

Proposed Modifications to Climate Change Proposed Scoping Plan and Appendices

December 11, 2008

ARB staff has prepared possible modifications to the October 15, 2008, Proposed Scoping Plan as directed by the Board on November 20 and 21, 2008. The starting language for potential modifications already incorporates the modifications detailed in the November 14, 2008 Errata Sheet (“Errata”). Also, associated footnotes are not shown unless they are affected by a particular change. Unless otherwise specified, page numbers refer to the Proposed Scoping Plan. The possible modifications are grouped by topic for ease of tracking.

Recycling and Waste

Page 17:

Table 2: Recommended Greenhouse Gas Reduction Measures

Recommended Reduction Measures	Reductions Counted Towards 2020 Target (MMTCO ₂ E)
ESTIMATED REDUCTIONS RESULTING FROM THE COMBINATION OF CAP-AND-TRADE PROGRAM AND COMPLEMENTARY MEASURES	146.7
California Light-Duty Vehicle Greenhouse Gas Standards <ul style="list-style-type: none"> Implement Pavley standards Develop Pavley II light-duty vehicle standards 	31.7
Energy Efficiency <ul style="list-style-type: none"> Building/appliance efficiency, new programs, etc. Increase CHP generation by 30,000 GWh Solar Water Heating (AB 1470 goal) 	26.3
Renewables Portfolio Standard (33% by 2020)	21.3
Low Carbon Fuel Standard	15
Regional Transportation-Related GHG Targets	5
Vehicle Efficiency Measures	4.5
Goods Movement <ul style="list-style-type: none"> Ship Electrification at Ports System-Wide Efficiency Improvements 	3.7
Million Solar Roofs	2.1
Medium/Heavy Duty Vehicles <ul style="list-style-type: none"> Heavy-Duty Vehicle Greenhouse Gas Emission Reduction (Aerodynamic Efficiency) Medium- and Heavy-Duty Vehicle Hybridization 	1.4
High Speed Rail	1.0
Industrial Measures (for sources covered under cap-and-trade program) <ul style="list-style-type: none"> Refinery Measures Energy Efficiency & Co-Benefits Audits 	0.3
Additional Reductions Necessary to Achieve the Cap	34.4
ESTIMATED REDUCTIONS FROM UNCAPPED SOURCES/SECTORS	27.3
High Global Warming Potential Gas Measures	20.2
Sustainable Forests	5.0
Industrial Measures (for sources not covered under cap and trade program) <ul style="list-style-type: none"> Oil and Gas Extraction and Transmission 	1.1
Recycling and Waste (landfill methane capture)	1.0
TOTAL REDUCTIONS COUNTED TOWARDS 2020 TARGET	174
Other Recommended Measures	Estimated 2020 Reductions (MMTCO ₂ E)
State Government Operations	1-2
Local Government Operations	TBD
Green Buildings	26
Recycling and Waste (other measures) <ul style="list-style-type: none"> Mandatory Commercial Recycling Other measures 	9.0
Water Sector Measures	4.8
Methane Capture at Large Dairies	1.0

Page 62, sub-header:

Reduce methane emissions at landfills. Increase waste diversion, composting and other beneficial uses of organic materials, and mandate commercial recycling. Move toward zero-waste.

Page 63, first full paragraph:

As noted by ETAAC, recycling in the commercial sector could be substantially increased. This ~~could~~ will be implemented, ~~for example,~~ through ~~voluntary or~~ mandatory programs, ~~including protocols,~~ and enhanced partnerships with local governments, ~~and~~ The provision of appropriate financial incentives will be critical. ARB will work with CIWMB to develop and implement these types of programs. ARB will also work with CIWMB, the California Department of Food and Agriculture, the Department of Transportation, and others to provide direct incentives for the use of compost in agriculture and landscaping. Further, CIWMB will explore the use of incentives for all Recycling and Waste Management measures, including for commercial recycling and for local jurisdictions to encourage the collection of residentially and commercially-generated food scraps for composting and in-vessel anaerobic digestion.

Page 63:

Table 20: Recycling and Waste Sector Recommendation - Landfill Methane Capture and High Recycling/Zero Waste (MMTCO₂E in 2020)

Measure No.	Measure Description	Reductions
RW-1	Landfill Methane Control (Discrete Early Action)	1
RW-2	Additional Reductions in Landfill Methane <ul style="list-style-type: none">• Increase the Efficiency of Landfill Methane Capture	TBD
RW-3	High Recycling/Zero Waste <ul style="list-style-type: none">• <u>Mandatory</u> Commercial Recycling• Increase Production and Markets for Organic Products• Anaerobic Digestion• Extended Producer Responsibility• Environmentally Preferable Purchasing	9 <u>5</u> <u>2</u> <u>2</u> <u>TBD</u> <u>TBD</u>
Total		10

Appendix C, page C-161:

***(RW-3) High Recycling/Zero Waste
Mandatory Commercial Recycling***

Appendix C, page C-161:

Delete third full paragraph

Appendix C, Page C-163:

Appendix C: Recycling and Waste Management

Table 1

Reduction Measure	Potential 2020 Reductions MMTCO ₂ E	Net Annualized Cost (\$ Millions)	Proposed Lead Agency	Adoption/Implementation Timeframe
RW-3: High Recycling/Zero Waste				
Mandatory Commercial Recycling	5.0	TBD	CIWMB	TBD
Increase Production and Markets for Compost (studies underway for data development)	2.0	TBD	CIWMB	TBD
Anaerobic Digestion	2.0	TBD	CIWMB	TBD

Public Health

Note: The updated health benefit values in Tables 30 and 31 (below) will be reflected as appropriate throughout the document.

Page 89:

Table 30: Estimates of Statewide Air Quality-Related Health Benefits in 2020

Health Endpoint	Health Benefits of Existing Measures and 2007 SIP <i>mean</i>	Health Benefits of Recommendations in the Proposed Scoping Plan <i>mean</i>
Avoided Premature Death	3,700 <u>12,000</u>	400 <u>780</u>
Avoided Hospital Admissions for Respiratory Causes	770 <u>1,300</u>	84 <u>87</u>
Avoided Hospital Admissions for Cardiovascular Causes	1,400 <u>2,600</u>	150 <u>170</u>
Avoided Asthma and Lower Respiratory Symptoms	110,000 <u>190,000</u>	11,000 <u>12,000</u>
Avoided Acute Bronchitis	8,700 <u>15,000</u>	910 <u>980</u>
Avoided Work Loss Days	620,000 <u>1,200,000</u>	67,000 <u>77,000</u>
Avoided Minor Restricted Activity Days	3,600,000 <u>7,000,000</u>	380,000 <u>450,000</u>

Table 31: Estimated Air Quality-Related Health Benefits of Existing Program, 2007 SIP, and Proposed Scoping Plan in the South Coast Air Basin, 2020

Health Impacts / Scenario	Benefits from Existing Program	Additional Benefits from 2007 SIP	Additional Co-Benefits from Proposed Scoping Plan
Premature Deaths Avoided	1,600 <u>4,800</u>	920 <u>2,000</u>	200 <u>360</u>
Hospitalizations Avoided – Respiratory	330 <u>550</u>	200 <u>230</u>	42 <u>40</u>
Hospitalizations Avoided – Cardiovascular	640 <u>1,100</u>	360 <u>440</u>	78 <u>77</u>
Asthma & Lower Respiratory Symptoms Avoided	46,000 <u>80,000</u>	28,000 <u>35,000</u>	5,900 <u>6,200</u>
Acute Bronchitis Avoided	3,800 <u>6,400</u>	2,300 <u>2,800</u>	490 <u>500</u>
Work Loss Days Avoided	270,000 <u>510,000</u>	160,000 <u>220,000</u>	35,000 <u>38,000</u>
Minor Restricted Activity Days Avoided	1,600,000 <u>3,000,000</u>	940,000 <u>1,300,000</u>	200,000 <u>220,000</u>

Page 93, fourth paragraph:

Using the previously described methodology that correlates emission reductions in the air basin with expected regional health benefits there would be an estimated ~~11~~ 24 avoided premature deaths attributed to emission reductions that occur in Wilmington as a result of the Scoping Plan.

Green Building Strategy

Page 58, fifth paragraph:

ARB estimates that the greenhouse gas savings from green building measures as approximately 26 MMTCO₂E, as shown in Table 18 below. Most of these reductions are accounted for in the Electricity, Waste, and Water, ~~and Transportation~~ sectors. Because of this, ARB has assigned all emissions reductions that occur as a result of green building strategies to other sectors for purposes of meeting AB 32 requirements, but will continue to evaluate and refine the emissions from this sector. As such, this strategy will require implementation from various entities within California, including CEC, PUC, State Architect, and others, each taking the lead in their area of authority and expertise.

Voluntary Renewables

Executive Summary, page ES-5, third bullet:

5. Cap-and-Trade Program: The plan provides additional detail on the proposed cap-and-trade program including a discussion regarding auction of allowances, a discussion of the proposed role of offsets, the role of voluntary renewable power purchases, and additional detail on the mechanisms to be developed to encourage voluntary early action.

Page 69, second full paragraph:

Allowance set-asides, in addition to being used to potentially reward voluntary early actions by facilities that will be included in the cap-and-trade program, could also be used to reward voluntary early action at other facilities not covered by the cap and to ensure that voluntary actions, such as voluntary renewable power purchases by individuals, businesses, and others, serve to reduce greenhouse gas emissions under the cap. An early action allowance set-aside could be utilized both by entities that are covered by the cap, and by those who develop emissions reducing projects outside of the cap, or purchase the reductions associated with those projects, and have not sold or used them. Additional discussion of voluntary offsets is included in Appendix C.

Page 70, second set of bullets:

Possible uses of allowances and of the revenue generated under the program include:

- **Reducing costs of emissions reductions or achieving additional reductions** – Funding energy efficiency and renewable resource development could lower overall costs to consumers and companies, and provide the opportunity to achieve greater emissions reductions than would otherwise be possible. Program revenues could be used to fund programs directly, or create financial incentives for others. Allowance set-asides could also be used to provide incentives for voluntary renewable power purchases by individuals and businesses, and for increased energy efficiency.

California Cap-and-Trade Program

Page 31, third paragraph, first bullet; and Appendix C, page C-15, second paragraph, first bullet:

- In-state electrical generating facilities that emit over 25,000 metric tons CO₂E per year (~~anthropogenic emissions only~~),[#] including imports not covered by a WCI Partner jurisdiction

Footnote to the first bullet:

[#] Only anthropogenic emissions are proposed to be covered under the cap. Allowances will not be required for combustion emissions from carbon-neutral projects.

Page 31, third paragraph, second bullet; and Appendix C, page C-15, second paragraph, second bullet:

- Large industrial facilities that emit over 25,000 metric tons CO₂E per year (~~anthropogenic emissions only~~), including high global warming potential gases

Page 31, third paragraph, third bullet; and Appendix C, page C-15, second paragraph, third bullet:

- Upstream treatment of industrial fuel combustion at facilities with emissions at or below 25,000 metric tons CO₂E per year (~~anthropogenic emissions only~~), and all commercial and residential fuel combustion regulated where the fuel enters into commerce.

Appendix B, Errata to page B-12:

Delete definitions of “anthropogenic” and “biogenic”

Allowances and Revenues

Page 36, first full paragraph:

The Market Advisory Committee also recommended the eventual transition to full auction within the cap-and-trade program, noting that a system in which California ultimately auctions all of its emission allowances is consistent with fundamental objectives of cost-effectiveness, fairness and simplicity. ARB agrees that the transition to 100 percent auction, with auction revenue going to further the policy objectives of California’s climate change program, is a worthwhile goal for distributing allowances. ARB expects that California will auction significantly more than the WCI minimum levels and will transition to 100 percent auction. However a broad set of factors must be considered in evaluating the potential timing of a transition to a full auction including competitiveness, potential for emissions leakage, the effect on regulated vs. unregulated industrial sectors, the overall impact on consumers, and the strategic use of auction revenues.

Sustainable Forests

Page 63, first paragraph under Chapter 16:

The 2020 Proposed Scoping Plan target for California’s forest sector is to maintain the current 5 MMTCO₂E of sequestration through sustainable management practices, potentially including reducing the risk of catastrophic wildfire, and the avoidance or mitigation of land-use changes that reduce carbon storage.

Page 65, first paragraph:

Going forward there are a number of forestry-related strategies that can play an important role in California’s greenhouse gas emissions reduction efforts. Biomass resources from forest residue will factor into the expansion of renewable energy sources (this is currently accounted for in the Energy sector). ~~Similarly, no reductions are yet attributed to future actions to reduce wildfire risk, but that accounting will be done following implementation.~~ Similarly, fuels management strategies have the potential to reduce the risk of catastrophic fires. However, fuels management needs to be evaluated to determine whether, and if so under what circumstances, quantifiable greenhouse gas emission reductions are achieved. Additionally, public investments to purchase and

preserve forests and woodlands would also provide greenhouse gas emission reductions that will be accounted for as projects are funded and urban forest projects can also provide the dual benefit of carbon sequestration and shading to reduce air conditioning load.

Appendix C, Page C-167, third paragraph:

Remove the third paragraph (beginning with “The most significant opportunities...”) related to estimated GHG reductions from biomass power as further work is needed to accurately determine the estimated benefits.

Appendix C, Page C-167, fourth paragraph:

~~Sequestration and avoided fire emissions will~~ The five opportunities for additional reductions above could potentially produce another 2 MMTCO₂E benefits in 2020 over and above the 5 MMT sustainable forest target. Conservation and forest fuel management ~~implementation~~ approaches are already underway, and will provide ~~guaranteed~~ reductions in 2020 through proposition funds 40, 50, and 84. Investment in afforestation/reforestation in the near-term will lead to significant long-term benefits of more than 23 MMTCO₂E per year by 2050, though site preparation activities may result in emissions in 2020. Offset market opportunities for forest management activities have been identified for about 0.5 MMTCO₂E of the total 2 MMTCO₂E annual benefits in 2020 and up to 13 MMTCO₂E in 2050 from both reforestation and forest management. The adoption of additional forestry protocols for actions under other strategies may enhance GHG benefits from markets. Strengthening the funding base for the California Forest Improvement Program (CFIP) will provide future consistency to support ongoing Afforestation/reforestation and potentially emission reducing fuels ~~Fuels~~ treatment activities. Increased activity across the State, and the associated GHG reductions, could be maintained if the CFIP program funding were more continuous.

Appendix C, Page C-169, second paragraph, second bullet:

Timber Stand Improvement: These activities include 1) ~~removing hardwoods and increasing conifer stocking~~ restoring conifer areas to full productivity by reduction of undesirable species and restocking with native species, 2) thinning stands to increase the growth rate for remaining trees, 3) optimizing rotation age from a carbon life cycle perspective, 4) planting additional trees where the existing stocks are not fully utilizing the biological potential of the site. The additional value of the carbon will provide the incentive for the private landowners to make the additional investment in their lands to better utilize the growth potential.

Appendix C, Page C-170, last paragraph, first bullet:

State and federal fuels treatment: ~~Large, uncontrolled wildfires and the associated GHG emissions can be avoided through mechanical treatment. Mechanical fuel treatment can include crushing brush and other fuels as well as removing trees that serve as ladder fuels to the crown.~~ Fuels management strategies have the potential to reduce the risk of

catastrophic fires. However, fuels management needs to be evaluated to determine whether, and if so under what circumstances, quantifiable greenhouse gas emission reductions are achieved.

Appendix C, Page C-170, last paragraph, second bullet:

Forest biomass for use in bio-power and bio-fuel production: Utilization of forest biomass supports the goals of the ~~California's~~ Bioenergy Action Plan for California (2005) which targets ~~untapped~~ biomass resources to produce transportation fuels, electricity generation, and biogas including enhancement of the supply of biomass through fuel hazard reduction. ~~Reductions could be as much as 3 MMTCO₂E per year, but to avoid double-counting these reductions are tallied in the energy sector.~~

Appendix C, Page C-171, paragraph one and two:

Paragraphs one and two were removed as they deal with biomass energy generation and quantification of benefits from fuels management for wildfire reductions. Further work is needed to accurately determine the estimated benefits.

Appendix C, Page C-171, last paragraph under Table 31:

~~††Potential additional benefits of 4 MMTCO₂E from forest biopower and biofuels are not included here because they will be counted in the energy sector.~~ Over 2 MMTCO₂E in benefits that will accrue in 2020 from Forest Practice Act rules instituted in 2004 are also not included here since they are considered part of the Sustainable Forest Target.