

A Program to  
promote the use  
of Solar  
Photovoltaic  
Panels for  
Residential Power.

Solarize Ashby

11/21/2015

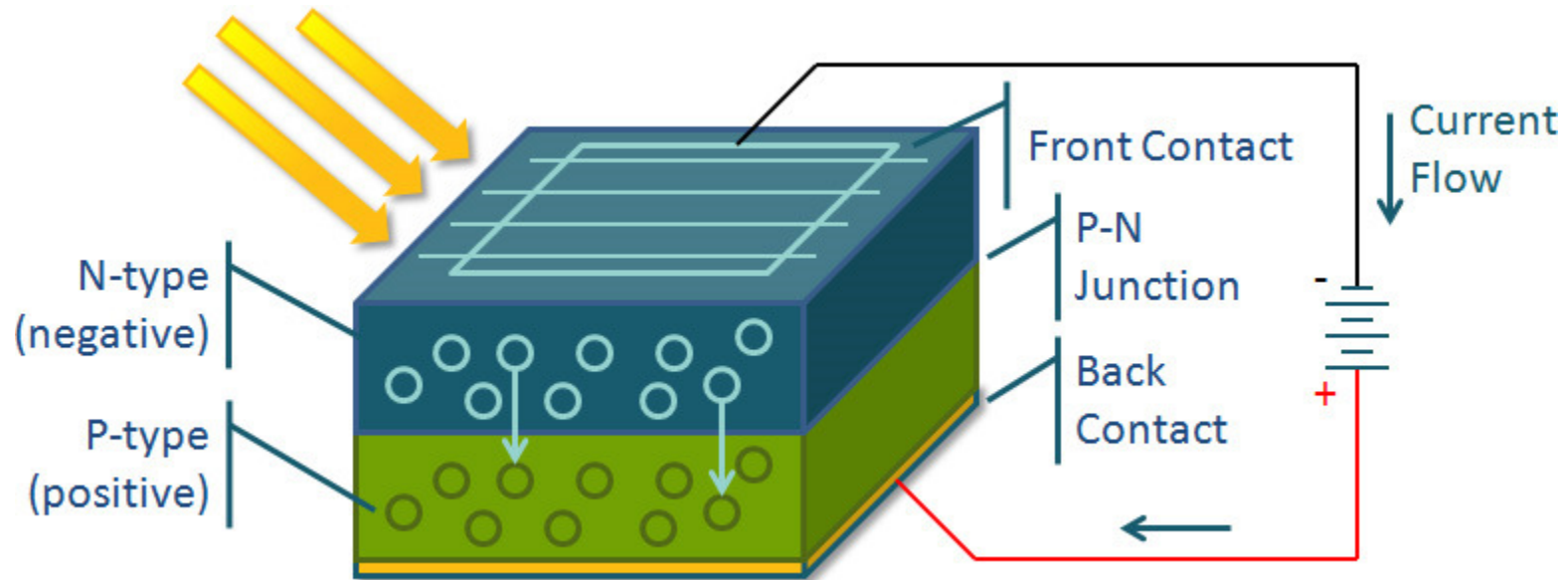
# An Introduction to Solar Panels used for Residential Power.

## **Vocabulary :**

**Photovoltaic** - Solar panels convert visible sunlight to renewable electrical energy and are often called photovoltaic modules (PV) or solar modules.

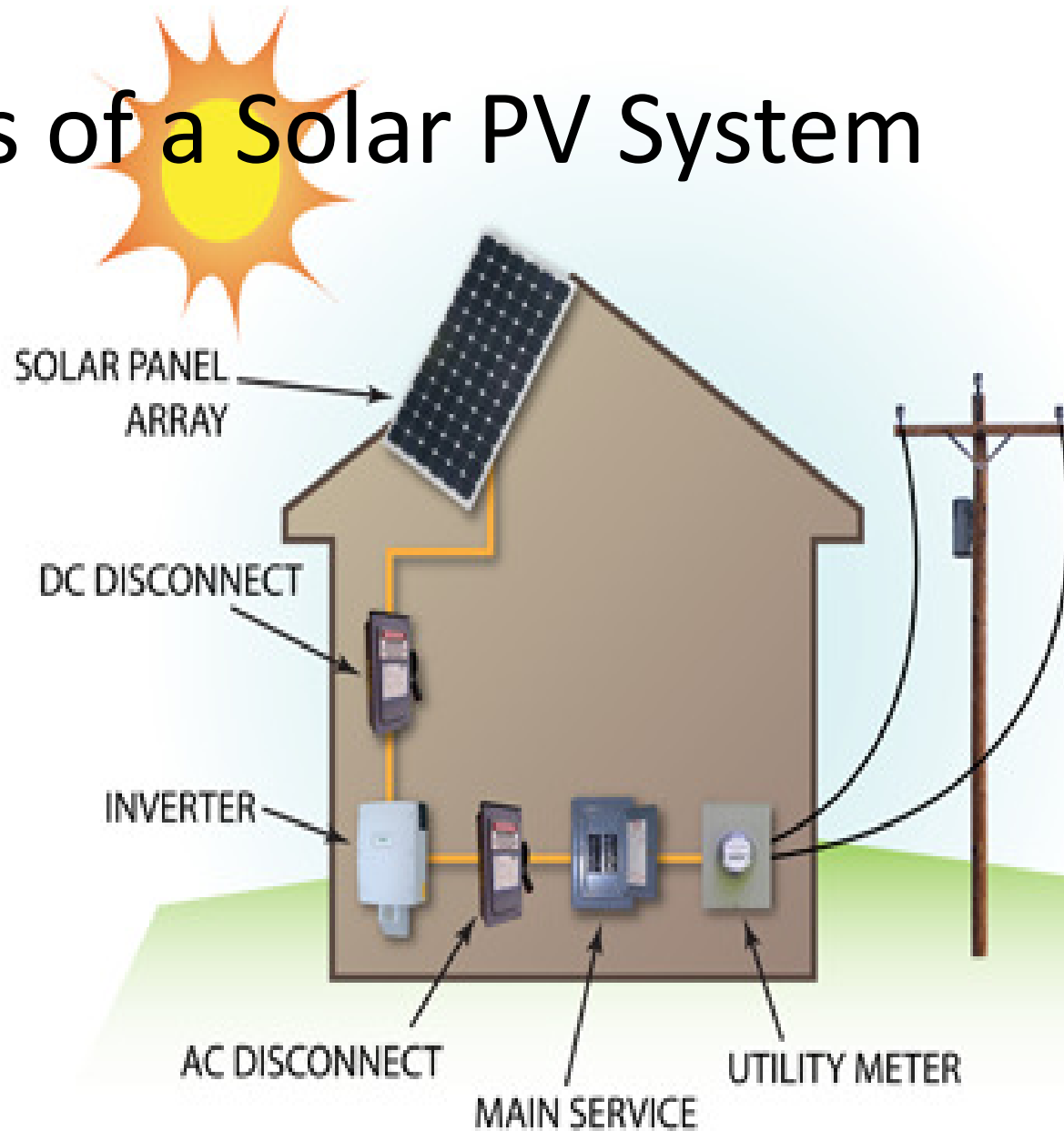
**Solar Hot Water** – water or a fluid is heated by the sun and transferred to domestic hot water or heating system.

# How a solar photovoltaic panel works



# Parts of a Solar PV System

- Solar Panels
- Mounting System
- Inverter
- System Meter – revenue grade
- DC and AC disconnects
- Unifit Net Meter



# What is an SREC?

## Solar Renewable Energy Credit

- Bought by Electric Utilities
- Produced by owners of Solar Panels
- 1 SREC = 1 Mwh of power
- Regular registration of all power produced  
MassCEC site for entry of data
- Sell or allow an aggregator to sell

SREC's are sold on a spot market or through long-term sales

To learn more about the  
technology go to:

[www.altestore.com](http://www.altestore.com)

All sorts of webinars and tutorials

# Energy Efficiencies

Solar is expensive – reduce cost of system by reducing what you need.


- Reduce usage – energy efficient appliances and lights
- Reduce loss – insulate, caulk, tighten
- Cut costs – newer technologies for efficient heating/cooling
- Lots of other small changes add up
- [MassSave.com](http://MassSave.com) for a free energy audit.

# How will Solarize Ashby work?

- Pre-selected installer
- Agreed upon pricing
- Tiered pricing decreases with increase in installations
- Free site assessment
- Free quote
- Home owner signs a contract with the installer
- Installer may have financing options
- System will be in-service before 12/31/16 – qualify for 30% Federal Tax credit
- Some assistance with applying for low interest loans, tax credits and SREC's.



# Time Line



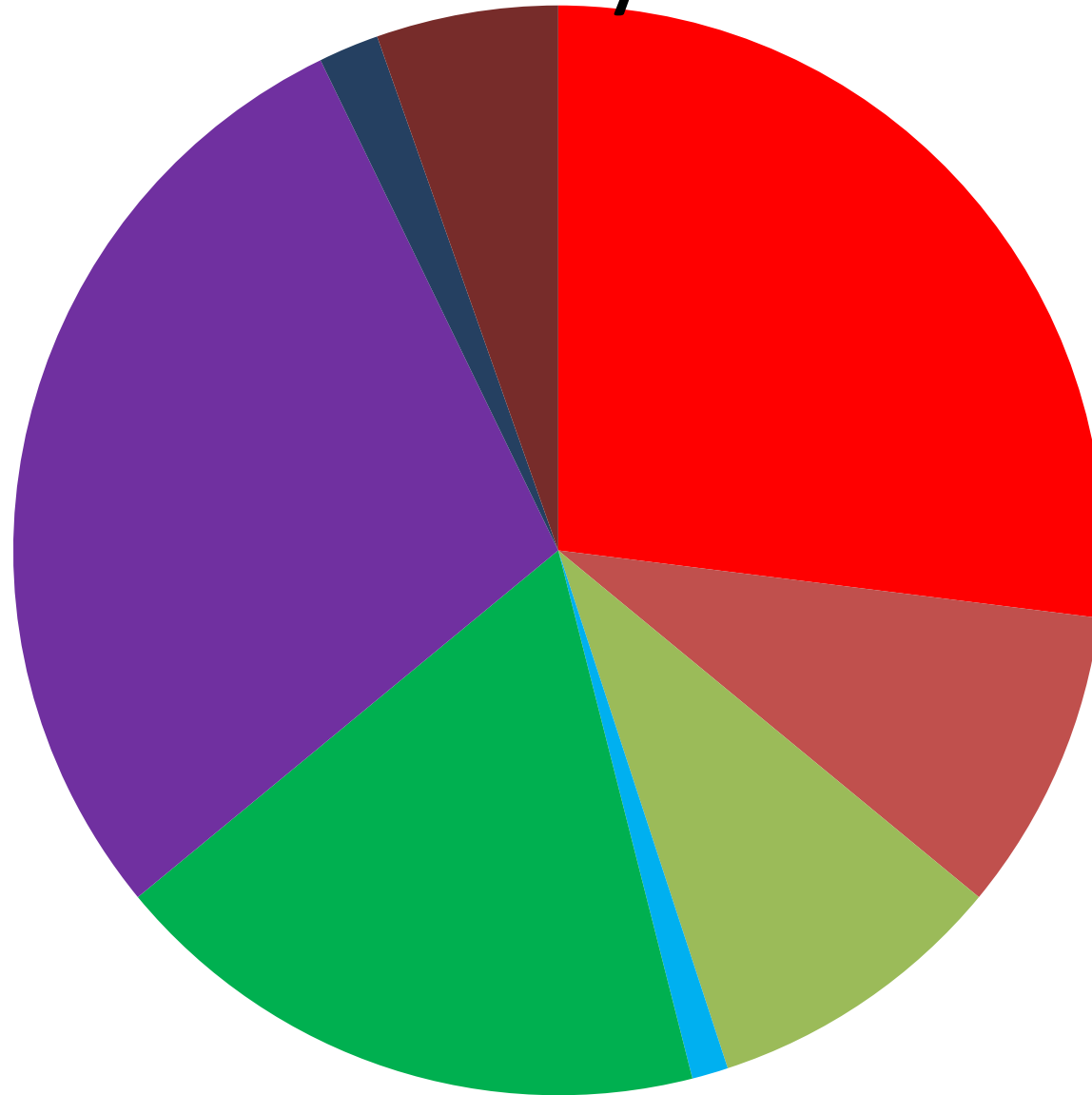
RFQ for Solar Installers: Released	November, 2015
Announce Selected Solar PV Installer	January 2016
Meet the Installer Presentations	February 2016
Customer Sign-Up Period Begins	February 2016
Customer Sign-Up Period Ends	September 30, 2016
Deadline for Systems to be placed in service	December 31, 2016

# What does a system cost?

Depends on the size.

- Panels - \$.89 – 1.5/w  
Roughly \$250 - \$350/panel
- Mounting System – roof, ground, pole  
\$.20 - .50/w
- Inverter – per panel or per system \$.20 - .50/w
- Meters and kill switches - \$200-\$300
- Connecting - \$50 - \$5,000 – depending on distance and trenching and wire required.
- Labor – installers, electricians, etc.  
\$2,500 - \$6,000
- 5kW system - \$17,500 - \$20,000

# What does a system cost?



11/31/2015  
■ Solar Panels ■ Mounting ■ Inverter ■ Meter & Kill switches ■ Connecting ■ Labor ■ Add-ons ■ Site Prep

# Incentives available to decrease the cost

- Low Interest loans through MassCEC
- 30% Federal Tax credit for all systems in-service by 12/31/16
- \$1,000 Mass State Tax credit
- SREC's – paid back to owner of the system for each 1 Megawatt hour of power produced

- **\$17,500 system** - \$3.5/w - 5kW system  
30% tax credit = \$5,250  
Mass Tax credit = \$1,000  
Total System cost = \$11,250
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- Electricity Savings  
\$150/mo. x 12 = \$1,800  
Total paid last year = \$270  
**Savings = \$1,530/yr**
  - SREC's - 7 megawatts produced  
7 x \$250 = \$1,750/yr\*
  - Annual savings = \$3,280
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**System Paid off = \$11,250/3,280 = 3.43 years**

# Life of the System?

Panels have a 25 year guarantee for production of at least 80% of the original energy

10 year warranty ( at least) from the installer on installations

10 year warranty on the inverter.

So, for a few years of electricity cost, you get another 20+ years of electricity at a fraction of the cost.