



City of Wayne Newsletter

City of Wayne
Utilities

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ENERGYWISE TIP ~ Dry Transformers



It seems only fitting to have saved one of the driest energy-saving topics for the last month of winter! If you don't know what a dry transformer is, don't worry. There's a high probability you don't have one around your house to cause concern. Nonetheless, realize that even the smallest of communities likely have a building or two that require more than one electric voltage to operate various equipment, appliances, lighting systems and plug loads. Some facilities that commonly use a dry transformer include airports, hospitals, industrial plants, grain elevators, shopping centers, schools and manufacturing facilities. In fact, some farm operations have a variety of electrical requirements where a dry transformer enables the operator to suffice with only one electric service. The most common type is step-down single or three phase transformers that transform 480-volt (V) electricity to 240V, 208V or 120V.

Unlike liquid transformers, a dry transformer's circuitry and windings are not immersed in an insulating liquid. Therefore, dry-type transformers do not need to be placed inside of fire proof vaults or catch basins and eliminate the concern of toxic gases potentially venting out. Since dry-type transformers are much safer, they can be placed indoors and closer to loads, which provides greater efficiency.

While dry transformers can reduce the initial costs for electrical equipment, they can also be a source of additional ongoing cost due additional energy use. Often, purchasers base their decision on the lowest purchase and installation price without sufficient consideration of long-term economics. This approach to selection discourages manufacturers and contractors from offering or recommending the more expensive, energy-efficient options to customers who do not specifically request

them.

Note that all transformers require a small amount of current to create a required magnetic flux in their magnetic core. This is referred to as "no load current". While newer dry transformers have no load currents around two percent or less, units more than twenty years old frequently require an additional 3 – 5 percent of their full load current rating to accomplish voltage transformation. This electricity is used regardless of whether the equipment they power is operating or not. While this additional energy may not be noticed in an active facility, owners of vacant or sporadically-used properties are often surprised to see how much no-load current adds to their monthly utility bill. As an example, a facility that uses an older 75 kVA dry transformer could require an additional 1,000 to 1,600 kilowatt-hours (kWh) a month before accounting for any equipment or lighting use. To avoid this, the transformer should only be energized on those occasions when the facility is used.

In 2016, the Department of Energy established new minimum levels of transformer efficiency of about 98 percent for the smallest units and increasing to more than 99 percent for the largest units. It's important to realize that these efficiency values are determined with linear loads at 35 percent of the transformer's nameplate-rated load. However, computers, light fixtures, printers, elevators, or variable frequency drives are non-linear and rich in harmonic content. Furthermore, actual connected load is likely not to be at 35 percent of nameplate-rated load all the time. These real life conditions may easily double, triple or quadruple actual efficiency losses.

Energy consumption by the transformer is not the only energy factor. Transformer efficiency losses are dissipated as heat. If the

dry transformer is located inside a controlled temperature environment, this additional heat likely needs to be removed by air conditioning. A 75 kVA dry transformer with a monthly energy loss of 1,600 kWh will require an additional 450 to 650 kWh of electricity for cooling.

From a maintenance perspective, keeping dry transformers in top working condition involves continuous inspection. Operators must closely check and clean the grills, louvers or ventilation slits to make sure they are not blocked. Unfortunately, cleaning usually requires de-energizing the transformer, which can only be accomplished when the facility is unoccupied. Rather than coordinating an outage, this often leads to no cleaning. Omitting the cleaning decreases the transformer efficiency due to decreased airflow, decreases its lifespan and creates a fire hazard.

Before purchasing a new or replacement dry transformer, ensure you fully understand your existing and potential future electric loads in terms of size and duration. Consider not only your upfront purchase and installation costs, but lifespan costs over a dry transformer's average life of 15 to 25 years. When in doubt, seek engineering assistance to address these long-term considerations.

For additional ways to make your home, business or community more energy efficient, contact your local electric utility. We can provide additional insight to many other efficiency opportunities.

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CITY COUNCIL MEETINGS

March 5th
March 19th

CITY HALL OFFICE HOURS

City Hall office
Hours are:
7:30 a.m.
until 4:30 p.m.



HELP WANTED!

The Wayne Aquatic Center is now accepting applications for an Asst. Pool Manager and Lifeguards.

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**Please contact the Community Activity Center for more information at 402-375-4803**



## Department News ~

### Wayne Public Library ~

**Classes continue for the Innovation Studio** and are listed on the calendar in orange. Taking a class is required for the use of the studio machines. Most machines do have age requirements for use. Call or stop in to register—each class is limited to 3 participants.

“Nebraska Library Innovation Studios,” which is brought to us by the Nebraska Library Commission, partnered with the University of Nebraska—Lincoln Nebraska Innovation Studio, Nebraska Extension & Regional Library Systems, has brought a variety of equipment to our library for community members to try out. This project was funded through a National Leadership Grant awarded by the Institute of Museum & Library Services. Keep an eye on our Facebook page, as well as other media sources, for more information about this project.

**Smart Phone 101** will be Monday evening March 11th from 6:00—7:30 p.m. This is just the basics!! You will learn about what kind of phone you have, learn how to answer your phone, text, email and talk about what apps are. You'll need the passwords for your phone and emails, and you will need to have an email connected with your

phone. We will also discuss what using your data means. Bring your questions!

**Winter Story Time**, continues Saturday mornings at 10:30 a.m. Join us every Saturday morning through March to hear stories and play.

**The Needle Night group** continues to meet. This is a very informal group and isn't limited to knitting. We welcome anyone who crochets, weaves, etc. Set aside every Thursday from 6:00-8:00 p.m. for needlework with anyone who shows up. The group also joins up with a college group on the last Thursday of the month at the campus library while WSC classes are in session.

Enjoy a relaxing evening! **Adult Coloring Night** on Tuesday, March 12th from 6:00-7:30 p.m. at the library. All supplies are provided, plus a light snack will be available at this FREE event sponsored by Pac-N-Save. Coloring Nights are open to men and women ages 18 and older. Coloring benefits people by lowering stress & anxiety levels, helping a person focus on the present to achieve mindfulness, and

giving the brain relief by entering a meditative state.

**Toddler Time** takes place on Wednesday mornings at 10:00 a.m. Parents and caregivers of young ones are welcome to join for stories and time with busy bags.

Join us for an **Adult Craft Night** on Tuesday, March 18th at 6:00 p.m. Teresa from Highway 15 Salvage will join us to teach how to make a sunhat wreath for your spring door décor. Please register and pre-pay by March 15th.

Patrons can access many of our great **online resources** 24-hours a day. Ask at the desk for more information on Libby & Overdrive for eBooks and audiobooks that may be downloaded to your personal device! Or, learn a new language with Pronunciator.

**Book Club** meets March 26th at 6:30 p.m. The Book Club selection for the month is “What She Left Behind,” by Ellen Marie Wiseman.

#### WISE WORDS

“Sometimes you have to take a break from being the kind of boss that's always trying to teach people things. Sometimes you just have to be the boss of dancing.”

~Michael Scott, *The Office*

#### TRANSFER STATION HOURS

Monday & Friday

9:00 a.m.—1:30 p.m.

Tuesday

11:00 a.m.—2:00 p.m.

Saturday

8:00 a.m.—Noon

Or by appointment  
Tuesday, Wednesday  
and Thursday

## Green Notes ~ Say Hello to Blossoms, Butterflies, Birds and Fees

 We are all looking forward to spring, and there are many signs that it is approaching. One is the numerous seed and plant catalogs that many of us get in the mail. As you look through these catalogs and start to plan how to make your home look more colorful for the summer months, consider an important part of the system that makes those flowers and our fruits, vegetables, and many other crops possible – the pollinators. “Pollinators” refer not only to bees, but also to butterflies, some birds (like hummingbirds), and many insects.

Catalogs will often tell you which plants are most attractive to these busy little creatures. UNL Extension

([www.extension.unl.edu/](http://www.extension.unl.edu/)) also has information on-line to help in selection. The Xerces Society ([www.xerces.org/](http://www.xerces.org/)) is another excellent source of pollinator information. If you want to be really eco-conscious you can start including native plants in your landscape. They not only support the pollinators but are better adapted to our climate, requiring less water and less work once established.

Welcome summer and our helpful pollinators with beautiful blossoms this year.

For more tips on the Green Path to the Good Life, like the Wayne Green Team on Facebook or visit [www.cityofwayne.org/greenteam](http://www.cityofwayne.org/greenteam)

The Fair Housing Act protects people from discrimination when they are renting, buying, or securing financing for any housing. The prohibitions specifically cover discrimination because of race, color, national origin, religion, sex, disability and the presence of children.

If you believe you may be a victim of housing discrimination, contact HUD 1-800-669-9777 or your local Fair Housing representative:

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**YOUR CHOICE. YOUR RIGHT. YOUR HOME.**

