

**CONSIDERATION OF STAFF
RECOMMENDATION REGARDING
FINANCING PROJECTS USING
BAGHOUSE TECHNOLOGY**

July 23, 2008

STAFF SUMMARY – CPCFA

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ISSUE: As a matter of policy, should the State allow tax-exempt bonds to be used for projects that use baghouse technology to remove hazardous chemicals from the air?

BACKGROUND: In recent months there has been interest in using tax-exempt bonds to finance projects that use baghouse equipment to remove hazardous chemicals caused by the melting of metals.

Historically, CPCFA has funded projects that include components which remove dust and particulates from the air. In 1986, as part of the Tax Reform Act of 1986, Congress reorganized and amended the tax-exempt bond provisions. After August 15, 1986, virtually all tax-exempt financing for “air and water pollution control” facilities were prohibited, cutting off what had been a large volume of financing for certain pollution control facilities.¹

CPCFA has received a request from TAMCO Steel (“TAMCO” or “Company”), to fund the construction and equipping of a baghouse system. At the January 23, 2008 meeting, the CPCFA Board approved an Initial Resolution (IR) for TAMCO. TAMCO expects to request a Final Resolution (FR) from the CPCFA Board approximately in the first quarter of 2009.

TAMCO Steel. TAMCO Steel, the only steel mini-mill in California, uses electric arc furnace (EAF) technology to produce approximately 500,000 tons of concrete reinforcing bars (rebar) a year. TAMCO’s rebar is manufactured from scrap metal that comes from crushed automobiles, old appliances, tin cans and other industrial ferrous scrap metal collected in Southern California. The Company markets its products mainly in Arizona, California, and Nevada.²

Rebar is used for concrete reinforcement in foundations and lift-slab construction, freeways, stadiums, airport runways, water transmission systems and buildings.³

Founded in 1956 as Etiwanda Steel Producers (named for a street near its headquarters), the Company is now jointly owned by Ameron International, Mitsui & Co., and Tokyo Steel Manufacturing.⁴ TAMCO is a large business which proposes to construct and install a Reverse

¹ Introduction to Pollution Control Financing in California, Orrick, Herrington & Sutcliffe, April 2005, p.2

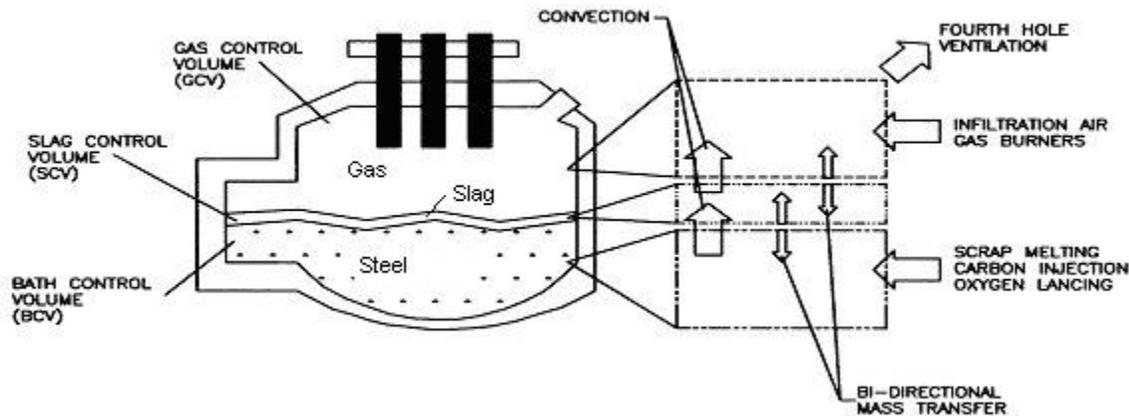
² TAMCO Steel company description (n.d.). Retrieved February 5, 2008 from www.hoovers.com/tamco-steel/--ID__118220--/free-co-profile.xhtml

³ Joint Ventures: Tamco Steel Mini-Mill (n.d.). Retrieved February 5, 2008, from http://www.ameron.com/about/ventures_overview.cfm

⁴ TAMCO Steel company description (n.d.). Retrieved February 5, 2008 from http://www.hoovers.com/tamco-steel/--ID__118220--/free-co-profile.xhtml

Air Fabric Filter (Baghouse) as part of their EAF ventilation system in its steel mini-mill in Rancho Cucamonga, California.

BAGHOUSE TECHNOLOGY: Electric arc furnaces melt scrap metal into a liquid for later molding. The EAF holds a three-phase system of liquid (molten steel), slag (metal oxides), and gas with both mass and heat transfer taking place amongst the three (see image below). The furnace operations, or controls, include carbon injection, oxygen lancing, burner operation, and air infiltration. The controls are used to produce the appropriate grade of liquid steel at a requested temperature.⁵



EAF steel producers collect emissions from the scrap melting furnaces in special units called baghouses. The emissions are captured in the form of a dust (baghouse dust) which is a listed hazardous waste (EPA hazardous waste code K061). EAF dust is rich in zinc and also contains trace levels of lead, cadmium and chromium.⁶

The Baghouse is a generic name for Air Pollution Control Equipment (APC) that is designed around the use of engineered fabric filter tubes, envelopes or cartridges in the dust capturing, separation or filtering process. The dust cake accumulation on the surface of the bags is often referred to as the “filter or filtering cake”. Essentially this dust cake acts as a filtering element. The dust cake is removed and managed using a method called Reverse Air System, which physically collapses the bags in order to mechanically “shear” the dust cake from the bag surface.⁷

Currently, options for recycling and disposal of this dust are limited. The only other option is chemical treatment and disposal. In the case of TAMCO, approximately 30-40 lbs of dust is collected for each ton of steel produced. All of the dust is collected in the baghouse and shipped by rail to an offsite processor, which recycles 100 percent of the constituent materials. Nothing is landfilled. EAF dust represents the largest hazardous waste stream in the US by weight, not by toxicity.⁸

⁵ Ramirez, F.W. Optimal Operation of Electric Arc Furnaces (EAF) to Minimize the Generation of Air Pollutants at the Source. Retrieved February 7, 2008 from http://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/957/report/0

⁶ 2007-2008 Public Policy Statement Steel Manufacturers Association (n.d.). Retrieved May 21, 2008 from www.steelnet.org

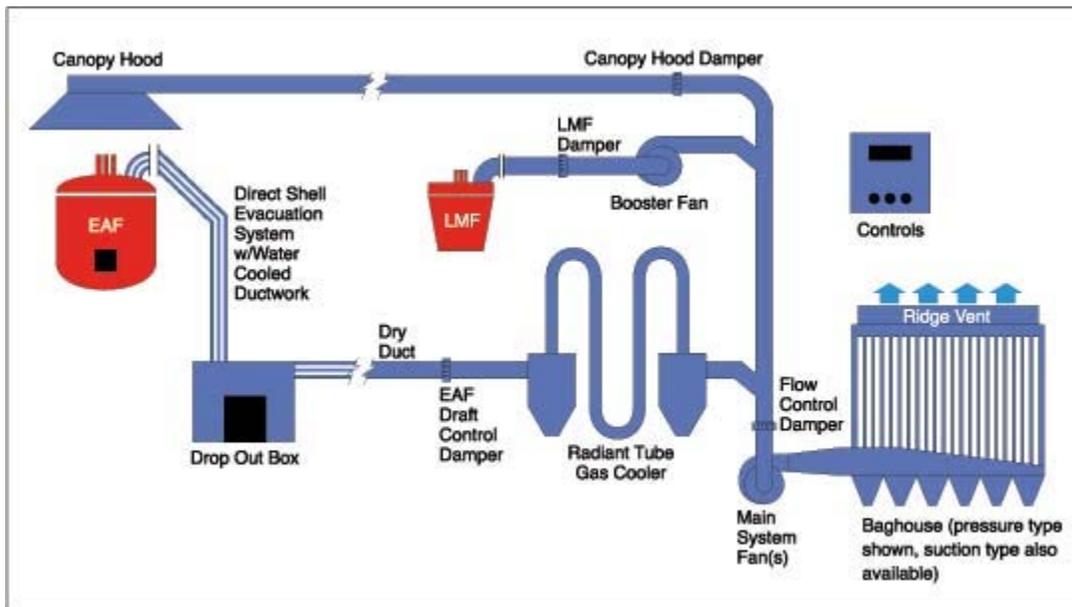
⁷ What is a Baghouse? (n.d.). Retrieved April 30, 2008 from <http://www.baghouse.net/Web%20Docs/Baghouse%20Definition.htm>

⁸ 2007-2008 Public Policy Statement Steel Manufacturers Association (n.d.). Retrieved May 21, 2008 from www.steelnet.org

The majority of the baghouse dust is Zinc Oxide, Iron Oxide, Silica, Alumina, Magnesium Oxide, and Calcium Oxide. These constituents are recovered by the offsite processor using a pyrometallurgical process. The primary product is Zinc Oxide, which is recovered and sold as a feed grade Zinc Oxide additive for animal feed. The Iron Oxide, Calcium Oxide, Magnesium Oxide, Alumina, and Silica are sold to cement manufacturers. The balance is recovered in a hydrometallurgical process:

- Salts go to animal feed, brine for water softeners, and fluxes for aluminum foundries.
- Zinc Sulfate is used for feed, flotation of ores, and fertilizers for avocado farming (Mexico only).
- Metallic Cadmium is sold for use in batteries, welding, and solders for electrodes.
- Lead Carbonate is sold to a nearby lead smelter which manufactures automotive battery terminals.

Below is a diagram of an EAF and the ventilation and baghouse system.



CPCFA STATUTORY AUTHORITY: In general, CPCFA’s statute permits financing of projects related to resource recovery and/or to reduce environmental pollution. Health & Safety Code Sections 44508(a), 44535 (a), read, in part:

44508. (a) "Project" and "pollution control facility", respectively, mean any land, building, improvement thereto, work, property or structure, real or personal, providing or designed to provide for the control, reduction, abatement, elimination, remediation, or prevention of pollution, including, but not limited to, hydrostatic control facilities, dust collectors, smoke bags, construction, operation, and maintenance of systems that extract, contain, or treat groundwater, soil vapor, gas, or leachate, and all other structures, systems, or facilities now or hereafter developed or useful in the control of pollution of any type or character, including any structure, equipment, or other facilities for the purpose of the purchase, production, distribution, or sale of water, or of reducing, treating, neutralizing, or cooling the temperature of any liquid,

gaseous, or solid or hazardous waste substance or discharge resulting from the process of manufacture, industry, or commerce,

44535 (a)The authority may separately approve financing for projects, the purpose of which is to prevent, remediate, or reduce environmental pollution resulting from the disposal of solid, hazardous, or liquid waste.

Staff discussions with bond counsel for the project listed in this review appear to confirm that baghouse projects are solid waste disposal and would qualify under federal tax law. According to tax counsel, this type of project qualifies under federal tax law because metals captured in the bag house are solid, a waste and have no value.

RECOMMENDATION: Staff finds that there is evidence of pollution control benefits to be derived from tax-exempt financing of qualifying projects using baghouse technology. Therefore, staff recommends that the Authority direct staff to consider applications for tax-exempt financing of baghouse technology projects and to evaluate each application on its individual merits. Staff acknowledges that applications for baghouse projects will be evaluated on their individual public and pollution control benefits, (including climate change, air quality and water quality), financing structure, and legal status. Applications for baghouse projects will be subject to the same degree of scrutiny by staff and by counsel, and subject to the same standards of documentation, as other applications received.