Strategic Energy Planning

Prepared by Utility Savings Initiative

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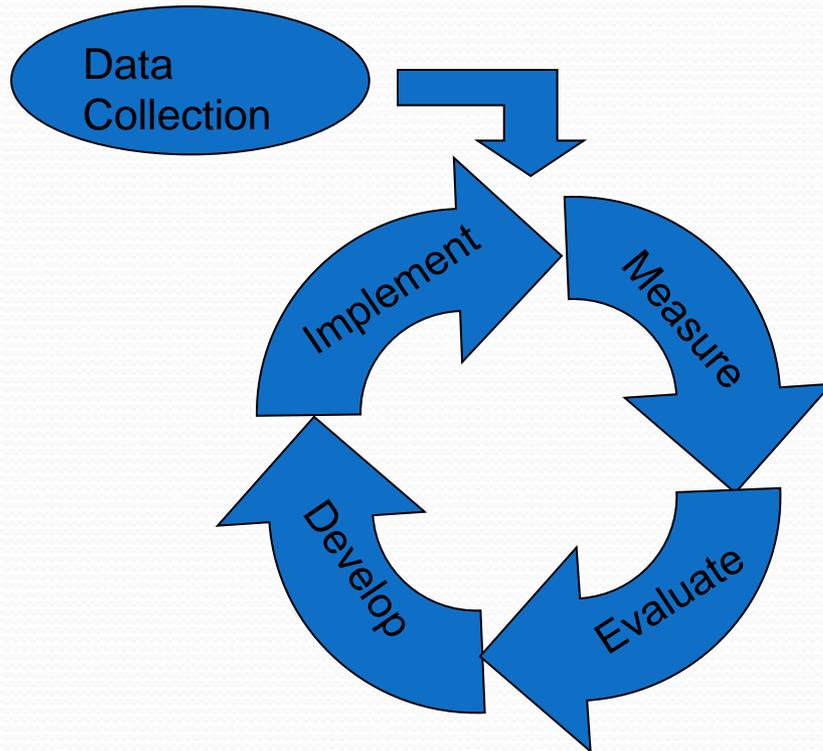
State Energy Office

Department of Commerce

Agenda

Process Steps

- Why
- How
- Data Collection
- Measure Results
- Evaluate Results
- Develop Plan
  - Strategies
  - Tactics
- Implement Plan

Why

"Failing to Plan is Planning to Fail"

Alan Lakeim

Why

- Manage Utility Consumption
  - Control costs
    - Savings vs. Avoided Costs
  - Control GHG
- Improve building performance.
- Identify emergency conservation procedures
- Create equipment replacement Policy

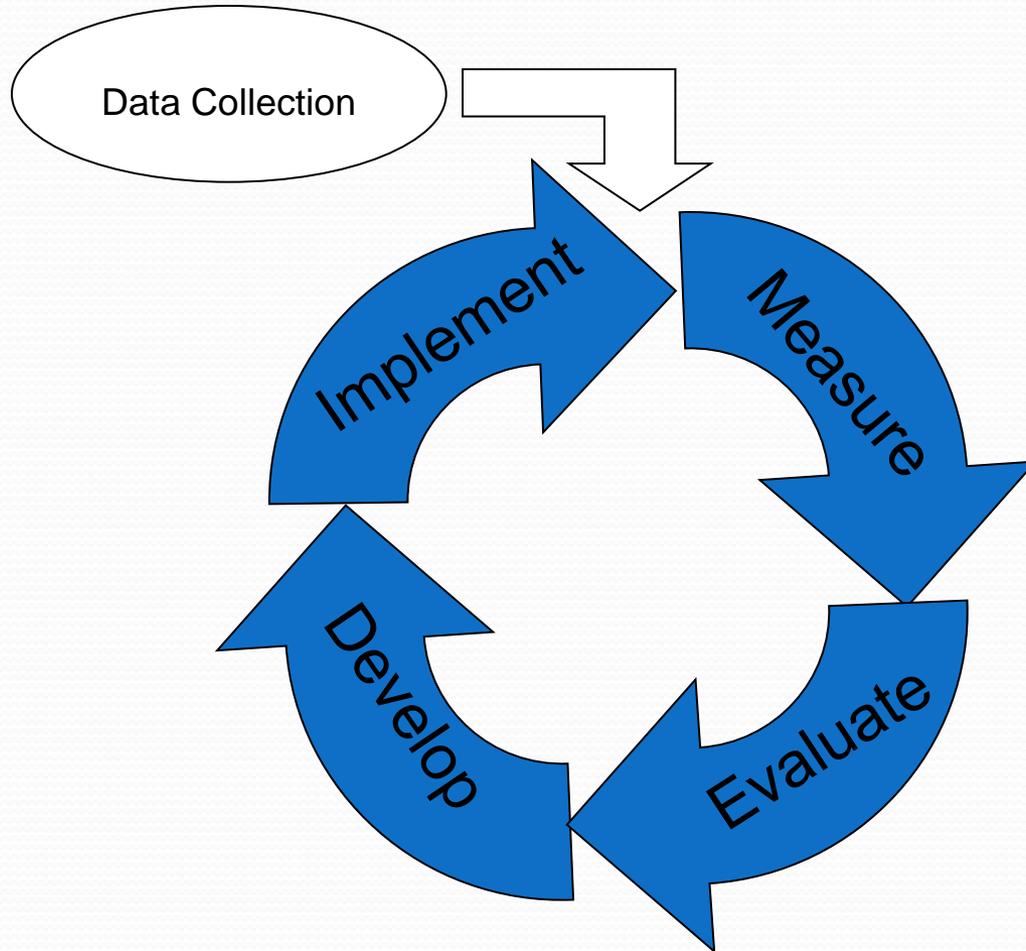# How

Assemble stakeholders

Internal Buildings	**Community Based Programs**
Facilities personnel	Home owners associations
Building Occupants	Chamber of Commerce
Utility providers	Community Organizations
Management	
Financial personnel	
Human Resources	

Energy Plan Cycle

Continuous Process Improvement

Data Collection

- Utility bills consumption and cost - monthly
  - Total costs including base meter charges, fees, taxes
  - I year history minimum
  - Provides a baseline and ability to measure progress
- Buildings, equipment inventory (CMMS), insurance lists, plug load inventory including space heaters
- Building assessments

Self Assessment

Self Assessment

Self Assessment

Plug Load Awareness

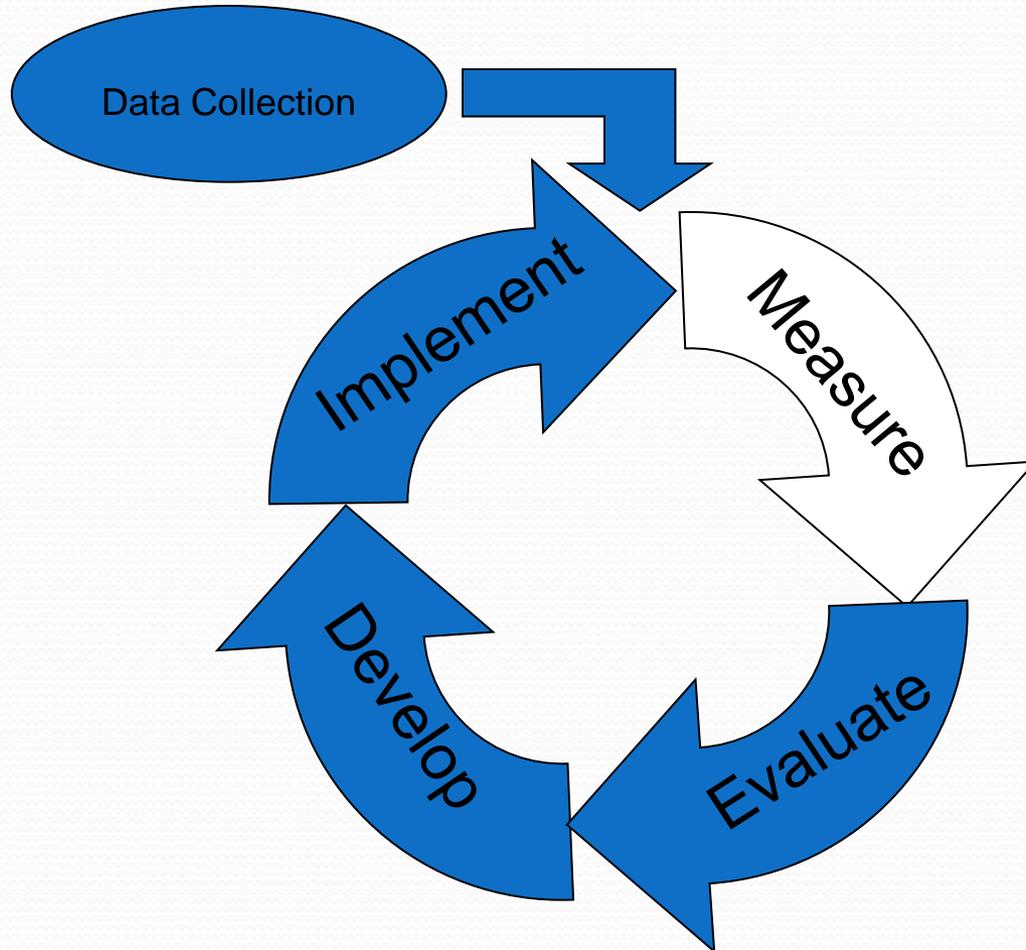Thermostat above both coffee pot and toaster oven

Plug Load Awareness

Space Heaters cost between $150 and $250 dollars a year to operate per heater. Don't forget to add extra cooling costs in the summertime.

Data Collection

- Sub-meter Data
- Purchasing policies
  - Energy star
  - Life Cycle Cost Analysis
- Current policies, programs, projects and funding

Measure Results of Data Collection

- Identify gaps in data:
    - Supply side (utilities)
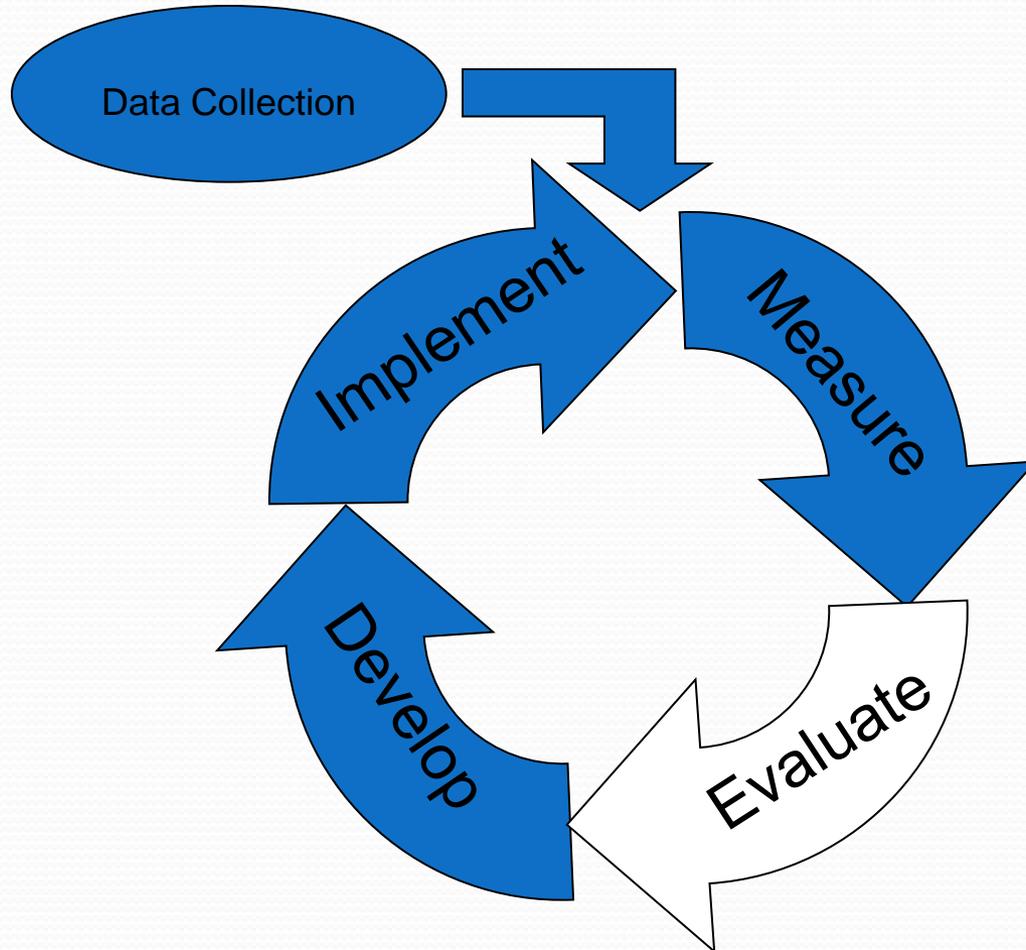   - Demand side (owner)

Develop methods to record consumption and cost data both supply and demand recommended

Measure Results of Data Collection

- Building audit and maintenance reports
  - Hot/cold areas vs. calls
  - Plug load
- Current projects, programs and funding
- Purchasing policies

Energy Plan Cycle

Continuous Process Improvement

Evaluate Results of Data Collection

- Validate data accuracy
- Do gaps need to be filled before continuing
  - If yes, becomes part of plan
- Building data
- Create prioritized list of ECMs
  - Group: no-cost /low-cost/capital
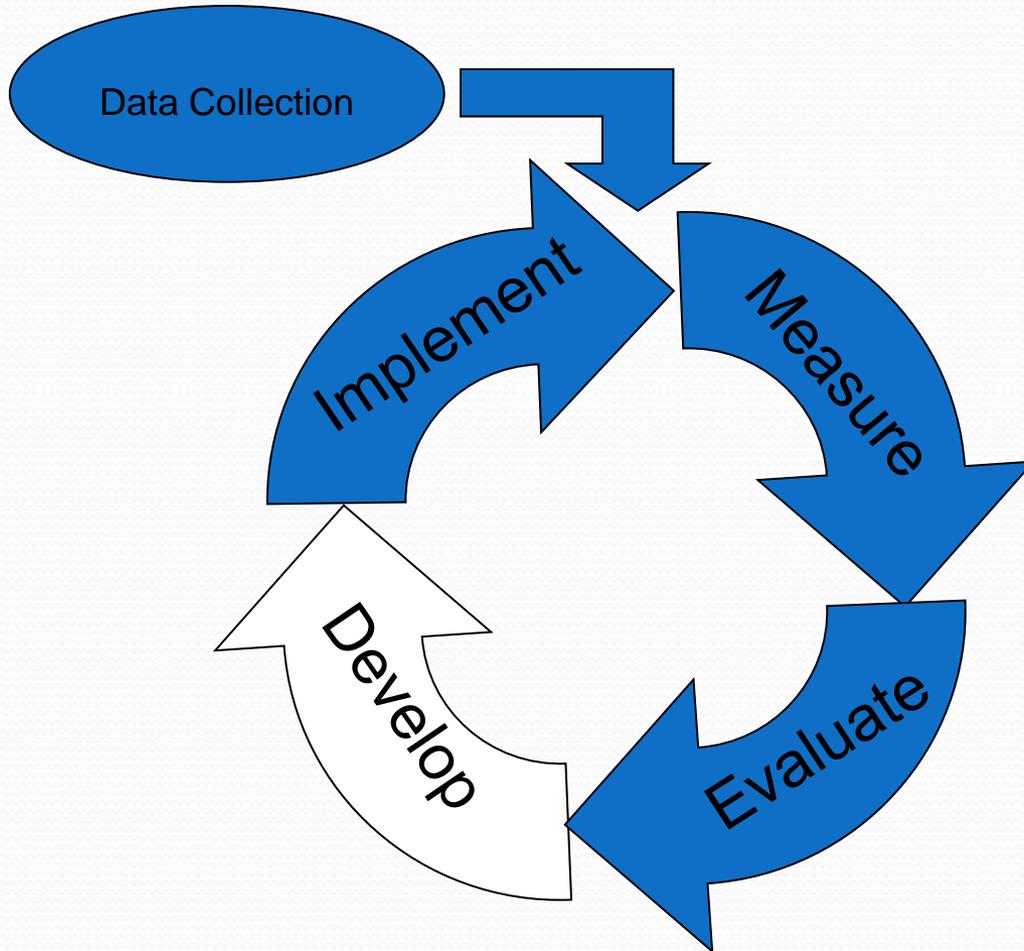- Establish key performance indicators (KPI's)

Evaluate Results of Data Collection

Key Performance Indicators

➢The Energy Office has to standardize on Btu/gsf/yr and gal/gsf/yr as an overall state level KPI

➢Should this metric not accurately reflect your performance you may create additional KPIs and report this in your Plan

Develop the Plan

- S.M.A.R.T Goals in a S.M.A.R.T Plan
  - **S**pecific
  - **M**easureable
  - **A**ccountability
  - **R**ealistic
  - **T**ime-Dependent

Develop the Plan

- Keep it focused and simple

- Less may be more

- Sustainable

Develop the Plan

Strategies

- The philosophies, plans and policies supporting long term energy management goals

- Example: "We will implement conservation measures that have a simple payback of two years or less."

Develop the Plan

Tactics

- Short term actions that support strategic energy management goals

- Example: We will replace all incandescent EXIT signs in buildings ABC and XYZ this year with more efficient technologies

Develop the Plan

Primary USI Focus Areas

- Executive summary
- Supply side (supplier side of meter)
- Demand side (owner side of meter)
- Communication and Training
- Water

Develop the Plan

Optional Focus Areas

- Transportation

- Community Based

  - Residential programs

  - Non-profit programs

  - Commercial, industrial, retail programs

Develop the Plan

Executive summary elements

- Multi year look ahead (5 years)
  - Summarize where you are and where you want to go
- Brief description of facility/campus
- Top Executive statement of commitment

Develop the Plan

Executive summary elements

- Mission and goals of plan
  - 20% reduction by 2010
  - 30% reduction by 2015
- Assign overall responsibility and accountability
- List KPI

Develop the Plan

KPI Example:

	energy evaluation					water/sewer evaluation			
year	energy $/gsf	$/mmbtu	$/mmbtu %change	btu/sf	btu/sf %change	$/mgal	$/mgal %change	gal/sf	gal/sf %change
2002-03	$1.14	$6.356		178,764		$3.27		51.82	
2003-04	$1.26	$9.189	45%	136,616	-24%	$2.97	-9%	49.13	-5%
2004-05	$1.25	$9.590	51%	129,989	-27%	$2.98	-9%	47.90	-8%
2005-06	$1.45	$12.775	101%	113,548	-36%	$2.69	-18%	43.78	-16%
2006-07	$1.43	$11.661	83%	123,042	-31%	$2.80	-14%	40.71	-21%

Develop the Plan

Focus Area Tables

Focus Area A:	
Strategy 1.	
Strategy 2.	
Strategy 3.	

Next 12 Months Activities	Measurement Expected Actual		Savings Expected Actual		Cost	Assigned to	Funding Source

Develop the Plan

Focus Area 1: Communication and Training	
Strategy 1.	Provide USI partners with the skills necessary to identify and implement energy efficiency measures
Strategy 2.	Data review, analysis and reporting of energy use and energy plan information submitted by partners and as required by statute
Strategy 3.	Create, publish, update annually and implement a state level energy management plan that supports program requirements
Strategy 4.	Establish regional user groups to foster participant dialogue on best practices
Strategy 5.	Participate as speakers in relevant workshops and conferences to generate program awareness and participation

Develop the Plan

| 2010-2011 Activities | Measurement | | Investment | Assigned to | Funding Source |
	Expected	Actual			
Conduct 3 EMD training sessions	75 participants	105	$133,105	Len Hoey	ARRA
Conduct 3 workshops on creating an energy plan	60 participants	35	Staff time	Len Hoey / USI team	Salary
Develop USI track for annual conference	10-12 sessions	5	Staff time	Renee Hutcheson / USI team	Salary
Create regional USI user groups	4 groups	0	Staff time	Joe Davis / Reid Conway	Salary
Maintain key databases tracking USI performance	USI consumption and liaison databases		Staff time	Len Hoey	Salary
Conduct training session on PC and USI program to various boards and organizations		20	Staff Time	USI team	Salary
2011-2012 Activities	Measurement		Investment	Assigned to	Funding Source
	Expected				
Conduct 3 EMD training sessions	Interviews to assess application of knowledge		$133,105	Len Hoey	ARRA & state
Conduct one day tech workshops	Interviews to assess application of knowledge		Staff time	USI & NCSU MAE	Salary
EPA portfolio manager pilot program	Evaluate software's applicability for USI reporting		Staff time	Keith Bradshaw	ARRA & salary
Facilitate implementation of user groups and their activities	Publication of best practices identified during meetings		Staff time	USI team	Salary
Targeted technical assistance provided through site visits to upgrade energy plans and consumption reports	100% participation by agencies, universities and community colleges		Staff time	USI team	Salary
Establish electronic bulletin board on USI website	Bulletin board created and promoted to participants		Staff time	USI team	Salary

Develop the Plan

Appendix A – Emergency Energy Procedures

- Tactics
  - Short term
  - Identify non-critical loads

Develop the Plan

Appendix B – Emergency Water Procedures

- Tactics
  - Short term
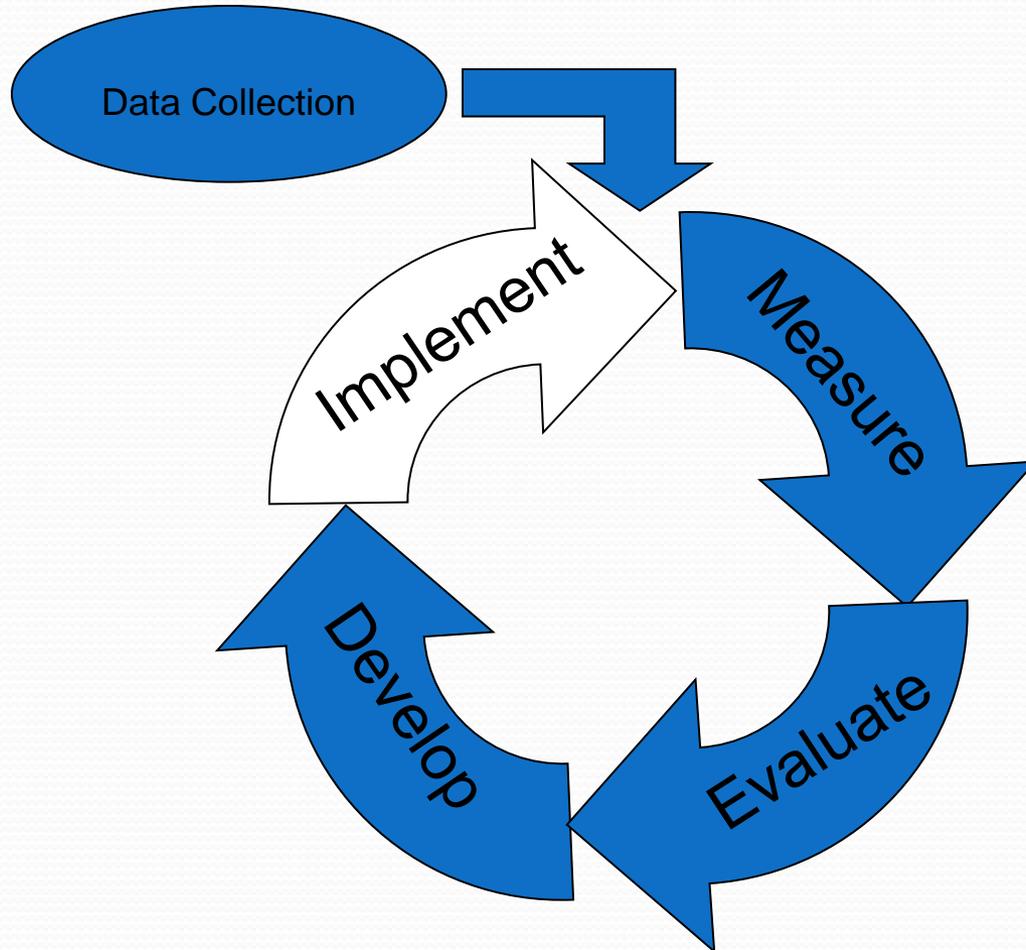 - Determine consequences of actions

Develop the Plan

Appendix C – Equipment Replacement

- Tactics
  - Identify critical equipment
  - Locate potential loaner/rental replacement
  - Determine if equipment is still the correct size, capacity and type for current conditions
  - Specify correct replacement including source

Energy Plan Cycle

Continuous Process Improvement

Implement the Plan

- Identify financial resources
  - Utility Providers
  - O&M
  - R&R
  - COPS/Bonds
  - Performance Contracts
  - Grants
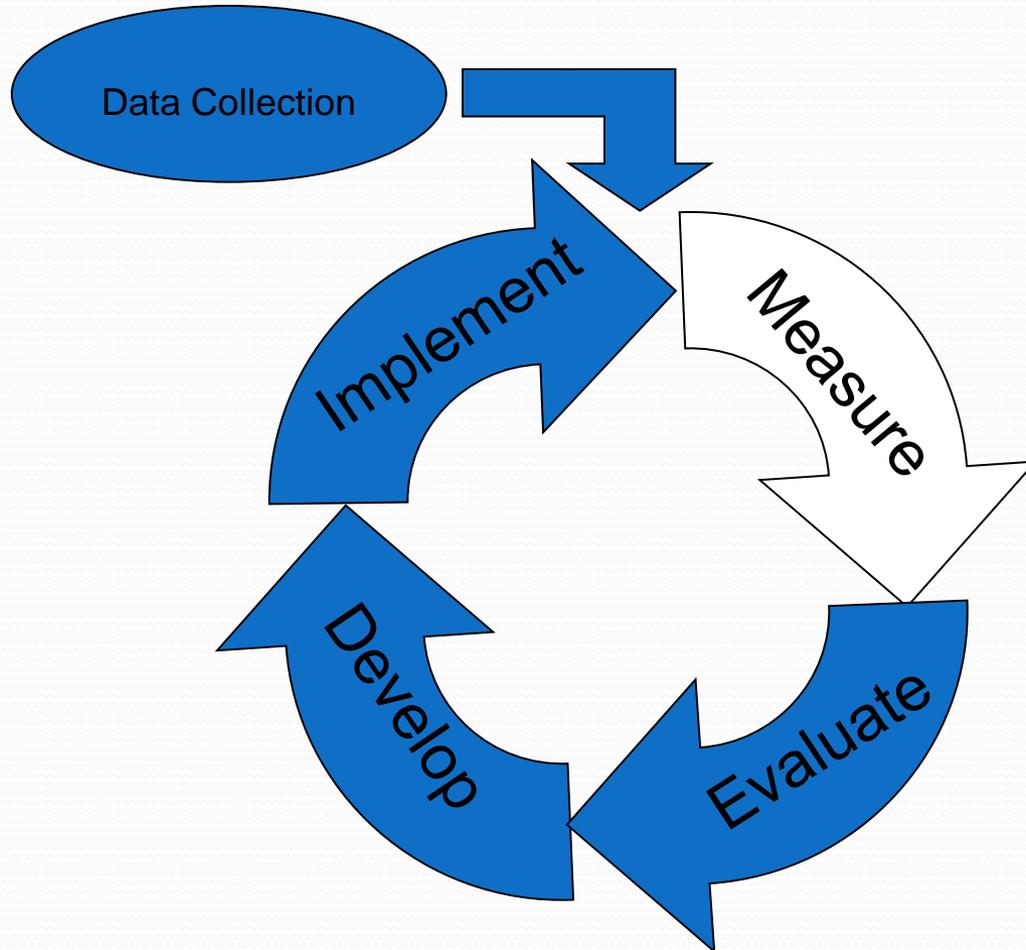 - www.dsireusa.org

Implement the Plan

- Identify partner resources
  - Community Colleges
  - Universities
  - County or municipal partners
  - SEO
  - Workforce development boards
  - COGS
  - School of Government
  - Community Development

Implement the Plan

- Perform no cost behavioral activities first
- Align resources with projects
- Assign accountability and responsibility
- Then Do It

Energy Plan Cycle

Continuous Process Improvement

Measure Results of Implementation

Results should be measured based upon the method indicated in the Focus Area tables.
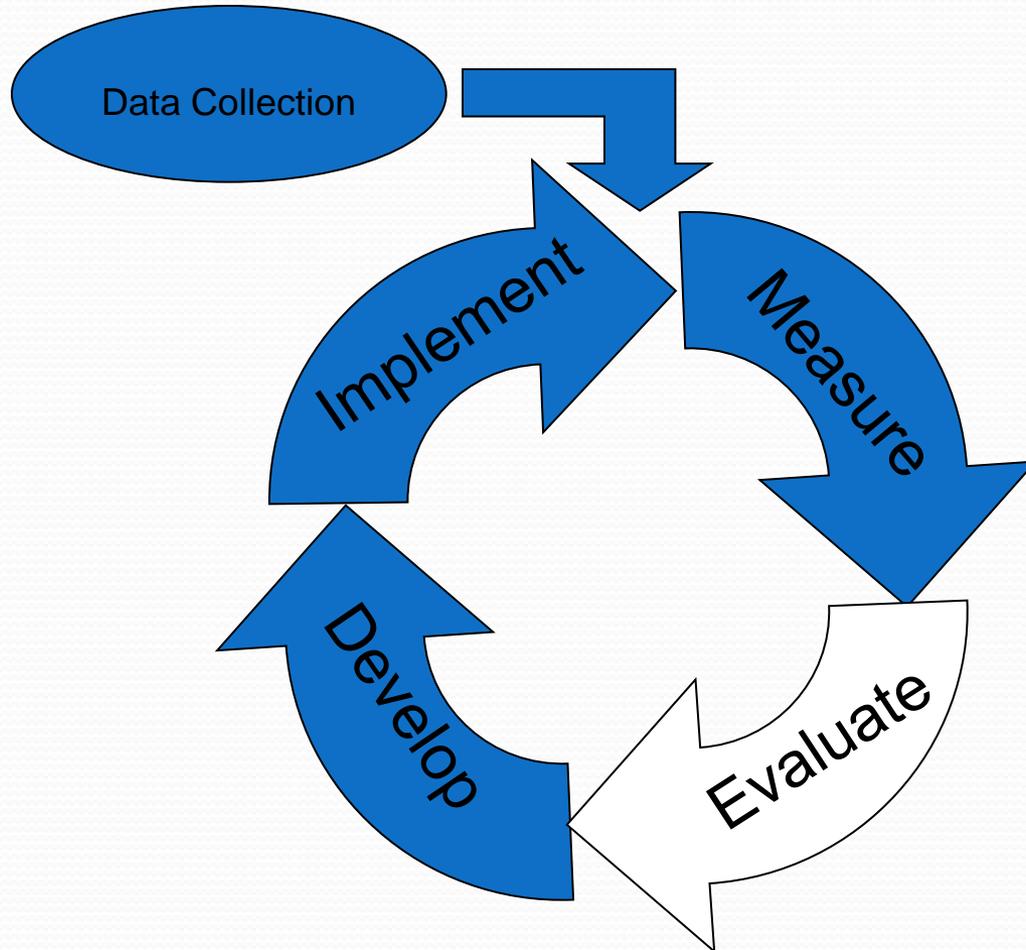
Measure Results of Implementation

- Continue to identify gaps in data
- Measured energy reductions from meter data
- Measured cost reductions from billing data
- KPI Trend
- Number of measures implemented from plan

Measure Results of Implementation

- Number of newsletters issued
- Number of team meetings conducted
- Building performance data
  - Hot/cold calls
  - Plug load inventory
- Purchasing policies including rate changes
- Occupant participation

Energy Plan Cycle

Continuous Process Improvement

Data Collection

Implement

Measure

Develop

Evaluate

Evaluate Results of Implementation

- Validate data accuracy

- Were measurements relevant for what you wanted to achieve with the activities?

Evaluate Results of Implementation

- Did you achieve or surpass goals as indicated in measurements column of tables?
  - If not, why?
- Is the project complete?
  - Continue, expand or abandon project

Evaluate Results of Implementation

- Determine next steps to achieve strategic goals

- Create new prioritized list
  - Group: no-cost /low-cost/capital
  - Set realistic goals

"Don't make excuses. Find solutions."

Unknown

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