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**Testimony to Little Hoover Commission**

**Alan Abbs, Executive Director**

**California Air Pollution Control Officers Association (CAPCOA)**

**August 24, 2017**

Thank you for the opportunity to talk about the role of prescribed fire and biomass energy generation in forest management, and the challenges that are posed from an air quality perspective. CAPCOA represents the executive officers of the 35 local air pollution control and air quality management districts in California. These air districts directly regulate local stationary sources that include biomass energy generation facilities, and also oversee all aspects of other biomass combustion, including prescribed burning, agricultural burning, residential open burning, and use of wood for heating. Air districts are also on the front lines as public health agencies responding to catastrophic wildfires and providing health information to the general public. We work in collaboration with the California Air Resources Board (CARB) on many facets of what is truly a complicated issue – attempting to balance the fuel reduction needs of land managers, agriculture, and property owners, with the needs of the public to breathe clean air. And while district-permitted combustion mentioned above allows particulate emissions into air basins that are some of the most pollution impacted areas in the country, these emissions pale in comparison to emissions from catastrophic wildfires that have immediate and long-lasting health and economic impacts. The Rim Fire of 2013 is one recent example, which resulted in an estimated smoke impact of 7 million person-days above the current health standard. We welcome the opportunity to talk about the role of the local air districts in this critical issue.

**Prescribed Burning**

In written testimony of Dr. Susan Britting, Executive Director of Sierra Forest Legacy, prepared for the April 27, 2017 meeting of the Little Hoover Commission, Dr. Britting brought up two points regarding air quality that are worthy of note. Beginning on page 3, she acknowledges impacts to air quality from both prescribed fire and catastrophic wildfire, but also notes that prescribed fires can be planned and managed to reduce emissions and potential impacts to public health. I hope the following information about air district responsibilities informs this discussion. The second item of note begins on page 5 and discusses the current level of understanding of carbon accounting in forests. We agree that better understanding of the types of

forest activities that have net carbon benefits over the long term will lead to more informed forest planning and decision-making, and CAPCOA looks forward to hearing about recent CARB efforts in this area at the hearing.

### **Role of Local Air Districts in Prescribed Burning Activities**

In California, there are 35 local air pollution control and air quality management districts responsible for regulation of stationary sources of air pollution. This includes, through Title 17 of the California Code of Regulations Sections 80100- 80330, regulating agricultural and prescribed burning through smoke management planning in coordination with CARB. Section 80145 provides a list of factors for districts to consider as follows:

#### ***§80145. Program Elements and Requirements.***

*The district smoke management programs shall include all of the elements in section 80145. Procedures and other requirements contained in subsections 80145(a) through (n) of this section shall be approved by district board resolutions or adopted as rules and regulations:*

- (a) *A daily burn authorization system that regulates agricultural burning, including prescribed burning, in order to minimize smoke impacts on smoke sensitive areas, avoid cumulative smoke impacts, and prevent public nuisance. The burn authorization system shall not allow more burning on a daily basis than is appropriate for the meteorological or air quality conditions. The daily burn authorization system shall specify the amount, timing and location of each burn event. The burn authorization system shall be developed by the air district in consultation with the ARB, shall be commensurate with the air quality impacts from burning, and shall consider the following factors as necessary:*
- (1) air quality;*
  - (2) meteorological conditions expected during burning, including wind speeds and directions at the surface and aloft, and atmospheric stability;*
  - (3) types and amounts of materials to be burned;*
  - (4) location and timing of materials to be burned;*
  - (5) locations of smoke sensitive areas; and*
  - (6) smoke from all burning activities, including burning in neighboring air districts or regions which may affect the district or region.*

Furthermore, Section 80160 (attached in its entirety) provides for special requirements for prescribed burns, including submittal of smoke management plans with meteorological and emissions information for district staff to assess smoke impacts, evaluation of alternatives to burning, possible deployment of monitoring equipment, and procedures for public notification and reporting of public complaints. Other sections of Title 17 provide meteorological criteria in different air basins that allow for CARB to forecast permissive burn, no burn, or marginal burn days, and to set a limit on total burned acreage based on current air quality and meteorological data.

Putting this all into practice, a land manager planning a prescribed burn will prepare a smoke management plan for the local air district and either deliver a hard copy of the plan or upload it to the Prescribed Fire Information Reporting System (PFIRS, <https://ssl.arb.ca.gov/pfirs/index.php>)

for approval. Assuming that the plan is approved by air district staff, the land manager will tentatively plan a window for the burn to occur. As the proposed burn date approaches, the land manager and district staff will have access to 96, 72, 48, and 24 hour air quality and meteorology forecasts to assess the likelihood of receiving a burn authorization. If the burn is successfully completed, the land manager follows up at a later date with a report on the completed burn acreage.

Aside from development of the smoke management plan, the process sounds relatively simple, however, many hurdles exist that can prevent a prescribed burn from happening. Land managers have to “compete” on any given day with other sources of particulate emissions in their air basin, including agricultural burners, residential burning including home wood heating, and existing stationary and mobile sources. Separate from matters of air quality, land managers have to work with on the ground conditions including weather and safe burn conditions, fuel moisture, and labor and equipment resources. In response to concerns expressed through the Governor’s Tree Mortality Task Force Prescribed Fire Work Group, CARB staff performed a cursory review of burn days over a 4 year period in several air basins, coupled with actual reported burn acreage. The attached charts do not indicate whether any individual burn was authorized or not authorized, nor does it assess factors unrelated to air quality that caused a burn to be cancelled. The charts do indicate that overall, burn days are available and that land managers could increase the use of prescribed fire within the current air quality management structure set by CARB and the local districts through Title 17. The challenge for land managers is to strategize ways to be ready when smoke management plans have been approved and burn windows are open, including times of the year outside of the traditional prescribed fire season. One of the challenges for air districts is to better understand potential smoke impacts in order to allow land managers to maximize burn acreage for environmental benefit when conditions allow and to potentially minimize future catastrophic wildfires.

### **Air District Challenges**

*District Staffing* – As mentioned earlier, there are 35 local air districts in California. Many air districts represent single counties, such as the Lassen County Air Pollution Control District, while some represent multiple counties or partial counties, such as the nine county Bay Area Air Quality Management District. The staffing at each district generally reflects the number and size of stationary sources within the district, mobile source emissions, ongoing air quality relative to state and federal attainment standards, and other community and public health needs. As examples, the Lassen County Air Pollution Control District, has 1.5 full time equivalent staffing since large areas of the 4,500 square mile district are forested and non-urbanized, while the largely urban South Coast Air Quality Management District has an FTE of approximately 850. For rural air districts such as Lassen, prescribed fire work competes with district stationary source regulation, incentive work, public meetings, and complaint and nuisance investigations. Many districts just cannot devote significant staff time to on site monitoring and interaction with the land manager. During catastrophic wildfires, rural districts rely on CARB for significant support in air quality monitoring and equipment needs, modeling, and public messaging. While an expanded prescribed burn program would not require the level of staffing and resources needed for short term catastrophic wildfires, an efficient program run at a local district level would require increased support through additional funding and/or continued support from CARB.

*Public Health Impacts* – In addition to the resource and staffing issue, both urban and rural districts have to also account for and mitigate air quality impacts in areas that are under significant federal and state pressure to meet air quality standards for criteria pollutants, including ozone and particulate matter. The majority of Californians live in areas that do not meet federal air quality standards for particulate matter, and periods with unhealthy air can result in immediate and observable public health and economic impacts. And while prescribed burns are understood to have less impact than catastrophic wildfires, current federal policy does not allow for exceedances of air quality standards that may have been due in part to a prescribed burn.

In an effort to reduce overall particulate emissions, many districts, both urban and rural, have adopted regulations to curtail use of woodstoves and fireplaces during periods of bad air quality, and also provide incentive funding to replace older wood heating devices with new devices. Even with restrictions, many districts still face challenges in meeting or maintaining attainment for particulate matter, and while these districts continue to provide opportunities for prescribed burning, increasing burns will be challenging without identifying new tools and strategies to model proposed burns, monitor the actual burns, and mitigate any resulting public health impacts.

It should also be noted that as a result of the Tree Mortality Emergency Declaration, CalFire and other land managers have used alternatives to burning in some areas, including the use of air curtain burners which provide more complete combustion and less smoke impact than open burning. While not providing the same forest health benefits as prescribed burning, air curtain burners can provide fuel reduction benefits with less air quality impacts near potentially impacted communities.

*Monitoring and Modeling Capability* – California has an extensive stationary monitoring network, but by design, the majority of the particulate monitoring is in the vicinity of heavily populated areas that may not adequately represent communities that could potentially be impacted by increased prescribed burning. Air districts, CARB, and land managers routinely use portable particulate monitors during wildfires that can be placed in the vicinity of events or near potentially impacted communities. Wildfire events typically receive a robust level of attention from air quality regulators and land managers with continuous monitoring, modeling, and public health messaging that can last for weeks or months at a time. At the air district level, the majority of this work is unfunded and seldom reimbursed, which can cause significant financial hardship for smaller air districts.

Increasing prescribed burns, either the duration or the acreage of an individual burn, will likely require an increased level of monitoring and modeling in order to ensure that the resulting emissions do not directly impact public health or contribute to exceedances of air quality standards. In addition, there will need to be an increase in public outreach and communication during prescribed burn events to better inform potentially impacted communities.

Portable sensor technology is something that should be further explored as a way to lower costs of monitoring, to provide land managers with real time information that allow for better management of burns, to assess the validity of current methods of modeling, and to eventually

develop best management practices that can streamline burn authorizations. Within the last 5 years, miniaturization of air quality sensors has created a robust market of low cost, portable devices that can provide real time information. The quality and durability of sensors can vary, but agencies like the South Coast Air Quality Management District through their AQ-Spec lab (<http://www.aqmd.gov/aq-spec>) are on the leading edge of examining uses for this technology. In addition, US EPA and other federal agencies are funding an industry challenge to develop a low cost sensor specific to wildfire monitoring (<https://www.challenge.gov/challenge/wildland-fire-sensors-challenge/>). Results from efforts like these should be followed and incorporated into future strategies to increase prescribed fire.

### **Prescribed Fire Recommendations**

1. CARB, other state agencies, and stakeholders should continue to examine methods of carbon accounting related to forestry activities in order to better inform forestry policy and decision-making.
2. Air districts, CARB, land managers, and other stakeholders should continue discussing opportunities to increase prescribed burning through better use of technology, including modeling software, traditional portable air quality monitoring, or newer low cost sensor technology.
3. Land managers should examine opportunities to burn outside of the traditional burn season if air quality considerations allow, including identification of potential burn areas as well as alternative treatments such as use of air curtain burners.
4. Air districts, especially rural air districts with minimal staffing, should receive financial, equipment, and training support to allow for increased staffing as the use of prescribed fire increases.
5. Continued and expanded funding for woodsmoke reduction programs can reduce the daily emission load from home wood heating, which would allow for expanded prescribed burn windows.
6. Land managers and stakeholders should increase outreach to communities affected by wildfire and prescribed fire to increase public understanding and acceptance of prescribed fire.

### **Biomass**

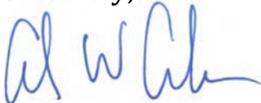
CAPCOA released a short policy statement in December 2016 titled "CAPCOA Policy Statement on Biomass Power Plants," (attached) that reflects the views of the association. Please accept this policy statement as the association's written testimony regarding biomass. The statement should convey our opinion that biomass power plants can be a tool that reduces overall emissions when compared to open burning or wildfires, and that the resulting energy generation can further offset fossil fuel electricity generation when used for baseload power purposes. Biomass plants can fill a need for lower cost and lower emission disposal in the agricultural sector when compared to open burning. CAPCOA also recognizes the challenges that these facilities face in upgrading pollution control equipment to meet air district requirements while still remaining cost competitive, and supports a long term transition to clean technologies that produce electricity, biochar, compost, wood products, and biofuels.

The Little Hoover Commission poses several questions that are important to consider. The first question relates to air quality barriers to maintaining and expanding biomass energy generation. As mentioned above and in the policy statement, the requirement to maintain and upgrade pollution control equipment at these facilities is necessary for protection of public health, but also expensive for an energy sector that is financially challenged. Some facilities may be additionally challenged as federal air quality standards are tightened, or as requirements of the recently signed AB 617 legislation are implemented.

The second question asks about opportunities to overcome these barriers including improvements to air monitoring technology. Air monitoring technologies, including portable sensors mentioned in the prescribed fire discussion, are worthy to look at with regard to further assessing impacts from facilities. In the end, however, increased monitoring will not directly lead to emission reductions from operations. Support for the industry by recognizing its value as baseload power to replace fossil fuel power will remain critical, as well as giving recognition to the societal benefits as discussed in the policy statement may provide the industry with the ability to finance operational improvements resulting in lower emissions and greater health benefits.

Thank you for the opportunity to provide the perspective of the local air districts on this critical topic, and we look forward to being involved in opportunities to improve forest health as well as public health.

Sincerely,



Alan Abbs  
Executive Director

Attachments  
Title 17, Section 80160  
Selected CARB Data on Burn Allocations, 2010-2014  
CAPCOA Policy Statement on Biomass Power Plants

**§80160. Special Requirements for Prescribed Burning and Prescribed Fires in Wildland and Wildland/Urban Interface Areas.**

The district smoke management programs shall include rules and regulations or, until April 1, 2003, other enforceable mechanisms that:

- (a) Require registration of all planned burn projects annually or seasonally, including areas considered for potential naturally-ignited wildland fires managed for resource benefits, with updates as they occur.
- (b) Require the submittal of smoke management plans for all burn projects greater than 10 acres in size or estimated to produce more than 1 ton of particulate matter. Smoke management plans must contain, at a minimum, the following information:
  - (1) Location, types, and amounts of material to be burned;
  - (2) Expected duration of the fire from ignition to extinction;
  - (3) Identification of responsible personnel, including telephone contacts; and
  - (4) Identification and location of all smoke sensitive areas.
- (c) Require that smoke management plans for burn projects greater than 100 acres in size or estimated to produce more than 10 tons of particulate matter contain, at a minimum, the information contained in subsection (b) and the following additional information:
  - (1) Identification of meteorological conditions necessary for burning.
  - (2) The smoke management criteria the land manager or his/her designee will use for making burn ignition decisions.
  - (3) Projections, including a map, of where the smoke from burns are expected to travel, both day and night.
  - (4) Specific contingency actions (such as fire suppression or containment) that will be taken if smoke impacts occur or meteorological conditions deviate from those specified in the smoke management plan.
  - (5) An evaluation of alternatives to burning considered; if an analysis of alternatives has been prepared as part of the environmental documentation required for the burn project pursuant to the National Environmental Policy Act (NEPA) or the California Environmental Quality Act (CEQA), as applicable, the analysis shall be attached to the smoke management plan in satisfaction of this requirement.
  - (6) Discussion of public notification procedures.
- (d) If smoke may impact smoke sensitive areas, require smoke management plans to include appropriate monitoring, which may include visual monitoring, ambient particulate matter monitoring or other monitoring approved by the district, as required by the district for the following burn projects:
  - (1) projects greater than 250 acres;
  - (2) projects that will continue burning or producing smoke overnight;
  - (3) projects conducted near smoke sensitive areas; or
  - (4) as otherwise required by the district.
- (e) Require, as appropriate, daily coordination between the land manager or his/her designee and the air district or the ARB for multi-day burns which may impact smoke sensitive areas, to affirm that the burn project remains within the conditions specified in the smoke management plan, or whether contingency actions are necessary.

- (f) Alternate thresholds to those specified in sections (b), (c), and (d) may be specified by a district consistent with the intent of this section.
- (g) Require district review and approval of smoke management plans. Districts shall provide notice to the ARB of large or multi-day burns as specified in (d) or (e) and consult with the ARB on procedures for ARB review and approval of large or multi-day burns as specified in (d) and (e).
- (h) Require that when a natural ignition occurs on a no-burn day, the initial “go/no-go” decision to manage the fire for resource benefit will be a “no-go” unless:
  - (1) After consultation with the district, the district decides, for smoke management purposes, that the burn can be managed for resource benefit; or
  - (2) For periods of less than 24 hours, a reasonable effort has been made to contact the district, or if the district is not available, the ARB.
  - (3) After 24 hours, the district has been contacted, or if the district is not available, the ARB has been contacted and concurs that the burn can be managed for resource benefit.

A “no-go” decision does not necessarily mean that the fire must be extinguished, but that the fire cannot be considered as a prescribed fire.

- (i) Require submittal of smoke management plans within 72 hours of the start of the fire for naturally-ignited wildland fires managed for resource benefits that are expected to exceed 10 acres in size.
- (j) Require the land manager or his/her designee conducting a prescribed burn to ensure that all conditions and requirements stated in the smoke management plan are met on the day of the burn event and prior to ignition.
- (k) Require a post-burn smoke management evaluation by the burner for fires greater than 250 acres.
- (l) Require procedures for public notification and education, including appropriate signage at burn sites, and for reporting of public smoke complaints.
- (m) Require vegetation to be in a condition that will minimize the smoke emitted during combustion when feasible, considering fire safety and other factors.
- (n) Require material to be burned to be piled where possible, unless good silvicultural practices or ecological goals dictate otherwise.
- (o) Require piled material to be burned to be prepared so that it will burn with a minimum of smoke.
- (p) Require the permit applicant to file with the district a statement from the Department of Fish and Game certifying that the burn is desirable and proper if the burn is to be done primarily for improvement of land for wildlife and game habitat. The Department of Fish and Game may specify the amount of brush treatment required, along with any other conditions it deems appropriate.

NOTE: Authority cited: Sections 39600, 39601, 41856 and 41859, Health and Safety Code.  
Reference: Sections 41850, 41853, 41854, 41855, 41856, 41857, 41858, 41859, 41861, 41862 and 41863, Health and Safety Code.

## **Some Statistical information Based on CalFire Data**

### **Burn days**

Annual statewide percentages of permissive burn days ranged from 70% to over 90%, except for the North Central Coastal area where typically many days were “burn ban days” (Table 1).

### **Monthly Distribution of Rx Burn**

Based on 2010-2015 data, most Rx burns occurred in Feb, March, November and December, which account for about 2/3 of total annual Rx burns (Tables 1a and 1b). As shown in Table 1a, there were no burns during July to Sept.

### **Geographical Distribution of CALFIRE Rx Burn**

CALFIRE conducted very few Rx burns in the six counties (Mariposa, Tuolumne, Madera, Fresno, Tulare, and Eastern Kern) during 2010-2013 (Table 2).

### **RX Burn Request vs. Actual Burn**

Based on 2014 data, the percentage of completed vs. requested Rx burns (based on acreage) was about 50% statewide (Table 3).

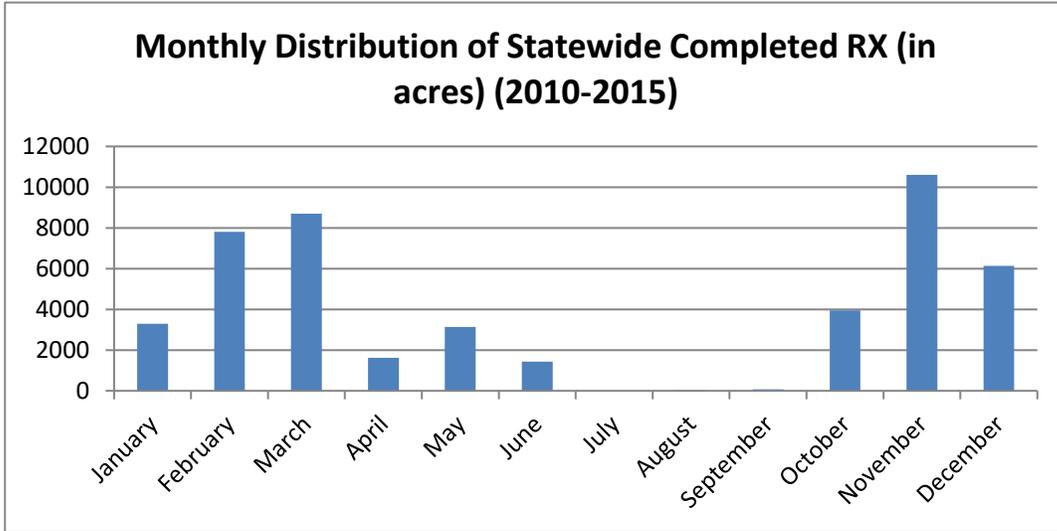
**Table 1: Annual Percentages of Permissive Burn Days (2010-2014)**

<b>AIR BASIN</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
North Coast High	94	89	80	76	79
North Coast Low	91	84	79	74	78
Lake County	50	42	46	42	33
San Francisco Bay North High	86	76	78	68	72
San Francisco Bay North Low	86	76	78	68	72
San Francisco Bay South High	86	77	78	67	72
San Francisco Bay South Low	86	76	78	67	72
San Francisco Bay Coastal High	87	78	80	71	73
San Francisco Bay Coastal Low	87	78	80	71	73
North Central Coast High	86	81	82	32	83
North Central Coast Northwest Low (Coastal)	59	72	66	32	80
North Central Coast Southeast Low (Coastal)	58	72	66	29	80
<b>North Central Coast (Nov2014)</b>					89
North Central Coast Northwest Low (Inland)	84	82	81	32	84
<b>North Central Coast San Lorenzo Valley (Nov2014)</b>					78
North Central Coast Southeast Low (Inland)	87	83	82	77	84
<b>North Central Coast Inland (Nov2014)</b>					89
South Central Coast High	86	79	81	83	82
South Central Coast South Low	63	71	67	82	80
South Central Coast North Low (Coastal)	61	72	67	83	80
South Central Coast North Low (Inland)	86	81	81	85	84
South Coast	91	89	86	83	80
San Diego West High	92	89	88	90	83
San Diego West Low	88	79	81	80	80
Mojave Desert	92	91	90	90	93
Salton Sea and San Diego East	89	88	89	89	92
Sacramento Valley High	94	87	81	77	85
Sacramento Valley Low	97	92	90	91	96
San Joaquin Valley Authorized Allocation Sys	87	75	72	66	67
Northeast Plateau	96	91	82	77	77
Mountain Counties (North)	94	86	82	74	82
Mountain Counties (South)	93	84	84	71	83
Lake Tahoe	91	84	81	75	84
Great Basin Valleys	91	77	84	72	84

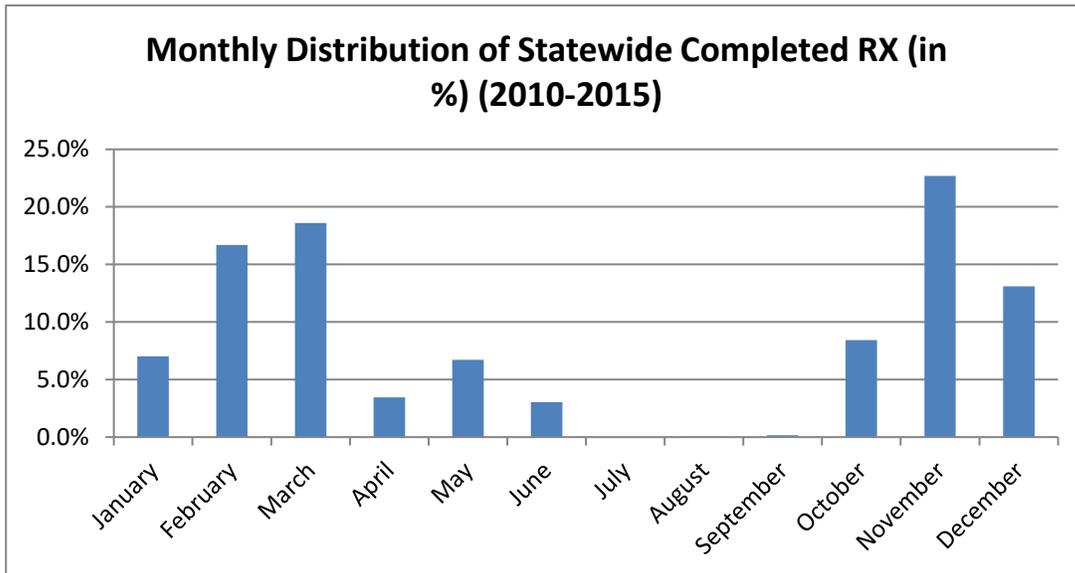
Notes:

1. These Statistics do not include any "No-Burn" restrictions imposed by other governmental agencies
2. In February 2008, North Central Coast Low split into Coastal and Inland basins
3. In November 12-30, 2014, North Central Coast air districts combined their 5 sections into only 3 sections.

**Figure 1a: Monthly Distribution of Statewide Completed Rx Burns by Acreage**



**Figure 1b: Monthly Distribution of Statewide Completed Rx Burns by Percentage**



**Table 2: Geographical Distribution of CALFIRE Rx Burn Acres (2010 - 2013)**

UNIT_ID	CAL FIRE UNIT	2010	2011	2012	2013
AEU	Amador-El Dorado	154	531	186	358
BDU	San Bernadino	-	-	-	797
BEU	San Benito-Monterey	106	303	-	851
BTU	Butte	-	52	151	122
CZU	San Mateo-Santa Cruz	405	-	-	-
HUU	Humboldt-Del Norte	166	49	-	54
MEU	Mendocino	92	270	-	5,461
MVU	San Diego	-	144	941	826
NEU	Nevada-Yuba-Placer	137	93	145	-
RRU	Riverside	1,031	706	190	184
SCU	Santa Clara	4,496	4,103	-	-
SHU	Shasta-Trinity	20	704	-	-
SLU	San Luis Obispo	422	111	2,327	-
TGU	Tehama-Glenn	2,291	1,825	1,377	1,484
TUU	Tulare	-	2,976	-	-
	<b>Total</b>	<b>9,318</b>	<b>11,866</b>	<b>5,316</b>	<b>10,136</b>

**Table 3: Rx burn requests, authorizations and completeness by month (2014)**

Month	Acres Requested	Acres Authorized	Acres Completed	Authorized vs. Requested	Completed vs. Authorized
Jan	1152	1031	257	89.5%	24.9%
Feb	6701	6628	4030	98.9%	60.8%
March	1306	1250	782	95.7%	62.6%
April	305	305	149	100.0%	48.8%
May	416	361	147	86.8%	40.7%
June	467	467	342	100.0%	73.3%
July	6	6	0	100.0%	0.0%
Aug	140	25	0	17.9%	0.0%
Sept	296	73	71	24.7%	97.3%
Oct	4396	4283	1566	97.4%	36.6%
Nov	7595	6328	3061	83.3%	48.4%
Dec	5190	4606	1971	88.7%	42.8%
Annual	27969	25362	12376	90.7%	48.8%

## CAPCOA Policy Statement on Biomass Power Plants

Biomass power plants provide a number of societal benefits including significant air quality benefits. Biomass power plants are a primary alternative to the open burning of agricultural and forest waste and the emissions associated with open pile burning including criteria air pollutants (fine particulate matter (PM), carbon monoxide (CO), volatile organic compounds (VOC), and nitrogen oxides (NOx)), greenhouse gases (carbon dioxide (CO<sub>2</sub>) and short lived climate pollutants of methane and black carbon), and organic air toxics. Comprehensive life cycle assessments show reductions of greater than 99% for PM and black carbon, from 95-99% for CO and VOCs, 70% for NOx, and up to 30% for CO<sub>2</sub>.<sup>1 2</sup> In the near term, the lack of biomass plants will undo much of the progress that has been made in reducing open burning and the levels of harmful air pollutants in the air we breathe.

Significant quantities of agricultural wastes are generated throughout California's highly productive valleys and foothills. These include fruit and nut orchard prunings and removals and pits and shells. Biomass power is currently the only economic disposal option.

Reducing fuel loads in the forest is a primary method of mitigating wildfire size and severity. The open burning of forest wastes is contrary to maintaining regional air quality. The biomass power industry provides a multifaceted beneficial alternative for disposing of forest debris and is a desirable part of the solution to the current tree mortality epidemic. By removing forest debris and using it to generate biomass power we can reduce the occurrence of catastrophic wildfires and the attendant damage to public resources and property, protect critical upland watersheds that ensure water quality, quantity, and forest ecosystem wildlife habitat, along with having a positive impact on air quality and energy resources.

Biomass power plants also burn urban woody biomass waste materials that are placed in landfills. Closure of biomass power plants will likely result in detrimental impacts on the state's efforts to reduce methane emissions from landfills and would also shorten the life of landfills. Clearly, biomass plants can and do play a role in meeting the state's landfill diversion requirements and greenhouse gas reductions and yet current state policies do not adequately recognize the societal, environmental, and public health benefits that are provided by these facilities.

The California Air Pollution Control Officers Association supports the following principles to maintain a viable biomass power industry in the California:

***Require the purchase of biomass power at a rate that recognizes the other societal benefits of biomass power plants:*** The biomass industry does not compete

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<sup>1</sup> California Agriculture, *Forest biomass diversion in the Sierra Nevada: Energy, economics and emissions*, Volume 69, Number 3, July-September 2015, available at: [http://calag.ucanr.edu/archive/?issue=69\\_3](http://calag.ucanr.edu/archive/?issue=69_3).

<sup>2</sup> Journal of the Air & Waste Management Association, *Emission Reductions from Woody Biomass Waste for Energy as an Alternative to Open Burning*, Volume 61, January 2011.

well under the current procurement policies of the state's IOUs. Historically, biomass facilities have required 12-13 cents per kilowatt hour to retain economic viability. As the state's favorable policies and biomass power purchase contracts have expired over the past several years, this price point has placed biomass facilities at a competitive disadvantage with other renewable fuels which can be procured at a much lower cost. Under the state's Renewable Portfolio Standard program, pricing information is confidential, yet anecdotal evidence is that, currently, the IOUs are purchasing power from solar and wind facilities at approximately 5-8 cents per kilowatt hour, which is significantly below the actual non-subsidized cost of from 9-20 cents per kilowatt hour.

In order to close the gap between what is being offered to other subsidized renewable power producers (solar and wind), the California Public Utilities Commission (CPUC) has the authority to recognize "societal benefits" that are generated by power producers. In discussions with CPUC staff they have indicated that they take a narrow view of societal benefits and recognize only benefits that accrue directly to ratepayers. They do not monetize benefits such as air quality improvements, wildfire mitigation, landfill diversion, and public health cost savings in their ratemaking activities. The legislature could clarify this and mandate that "societal benefits" of biomass power described above be recognized in the price that is paid for biomass energy.

***Provide Cap and Trade revenues to maintain a viable biomass power industry:***

Not only do biomass power plants reduce criteria pollutant emissions, but they also reduce greenhouse gas emissions by replacing power produced by fossil fuel fired plants. The state could provide revenues from the Cap and Trade program to recognize the greenhouse gas emission reductions associated with biomass power production. CARB should develop standardized methodologies to develop black carbon benefits of these projects, which can be done using information from PM emissions and other factors.

***Modernize tipping fees and utilize funds for waste diversion including funding for biomass power:*** The current cap on the state's integrated waste management fee was established over two decades ago (1993). Since that time waste management facilities have been required to divert 75% of the material that used to end up in landfills. An increase in the state's portion of local waste management fees could help fund the development of landfill alternatives including biomass power plants and other uses for organic waste.

***Investigate and develop alternatives to biomass:*** Current energy dynamics create a difficult environment for biomass power plants to remain viable. While every effort should be taken to save existing biomass power production, resources also need to be devoted to developing other long-term and sustainable alternatives for the disposal of agricultural and forest waste material. The state should provide resources to develop alternative uses for forest and agricultural waste materials. This must include the production of biochar, compost, and wood products, as well as assessments demonstrating the ability of current forest and agricultural practices to support existing biomass power production.

**Encourage local use of biomass waste:** Biomass plants realize the greatest emissions benefits when they are using waste generated in the local area. The long distance transport of biomass waste, even when not burned in a biomass plant, generates significant emissions by itself and transport of fuels from remote areas to areas with significant air quality concerns should be discouraged. This includes supporting the BioMat program at the CPUC with program constructs and potentially larger allocations of MW for the program, and larger allocations to the California Energy Commission's EPIC program to fund the development of novel technologies that can utilize this waste for energy.

**Baseload Power value:** It is well known that the huge increase in intermittent renewables has driven up the need for baseload power. As the CPUC's own analysis has shown, integration of intermittent renewables into the grid requires significant additional costs, including backup generation, costs to stabilize the grid and more. The costs of integrating solar and wind will only increase as increasing amounts will have to be curtailed. A recent study by Energy and Environmental Economics (E3) made clear that increasing the diversity of California's renewables portfolio will reduce curtailment and provide the lowest cost option to achieve a 50 percent RPS.<sup>3</sup>

The National Renewable Energy Labs (NREL) reached the same conclusion when it considered the feasibility of the United States moving to 80 percent renewables by mid-century. Like E3, NREL found that an 80 percent RPS is feasible, but only if we significantly increase the production of baseload and flexible generation renewables.<sup>4</sup> Specific policies to increase baseload and flexible generation power include:

- A specific requirement or portfolio standard for baseload and flexible generation that ensures that these resources provide at least 3,500 additional megawatts of baseload and flexible generation. This could be similar to the energy storage portfolio standard to ensure that a variety of baseload and flexible generation technologies help to achieve the requirement. It will also help California prepare for the possible closure of the Diablo Canyon nuclear generating facility.
- Allocate a portion of EPIC funding to baseload and flexible generation power to better quantify the grid, economic and environmental benefits of baseload and flexible generation power.

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<sup>3</sup>National Renewable Energy Labs, *Renewable Energy Futures*, available at: [http://www.nrel.gov/analysis/re\\_futures/](http://www.nrel.gov/analysis/re_futures/); Energy and Environmental Economics, *Investigating a Higher Renewables Portfolio Standard in California*, January 2014; Union of Concerned Scientists: *Achieving 50 Percent Renewable Electricity in California*, 2015. Available at: <http://www.ucsusa.org/sites/default/files/attach/2015/08/Achieving-50-Percent-Renewable-Electricity-In-California.pdf>.

<sup>4</sup> NREL, footnote 3, above.