

# The True Costs of Petroleum Map: The House

Pesticides and fertilizers, plastics and synthetic fibers, solvents and fuels: These are just some of the many products derived from petroleum. **Petrochemicals** are used in the manufacture of everything from chewing gum to flooring, food to building insulation. By distilling or cracking crude petroleum into fractions, the gases butane, ethane and propane are obtained, as well as naphtha, gasoline, kerosene, fuel oils, gas oils, lubricating oils, paraffin wax, and asphalt. From the hydrocarbon gases, ethylene, butylenes, and propylene are obtained; these are used to obtain alcohols, ethylene glycols, and a wide range of plastics.

**Plastics** are hazardous to humans and the environment throughout their existence. Workers in the plastic manufacturing industry have high rates of serious illness. During the useful life of plastics, hazards include "off-gassing," as well as migration of carcinogens and endocrine disrupting chemicals. When they are thrown away, plastics don't break down or compost; they stay with us for a very long time.

**Dioxins** are released during plastic manufacture. Dioxins are possibly the most toxic substance known, and are one of the twelve chemicals listed under the Persistent Organic Pollutants (POPs) Agreement, an international environmental treaty, which was signed by the United States. POPs chemicals are targeted because they exhibit a combination of particularly dangerous properties:

- They are toxic;
- They are persistent in the environment, resisting normal processes that break down contaminants;
- They accumulate in the body fat of people, marine mammals and other animals, and are passed from mother to fetus
- They can travel great distances, typically from temperate and tropical regions to the poles, on wind and water currents.

Most of the named POPs have been banned or severely restricted in many countries. However, because of their ability to travel great distances, the only way to provide adequate protection is to eliminate them everywhere. Since they are nearly impossible to contain once they are manufactured, the only way to prevent their harmful effects is to avoid creating them in the first place, while eliminating those that already exist. Even very small quantities of POPs can be harmful, causing cancer and

developmental disorders, as well as damage to the reproductive, nervous, and immune systems.

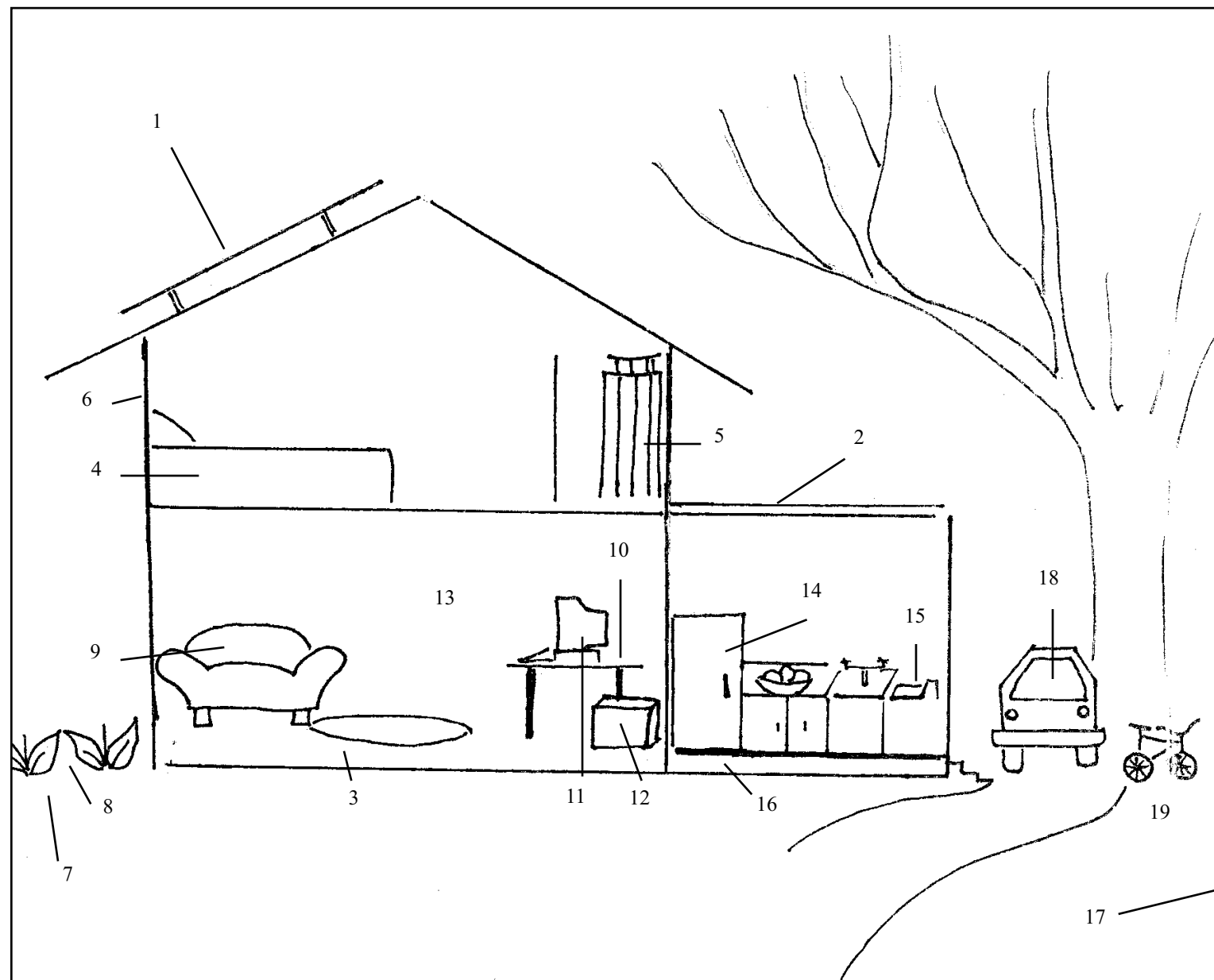
In addition, the highly hazardous **solvents** Benzene, phenol, toluene, and xylene can be made from petroleum. Petroleum distillates are used as solvents and can be found in lip gloss, fertilizer, furniture polish, pesticides, plastics, paint thinners, and fuels. Aromatic compounds, which include naphthalene, xylene, toluene, and benzene, are the most toxic form of petroleum distillates, and are linked to cancer, liver, and kidney damage, as well as other serious health problems. Aromatic compounds, some of the most toxic substances around, are found in all crude oils and in most petroleum products.

**1. Electricity generated by solar panels** – A small portion of the public power supplied by PG&E comes directly from petroleum, but the majority of it is supplied by hydroelectric and nuclear power plants. Solar energy is a cleaner, more sustainable alternative that can be generated by panels installed at your home. But even with government rebates, home solar energy systems can be expensive, which leaves most of us to conserve energy the old-fashioned way — by turning lights off, insulating, using energy-efficient refrigerators and appliances, switching to fluorescents, etc.

**2. Particleboard and plywood** – Urea-formaldehyde plastic resins are used in particleboard and plywood, and are suspected carcinogens. The formaldehyde is continuously released for years after installation, and contributes to unhealthy indoor air quality. Particleboard is typically used for cabinets, counter tops, and shelving. Formaldehyde-free fiberboard is available.

**3. Carpeting** – Synthetic carpeting is made from petroleum-derived plastic fibers and is typically laid with solvent-based adhesives, both of which emit toxic gases that contribute to indoor air pollution. This "off-gassing" is known to create health problems including asthma, dizziness, headaches, and other allergic reactions. Alternatives include natural fiber carpeting such as wool or sisal, laid with solvent-free adhesives.

**4. Mattress** – Most mattresses are made from plastic foam products and polyesters, with a mix of flame-retardent chemicals added on top. This toxic stew commonly causes breathing, skin, and asthmatic reactions. "Off-gassing" tends to decrease over time. Natural cottons and natural latex are better material choices, but can be expensive.



## Legend

**There is a legend that if a product is available for sale, it must be safe to use. There is a legend that the many plastics and synthetic materials in buildings and furniture make our lives better. In fact, thousands of everyday household chemicals have never been adequately tested for their effects on human health and the environment and even fewer tests have been done on the long-term, cumulative effects of multiple petrochemicals and their interactions.**

**There is a legend that workers in plastic and other petrochemical plants are protected. In fact, workers in these plants have significantly elevated rates of cancer and other environmental illnesses.**

**There is a legend that once we dispose of plastics they are "out of sight, out of mind." In fact, plastic shipped to Asia and incinerated creates dioxins that arrive in California on wind currents three days later. The solution may lie in advocating for the manufacturers of plastics and other hazardous wastes, such as computers, to take back their materials for recycling and reuse, rather than export their harm.**

**5. Shower Curtain** – Shower curtains are most often made from PVC. A better choice is a natural fiber curtain, made from hemp, organic cotton, or even your old top sheets.

**6. Insulation** - Insulation commonly contains formaldehyde and plastics. Formaldehyde is a suspected carcinogen. Insulation made from less toxic alternatives such as cellulose, cotton, or other formaldehyde-free materials is available.

**7. Native Plant Garden** – Native plants are naturally pest-resistant, eliminating the need for garden pesticides that kill beneficial organisms in the soil, run off into our waterways, and kill aquatic life. The pesticides, herbicides, fungicides, and fertilizers recommended by typical lawn care companies will turn your yard into a place devoid of all life except for that oh-so-green grass, which can't survive without the highly toxic chemicals sprayed or spread on it. A lack of worms and other beneficial organisms is a sign of unhealthy soil, in which nothing will thrive without another large dose of toxic chemicals.

**8. Drip Irrigation System in Garden** – Drip irrigation saves water but is most often made from PVC pipe. Less toxic alternatives, made from HDPE and ABS plastics are becoming available.

**9. Couch** – Couches often contain polyurethane foam, which can cause bronchitis, coughing, and skin and eye irritations. The foam may also release toluene diisocyanate, which can produce severe lung problems.

**10. Furniture and Metal Polishes** – Polishes contain petroleum distillates, which, with long-term use, are linked to cancer.

**11. Polystyrene Foam Blocks from your new computer** – Polystyrene can irritate the eyes, nose, and throat, and can cause dizziness. It migrates, and is stored in body fat. There are elevated rates of lymphatic and hematopoietic cancers in workers at polystyrene plants. Plus, styrene isn't generally recyclable, because plastics manufacturers choose to use cheaper, virgin petrochemicals rather than take back recycled polystyrene for remanufacture.

**12. That old computer you're getting rid of** – Drop off your old computer at a recycling program, and chances are it'll end up in China being cracked open by a worker making less than 75 cents per day. Only the precious metals will be salvaged. The remaining plastic and

hazardous wastes, including lead and other heavy metals, will be dumped, polluting waterways and soil, and causing untold health and environmental problems. (For more information, see [www.ban.org](http://www.ban.org).)

**13. Paints and Finishes** – Almost all paints and finishes are petroleum-based and release volatile organic compounds (VOCs), a major class of indoor pollutants, into the home. Paints and finishes may off-gas for months, causing irritations and health problems. Once outside the home, VOCs react with other pollutants, producing ground-level ozone that also affects human health. Low- and Zero-VOC paints are now commonly available at paint stores, and certain brands of finishes have been developed that don't off-gas.

**14. Plastic Food Packaging** – Unlike materials such as glass and metal, plastic is unstable in that it has a tendency to migrate into the food or drink it contains. Some types of plastic migrate when heated up, some when cooled down, and others upon contact. Microwaving may cause an increase in plastic migration. Especially avoid plastic wraps, #3 PVC, and #6 Polystyrene. If you don't like the idea of ingesting plastic chemicals, try using glass or metal containers instead.

**15. Laundry Detergents** – There is a big difference between most detergents and soap. Most detergents are formulated from petrochemicals, and may contain bleaches, synthetic whiteners, and artificial fragrances, all of which can cause skin irritations and breathing problems. Fragrance-free, vegetable-oil-based soaps are a healthier choice.

**16. Vinyl Flooring** – Most vinyl building materials are made with Polyvinyl Chloride (PVC), which is a serious hazard in production, during use, and in disposal. PVC can cause cancer, birth defects, genetic changes, chronic bronchitis, ulcers, skin diseases, deafness, vision failure, indigestion and liver dysfunction. Natural linoleum made from linseed oil is a better choice for flooring and countertops. The documentary "Blue Vinyl" is a very informative and watchable film tracing the impacts of vinyl siding through manufacture, use and disposal.

**17. The neighbor's SUV** - On the worst end of the auto spectrum are SUVs, which typically get about 12 miles per gallon.

**18. Car** – This car used to run on petroleum diesel, but now runs on biodiesel, a petroleum-free fuel made from vegetable oil. Other automobiles that use less petroleum

include electric-gas hybrids (which get up to 65 miles per gallon), and electric cars that use no petroleum at all (if recharged with solar panels). Walking, biking and public transportation are even better ways to reduce your petroleum use.

**19. Bike** — Petroleum products in the home got you down? This might be your ticket to break the chains of petroleum and escape to the great outdoors!

#### Sources / Resources

Green Resource Center / ADPSR, [www.greenresource.org](http://www.greenresource.org) (resources for green building methods and materials)

*Green Building Guidelines*, Alameda County Waste Management Authority, [www.stopwaste.org](http://www.stopwaste.org)

*Home Safe Home*, Debra Lynn Dadd, (Penguin Putnam, 1997).

*The Healthy House*, John Bower, (Healthy House Institute, 1997).

*A Consumer's Dictionary of Household, Yard and Office Chemicals*, Ruth Winter, (Crown, 1992).

Environmental Health Network, [www.ehnca.org](http://www.ehnca.org)

Solar Living Center, [www.solarliving.org](http://www.solarliving.org) (solar and alternative energy resources and supplies)

Northern California Solar Energy Association, [www.noricalsolar.org](http://www.noricalsolar.org) (solar contractors and suppliers listed)

California Native Plant Society, [www.cnps.org](http://www.cnps.org)

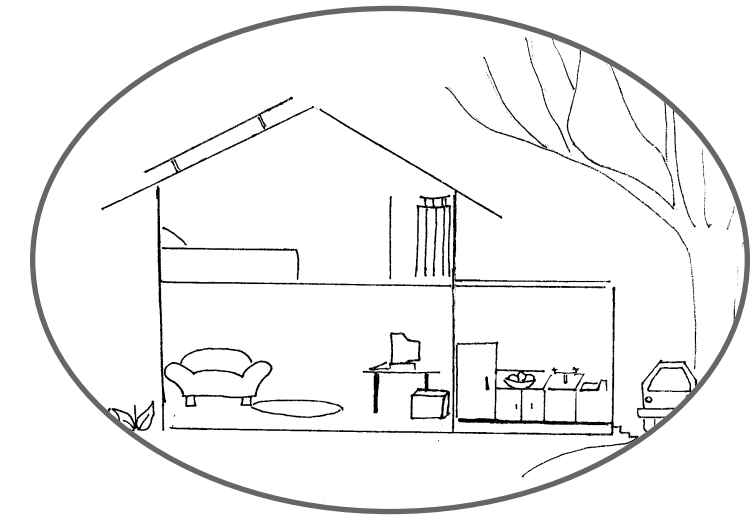
How and Where to Recycle in Alameda County, [www.stopwaste.org](http://www.stopwaste.org)

Urban Ore, Berkeley, 510-841-7283 (salvaged and reused goods)



# The True Costs of Petroleum

## House Map



#### Environment — Community — Justice

The Ecology Center provides practical information, tools, and services to create a more just and sustainable world.

Our focus on *The True Costs of Petroleum* aims to expose the many ways in which petroleum and petroleum products affect our world, our communities, our homes and our bodies. Collect all four of the maps: World, Community, House, and Body.

For more information about the issues described in the maps, and resources for alternatives, please stop by or call our Environmental Resource Center, open Tuesday through Sunday, 11 am - 6 pm.



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