

ENR Refinement Program

(April 1, 2026)

Background:

Upgrading WWTPs with ENR has been essential for Maryland to meet its nutrient target loads. However, as the BRF program has reached its 20-year anniversary, many ENR related equipment and processes are approaching their useful life. If MDE does not reinvest in the ENR upgrades, the upgraded plants will be at risk of failure, which will lead to Maryland failure to continue to meet its target loads.

Program Goal:

As the ENR (including what former known as BNR) upgrades reach their 15th year anniversary of their substantial completion, WWTPs should be encouraged to commission a comprehensive engineering evaluation of the whole treatment system to identify improvements needed to allow ENR operation to continue for another 20 years with a new ENR goal of 2.85 mg/l in total nitrogen to help offset the climate change impact. The TN permit limit will not change due to the goal dropping from 3.0 to 2.85 mg/L. Obviously, the Department may change the permit limit in the future for other regulatory reasons. The phosphorus goal remains at 0.3 mg/L.

This program is not intended to be a maintenance program to replace equipment as needed. The new project life cycle must be another 20 years. The project can be phased in and scheduled based on the age and need of the process upgrade, especially if the BNR and ENR upgrades were completed separately.

ENR Refinement Process and Procedures:

- Upgraded WWTPs should become eligible for ENR refinement grant 15 years or more after the completion of the original upgrade. This would allow for the planning, design and construction before the original upgrade is 20 years.
- WWTPs must complete a comprehensive engineering evaluation of the existing ENR system and provide recommendations for upgrade to allow the WWTPs to achieve ENR for another 20 years.
- MDE may fund the engineering evaluation at 100%. MDE may require a funding application through WIFA for the engineering evaluation, if funding is not immediately available during the current fiscal year.

- Only the Conditions of MDE Grant Award are needed for the BPW to fund the engineering evaluation.
- Upon completion of the engineering evaluation, a preliminary eligibility determination will be completed by MDE using the existing program guidelines.
- Upon receipt of the preliminary eligibility determination, the WWTP owner can decide whether to accept BRF funding with the new total nitrogen (TN) goal for the proposed upgrade. Alternatively, the upgrade can be funded by SRF loan only without the new goal.
- If the owner accepts BRF funding, a new ENR agreement will be made with the new TN goal of 2.85 mg/l to help offset the climate change impact. The owner will then apply to WIFA during the regular solicitation process to fund the design and construction through BRF.
- BRF funding cannot be provided if the WWTP is required by the discharge permit to achieve less than 3 mg/L (when this becomes technologically feasible) TN due to expansion. It should be noted that while a facility can be optimized to make best efforts to achieve a total nitrogen goal of 2.85 mg/L (less than 3 mg/L), the Department has not allowed discharge permit limits less than 3 mg/L TN.
- Design costs will be prorated based on the eligibility percentage. Previously, we funded the design cost for minor WWTP at 100% because after completion of the design, MDE could have decided not to proceed with funding the project based on the cost effectiveness criteria. However, since these WWTP have already received ENR limits in the discharge permit, not proceeding with a refinement project is not an option without risking non-compliance.
- Upon completion of the design, a final eligibility determination will be completed by MDE using the existing program guidelines. The completed design must be consistent with the approved engineering evaluation. Significant deviations from the originally approved plans can negatively impact the BRF grant eligibility.
- The BRF funded project can proceed using the existing program procedures.
- The annual BRF O&M grants will continue to be based on the original goal of 3 mg/l TN providing additional incentives for those facilities that have agreed to the new goal of 2.85 mg/l or less.