

Climate Action Planning Steps

STEP 1: LEADERSHIP AND TEAMWORK

The Stanford University administration directed that the plan be developed in the departments that have direct responsibility to implement them. The planning exercise began in the Department of Sustainability and Energy Management (SEM), home to utilities, sustainability programs, and parking and transportation. Under the leadership of the Executive Director, staff and faculty members of the Sustainability Working Group came together for the initial, intermediate, and final evaluation of this plan.

STEP 2: INVENTORY, BASE CASE, AND INITIAL OPTIONS

This step involved preparing an inventory of current campus energy use and GHG emissions; developing campus growth and base case energy demand and GHG emissions forecasts; and identifying options and costs for different levels of energy efficiency in our new building standards, demand-side energy conservation in our existing facilities, and supply-side energy sources.

Based on an emissions inventory accounting process used for the California Climate Action Registry since 2006, the Energy and Climate Planning Workgroup prepared an expanded inventory for 2007 that included emissions from commuter traffic and business travel. The planning team then proposed various options for energy conservation and alternative forms of energy supply to reduce operating cost and the campus emissions footprint. Initiatives in many of these areas were already in progress as pilot programs.

In order to test and prioritize the many GHG reduction options, a long-term campus energy model was constructed and various scenarios were developed to determine which energy solutions met the long-term need for campus energy supply and demand. The results from each scenario were compared to the current energy model for potential cost and GHG reduction. Based on these findings an initial GHG Reduction Options Report was prepared in 2008 and presented to the university administration for initial review.

STEP 3: CREATION OF A COMPOSITE ENERGY AND CLIMATE MODEL

A composite energy and climate model with all viable GHG reduction options was developed to allow detailed comparison and prioritization of options. This extensive modeling was needed to examine if preserving the cogeneration plant was important for the 'greater grid' – the energy distribution system in the region beyond Stanford.

The team investigated:

- A long-range utilities growth model revised from initial growth estimates.
- Two parallel and complementary energy models to compare options for meeting campus energy load. The models were periodically recalibrated to assure reliable results.

The Utilities department assembled even more detailed information on campus energy flows to facilitate advanced modeling, including hourly energy flows into and out of the central energy facility for a full year period.

STEP 4: CONSIDERATION OF CARBON INSTRUMENTS

Various carbon instruments (offsets, renewable energy credits, emissions allowances) were considered in the initial set of emissions options. After evaluation, the use of carbon instruments was omitted from the key options due to scientific, regulatory, and financial uncertainty.

STEP 5: PREPARATION OF FINAL RECOMMENDATIONS

After completion and internal peer review of the Energy and Climate Plan, an external evaluation of the analysis was commissioned in January 2009 to provide a peer review of the analyses and conclusions. Two independent consulting firms reviewed the models and assumptions and examined whether there were any other major options for long-term energy supply that should have been considered. They also provided advice on the cost, methods, timeframes, and other considerations involved in converting the campus steam distribution system to a hot water system. The detailed peer review reports are provided in the Energy and Climate Plan.

