Shasta Regional Climate Action Plan

Redding City Council Meeting

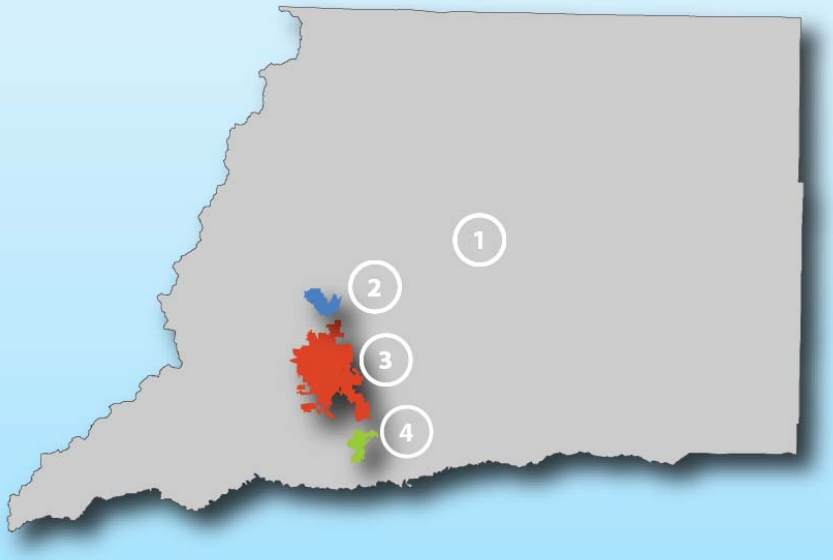
January 18th 2011

Presentation

- Regional Climate Action Plan Approach
  - Sub-Area Approach
  - RCAP and RTP Relationship
- Turning State Mandates into Regional and Local Opportunities
- Regional Climate Action Plan Process and Schedule
- RCAP Working Group

Shasta RCAP Approach

Sub-Area Approach



1. Unincorporated County
2. Shasta Lake
3. Redding
4. Anderson

Sub-Area Approach

- **Inventory and Projections for each Jurisdiction**
  2008, 2020, 2035, 2050
- **Customized Measure Development**
  Jurisdictions will select:
  - which measures apply to their community
  - performance standards (e.g., level of energy savings)
  - participation levels (e.g., voluntary or mandatory)
- **Regional Plan --- Local Adoption**

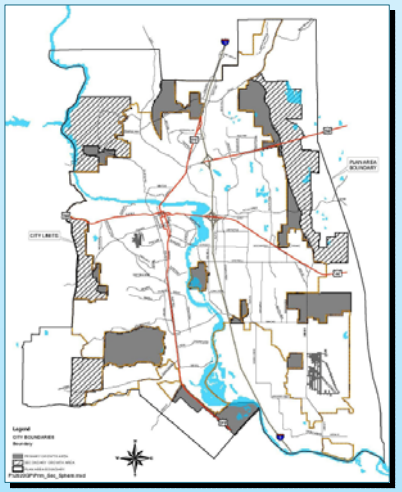
RCAP – RTP Relationship

- **Defer to RTP Planning Process**

  Jurisdictions have the option to defer land use and transportation measure development to RTP or local planning process

- **Assume SB 375 Target**

  RCAP will assume the jurisdiction's land use & transportation plans will conform with regional SB 375 target of 0% growth in vehicle emissions



- **Monitor Results**

  RCAP would have monitoring program to evaluate achievement of target

Turning State Mandates into Regional and Local Opportunities

State Mandate → Regional and Local Opportunities

California Legislation

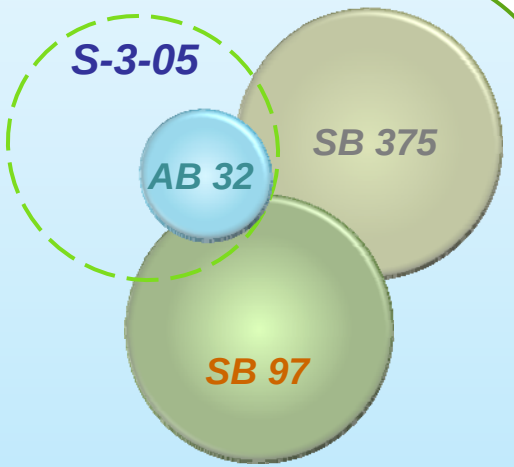
- **Executive Order S-3-05 (2005)**
  Reduce GHGs to:
  - 80% below 1990 levels by 2050

- **AB 32 Global Warming Solutions Act (2006)**
  Reduce GHGs to:
  - 1990 levels by 2020

- **Scoping Plan**
  Call for specific emissions reductions in vehicle, landfills, industrial, etc

State Mandate → Regional and Local Opportunities

California Legislation



- **Local governments role:**
  - State recommends 15% below current levels by 2020
  - Demonstrate trajectory toward 2050 target

- **Senate Bill 375 (2008)**
  - State sets regional vehicle emissions targets (*0% growth*)
  - Land use and transportation
  - Transportation funding and consistency with regional plan

- **Senate Bill 97 (2008)**
  - Jurisdiction can use Climate Action Plan to reduce impacts of individual projects

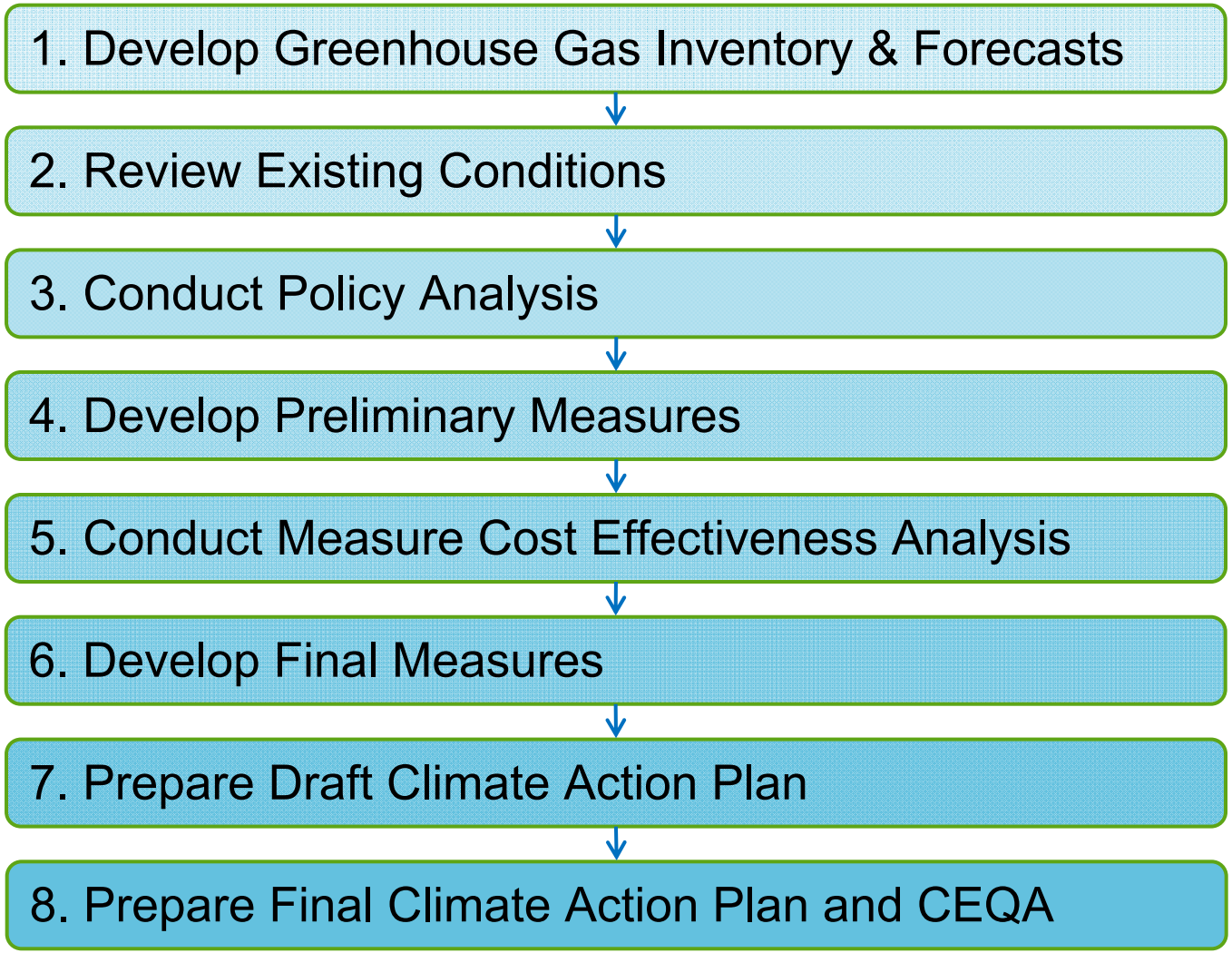
State Mandate → Regional and Local Opportunities

Regional and Local Opportunities

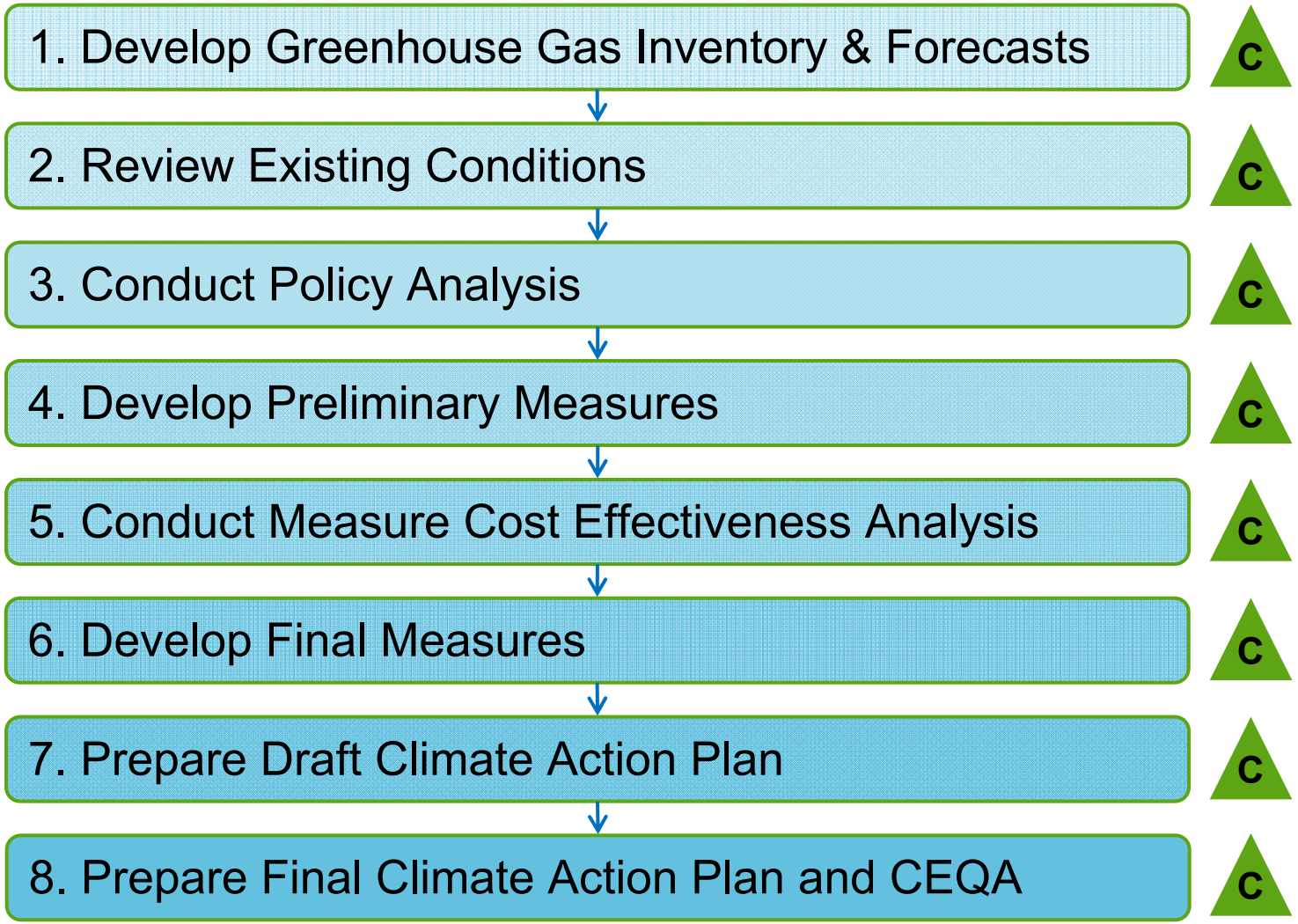
- Energy Cost Savings
- Transportation Cost Savings
- Water Supply Protection
- Energy Security
- Air Quality Improvements
- Public Health Improvements

Plan Process & Schedule

Project Process



Project Process



Project Process

1. Develop Greenhouse Gas Inventory and Forecasts

- **2008 Inventory**
  - Sectors:
    - Building Energy (includes water)
    - Solid Waste
    - Wastewater
    - Transportation
    - Industrial
    - Agriculture
    - Forestry
    - Recreation (e.g., boating)
    - Other Off-Road Vehicle Operation

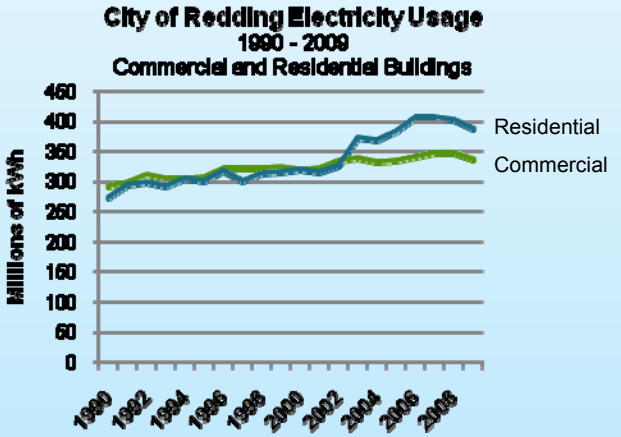
- **Develop 2020, 2035, & 2050 Forecasts**

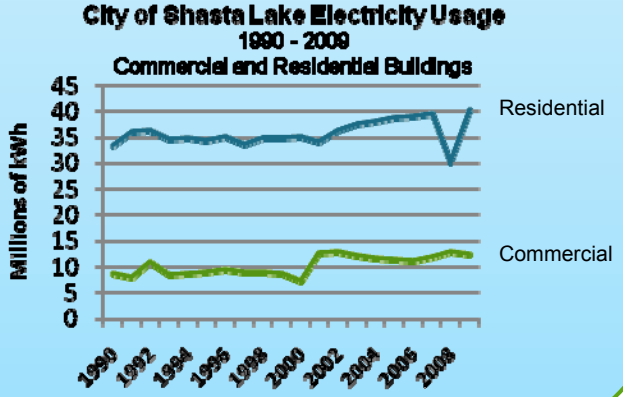
Project Process

2. Review Existing Conditions

Example include:

- Demographics
- Building stock (type, size, age)
- Energy end-use
- Climatic conditions
- Land use patterns
- Travel mode split
- Alternative travel mode infrastructure
- Trip type
- Waste characteristics

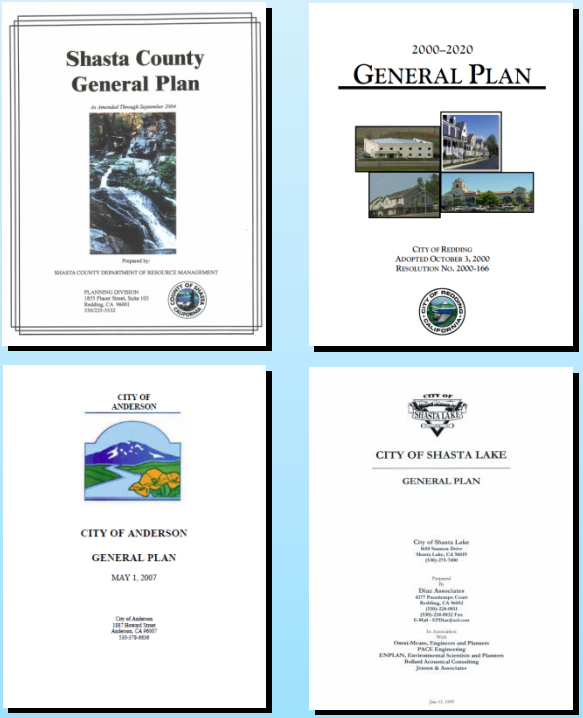




Project Process

3. Conduct Policy Analysis

- Evaluate existing policy, programs, actions
  - General Plans
  - Transportation Plans
  - Pedestrian Plans
  - Bicycle Master Plans
  - Public Transit Plans
  - Building and energy ordinances
  - Water and waste ordinances
- Identify areas where “gaps” exist
- Verify findings with jurisdictions

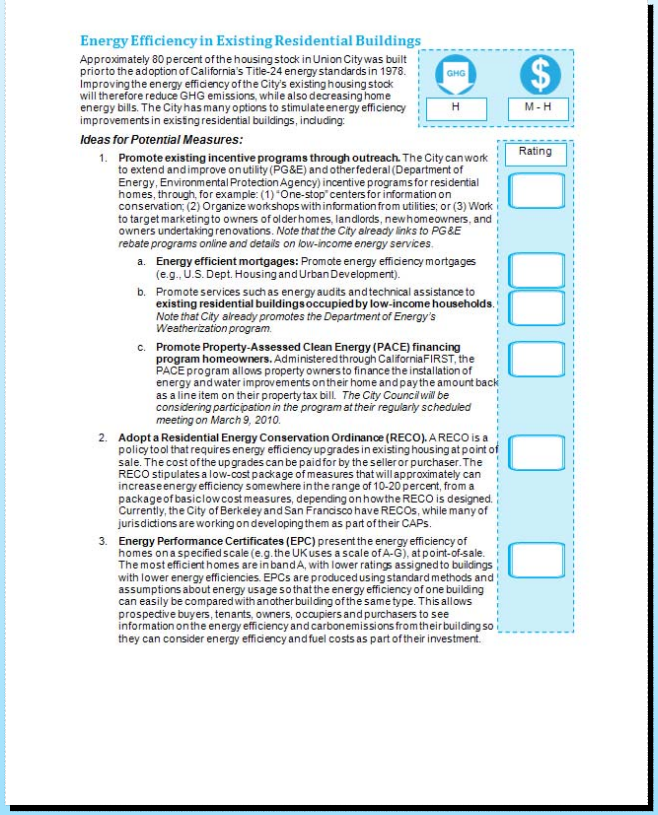


Project Process

4. Develop Preliminary Measures

Using input from:

- Existing conditions
- Gap analysis
- Emissions inventory
- Working Group
- Public workshops
- Industry best practices



Energy Efficiency in Existing Residential Buildings

Approximately 80 percent of the housing stock in Union City was built prior to the adoption of California's Title-24 energy standards in 1978. Improving the energy efficiency of the City's existing housing stock will therefore reduce GHG emissions, while also decreasing home energy bills. The City has many options to stimulate energy efficiency improvements in existing residential buildings, including:

GHG: H

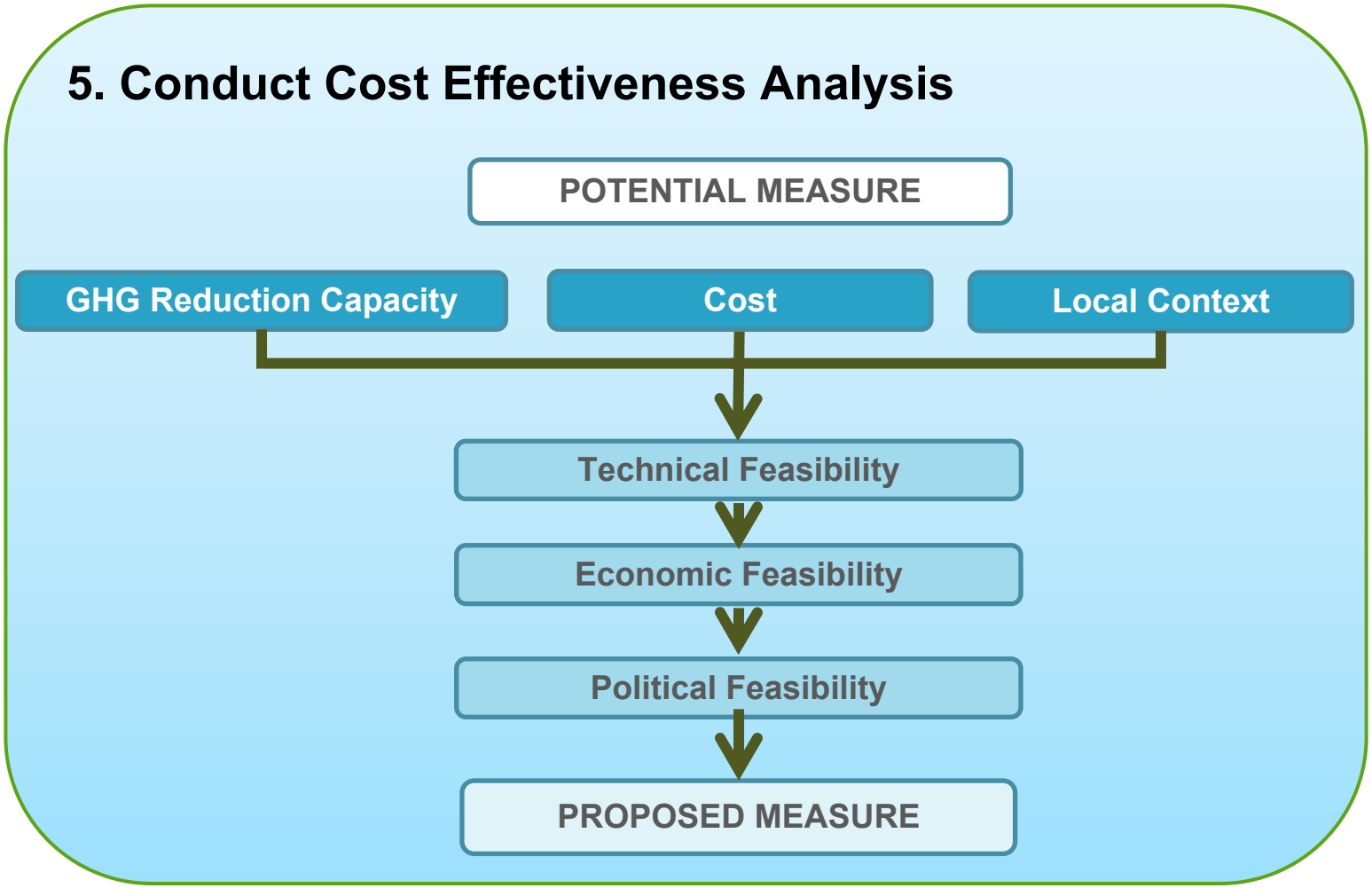
$: M - H

Ideas for Potential Measures:

Rating

1. **Promote existing incentive programs through outreach.** The City can work to extend and improve on utility (PG&E) and other federal (Department of Energy, Environmental Protection Agency) incentive programs for residential homes, through, for example: (1) "One-stop" centers for information on conservation; (2) Organize workshops with information from utilities; or (3) Work to target marketing to owners of older homes, landlords, new homeowners, and owners undertaking renovations. *Note that the City already links to PG&E rebate programs online and details on low-income energy services.*
   a. **Energy efficient mortgages:** Promote energy efficiency mortgages (e.g., U.S. Dept. Housing and Urban Development).
   b. Promote services such as energy audits and technical assistance to **existing residential buildings occupied by low-income households.** *Note that City already promotes the Department of Energy's Weatherization program.*
   c. **Promote Property-Assessed Clean Energy (PACE) financing program homeowners.** Administered through CaliforniaFIRST, the PACE program allows property owners to finance the installation of energy and water improvements on their home and pay the amount back as a line item on their property tax bill. *The City Council will be considering participation in the program at their regularly scheduled meeting on March 9, 2010.*
2. **Adopt a Residential Energy Conservation Ordinance (RECO).** A RECO is a policy tool that requires energy efficiency upgrades in existing housing at point of sale. The cost of the upgrades can be paid for by the seller or purchaser. The RECO stipulates a low-cost package of measures that will approximately can increase energy efficiency somewhere in the range of 10-20 percent, from a package of basic low cost measures, depending on how the RECO is designed. Currently, the City of Berkeley and San Francisco have RECOs, while many of jurisdictions are working on developing them as part of their CAPs.
3. **Energy Performance Certificates (EPC)** present the energy efficiency of homes on a specified scale (e.g. the UK uses a scale of A-G), at point-of-sale. The most efficient homes are in band A, with lower ratings assigned to buildings with lower energy efficiencies. EPCs are produced using standard methods and assumptions about energy usage so that the energy efficiency of one building can easily be compared with another building of the same type. This allows prospective buyers, tenants, owners, occupiers and purchasers to see information on the energy efficiency and carbon emissions from their building so they can consider energy efficiency and fuel costs as part of their investment.

Project Process



Project Process

5. Conduct Cost Effectiveness Analysis

Customize Measures to fit Jurisdiction Context

- Game measure assumptions:
  - Performance levels
  - Participation rates

- Existing programs
- Voluntary vs. mandatory

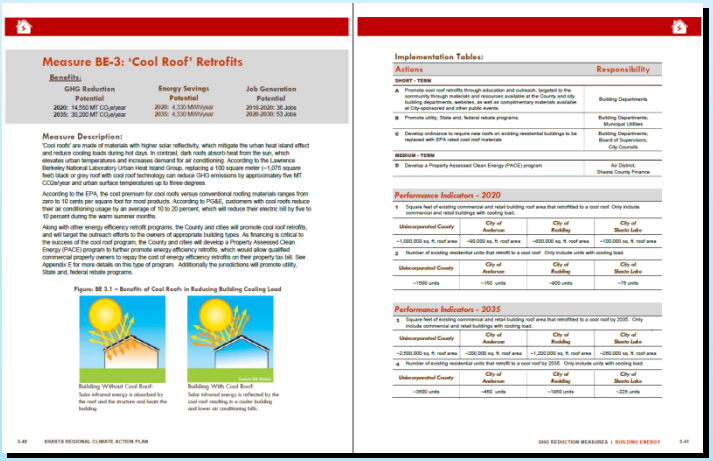
Measure:	Measure Perfomance	Estimated Participation Rate	GHG Emissions Reductions ($MTCO_2e$/year)
Measure Version - 1 Voluntary 20% Efficiency Improvement	20%	4%	140
Measure Version - 2 Voluntary 20% Efficiency Improvement with Low-Interest Financing Program	20%	15%	525
Measure Version - 3 Mandatory Point-of-Sale Requirement (RECO) 20% Efficiency Improvement	20%	32%	1,120
Measure Version - 4 Mandatory Point-of-Sale Requirement (RECO) 20% Efficiency Improvement with Low-Interest Financing Program	20%	45%	1,575
Measure Version - 5 Mandatory Point-of-Sale Requirement (RECO) 40% Efficiency Improvement	40%	32%	2,240

Project Process

6. Develop Final Measures

Content:

- Measure description
- GHG reduction potential
- Energy savings
- Job generation potential
- Implementation Tables
  - Action Steps
  - Timetable: S/M/L
  - Responsibility
  - Progress indicators



Measure BE-3: 'Cool Roof' Retrofits

Benefits:

GHG Reduction Potential	Energy Savings Potential	Job Generation Potential
2020: 14,550 MT CO_2e/year	2020: 4,330 MWh/year	2010-2020: 36 Jobs
2035: 30,200 MT CO_2e/year	2035: 4,330 MWh/year	2020-2030: 53 Jobs

Measure Description:

'Cool roofs' are made of materials with higher solar reflectivity, which mitigate the urban heat island effect and reduce cooling loads during hot days. In contrast, dark roofs absorb heat from the sun, which elevates urban temperatures and increases demand for air conditioning. According to the Lawrence Berkeley National Laboratory Urban Heat Island Group, replacing a 100 square meter (~1,076 square feet) black or gray roof with cool roof technology can reduce GHG emissions by approximately five MT CO_2e/year and urban surface temperatures up to three degrees.

According to the EPA, the cost premium for cool roofs versus conventional roofing materials ranges from zero to 10 cents per square foot for most products. According to PG&E, customers with cool roofs reduce their air conditioning usage by an average of 10 to 20 percent, which will reduce their electric bill by five to 10 percent during the warm summer months.

Along with other energy efficiency retrofit programs, the County and cities will promote cool roof retrofits, and will target the outreach efforts to the owners of appropriate building types. As financing is critical to the success of the cool roof program, the County and cities will develop a Property Assessed Clean Energy (PACE) program to further promote energy efficiency retrofits, which would allow qualified commercial property owners to repay the cost of energy efficiency retrofits on their property tax bill. See Appendix E for more details on this type of program. Additionally the jurisdictions will promote utility, State and, federal rebate programs.

Figure: BE 3.1 – Benefits of Cool Roofs in Reducing Building Cooling Load

Building Without Cool Roof: Solar infrared energy is absorbed by the roof and the structure and heats the building.

Building With Cool Roof: Solar infrared energy is reflected by the cool roof resulting in a cooler building and lower air conditioning bills.

3-40 SHASTA REGIONAL CLIMATE ACTION PLAN

Implementation Tables:

Actions	Responsibility
SHORT - TERM	
A Promote cool roof retrofits through education and outreach, targeted to the community through materials and resources available at the County and city building departments, websites, as well as complimentary materials available at City-sponsored and other public events.	Building Departments
B Promote utility, State and, federal rebate programs.	Building Departments; Municipal Utilities
C Develop ordinance to require new roofs on existing residential buildings to be replaced with EPA rated cool roof materials	Building Departments; Board of Supervisors; City Councils
MEDIUM - TERM	
D Develop a Property Assessed Clean Energy (PACE) program	Air District; Shasta County Finance

Performance Indicators - 2020

1 Square feet of existing commercial and retail building roof area that retrofitted to a cool roof. Only include commercial and retail buildings with cooling load.

Unincorporated County	City of Anderson	City of Redding	City of Shasta Lake
~1,000,000 sq. ft. roof area	~40,000 sq. ft. roof area	~600,000 sq. ft. roof area	~100,000 sq. ft. roof area

2 Number of existing residential units that retrofit to a cool roof. Only include units with cooling load.

Unincorporated County	City of Anderson	City of Redding	City of Shasta Lake
~1500 units	~150 units	~900 units	~75 units

Performance Indicators - 2035

3 Square feet of existing commercial and retail building roof area that retrofitted to a cool roof by 2035. Only include commercial and retail buildings with cooling load.

Unincorporated County	City of Anderson	City of Redding	City of Shasta Lake
~2,500,000 sq. ft. roof area	~200,000 sq. ft. roof area	~1,200,000 sq. ft. roof area	~260,000 sq. ft. roof area

4 Number of existing residential units that retrofit to a cool roof by 2035. Only include units with cooling load.

Unincorporated County	City of Anderson	City of Redding	City of Shasta Lake
~3500 units	~450 units	~1950 units	~225 units

GHG REDUCTION MEASURES | BUILDING ENERGY 3-41

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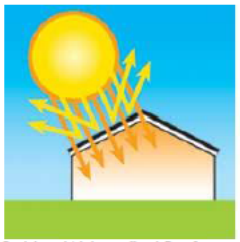

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MEDIUM - TERM	
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Performance Indicators - 2020

1 Square feet of existing commercial and retail building roof area that retrofitted to a cool roof. Only include commercial and retail buildings with cooling load.

Unincorporated County	*City of Anderson*	*City of Redding*	*City of Shasta Lake*
~1,000,000 sq. ft. roof area	~90,000 sq. ft. roof area	~800,000 sq. ft. roof area	~100,000 sq. ft. roof area

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Unincorporated County	*City of Anderson*	*City of Redding*	*City of Shasta Lake*
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Performance Indicators - 2035

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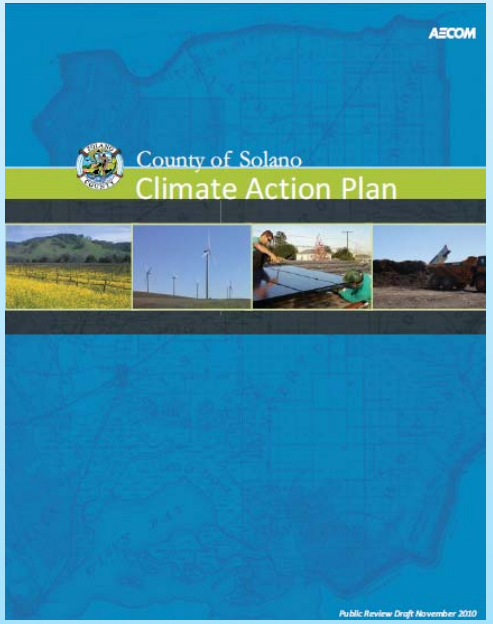
Project Process

7. Prepare Draft Climate Action Plan

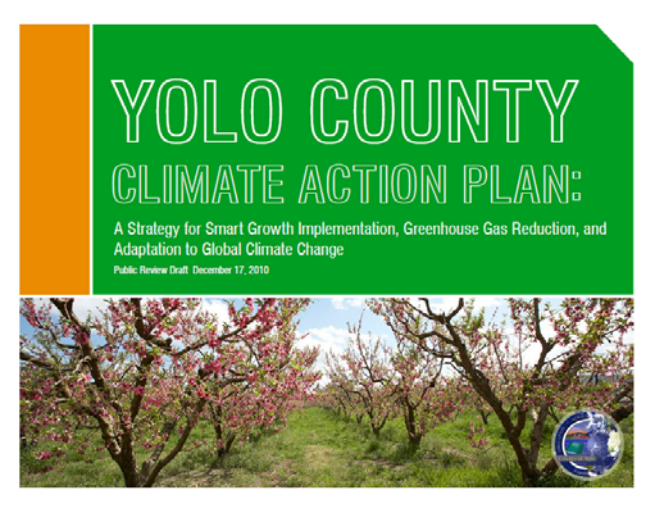
- District & Working Group Review of Administrative Draft CAP
- Preparation of Public Review Draft CAP
- Public Review Period & Workshop
- Board of Supervisors Study Session
- Optional City Council Study Sessions



Project Approach

8. Final Climate Action Plan and CEQA

- Incorporate Board, Council, and Public comments
- Prepare Final CAP
- CEQA Documentation
- Plan Adoption



Project Schedule

Shasta Regional Climate Action Plan Proposed *Schedule* *12/3/10*	Year	2010				2011							
	Month	September	October	November	December	January	February	March	April	May	June	July	August
PHASES/TASKS													
Phase 1. Project Kickoff and Inventory/Projections Development													
1.1: Kickoff Meeting, Scope Refinement, CAP Outline					KO								
1.2: Develop Baseline GHG Emissions Inventory and Projections					MTG		TM						
Phase 2. GHG Reduction Development													
2.1: Develop Preliminary Reduction Strategies and Measures					GA		MATRIX						
2.2: Evaluate Cost-Effectiveness of Preliminary Strategies and Measures								MATRIX II					
2.3: Develop and Approve GHG Reduction Target								TM					
Task 3: Prepare Climate Action Plan													
3.1: Prepare Administrative Draft Climate Action Plan									ACAP				
3.2: Prepare Public Review Draft Climate Action Plan										PCAP			
3.3: Prepare Final Climate Action Plan											FCAP		
Task 4: Working Group Meetings and Community Outreach													
4.1: Provide Content for County Website (Including on-line Survey)						SURVEY							
4.2 Working Group Meetings (5)						WG	WG	WG	WG	WG			
4.3: Community Forums (4)							FORUM			FORUM			
4.4: Board of Supervisors Public Hearings (2)										BOS			BOS
Task 5: CEQA IS/MND													
5.1: CEQA IS/MND										IS/MND			
Task 6: Project Management													
6.1: Project Management					MTG (2)	MTG (2)	MTG (2)	MTG (2)	MTG (2)	MTG (2)	MTG (2)	MTG (2)	MTG (2)

Working Group

Working Group

Working Group Members:

- City of Anderson
- City of Redding
- City of Shasta Lake
- Lehigh Cement
- Redding Electric Utility
- Shasta Builder's Exchange
- Shasta County Cattleman's Association
- Shasta County Dept of Resource Management
- Shasta County Public Health (observational member)
- Shasta County Regional Transportation Planning Agency
- Shasta Ranch Aggregate
- Sierra Pacific Industries

Working Group - County and City Staff

C

Jurisdiction and Public Utility Staff

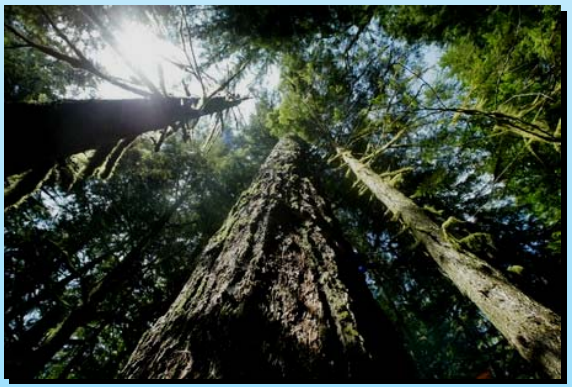
- Expert Knowledge
- Data Provision
- Best Practices
- Insight into jurisdictional context
- Measure Selection
- Review of Measure Assumptions
- Plan Adoption

Working Group – Industry Members

I

Industry and Business

- A sounding board during CAP development
- Provide industry specific ideas, input, and feedback
- Industry best practices



Public Input

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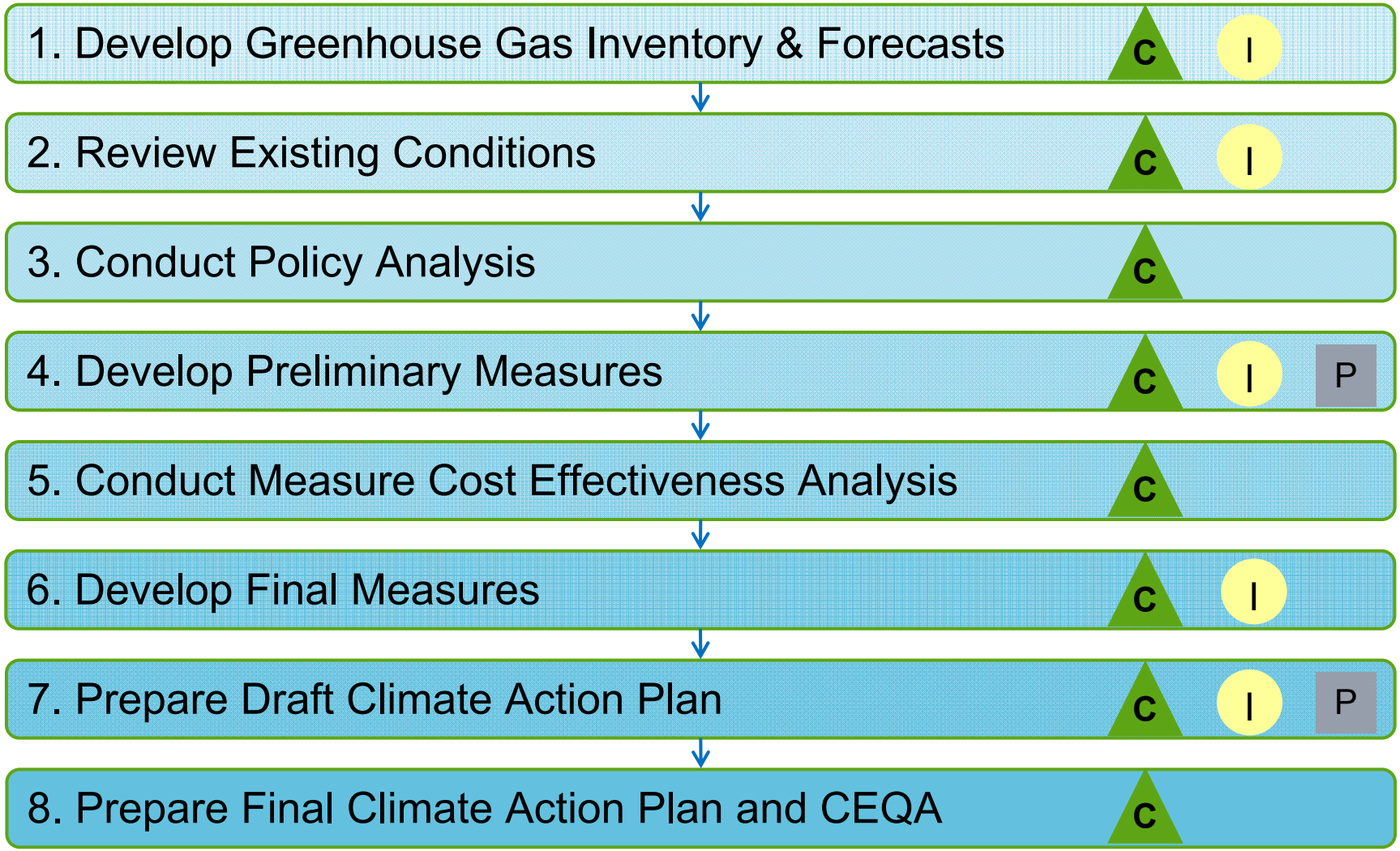
Public Participation

- Define process to public
- Identify issues of greatest importance to public
- Gain feedback from residents and other stakeholders
- Provide opportunity to educate community

Working Group Involvement in Plan Development



Shasta Regional Climate Action Plan
Redding City Council Meeting

January 4th 2011