2022 Annual Legislative Report

Local Energy Efficiency Program, Energy Savings Partnership, & Wastewater Treatment Plant Cohort Energy Efficiency Training

January 15, 2023

Prepared by
Minnesota Department of Commerce, Division of Energy Resources

Pursuant to Minnesota Statute 216C.43, subd. 12

Contents

Minnesota Department of Commerce

Mission

For more than 150 years, the Minnesota Department of Commerce and its predecessor agencies have served Minnesotans. Our mission is to protect and assist consumers, to ensure a strong, competitive and fair marketplace, and to engage people and communities across the state.

Our Strategic Priorities

- Protect the public interest through consumer protection, consumer education, assistance to consumers, safety, health and financial security, and lowering inequities.
- Serve as a trusted public resource for consumers and businesses by listening and learning from the Minnesotans Commerce services, being effective stewards of public resources, advocating for Minnesota consumers and develop a policy, programmatic, and regulatory environment that meets their needs.
- Reduce economic barriers within Commerce regulatory oversee and reduce disparities within those of all races, ethnicities, religions, economic statuses, gender identities, sexual orientations, (dis)abilities, and zip codes.
- Ensure all, especially historically disadvantaged Minnesotans, are resilient to Minnesota's climate and engaged in advancing efforts to mitigate climate change.
- Ensure a strong, competitive, and fair marketplace for Minnesotans.

Pursuant by Minnesota Statutes 3.197: This report cost approximately $3,000.00 to prepare, including staff time.

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Executive Summary

Following is the 2022 report required by Minnesota Statute 216C.43 subd. 12. on projects studied and implemented under the Local Energy Efficiency Program (LEEP), Energy Savings Partnership (ESP) and Wastewater Treatment Plant Cohort Energy Efficiency Training enabled by Minnesota Statutes 216C.42 and 216C.43.

The Minnesota Department of Commerce (Commerce) operates both the Local Energy Efficiency Program (LEEP) and the Energy Savings Partnership (ESP). The Wastewater Treatment Plant Cohort Energy Efficiency Training (WWTP Cohort Training) is administered by the University of Minnesota Minnesota Technical Asssitance Program (MnTAP) in partnership with Commerce. The LEEP provides local units of government with technical services to conduct energy project studies and intitate energy efficiency and renewable energy projects within their community.

The ESP is a standard energy project financing agreement for local units of government managed by the Saint Paul Port Authority through a contract with Commerce. The WWTP Cohort Training provides local government wastewater treatment plants with technical services to identify and support implementation of cost-effective energy improvement projects. These combined programs enable local governments to easily identify and implement energy conservation measures that help meet locally-identified energy and greenhouse gas emission reduction goals as well as reduce the financial burden from both utility bills and operations and maintenance costs.

The ESP was created in 2012 as a standard lease-purchase financing agreement. Two million dollars in Commerce funds were dedicated as a loan loss reserve to make a wider range of energy project sizes and types financially viable for communities across Greater Minnesota. The ESP has funded several energy projects since inception through lease-purchase financing. ESP continued a portfolio of nine financed projects in 2021 totaling over $5 million. The projects included three cities and six school districts, ranging from $500,000 to $1.8 million. Commerce reports on high-level metrics of the ESP to the U.S. Department of Energy (DOE) on a quarterly basis. Cummulatively the ESP loan loss reserve has leveraged over $5.3M in private capital with an estimated annual energy savings of over $300,000.

The LEEP was formally launched in 2016 with the purpose of conducting energy project studies and technical review of projects. However, despite significant efforts from 2016-2018, studies were hindereded due to a number of barriers faced by local governments to implement long-term projects. Thus in 2019, Commerce refocused its work on identifying the challenges and existing barriers that impact a local unit of government's ability to move forward with energy efficiency projects for their publically owned buildings. Commerce, and partners, conducted discussions and surveys with communities to identify critical issues and explore ways to address these issues for a successful redesign and implementation of the program in 2020 to 2022. Additionally, as an active steering member of the Minnesota GreenStep Cities program which provides technical resources to member cities, Commerce staff worked to integrate LEEP into the GreenStep program's list of best practices.

MnTAP has conducted three cohorts to date and two energy studies assisting fifteen local units of government including 20 WWTP operators. As a result, fifteen energy project studies were co-developed, and an annual 5,350,200 kWhs of energy savings identified leading to 981,300 kWh of energy savings or annual $79,700 cost savings achieved through implementation of energy study recommendations.[1] Since October 2021, MnTAP conducted 2 additional Cohorts. Besides direct outreach to municipalities, MnTAP conducted outreach through a presentation at the Minnesota Rural Water Association (MRWA) Conference and MRWA Continuous Improvement Workshop as well as at the Central States Water Environment Association and Minnesota Wastewater Operators Association Innovative Conference.

Besides conducting the WWTP Cohort Training educating operators and providing energy project studies to municipalities on their WWTP, MnTAP provided additional benefit by coordinating with external resources to present on additional technical assistance or financial opportunities that could support more energy efficiency or renewable energy

[1] This value is lower than the total implementation from the 2021 annual report. Recommendation 4, with savings potential of $67,500 per year, was implemented successfully in early winter 2021, but was shown to not provide adequate treatment in the warm weather months of 2022. Therefore, this implementation was reversed.

deployment at the WWTP or municipality besides those energy efficiency opportunities identified or implemented from the WWTP Cohort Training. External technical assistance or financial resources that have been presented to municipalities through the WWTP Cohort Training or direct outreach from MnTAP include LEEP, energy utility rebates, U.S. Dept of Energy Sustainable Wastewater Infrastructure of the Future, U.S. Dept of Energy Midwest Combined Heat and Power Technical Assistance Program, National Renewable Energy Laboratory Renewable Energy Integration and Optimization platform, and Legislative Citizen Commission on Minnesota Resources Wastewater Renewable Energy Demonstration grants.

History

Minnesota Statutes § 216C.42 and 216C.43 authorize the Department of Commerce to provide local units of government technical services, standard project financing agreements, and supplemental cash flow agreements for technical services in conducting energy project studies and qualifying energy improvement projects. Local units of government are defined as a Minnesota county, statutory or home rule charter city, town, school district, park district or any combination of those units operating under an agreement to exercise powers jointly.

Energy Savings Partnership (ESP)

In addition to the authority to offer energy project studies to local units of government, Minnesota Statutes 216C.42 and 216C.43 also directs Commerce to provide a "standard project financing agreement" through private financial institutions for local units of government wishing to implement energy improvement projects. Under this authority, Commerce reviews projects to determine eligibility.

In 2012, Commerce entered into a contractual agreement with the Saint Paul Port Authority (SPPA) to administer the Energy Savings Partnership (ESP) program and offer lease-purchase financing to local governmental units across Minnesota for energy efficiency and renewable energy improvements.

The ESP was established after $2 million in Commerce funds were committed to establishing a loan loss reserve (LLR) fund which leveraged $20 million in private equity from US Bank for lease-purchase financing agreements under the program. This LLR allows the SPPA to offer lower interest rates for a wider range of project sizes, which makes smaller projects in cities, counties, and school districts viable across Greater Minnesota. To protect the LLR funds dedicated by Commerce and ensure that high-quality projects leverage other existing state energy programs, Commerce must review and approve any project seeking financing through the ESP on the basis of:

- Technical and economic feasibility, with a projected positive cash flow each year of the financing agreement
- Provision for continued operation and maintenance of the project
- Use of Conservation Improvement Program opportunities with the utilities providing gas and electric service

In addition to Commerce's review of proposed projects, US Bank Underwriting Department have established the following criteria to protect the LLR funds dedicated by Commerce and maximize leveraged private equity:

- Maximum Lease Term – 15-years for energy efficiency projects and 7-years for solar PV projects.
- Minimum Lease Amout – $100,000.
- Facility Type – For essential use facilites. Excludes non-essential use facilites like ice arenas and swimming pools.

ESP is most attractive to small cities, counties and school districts with smaller projects. The above US Bank underwriting criteria balance the risk of repayment with maintaining the future viability of ESP to continue to serve this segment of the market with competitive financing. The LLR is key to financing these small projects. Public entities with larger projects are able to secure financing at competitive rates without the need for a LLR.

Local Energy Efficiency Program (LEEP)

An energy efficiency improvement program for local units of government, LEEP was formerly titled the Public Buildings Enhanced Energy Efficiency Program (PBEEEP). Commerce initially contracted with the Center for Energy and Environment (CEE) to develop and administer the local government PBEEEP offering. In April 2012, all program materials were transferred to Commerce where it was re-instated as a Master Contract with 26 engineering firms using existing program guidelines.

As Commerce developed the Guaranteed Energy Savings Program (GESP), it was evident there was significant overlap between GESP and PBEEEP. With limited staffing capacity, priority was given to the development of GESP because it offers technical assistance to a wider range of building owners and is directed towards larger energy savings projects. The PBEEEP Master Contract was cancelled in 2014 when it was determined the program structure needed significant changes to better meet the needs of local units of government.This streamlining of programs created efficiencies in the development, promotion, and delivery of programs.

In 2016, Commerce hired a dedicated administrator to re-develop the energy efficiency improvement program for local governments. A new name was given to differentiate the program from previous versions: Local Energy Efficiency Program (LEEP). A new master contract was issued and negotiated in 2016 and the program was promoted statewide.

The LEEP was then formally launched in 2016 with the purpose of conducting energy project studies and technical review of projects. A master contract with ten engineering firms was established along with the program requirements to provide a pool of qualified contractors, as well as standard contract and procurement documents, to local governments. Commerce issued a request for proposals, evaluated the responses, and negotiated the LEEP Master Contract with qualified firms.

Commerce lead an intense LEEP program development and outreach process throughout 2017 and 2018. Three dedicated staff contacted hundreds of local governments, attended events, and partnered with outside community and economic development organizations. Commerce also partnered with these and other organizations to create new marketing materials and integrate LEEP into utility rebate programs. Further, Commerce explored ways to integrate LEEP into state long-term facility maintenance revenue dollars along with the Department of Education. Despite these efforts, LEEP was not able to gain traction as a master contract program with local units of government. Thus in 2019, Commerce refocused its work on identifying the challenges and existing barriers that impact a local unit of government's ability to move forward with energy efficiency projects for their publically owned buildings. Commerce and partners conducted discussions and surveys with communities to identify critical issues and explore ways to address these issues.

Throughout 2020 and 2021, Commerce focused its resources toward a program redesign which included offering additional resources and technical assistance to local units of government in order to overcome barriers that prevent project planning and development.

Commerce developed an outline of program services that the LEEP technical assistance program would offer.

- Developed outline of services provided by Local Government Technical Assistance Program (LGTAP)
    - Needs and Opportuntity Assessment
    - Project Development and Contracting Process Selection
    - Energy Project Study Provider Selection
    - Energy Project Financing
    - Energy Project Performance Period Review
- Research allowed use of Exxon Funds by local govenments, school districts and Indian tribes
- Use and guidance of tools developed for LEEP and GESP for energy project study and project development
- Leveraged support of Clean Energy Resource Teams (CERTs) tools and website for Solar PV project development
- Coordinated outreach services with strategic partners including: CERTs, GreenStep Cities and Schools, State Agency Tribal Liaison and industry associations.

Wastewater Treatment Plant Cohort Energy Efficiency Training (WWTP Cohort Training)

Effective and efficient wastewater treatment is critical to community health and economic development, to extend the useful life of this infrastructure, meet permitted effluent quality and reduce the cost burden for residents and businesses. Nationally, the U. S. Environmental Protection Agency (EPA) estimates these facilities account for ~2% of the U.S. energy use[2] and energy accounts for an average of 35% of WWTP budgets[3]. Energy efficiency in the wastewater treatment sector is one way to help communities reduce cost associated with critical infrastructure, particularly for local governments with mechanical wastewater treatment plants.

Completed in 2018, a collaborative effort between the Minnesota Department of Commerce Division of Energy Resources (DER), the Minnesota Pollution Control Agency (MPCA) and the University of Minnesota, Minnesota Technical Assistance Program (MnTAP) supported with a grant from United States Department of Energy (DOE) provided energy assessments at eleven (11) small to mid-sized mechanical facilities across the state.[4] On-site technical energy efficiency assessments identified 5.5 million kWh annual energy savings opportunity with an estimated value of $423,000 across eleven assessed facilities. Approximately 70% of the recommended energy efficiency opportunities identified in this work could be achieved through operational changes requiring no or low capital investment. Approximately 40% of the 5.5 million kWh of recommended energy savings had been implemented when the final report was written with an additional 39% planned. However, several barriers to energy efficiency at small to mid-sized mechanical WWTPs were identified over the course of this early collaborative project:

- Local knowledge of facility energy use and comparative energy performance with peer facilities is often unknown and limits justification to look for energy savings.
- Perception that energy efficiency efforts require large capital investments that are typically not available to facilities limits interest in identifying savings.
- Highly customized plant designs require more tailored energy efficiency solutions to equip site operations staff to implement large energy conservation projects.
- Uncertainty with the risk of not meeting permit requirements if facilities are operated outside historically prescribed set points results in maintaining high energy use operating strategies.

A follow up project was conducted by MnTAP through a Conservation Applied Research Development (CARD) program grant to overcome the identified barriers and build on the success of the high implementation rate of the cost-effective operational measures through development of a training guide for a facilitated cohort-based energy efficiency program.

Within this project, a market evaluation was conducted that found over 200 total mechanical WWTPs in Minnesota. The proposed training program focused on developing cohort training resources at a scale and level appropriate for small to mid-size treatment facilities, capitalizing on strong regional and state networks of operations staff, encouraging peer interactions, information sharing, technical training and collaboration. The cohort training model and training resources were developed[5] but implementation of the training program was beyond the scope of the CARD project.

In 2019, Commerce developed a plan, utilizing existing funding to implement the training cohort program, with focus on small to medium sized mechanical local government WWTPs, those with treated flow between 300,000 and 10,000,000 gallons per day. With the advent of Covid, the program implementation was delayed until 2021.

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[2] U.S. EPA - *State and Local Climate and Energy Program: Water/Wastewater,* 2012

[3] NYSERDA - *Statewide Assessment of Energy Use by the Municipal Water and Wastewater Sector,* 2008

[4] Final project report to DOE "Energy Efficiency Implementation in Minnesota Wastewater Treatment Facilities" Contract DE-EE0006888, February 8, 2018. Grant project MN Department of Commerce – 90103 – UofM (MNTAP Sub DE6888)-G, http://www.mntap.umn.edu/POTW/wwtp.html

[5] Driving Wastewater Treatment Energy Efficiency, A Cohort Training and Implementation Plan, Contract 136952, 6/28/2019, https://www.cards.commerce.state.mn.us/CARDS/security/search.do?documentId={D7E355C9-D608-4AF8-9C0D-166B01040F45}

2022 Annual Summary and Metrics

Energy Savings Partnership (ESP)

The ESP contract between the SPPA and Commerce was last amended on June 9, 2022. This amendment maintained the terms and conditions of the previous year's amendment, but extended the terms through FY2022. Commerce worked with the SPPA to develop a tool and process for loan application intake, including a checklist for local governments to complete, to ensure smooth technical review and implementation.

Of the original $2 million in Commerce funds originally dedicated to the ESP, all program funds remain as no loan defaults occurred between 2016-2021. Further, Commerce and SPPA negotiated a program account interest change in 2019. Program funds now return a 1% interest income rate which is added quarterly to the reserve funds that support the private capital. This means that while LLR programs typically are designed to facilitate losses in support of program activity, the ESP is anticipated to continue growth in 2022, providing further longevity for these funds.

The ESP has leveraged projects valued at over 250% of the LLR dedicated funds, which has given it the ability to make a greater impact than a revolving loan fund (RLF). While projects financed under the ESP do not increase the total program capacity through project interest income, the leverage in the ESP has been successful in supporting private capital capacity for a range of project types and continues to preserve program capacity to support the use of more private capital in upcoming program years. Since 2012, the ESP has financed energy projects at local governments with a total project costs of over five million dollars. The building space impacted by the program projects total over one million square feet.

Metrics

Commerce reports on high-level metrics of the ESP to the United States Department of Energy (DOE) on a quarterly basis. Project information as a cumulative summary of all projects to date can be found in the following table.

Table 1. 2022 ESP Metrics Overview

ESP State Program funds spent ($)	ESP Private Funding Leveraged ($)	Buildings	Total Square Footage	Calculated Energy Savings (kWh)	Estimated annual Energy Savings ($)
$0.00	$5,647,415	22	1,143,424	831,146	$296,381.26

Local Energy Efficiency Program (LEEP)

In 2022, Commerce continued outreach efforts to promote LEEP with local governments and schools as a tool to help them achieve their goals for reduced energy use, adoption of renewable energy systems and reduction in Greenhouse Gas Emissions. Commerce focused its development efforts on stakeholder engagement to identify barriers, potential solutions and strategies to overcome issues that prevent local entities from initiating projects.

For many entities, barriers included a range of issues including a lack of funding and access to necessary resources, a lack of localized project development experience and the technical expertise needed to analyze savings, and a mismatch between the size and scope of identified projects in relation to business priorities of the pre-qualified master contractors participating in the LEEP master contract program. In one such example, Commerce worked with a small city (pop. under 5,000 residents) to engage an engineering firm through the LEEP Master Contract Program. A request for proposals was

issued, yet no responses were received from the participating firms. Commerce learned that the pre-qualified master contractors were not interested in this energy project study because they deemed the project too small to be viable for their firm.

An additional barrier for public schools was identified following a modification to determination on use of funding. In 2019, the Department of Education changed a policy ruling that no longer allowed the use of state long-term facility maintenance revenue dollars to be spent on LEEP energy project studies. Due to key barriers and lack of uptick in program interest, Commerce chose to expire the master contract program in 2020 while continuing to offer technical assistance around contracting, vendor selection, and project development. Support to schools and local units of government is offered through grant and rebate programs and LEEP staff provide ongoing full project consultation.

Throughout 2022, Commerce implemented new and increased outreach processes to expand to more local units of government throughout the state to assist them in reaching their building efficiency and energy savings goals. Additional staff time was allocated for LEEP work through targeting wastewater treatment facilities for energy studies, and leveraging data and engagement done through the U.S. Department of Energy Wastewater Treatment Accelerator program at Commerce. Additionally, as an active steering member of the Minnesota GreenStep Cities program which provides technical resources to member cities, Commerce staff worked work to integrate LEEP into the GreenStep program's list of best practices.

Commerce will also continue to foster a partnership with the Retiree Environmental Technical Assistance Program (RETAP) housed at the Minnesota Pollution Control Agency. RETAP provides a low-level audit for businesses and public entities using retired engineers throughout the state.

Metrics

Commerce reports on high-level metrics of the LEEP to the U.S. Department of Energy (DOE) on a quarterly basis. At the time this report was written, Commerce had completed the following 2022 milestones and metrics:

Table 2. 2022 LEEP Metrics Overview

Metric Description	2022
Organizational Outreach Contacts	
Number of detailed contacts (count)	20,173
Workshops, Training & Education	
Number of sessions (count)	73
Number of people attending (count)	144

Wastewater Treatment Plant Cohort Energy Efficiency Training (WWTP Cohort Training)

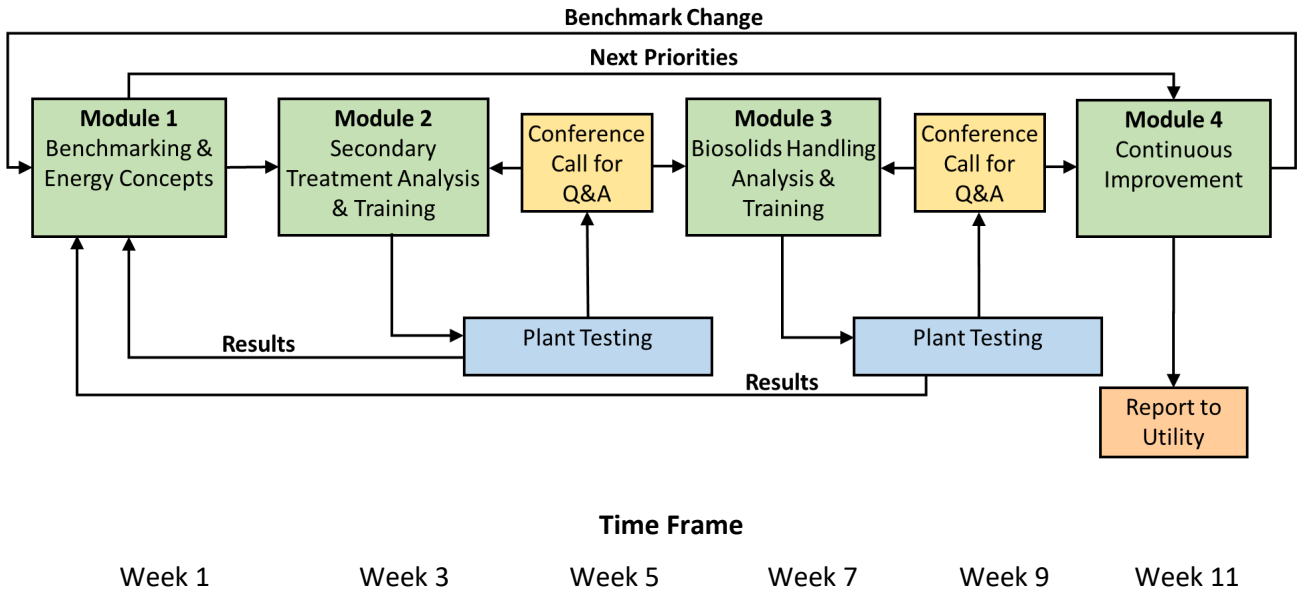
The cohort training approach provides key foundational information and concepts on energy use and conservation in the wastewater sector. Participants use data from their own facilities in active learning and collaborative exercises related to benchmarking, creating a site energy footprint, evaluating energy use in aeration operations, developing improvement strategies and testing these strategies to identify and implement energy efficiency targets for their facility. The Minnesota Pollution Control Agency authorized 16 hours of continuing education credit for the WWTP operators to receive who participate in the cohorts.

The Wastewater Treatment Plant Cohort Energy Efficiency Training was formally launched with MnTAP in 2021. Throughout 2021, MnTAP hired a Training Engineer and tested the tools, calculators, and methods on two mechanical WWTPs to prepare materials for the pilot cohort training. Through October 2021, MnTAP conducted outreach through a

partnership with an electric utility and presentation at Minnesota Rural Water Association (MRWA) Conference, and MnTAP and Commerce exhibited at the MRWA conference.

The Cohort 1 program used four training modules and two interim team calls as outlined in Figure 1 for the pilot cohort. In 2022, the program incorporated learnings and feedback from the pilot cohort and updated the program model to increase the effectiveness of the program for WWTPs and operators. The program now issues requests for information needed to prepare training for WWTP operators further in advance giving operators additional time to respond, and the timeframe between modules has been shortened resulting in an overall program that runs over a 3-month period versus the original 4-month period. Follow up occurs after participation in the WWTP Cohort Training to track impacts of the WWTP Cohort Training Program which is planned to occur through summer 2025.

Figure 1. Cohort Training Model



Since October 2021, MnTAP conducted 2 additional Cohorts. Besides direct outreach to municipalities, MnTAP conducted outreach through a presentation at the Minnesota Rural Water Association (MRWA) Conference and MRWA Continuous Improvement Workshop as well as at the Central States Water Environment Association and Minnesota Wastewater Operators Association Innovative Conference. Besides conducting the WWTP Cohort Training educating operators and providing energy project studies to municipalities on their WWTP, MnTAP provided additional benefit by coordinating with external resources to present on additional technical assistance or financial opportunities that could support more energy efficiency or renewable energy deployment at the WWTP or municipality besides those energy efficiency opportunities identified or implemented from the WWTP Cohort Training.

External technical assistance or financial resources that have been presented to municipalities through the WWTP Cohort Training or direct outreach from MnTAP include LEEP, energy utility rebates, U.S. Dept of Energy Sustainable Wastewater Infrastructure of the Future, U.S. Dept of Energy Midwest Combined Heat and Power Technical Assistance Program, National Renewable Energy Laboratory Renewable Energy Integration and Optimization platform, and Legislative Citizen Commission on Minnesota Resources Wastewater Renewable Energy Demonstration grants.

Metrics

Commerce reports on high-level metrics to the U.S. Department of Energy on a quarterly basis. At the time this report was written, Commerce had completed reporting through October 2022.

Table 3. WWTP Cohort Training Metrics Overview Totals Through 2022

Metric Description	Total
LUG: Provide WWTP training cohorts (# of governments assisted)	13
LUG: Conduct Outreach to MN consumers and communities on loan and financial resources available to them for EE/RE improvements (# of outreach mechanisms created & issued)	13
LUG: Provide in-house technical, project, or financial assistance to local units of government (# of governments assisted)	5
Education and outreach conducted: Number of contacts reached via webinars, site visits, fact sheets, or other (count)	178
Technical assistance provided: Number of sites (count)	20

Table 4. WWTP Cohort Training Wastewater Staff Trained and Training Costs by Site

Wastewater Staff Trained and Training Costs by Site				
Site Designation	**Plant Design Flow (MGD)**	**Cohort Number**	**Amount Paid for Technical Services**	**Number of WWTP Staff Trained**
A0	1.9	0	$0	0
B0	1.5	0	$0	0
A1	8.5	1	$0	2[6]
B1	0.9	1	$0	1
C1	0.5	1	$0	2
D1	3.9	1	$0	2
E1	5	1	$0	1
A2	2.2	2	$500	2
B2	7	2	$400	1
C2	2.6	2	$500	2
D2	1.8	2	$500	2
E2	11.25	2	$400	1
A3	6	3	$400	1
B3	2.5	3	$0	2
C3	2.4	3	$400	1
Total	57.95	All	$3,100	20

Table 5. WWTP Cohort Training Energy Project Study Recommendations and Implemented Items (follows page 12)

[6] Correction from previous reporting.

Recommendations and Implementation Status

#	Recommendation	Status	Calculated Energy Savings (kWh/yr)	Calculated Power Savings (kW)	Calculated Cost Savings ($/yr)	Implemented Savings (kWh/yr)	Implemented Savings (kW)	Implemented Cost Savings ($/yr)	Cost to Implement ($)
1	Install Timer to Cycle Biosolids Aeration Blowers	Implemented	118500	0	$8,300	140000	0	$9,800	$3,014
2	Implement Reduced Oxidation Ditch Mixing	Proposed	65000	7	$6,000	0	0	$0	TBD
3	Reduce Aeration with Smaller Blower	Not Planned	228600	18.2	$16,000	0	0	$0	TBD
4	Reduce Nitrification Pumping	Not planned[7]	816500	93.2	$67,500	0	0	$0	$0
5	Match Mixing with Digester Depth	Proposed	115700	0	$6,800	0	0	$0	TBD
6	Reduce biosolids aeration from 16.5h/day to 10h/day	Implemented	124200	0	$12,400	124200	0	$12,400	$0
7	Optimize Rotor Depth	Not Planned	25000	2.85	$2,000	0	0	$0	UNKNOWN
8	Switch from running two to one digester blowers, and reduce VFD speed to 37 Hz.	Implemented	71800	8	$5,700	71800	8	$5,700[8]	$0
9	Reduce Secondary Aeration Blower Speed from 80% to 50%	Proposed	114000	13	$9,000[9]	0	0	$0	$0
10	Reduce Digester Mixing	Proposed	202500	23.1	$15,600	0	0	$0	$0
11	Reduce Secondary Aeration	Implemented	82100	0	$4,110	82100	0	$4,110[10]	TBD
12	Reduce Digester Mixing	Proposed	51600	5.9	$3,500	0	0	$0	TBD
13	Operate hybrid blower in lead with the turbo blower in lag	Implemented	330000	34	$27,000	330000	34	$27,000	$0
14	Reduce biosolids blower speed to 50% and operate one day per week	Implemented	73000	21	$7,800	73000	21	$7,800	$0

15	Reduce secondary aeration dissolved oxygen setpoint from 4 mg/L to 2 mg/L	Not Planned	368000	42	$29,000	0	0	$0	$0
20	Decrease secondary aeration pressure setpoint from 7.5 to 6 psi on weekend nights	Planned	37500	0	$2,600	0	0	$0	$0
16	Remove one ultraviolet disinfection (UV) train from operation	Implemented	70100	8	$5,500	70100	8	$5,500	$0
21	Operate biosolids mixer 1 day per week for 30 minutes	Implemented	25400	0	$1,250	25400	0	$1,250	$0
17	Install a new, smaller secondary aeration blower with VFD	Proposed	216000	36.5	$17,200	0	0	$0	$0
18	Reduce biosolids blower operation to 12 hours per day on biosolids processing days	Implemented	55900	0	$3,300	55900	0	$3,300	$0
19	Install a VFD for the existing biosolids blower	Proposed	26400	9	$3,200	0	0	$0	$0
22	Reduce secondary aeration dissolved oxygen operation from 5 mg/L to 2 mg/L	Planned	1247000	142	$80,600	0	0	$0	$0
23	Remove one anaerobic digester from operation	Planned	98100	11	$12,400	0	0	$0	$0
24	Reduce speed of three motive pumps from 50 Hz to 45 Hz (83% to 75% speed)	Recommended	197000	45	$21,300	0	0	$0	$0

[7] This was previously implemented but implementation was reversed due to warm weather treatment issues.
[8] Updated to match final calculations.
[9] Updated to match final calculations.
[10] Updated to match final calculations.

25	Cycle anaerobic digester on a timer, 30 min on, 30 in off	Recommended	132000	0	$8,700	0	0	$0	$0
26	Schedule "Big Storage" and "Ground Storage" 50 HP mixers to never run simultaneously for 7 months of the year.	Recommended	0	37.5	$4,000	0	0	$0	$0
27	Operate only 70 HP blower at any given time	Recommended	0	48	$3,700	0	0	$0	$0
28	Reduce SBR blower speed an increase cycle time to reduce SBR blower power demand	Recommended	0	28.5	$2,250	0	0	$0	$0
29	Install netting around doors and use a fan as an alternative to air conditioner for six months of the year.	Recommended	28000	8.8	$2,000	0	0	$0	$0
30	Reduce oxidation ditch mixers from 80% speed to 25% speed.	Not planned	422900	48.4	$39,700	0	0	$0	$0
31	Rotate wintertime operation of aerobic digestion blowers on a timer such that only two of three operate at any one time	Implemented	0	50.35	$2,000	0	50	$2,000	$0
32	Reduce secondary aeration dissolved oxygen from 3 mg/L to 2 mg/L	Implemented	8800	1	$840	8800	1	$840	$0
Total		**Assorted**	**5,350,200**	**742**	**$431,150**	**981,300**	**122**	**$79,700**	**$3,014**

- Fifteen energy project studies were co-developed
- $143,062.98 invoiced by MnTAP to Commerce through September 2022

Conclusions & Next Steps

Commerce will continue to develop the Energy Savings Partnership with the Saint Paul Port Authority in the coming year through specifically identified improvements to the program. This includes: better aligning ESP marketing with Commerce energy programs; increasing the outreach for the program through improved tools and event presence; building new external-facing program documents to better integrate with local government projects and finance flows; and improving reporting information and internal review processes.

Commerce will continue with the LEEP Technical Assistance, increasing marketing efforts in order to better reach local governments and provide additional value toward their local project development. LEEP will continue as part of Commerce's technical assistance portfolio for local governments.

Commerce will continue to partner with and provide funding to the University of Minnesota, MnTAP on the WWTP Cohort Training Program. At this time, it is planned for Commerce and MnTAP to continue to work together on the Cohort WWTP Training through July 2025 to implement opportunities to achieve authorities and goals.

Commerce staff will continue to focus efforts on refining these programs, identify the resources necessary to support their success and reach, and will work with outside organizations and utilities on outreach efforts that drive energy efficiency projects across the State. In addition, Commerce will continue working with its key energy partners to target local governments, schools, and wastewater treatment plants with potential for improvement.