

Maple Sap Vacuum Pump VFD

Measure Number: **I-A-10 a**
 Portfolio: 77
 Status: Active
 Effective Date: 1/1/2012
 End Date: TBD
 Program: Business Energy Services
 End Use: Motors

Referenced Documents

- [Maple Sap VFD_Analysis](#)

Description

The measure is a VFD attached to the vacuum pump in a maple sap extraction system that allows operators to manage system pressure by reducing pump speed rather than by using an inefficient method such as a differential pressure relief valve.

Estimated Measure Impacts

	Average Annual MWH Savings per unit	Average number of measures per year ^[1]	Average Annual MWH Savings per year
Maple Sap Vacuum Pump VFD	1.81	18	32.52

Algorithms

Electric Demand Savings

ΔkW	= 1.38 kW
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[Symbol Table](#)

Electric Energy Savings

ΔkWh	= 1,807 kWh
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Where:

ΔkW = gross customer connected load kW savings for the measure

ΔkWh = gross customer average annual kWh savings for the measure

Savings estimates are the average savings claimed for EVT custom projects in 2010 and 2011, see Maple Sap VFD_Analysis.xls

Baseline Efficiencies

The baseline reflects a maple sap extraction system without a VFD equipped vacuum pump.

TRM Characterization:
Maple Sap Vacuum Pump VFD [I-A-10 a]

High Efficiency

The high efficiency case is installation and use of a VFD equipped vacuum pump.

Operating Hours

N/A

Load Shapes

115a Streetlighting

Number	Name	Status	Assigned To	Portfolio	Winter On kWh	Winter Off kWh	Summer On kWh	Summer Off kWh	Winter kW	Summer kW	Effective Date	Expiration Date
115	Streetlighting	Active			20.5 %	50.6 %	6.1 %	22.8 %	98.0 %	0.0 %	1/1/2012	

Net Savings Factors

Measures

MTCSAPVP Maple Sap Vacuum Pump VFD

Tracks

6013CUST Cust Equip Rpl

6013PRES Pres Equip Rpl

Track Name	Track Nr.	Measure Code	Free Rider	Spillover
Cust Equip Rpl	6013CUST	MTCSAPVP	1.00	1.00
Pres Equip Rpl	6013PRES	MTCSAPVP	1.00	1.00

Persistence

The persistence factor is assumed to be one.

Lifetimes

15 years.

Measure Cost

\$1,692^[2]

O&M Cost Adjustments

There are no standard operation and maintenance cost adjustments used for this measure.

TRM Characterization:
Maple Sap Vacuum Pump VFD [I-A-10 a]

Fossil Fuel Description

Footnotes

[1] Assumes that there will be ~50% more Rx measures per year than the average number of custom measures per year in 2010 and 2011, see Maple Sap VFD_Analysis.xls

[2] Derived from Efficiency Vermont custom data 2010-2011, see Maple Sap VFD_Analysis.xls