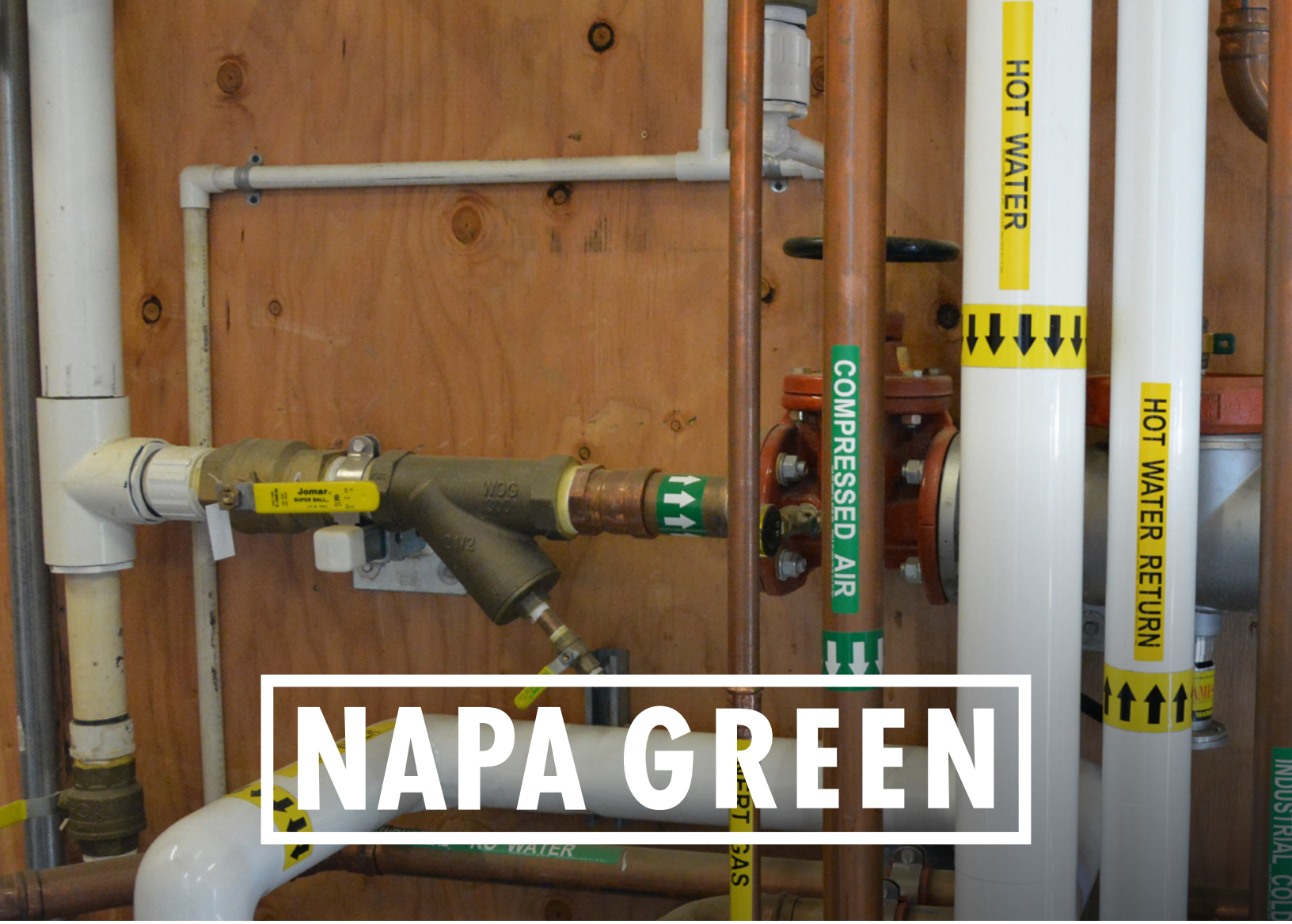

NAPA GREEN

WINERY WATER METERS

Water meters can be powerful tools to help you optimize your water use and the associated energy consumed to move the water around. Napa Green Winery certification requires that you have a water meter that tracks winery water use (ideally process, administration and hospitality usage, with landscaping usage isolated or on a separate meter). If you need to install a water meter this document provides some general and technical information on purchasing and installing a meter.

First, if applicable, talk with the company that manages your wells. They can advise you about appropriate meter types and placement and they can perform the installation.

Second, you will want to become familiar with the different types of meters that are available, and the different options for their use – owning versus renting, manual read versus Bluetooth/digital, etc.

Once the flow meter is installed we recommend recording water use weekly in Excel and trending monthly to help understand water use drivers and catch any unexpected rises in use, possibly indicating a leak or other opportunities to improve efficiency.

Meter types:

Water meters are usually mounted “in line” requiring a pipe to be cut, flanged and the meter inserted. These include disc and turbine mechanical meters, and magnetic flow meters (most expensive). All meters can have remote readouts if desired, but this increases costs, and requires electrical connections.

The simplest, lowest cost is either the disc or turbine type mechanical meters with a local readout. Often these meters can be retrofitted with a remote readout. Check with your supplier for the options and costs.

While there are “clamp on styles” they may not be as accurate and will require electrical power. These can be borrowed for free from PG&E’s lending library for temporary studies if needed. Also, instrumentation rental firms can provide clamp on meters for a fee, and some will record the data.

Meter operation options:

With the inline meters, as water passes through the meter, it drives an oscillating disc, a turbine wheel, or flow is sensed via a magnetic pickup embedded in the body of the meter. The meter must have no turbulence for the most accuracy, and your meter manufacturer will specify a straight run of pipe upstream and downstream (expressed in pipe diameters) to avoid turbulence.

Clamp on meters use an ultrasonic “Doppler effect” and usually require some particles in the liquid to reflect the signal for best accuracy. The meter must be set up for the pipe size, thickness, and material.

Manual reading of the meter is the simplest, and least cost. To remotely transmit the data you should contact your supplier for options, costs, signal methods and needed infrastructure (such as Wi-Fi strength/availability). On the local readouts, by using the three different readouts on the meter register, the meter can be used for water audits and studies.

Technical considerations:

Think about placement of meters to best optimize tracking of winery operations. Locate the meter in the water pipe system so that you can capture flows to your winery and winery process areas. Try to avoid capturing landscape irrigation flows, as well as vineyard irrigation, as this will hamper efforts to understand your winery water usage. You may want to install a smaller meter specifically for your landscaping water flows, particularly if you have a large area of landscaping.

To determine meter size you’ll need to look at the flows of the users your meter will be measuring, their required operating pressure, and the supply pressure at the well head or water supply.

- Typically your highest use will be prior to or during harvest with tank cleaning and floor/pad cleaning going on. Multiple uses at once will drive high flows (a ¾” water hose is around 20 GPM at 50 psi, a hose nozzle 5-7 GPM, and a tank cleaning nozzle 10-30 GPM). An example estimation would be:

USER	FLOW GPM	MAX GPM
3/4 hose @ 50 PSI	20	20
Nose Nozzle	5 to 7	7
Tank cleaning machine	10 to 30	30
Miscellaneous		10
		67

- In addition to user flows the pipe size where you are installing the meter will drive the meter sizing. Some typical flows for meter sizes are:

PIPE SIZE	MAX CONTINUOUS FLOW-GPM	PRESSURE DROP-PSI
1”	55	5.3
1 1/2”	120	7.3
2”	160	15

On the installation location:

- A threaded positive displacement meter will be adequate (depending on the size you choose), but flanged meters allow for easy removal.
- Make sure that you install the meter in the required orientation - most meters require a horizontal position, and cannot be installed in a vertical run.
- Be sure to allow enough space between fittings (elbows) for the meter, typically 10 pipe diameters upstream, and 5 pipe diameters down stream.
- Place the meter in a piping location that will always be full of water.

Meter cost:

- The cost of the meter will range from $240 for a 1” meter to $700 for a 2” meter (not including installation). Be careful about reducing the meter size to decrease costs as it may increase pressure loss.
- Pressure losses can range from 3 to 5 PSI or more depending on the flows and meter size.

List of some of the water meter vendors in the Napa area:

VENDOR	ADDRESS	CITY/TOWN	PHONE #
Pace Supply	10 Enterprise Court	Napa	707-252-9345
Wyatt Irrigation	4407 Solano Avenue	Napa	707-251-3747
R&S Supply	91 Sheehy Court	Napa	707-252-6969
Doshier Gregson	5365 Broadway St	American Canyon	707- 226-9698
Oakville Pump Service	7855 St. Helena Hwy	Oakville	707- 944-2471
Imboden Pump Service	1030 Pueblo Ave.	Napa	707-252-6493