

NEW UNITED MOTOR MANUFACTURING, INC.

An Environmental Performance Case Study

New United Motor Manufacturing, Inc. (NUMMI) demonstrates that environmental performance improvement is synonymous with bottom line dollar savings. Environmental programs saved the company approximately \$4.5 million in 1999.



Reducing waste and improving efficiency is at the heart of NUMMI's philosophy and success. NUMMI has built its company around the Toyota Production System, the World's first and best-known "lean manufacturing system." Under this system, only those elements that add customer value are kept. Lean manufacturing is a never ending effort to eliminate waste (e.g., labor, materials, errors) by the entire enterprise and is only effective when it is instituted from the top-down with active participation from every employee.

Alameda County businesses like NUMMI are realizing economic benefits by cutting solid waste, conserving energy and water, and reducing their wastewater discharge. These practices have proven to be cost-effective and are essential components of long-term profitability.

“Everything that comes in here we pay for. Every scrap of cardboard, every piece of plastic, every little foam container — if we throw it away we’re actually throwing away our profit.”

— Stuart Rupp,
Environmental Affairs Manager

PROFILE

NUMMI, located in the City of Fremont, California, is a joint venture of General Motors and Toyota. The company produces the Toyota Tacoma, the Toyota Corolla, and the Chevrolet Prizm. One of Alameda County's largest manufacturers, their plant covers over 5 million square feet and employs 4500 people. Each year the company produces 365,000 vehicles, and makes \$2 billion worth of purchases in the North American market.



The Bottom Line : Annual Savings from Environmental Programs: \$4.5 million

ACCOMPLISHMENTS

NUMMI constantly works to eliminate waste from its production process and to use all resources as efficiently as possible. The company has incorporated waste prevention and recycling programs into the design of its shipping and receiving system and production line, and has implemented comprehensive energy

and water conservation programs. All employees are encouraged to develop waste prevention ideas and NUMMI will modify its production system to reduce the amount of material used or to facilitate material recovery.



NUMMI's two production lines (left) manufacture 365,000 cars and trucks annually.



A forklift (right) dumps recyclables onto NUMMI's sorting line which recycles 7,300 tons of material a year.

TRUCKLOADS OF SAVINGS THE PROJECTS THAT SAVE NUMMI THE MOST

| Project | Environmental Benefit | Annual Savings |
|------------------------------|---|----------------|
| Reusable Shipping Containers | Prevents 11,000 tons of waste from being generated every year | \$2.5 million |
| Recycling | Recycles 7,300 tons of material every year | \$520,000 |
| Energy Conservation | Conserves 34.6 Mkw of electricity annually | \$1 million |
| Thinner Recycling | Recycle 90% of spent paint thinner | \$500,000 |

TOTAL

Eliminates 13,900 tons of Solid Waste \$4,520,000

***“It’s been proven over time...
that companies that protect the environment are
well operated companies.”***

Material Efficiency

- By redesigning the fuel cap subassembly, NUMMI team members reduced the amount of material required to make the part by 74%, and the cost from \$.46 to \$.04.
- NUMMI saves \$500,000 annually by recycling 90% of its spent thinner (60% of the spent thinner is recovered and re-used within the company).
- Paint thinner use per vehicle has dropped from the 1987 level of 2.2 gallons to 0.8 gallons by recovering thinner in the paint lines, reducing the length and diameter of the lines, and by changing cleaning practices.
- By increasing the transfer efficiency of existing equipment, NUMMI reduced paint used on fuel tanks by 23% from 1997 to 1999, also reducing VOC (volatile organic compounds) emissions.

Solid Waste Reduction

Every year NUMMI's waste prevention and recycling programs keep nearly 14,000 tons of material from going to the landfill, roughly the amount thrown out each year by 14,000 U.S. residents.

- NUMMI reduced cardboard consumption by 60% by purchasing, using and **requiring suppliers to use reusable shipping containers**. Almost all parts shipped to NUMMI are now transported in blue returnable containers, saving the company millions of dollars.
- Protective plastic packaging is returned to suppliers for reuse, resulting in annual savings of \$99,000.
- NUMMI's recycling sorting line diverts 4,500 tons of cardboard, wood, metal and plastic, saving the company \$500,000 annually.

Energy Conservation

- A 1999 energy conservation program saved 34.6 Mkw of energy each year, roughly the same amount of energy used annually by 5,500 U.S. households. The program, which consisted of a plant-wide lighting retrofit and an upgrade to high efficiency motors, saves the company about \$1 million each year.

Air Emission Reduction

- Since 1991, NUMMI has reduced Toxic Release Inventory (TRI) chemical releases per vehicle by 65%, by reducing or eliminating the use of toxins, and recycling spent materials.

Water Conservation

NUMMI conserves over 270,000 gallons of water per day, enough for 2,000 U.S. households, by:

- Installing re-circulating pumps in the evaporative air conditioning systems, which reuse 170,000 gallons of water daily.
- Recycling the water used in the wet sanding process, conserving 100,000 gallons of water daily.

Hazardous Waste Reduction

- NUMMI succeeded in reducing the releases of seventeen identified high volume toxic chemicals by 87%, while their vehicle production increased by 37%.

Wastewater Reduction

- In 1998, a cationic polymer replaced Alum in the wastewater treatment process, reducing sludge volume by 8%. This measure reduced filter cake volume, waste hauling trips and labor requirements.



***“Source reduction
is always cost
effective.”***

NUMMI's blue returnable shipping containers (left) have reduced cardboard consumption by 60% and saved the company millions of dollars.

The StopWa\$te Partnership

This case study is part of a series that highlights the accomplishments of organizations participating in the StopWa\$te Partnership. The Partnership is a free, technical assistance service dedicated to improving the environmental performance and reducing the operating costs of Alameda County businesses and public agencies. The program provides expert assistance to help prevent waste, conserve water and energy, and use all resources more efficiently.

StopWa\$te is sponsored and operated by the Alameda County Waste Management Authority & the Source Reduction and Recycling Board in partnership with Pacific Gas & Electric, the East Bay Municipal Utility District, the Economic Development Alliance for Business, and Science Applications International Corporation.



Stop Wa\$te offers a number of services, including:

- Comprehensive environmental assessments for large and medium-sized facilities
- Funding assistance
- Activity based cost-benefit analysis

The StopWa\$te Partnership has helped many Alameda County organizations to reduce operating costs, identify opportunities for environmental improvement and enhance competitiveness.

Call the *StopWa\$te Partnership* and get started on your environmental projects *TODAY!*



**Improve Your Bottom Line: 1-877-STOPWASTE
www.stopwaste.org/partnership**