VERIFYING WATER-RELATED DATA
GUIDANCE

WATER ENERGY NEXUS REGISTRY

INTRODUCTION

Water-Energy Nexus Registry (WEN Registry) participants with water and/or wastewater operations may optionally develop and report performance metrics for those operations. These metrics reflect the emissions intensity of the organization's water management processes and/or product deliveries for a given reporting year (RY) (e.g., annual metric tons of greenhouse gas (GHG) per acre foot (AF) of water delivered). The Water Sector Performance Metrics Module of the WEN Registry Protocol provides detailed methodologies for measuring and reporting water-related performance metrics.

Performance metrics may be developed and disclosed by water managers, and then used by other reporting entities to calculate the indirect emissions associated with purchased or consumed water. Verification body (VB) review of performance metrics, alongside the emissions inventory verification process, is required for public disclosure in the WEN Registry.

Overview of Water Sector Performance Metrics

Participants may develop performance metrics that reflect either (1) the average emissions intensity of their entire water or wastewater system (known as a system average), or (2) the emissions intensity of specific products they deliver (known as product-specific). Separate metrics are required for water and wastewater operations (e.g. agencies with both water and wastewater operations should develop a water system-average and a separate wastewater—or recycled water—system average).

The relevant emissions sources and water volumes considered when calculating performance metrics will depend on the type of metric being developed.[1] Participants are required to engage with a VB to review each metric in order for it to be publicly disclosed in the WEN Registry.

System Average Performance Metrics

To develop system-average performance metrics for water or wastewater management, participants in the WEN Registry compile and report the total annual volume of their water deliveries (or wastewater discharges) for a given RY. The annual volume of water or wastewater deliveries includes:

- Water: The total water volume delivered is the actual volume in AF of water moved to its final point of delivery in the RY, including the sum of all deliveries to retail customers, end-uses, sales or exports to other water suppliers, environmental or groundwater recharge, or placement of water into long-term storage (longer than one year).
- Wastewater: The total wastewater volume delivered or discharged is the annual sum of all effluent discharge and/or recycled water volumes delivered, exchanged, or sold in the RY.

1 System average or product-specific metrics may also be developed as either 1) delivery metrics, that reflect the emissions intensity of a participant's entire water supply chain, or 2) efficiency metrics, which only reflect the emissions intensity of a participant's own operations. Both types of performance metrics (delivery and efficiency) should be calculated using the same value for volume of water delivered in the reporting year.

Product-Specific Performance Metrics

To develop product-specific performance metrics for water or wastewater deliveries, participants in the WEN Registry compile and report the annual volume of each of their distinct product deliveries (or wastewater discharges) for a given RY. Examples of water or wastewater products include:

- Water: raw water, drinking water, retail potable, retail non-potable, wholesale potable, wholesale non-potable, non-revenue water, etc.
- Wastewater: discharge, recycled water by water quality standards, treated effluent, etc.

VERIFICATION OF WATER SECTOR PERFORMANCE METRICS

A VB's review of performance metrics consists of:

1. Verification that relevant Scope 1, 2, and/or biogenic CO_2 emissions[2] that result from water and/or wastewater operations are included in the numerator of each metric and reported according to TCR's requirements. Table 3 in the Water-Energy-GHG (WEG) Guidance 2.0[3] provides a detailed list of potential emission sources relevant to water management operations., and the General Verification Protocol v 2.1 outlines requirements for verifying the emissions used to calculate performance metrics.
2. A check that any Scope 3 emissions included in the numerator of a *delivery* metric[4] are consistent with WEN Registry reporting standards. Standards for estimating and reporting Scope 3 emissions relevant to performance metrics are provided in the Water Sector Emissions Quantification and Water Sector Performance Metrics sections of the WEN Registry Protocol.
3. A check that the water-related data used to calculate metrics is consistent with WEN Registry reporting standards and, where relevant, data reported to other programs. This consistency check must be completed to a 95% materiality threshold.[5] The remainder of this document and the Water-Related Data Matrix provide guidance to verifiers for reviewing the water-related data that is used to calculate performance metrics.

Participants can develop and report one or more of the following metrics directly in CRIS:[6]

- System-Average *Efficiency* Metric
  - With location- and/or market-based accounting methods
- System-Average *Delivery* Metric
  - With location- and/or market-based accounting methods

Participants with both water and wastewater operations will also be able to develop both a water and wastewater system average. WEN participants that choose to report granular performance metrics (e.g., product or activity-specific metrics) must calculate these metrics offline.

2 This includes combustion-based direct biogenic CO_2 emissions, and combustion-based indirect biogenic CO_2 emissions associated with consumed energy.

3 Organizations are encouraged to refer to TCR's WEG Guidance 2.0 for additional guidance on the development of performance metrics.

4 Delivery metrics consider emissions embedded in produced or acquired water supplies from the upstream water supply chain. Efficiency metrics will not include Scope 3 emissions.

5 The materiality threshold is evaluated at the level of the performance metric overall. (I.e., errors in the numerator and/or denominator that result in a performance metric that is 5% over or under reported are material). VBs must also evaluate materiality for the GHG inventory as a whole as part of the inventory verification.

6 Climate Registry Information System (CRIS) is an online reporting software that enables participants in measuring and reporting their carbon footprint.

If participants opt to use the CRIS calculator to develop and report system-average performance metrics, their VB will have access to these metrics on their Water-Energy Nexus Report. To access the Water-Energy Nexus Report, VBs should navigate to the "Review and Analyze" tab and select "Review Client Reports," and then run the "Water-Energy Nexus" Report within the Popular Reports list. The generated report contains:

1. A summary of the organization's entity-wide emissions by Scope;
2. A summary of the organization's water-related and/or wastewater-related system-wide emissions by Scope;
3. Total volumes of water delivered and wastewater discharged;
4. Optional disclosures for contextualization of data;[7]
5. A summary of all system-average performance metrics the organization opted to develop;
6. A detailed breakdown of all performance metrics by GHG; and
7. A detailed list of sources and facilities with their respective emissions allocation to the performance metrics.

VBs should review the entire Water-Energy Nexus Registry report to ensure that the emissions data and water volumes used to calculate performance metrics are materially correct.[8] This includes verifying that all emissions sources resulting from water and/or wastewater operations are accounted for appropriately, and a check to ensure that water volumes used in performance metric calculations are consistent with data reported elsewhere. VBs may require additional information outside of the Water-Energy Nexus Report. Supporting documents and calculations may be uploaded by the participant as public or private documents in CRIS.

EXAMPLE: REVIEWING THE EMISSIONS INCLUDED IN SYSTEM-WIDE PERFORMANCE METRICS

The numerator of performance metrics must account for all the emission sources that result from water and/or wastewater system management. In cases where a single source and/or facility supports multiple activities, organizations must allocate only the share of the total emissions that are directly attributable to their water and/or wastewater operations. Activities such as (but not limited to) administration, infrastructure maintenance, and human resources are not considered related to water management. Organizations that consume self-generated power within their boundaries must account for the total direct emissions associated with the self-consumed power by their water and/or wastewater systems in the numerator of their metrics.

7 Organizations may provide additional contextual data in their report which won't be subject to verification.

8 Optional disclosures are not required to be reviewed for accuracy by VBs.

Conducting a Consistency Check

When conducting a consistency check, VBs will check that the data used to calculate performance metrics is consistent with data reported to other programs or entities to a 95 percent materiality threshold. Verifiers should also confirm that:

- Volume of total water delivered and/or total wastewater discharged include all relevant deliveries as outlined in the WEN Registry reporting standards;
- Water-related data is expressed in appropriate units for comparison (e.g. AF of water, short ton of biosolid, and/or MMBtu of biogas;
- Water-related data is based on appropriate organizational and reporting boundaries for comparison (e.g., annual timeframe and operational or financial control approach); and
- Upstream water supply volumes are accounted for appropriately.

Verifiers should note that the volume of total delivered water (the denominator in the system-average metric calculation) may be comprised of data points from multiple reported data sets. Participants may need to provide several different sources of water delivery data as supporting documentation to present the full picture of their water operations. WEN participants that choose to report granular performance metrics (e.g., product or activity-specific metrics) must provide disaggregated water deliveries data to their VB (i.e. distinct volume of each water product delivered).

If relevant data points reported to other programs differs from data reported to the WEN Registry, participants should have a reasonable explanation for those discrepancies. It is important for the verifier to understand the reason for and implications of these differences.

Water Data Resources for Conducting a Consistency Check

Water and wastewater managers are required to submit a range of reports to governing agencies, and these reports often include data that can be used to crosscheck the water-related data used to calculate water sector performance metrics. Verifiers can perform "triangulation" analyses as a way of confirming water, wastewater, and co-product values reported by participants.

TCR's Water-Related Data Matrix summarizes mandatory and voluntary reporting programs for water managers in California. The matrix serves as a resource for VBs to locate accepted documentation that may be used to complete a consistency check of water-related data. TCR recognizes that the Water-Related Data Matrix may not be comprehensive. Additional relevant data sources not listed in the Matrix may likely be available and acceptable as supporting documents for the review of data used in the calculation of performance metrics.

Verifiers should note that the WEN Registry Protocol does not require water and wastewater managers to use any specific source documents to report data. Participants may provide multiple reports (including some self-reported data), that in aggregate, account for total water volumes defined in the WEN Registry's criteria. Whether or not an existing data set, or a combination thereof, is appropriate for calculating emissions is left to the discretion of the organization, and the opinion of the verifier with respect to the requirements outlined in the WEN Registry Protocol. Verifiers are advised to use professional judgment in determining whether the documentation available provides sufficient information about the accuracy of water-related data.

EXAMPLE: THE URBAN WATER MANAGEMENT PLAN AND THE WEN REGISTRY PROTOCOL STANDARDS

For most water managers, the total delivered water volume used in system-average performance metric calculation will be the "total demands" value reported in the Urban Water Management Plan (UWMP)[9] submitted to the California Department of Water Resources; this value accounts for total potable and raw water demands. Agencies whose operations include placing water into long-term storage, discharging treated wastewater, groundwater recharge, or recharging water volumes for environmental purposes will need to add those water volumes to the total volume of potable and raw water demand. Wastewater managers should aggregate all volumes of treated effluent discharged and recycled water delivered, used, sold, or placed into long term storage.

Urban Water Management Plans are only submitted once every five years; during interim periods, other documents must be provided by participants as supporting documentation.

WEN Registry Verification Documents

After completing verification of the emissions inventory, VBs must complete and submit a Verification Statement. After completing a review of any reported performance metrics, VBs must also complete and submit a WEN Registry Addendum Statement. Required verification forms are program-specific and can be found on TCR's website.[10]

9 For more information on data reported to the Urban Water Management Plan and how to access its reports, visit TCR's Water-Related Data Matrix.

10 For participants in the WEN Registry who are also members of TCR's Carbon Footprint Registry (CFR), VBs should use the CFR-specific forms.