delivered and the printed hard-copy construction documents. In the event of a conflict between the signed construction documents prepared by Clark Dietz and electronic files, the signed or sealed hard-copy construction documents shall govern.
7. **OPINIONS OF CONSTRUCTION COST.** Any opinion of construction costs prepared by Clark Dietz is supplied for the general guidance of the Client only. Since Clark Dietz has no control over competitive bidding or market conditions, Clark Dietz cannot guarantee the accuracy of such opinions as compared to contract bids or actual costs to Client.
8. **SAFETY.** Clark Dietz specifically disclaims any authority or responsibility for general job site safety and safety of persons other than Clark Dietz employees.
9. **RELATIONSHIP WITH CONTRACTORS.** Clark Dietz shall serve as Client's professional representative for the services and may make recommendations to Client concerning actions relating to Client's contractors. Clark Dietz specifically disclaims any authority to direct or supervise the means, methods, techniques, sequences or procedures of construction selected by Client's contractors.

10. **THIRD PARTY CLAIMS.** Nothing contained in this Agreement shall create a contractual relationship with or a cause of action in favor of a third party against either the Client or Clark Dietz. Clark Dietz's services under this Agreement are being performed solely for the Client's benefit, and no other party or entity shall have any claim against Clark Dietz because of this Agreement or the performance or nonperformance of services hereunder. The Client and Clark Dietz agree to require a similar provision in all contracts with contractors, subcontractors, subconsultants, vendors and other entities involved in this Project to carry out the intent of this provision.

11. **MODIFICATION.** This Agreement, upon execution by both parties hereto, can be modified only by a written instrument signed by both parties.

12. **PROPRIETARY INFORMATION.** Information relating to the Project, unless in the public domain, shall be kept confidential by Clark Dietz and shall not be made available to third parties without written consent of Client, unless so required by court order.

13. **INSURANCE.** Clark Dietz will maintain insurance coverage for Professional, Comprehensive General, Automobile, Worker's Compensation and Employer's Liability in amounts in accordance with legal, and Clark Dietz business requirements. Certificates evidencing such coverage will be provided to Client upon request. For projects involving construction, Client agrees to require its construction contractor, if any, to include Clark Dietz as an additional insured on its commercial general liability policy relating to the Project, and such coverages shall be primary.

14. **INDEMNITIES.** Clark Dietz agrees, to the fullest extent permitted by law, to indemnify and hold harmless the Client, its officers, directors and employees against all damages, liabilities or costs, to the extent caused by Clark Dietz' negligent performance of professional services under this Agreement and that of its subconsultants or anyone for whom Clark Dietz is legally liable.

The Client agrees, to the fullest extent permitted by law, to indemnify and hold harmless Clark Dietz, its officers, directors, employees and subconsultants against all damages, liabilities or costs, to the extent caused by the Client's negligent acts in connection with the Project and that of its contractors, subcontractors or consultants or anyone for whom the Client is legally liable.

Neither the Client nor Clark Dietz shall be obligated to indemnify the other party in any manner whatsoever for the other party's own negligence.

15. **LIMITATIONS OF LIABILITY.** In recognition of the relative risks and benefits of the Project to both the Client and Clark Dietz, the risks have been allocated such that the Client agrees, to the fullest extent permitted by law, to limit the liability of Clark Dietz and their officers, directors, partners, employees, shareholders, owners and subconsultants for any and all claims, losses, costs, damages of any nature whatsoever or claims expenses from any cause or causes, including attorneys' fees and costs and expert-witness fees and costs, so that the total aggregate liability of Clark Dietz and their officers, directors, partners, employees, shareholders, owners and subconsultants shall not exceed Clark Dietz's total fee for services rendered on this Project, or \$ 100,000, whichever is greater. It is intended that this limitation apply to any and all liability or cause of action however alleged or arising, unless otherwise prohibited by law.

16. **CONSEQUENTIAL DAMAGES.** Notwithstanding any other provision of this agreement, and to the fullest extent permitted by law, neither the Client nor Clark Dietz, their respective officers, directors, partners, employees, contractors or subconsultants shall be liable to the other or shall make any claim for any incidental, indirect or consequential damages arising out of or connected in any way to the Project or to this Agreement. This mutual waiver of consequential damages shall include, but is not limited to, loss of use, loss of profit, loss of business, loss of income, loss of reputation and any other consequential damages that either party may have incurred from any cause of action including negligence, strict liability, breach of contract and breach of strict or implied warranty. Both the Client and Clark Dietz shall require similar waivers of consequential damages protecting all the entities or persons named herein in all contracts and subcontracts with others involved in this project.

17. **ACCESS.** Client shall provide Clark Dietz safe access to the project site necessary for the performance of the services.

18. **ASSIGNMENT.** The rights and obligations of this Agreement cannot be assigned by either party without written permission of the other party. This Agreement shall be binding upon and insure to the benefit of any permitted assigns.

19. **HAZARDOUS MATERIALS.** Clark Dietz and Clark Dietz' consultants shall have no responsibility for discovery, presence, handling, removal or disposal of or exposure of persons to hazardous materials in any form at the project site, including but not limited to asbestos, asbestos products, polychlorinated biphenyl (PCB) or other toxic substances. If required by law, the client shall accomplish all necessary inspections and testing to determine the type and extent, if any, of hazardous materials at the project site. Prior to the start of services, or at the earliest time such information is learned, it shall be the duty of the Client to advise Clark Dietz (in writing) of any known or suspected hazardous materials. Removal and proper disposal of all hazardous materials shall be the responsibility of the Client.

20. **REMODELING AND RENOVATION.** For Clark Dietz' services provided to assist the Client in making changes to an existing facility, the Client shall furnish documentation and information upon which Clark Dietz may rely for its accuracy and completeness. Unless specifically authorized or confirmed in writing by the Client, Clark Dietz shall not be required to perform or have others perform destructive testing or to investigate concealed or unknown conditions. The Client shall indemnify and hold harmless Clark Dietz, Clark Dietz' consultants, and their employees from and against claims, damages, losses and expenses which arise as a result of documentation and information furnished by the Client.

21. **CLIENT'S CONSULTANTS.** Contracts between the Client and other consultants retained by Client for the Project shall require the consultants to coordinate their drawings and other instruments of service with those of Clark Dietz and to advise Clark Dietz of any potential conflict. Clark Dietz shall have no responsibility for the components of the project designed by the Client's consultants. The

Client shall indemnify and hold harmless Clark Dietz, Clark Dietz' consultants and their employees from and against claims, damages, losses and expenses arising out of services performed for this project by other consultants of the Client.

22. NO WAIVER. No waiver by either party of any default by the other party in the performance of any particular section of this Agreement shall invalidate another section of this Agreement or operate as a waiver of any future default, whether like or different in character.

23. SEVERABILITY. The various terms, provisions and covenants herein contained shall be deemed to be separate and severable, and the invalidity or unenforceability of any of them shall not affect or impair the validity or enforceability of the remainder.

24. STATUTE OF LIMITATION. To the fullest extent permitted by law, parties agree that, except for claims for indemnification, the time period for bringing claims under this Agreement shall expire one year after Project Completion.

25. DISPUTE RESOLUTION. In the event of a dispute arising out of or relating to this Agreement or the services to be rendered hereunder, Clark Dietz and the Client agree to attempt to resolve such disputes in the following manner: First, the parties agree to attempt to resolve such disputes through direct negotiations between the appropriate representatives of each party. Second, if such negotiations are not fully successful, the parties agree to attempt to resolve any remaining dispute by formal nonbinding mediation conducted in accordance with rules and procedures to be agreed upon by the parties.