



## CONSERVATION ENHANCEMENT ACTIVITY

E533C

## CONSERVATION STEWARDSHIP PROGRAM

### Install VFDs on pumping plants

#### CONSERVATION PRACTICE: 533 - Pumping Plant

**APPLICABLE LAND USE:** Crop (Annual & Mixed); Crop (Perennial); Pasture; Associated Ag Land; Farmstead

**RESOURCE CONCERN:** Energy

**ENHANCEMENT LIFE SPAN:** 1 year

#### Enhancement Description

Install Variable Frequency Drive(s) (VFD) on Pumping Plant with the correct sensors, on all pumps as indicated in the evaluation.

#### Criteria

- Implement recommendations for components from a pumping plant evaluation where the FVD is feasible, reduces energy use, and the existing or new electric drive unit will support the VFD.
- The replacement or retrofit system and related components or devices meet or exceed currently applicable federal, state, and local standards and guidelines.
- Components of this enhancement will meet the NRCS Conservation Practice Standard Pumping Plant (Code 533).



**Documentation and Implementation Requirements**

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

**Participant will:**

*Prior to implementation:*

- Review pumping plant evaluation, season of use, existing pump motor needs, and current operation.
- Evaluate site specific energy alternatives and net benefit of the Variable Frequency Drive(s).
- Ensure that energy utility provider has reviewed and approved location of installation on pump motor, including needs for electrical harmonic filter.
- Obtain written documentation of utility approval for site with requirements for installation.

*During implementation*

- Ensure installation meets federal National Electrical Code and any local or state codes.

*After implementation*

- Provide documentation of installation including first season energy use for comparison to prior years to NRCS for review to verify implementation of the enhancement.
- Monitor and maintain system for the life span of the practice (10 years).

**NRCS will:**

*Prior to implementation*

- Provide and explain NRCS Conservation Practice Standard Pumping Plant (Code 533) as it relates to implementing this enhancement.
- As needed, provide additional technical assistance to the participant as requested.
- Review with the participant the costs and benefits of the installation of Variable Frequency Drive(s).
- Develop written specifications describing site specific details of installation, including:
  - The replacement or retrofit system and/or related components or devices.
  - Baseline system energy usage and potential energy savings from the implementation of this enhancement.
  - Plan view showing the location of the measures in relation to other structures or natural features, where appropriate.
  - Electrical wiring that meets the requirements of the National Electrical Code.
  - Operation and maintenance plan that is consistent with the purpose(s) of this practice, its intended life, and safety requirements.



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*After implementation*

- Verify energy savings based on system efficiency before and after implementation of the enhancement

**NRCS Documentation Review:**

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date