

Beyond Waste

Regulatory & Market Report by Edgar & Associates, Inc.

One of the premises of AB 939 was that California would exhaust most of its remaining landfill space by the mid-1990s and that there was no coherent state policy to ensure that the state's solid waste would be managed in an effective and environmental manner for the remainder of the 20th century and beyond. A landfill crisis was instilled in the public minds with the lost garbage barge and lack of capacity. Today there is almost 2.9 billion cubic yards of remaining permitted landfill capacity in California concurred with by the state oversight agency, California Department of Resources, Recycling, and Recovery (CalRecycle), lasting far beyond the 15-year capacity of the County Siting Element. With AB 32, statewide policies are now moving *Beyond Waste* with mandated commercial recycling, anaerobic digestion, compost use, and renewable energy generation and low carbon fuel production derived from waste by-products.

As supply has increased by billions of cubic yards, and as demand has dropped by millions of tons – from 42.2 million tons being buried in 2006 to only 31.1 million tons in 2009 – will the capacity glut lead to new landfill pricing strategies that taste great and are less filling, at a time when emerging technologies are trying to compete?

Nationwide, Federal Subtitle D regulation became effective for MSW landfills in 1993, as landfills got safer, bigger, remote, and held by Wall Street. The number of landfills has decreased from almost 8,000 in 1988 to just 1,754 in 2006. In California, the number of permitted active landfills has decreased from 282 in 1988 to just 137 in 2010, and dropping in numbers by the year, but making it up in size.

The Edgar Institute in Sacramento has tracked landfill capacity with the California Integrated Waste Management Board (CIWMB) in the Subtitle D era. Review of the Solid Waste Facility Permit (SWFP) published data over the years, and the CalRecycle

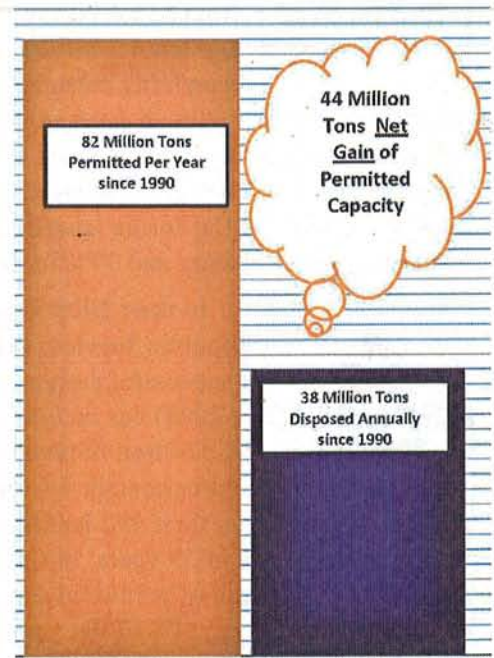
website, reveals that the remaining permitted landfill capacity in California has increased by about 900 million cubic yards per decade since the 1990s landfill crisis.

- 1990 1.1 billion cubic yards (CIWMB – “Reaching the Limit” – An Interim Report on Landfill Capacity in California)
- 2000 2.0 billion cubic yards (CIWMB – Staff Report on Feb. 2002 – minus Eagle Mt.)
- 2010 2.9 billion cubic yards (Edgar Institute – minus Eagle Mt.)

From 1990 to 1999, while 375 million tons of waste was disposed of in California landfills, permitted landfill capacity actually increased by 900 million cubic yards, or about 450 million tons. During the nineties, an average of 37.5 million tons per year was being disposed, while 82.5 million tons per year was being permitted, netting a landfill capacity gain of 45 million tons per year.

From 2000 to 2009, as 385 million tons of waste was disposed of in California landfills, permitted landfill capacity actually increased by 870 million cubic yards, or about 435 million tons. During this decade, an average of 38.5 million tons per year was being disposed, 82 million tons per year was being permitted, which netted a landfill capacity gain of 43.5 million tons per year.

Since the landfill ‘crisis’ of 20 years ago, an average of 38 million tons per



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year was being disposed while landfill capacity has increased by 82 million tons per year, netting 44 million tons of increased permitted capacity per year. CalRecycle is in the midst of preparing a million dollar Infrastructure Report with RW Beck to assess policy scenarios among capacity, technology, and general pricing and can hopefully answer some of the questions. As supply was increasing, demand was dropping – while capacity was being concentrated in the hands of few, challenged by emerging alternative technologies.

Tastes Great, Less Filling

The domestic non-hazardous solid waste industry generated approximately \$55.7 billion in annual revenue in 2008 of which publicly-traded companies have an estimated 59% share of the market, 24% is generated by municipalities and government, and just 17% by privately held companies. With respect to landfills nationwide, the public sector owns 34%, Waste Management owns 25%, Republic Services owns 25%, and 16% is controlled by smaller private companies.



In their 2009 Annual Report, Waste Management Inc. collected \$11.8 billion in revenue, down from \$13.4 billion in revenue and has 4.1 billion tons of remaining capacity in their 237 landfills nationwide with an average life of 35 years. In California, WM has over 33 years of permitted capacity based on 2009 gate tonnage, 15% of the market, for their 12 California landfills, that has 11% of the statewide capacity and 37% in the Bay Area.

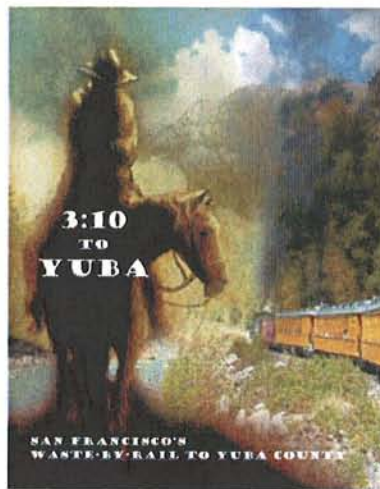


In their 2009 Annual Report, Republic Services (after enjoying a successful merger with Allied in 2008) has received a record \$8.2 billion in revenue and has approximately 4.4 billion tons of remaining capacity in their 192 landfills nationwide with an average life of 39 years. In California, Republic has 20 years of permitted capacity based on 2009 gate tonnage, 24% of the market, for their 11 California landfills, and has 11% of the statewide

capacity and 39% of the market in the Bay Area. Republic Services strategically increased their market share by over 280% at the gate and over 900% with permitted capacity to increase their presence in California with desired landfill assets to match their collection routes. As part of the divestiture required with the Allied merger, Waste Connections purchased Portero Hills and Chiquita Canyon Landfills from Republic Services, as part of their entry into California primary markets to double their statewide capacity and increase their market share of gate tonnages to 6%.

The Edgar Institute has reviewed the 2009 market share for disposal tonnage at the landfill gate, the remaining capacity on a statewide level, as well as two regional markets (the Bay Area and Southern California) to determine how capacity could play into future pricing and policies. A review of the colored pie charts on the pages following this article shows the market share for the 31.1 million tons of MSW disposed in 2009 as the following:

Public Sector	51%	15.8 million tons
Republic Services	24%	7.5 million tons
Waste Management	16%	4.9 million tons
Waste Connections	6%	2.0 million tons
Independents	2%	0.5 million tons
Recology	1%	0.4 million tons



On a regional basis, the disposal market share is skewed. The Bay Area is dominated by WM and Republic, with Recology taking the *3:10 to Yuba* in 2015, moving San Francisco waste by rail away from Altamont to Yuba County. The Big Two controlled 78% of the 5.0 million gate tons in 2009, as the Bay Area has 28 years of capacity left at current

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disposal tonnages. Southern California has over three times the gate tonnage at 18.3 million tons, where the public sector is dominant with 56% of the market, Republic with 25% and WM with 14%. Southern California has 52 years of capacity left at current disposal tonnages. The San Diego market is included, where the County landfill system was sold in the nineties in one of the biggest privatizations ever to save the County from bankruptcy.

The City of San Diego followed suit by offering Miramar Landfill for sale earlier this year. Will other public landfills be offered for sale during times of deficient budgets; and will waste-by-rail make a comeback as Mesquite Regional Landfill will be ready by 2012 when Puente Hills closes in 2013, and Recology is looking at rail to Yuba and Winnemucca, Nevada?

There are 2.87 billion cubic yards of capacity left in California at a time when disposal tonnages have dropped over 25% over the last 4 years:

Public Sector	72%	2,074 million yards
Waste Management	11%	320 million yards
Republic Services	11%	316 million yards
Others	6%	162 million yards

On a regional basis, the market share for capacity is again skewed. The Bay Area is dominated by the Big Two, holding 76% of the 283 million tons of capacity. Southern California possesses more than seven times the landfill capacity at 1.93 billion tons than the Bay Area; with the public sector dominating at 78% of the market. When a County is both the market participant as a landfill owner, as well as responsible for recycling and composting programs, there may be a conflict on whether to “feed the beast” or pay for MRF First! Will counties continue in some cases, or start to, discount the tip fee to retain or attract tons, while at the same time up-ending the emerging infrastructure of new technologies?

Make Love, Not Landfills

Landfill capacity continues to increase in yards, as tonnages are drastically dropping. We have gained more landfill capacity at 82 million tons per year, but are we making more compost, more renewable energy, and more bales?



With the statewide per capita disposal rate factor of 6.2 pounds per person per day (PPD) calculated for SB 1016 (Wiggins), California has 26 years of permitted landfill capacity to 2036.

With the Great Recession ready to double dip, the statewide per capita disposal rate is down to 4.5 PPD in 2009, and is projected to decrease to 3.1 PPD by 2020

to achieve a 75% recycling rate equivalency. With those assumptions, there is enough landfill capacity for 46 years to last until 2056 – extending the current landfill longevity by 20 years by getting to 75% by 2020. However, the Zero Wasters and the United Nations Environmental Programme would have wished that all landfills cease in 2040.

Civil Wars

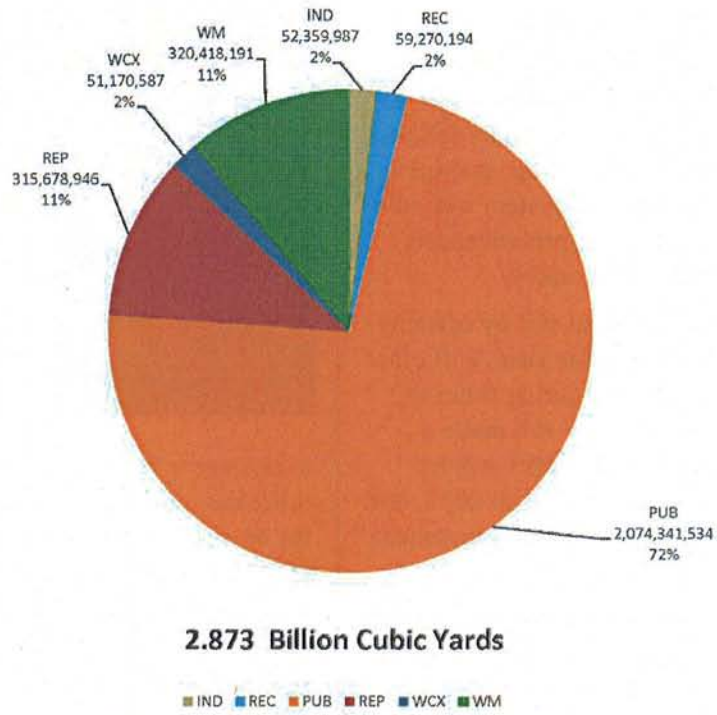
The disparity of landfill capacity, pricing, and ownership between the North and South has led to civil discussions over the years on policy, technology and alternatives. While the South enjoys public sector domination with tip fee floor pricing in the mid \$30s per ton and 7 times the capacity, the North has been seeking options other than the landfill gate with recycling and composting programs that are attractive and cost competitive in a tighter landfill market.

At a time when technologies such as anaerobic digestion and biomass gasification are being scaled down to develop the local infrastructure, will the current landfill glut bypass the scarcity myth and discount landfill pricing to stymie programs that reach *Beyond Waste*?

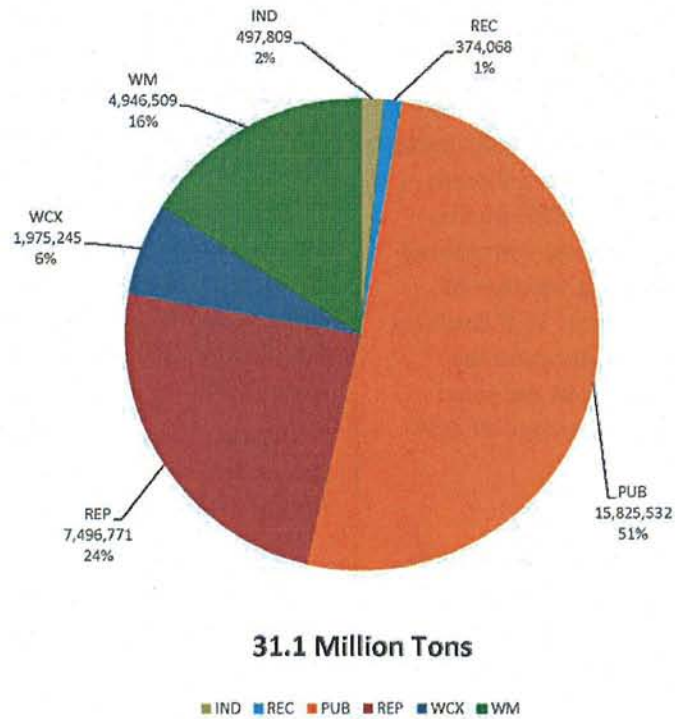
Note: Colored pie charts on the pages following this article show the market share for the 31.1 million tons of MSW disposed in 2009.

The opinions expressed in Beyond Waste are those of Edgar & Associates and do not necessarily represent the policies or views of CRRC or its members

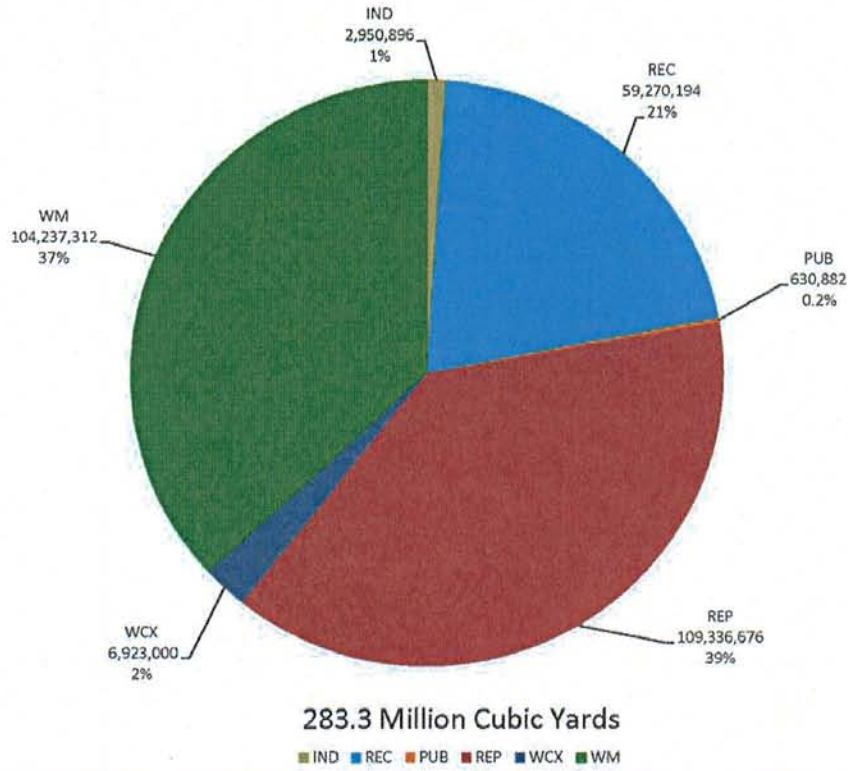
California Remaining Landfill Capacity - 2010



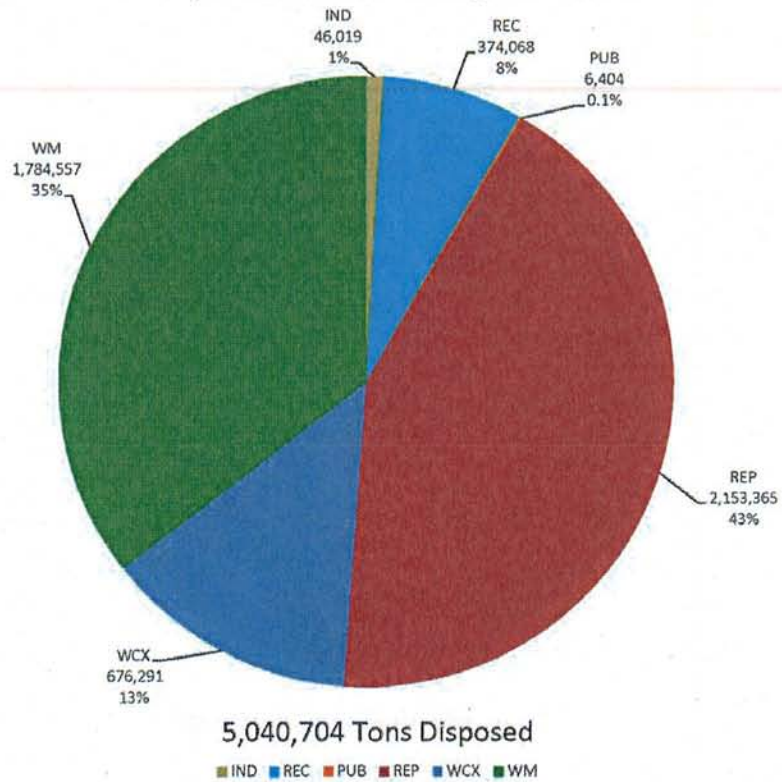
California Landfill Disposal Tonnage - 2009



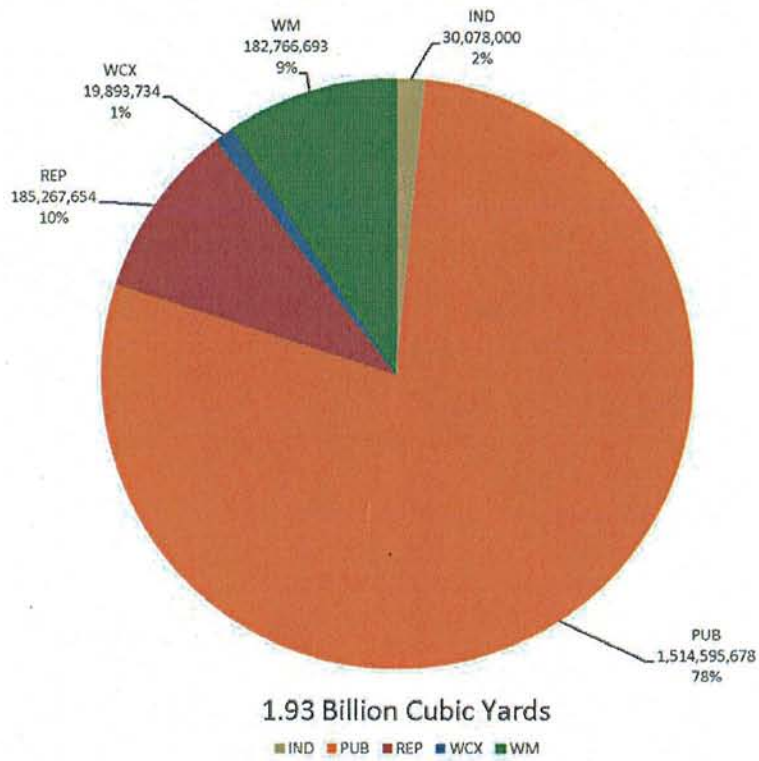
SF Bay Area Landfill Capacity- 2010



SF Bay Area Solid Waste Disposal - 2009



Southern California Landfill Capacity - 2010



Southern California Solid Waste Disposal - 2009

