

## **Biomass for Energy Greenhouse Gas Offset Accounting Protocol Overview**

### **Current Practices**

Throughout Placer County and much of California, open burning and mastication are frequently the economically preferred disposal methods for excess biomass generated from forest management (e.g., wildfire hazard reduction, timber harvest) and agricultural (e.g., orchard pruning and removal) operations.



**Forest slash pile being burned in the Central Sierra Nevada**



**Forest slash pile in Northern Sierra Nevada**

### **Sustainable Alternative**

As an alternative, the utilization of excess biomass for the production of renewable energy provides significant reductions in greenhouse gas (GHG) emissions through elimination of methane emissions from open pile burning or mastication, and displacement of fossil fuel

combustion for equivalent energy. Significant complementary societal benefits include reduction in criteria and toxic air pollutant emissions, watershed protection, hazardous fuels reduction and economic support for local communities and forest management infrastructure.



**Biomass for energy facility**

### **Protocol Development**

Placer County Air Pollution Control District (PCAPCD) has developed a Biomass Waste for Energy greenhouse gas accounting protocol to recognize the GHG emission reduction benefits provided by utilization of excess biomass for renewable energy production as an alternative to disposal through open burning or mastication. The protocol follows Assembly Bill 32's directive for ensuring credits for early and voluntary GHG reductions, and will contribute to the CARB Scoping Plan forest sector target GHG reductions.

The California Air Pollution Control Officers Association's (CAPCOA) recommended to CARB that the protocol be considered with high priority. CARB suggested that PCAPCD prepare the protocol consistent with the format and content of existing CARB adopted GHG offset protocols. As such, the protocol provides a cohesive accounting and monitoring framework for documenting that GHG reductions from Biomass Waste for Energy projects are real, additional, permanent, and verifiable, as required by AB32.

The protocol was developed in 2008 by a multi-disciplinary team, including members from TSS Consultants, Sierra Pacific Industries, U.C. Berkeley Forestry Extension, California Department of Forestry and Fire Protection, and the U.S. Forest Service. The protocol has undergone peer-review from stakeholders including CARB, CAPCOA, California Energy Commission, South Coast Air Quality Management District, San Joaquin Air Quality Control District, Environmental Defense Fund, SMUD, and PG&E.

### **Applicability**

The protocol is applicable to projects which process and transport excess biomass wastes for the generation of renewable energy. The protocol is strictly limited to biomass which meets three criteria:

- Under "baseline, business as usual" conditions would be open burned or masticated

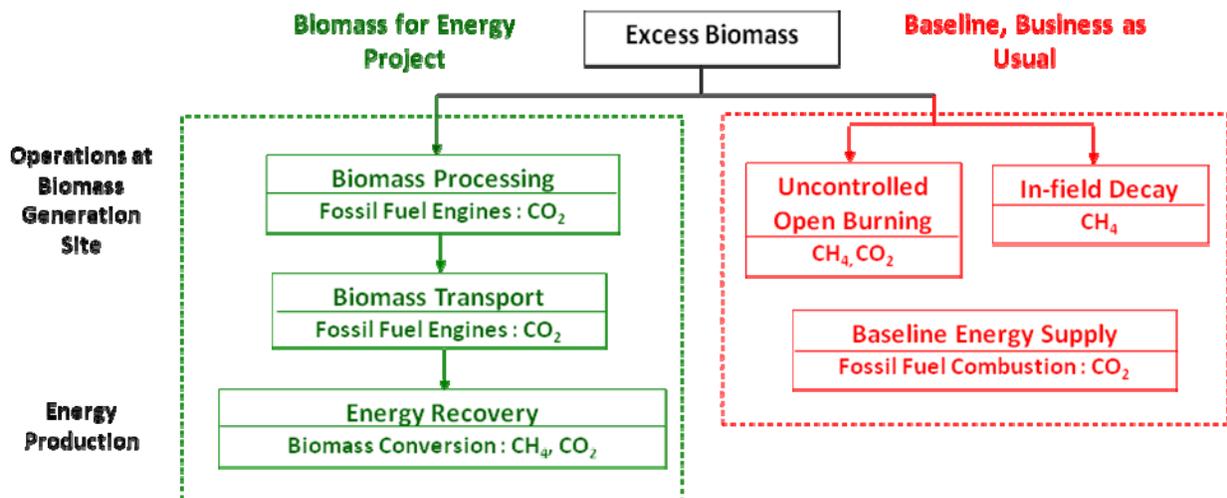
- Is excess to ecosystem needs
- Is a byproduct of land management activities that meet all local, state, and federal environmental regulations, including the National Environmental Policy Act, and the California Environmental Quality Act

**Accounting**

The protocol provides rigorous monitoring, tracking, and accounting procedures to determine GHG emissions from:

- Biomass for energy facility. Includes fossil fuel combustion for processing and transportation equipment, and biomass combustion at the biomass energy facility.
- Baseline. Emissions that would have occurred without the project. Includes open pile burning and/or mastication and baseline energy generation.

GHG reduction offsets achieved by the project are determined as the difference between the baseline and the biomass energy facility.



**Flow chart highlighting business as usual and biomass for energy alternative**

**Endorsement**

The following organizations have formally endorsed the biomass for energy greenhouse gas offset protocol:

- Butte County Air Quality Management District
- California Board of Forestry
- California Department of Forestry and Fire Protection
- El Dorado Fire Safe Council
- Placer County Fire Safe Alliance
- Placer County Water Agency
- Sacramento Municipal Utility District
- Sierra Pacific Industries
- United States Forest Service, Region 5
- University of California Berkeley Cooperative Extension