



HOUSE OF REPRESENTATIVES I

Resource Efficiency

By Carina Fish

Introduction

Resource efficiency is an ever-growing issue as the world's population continues to rise. In order to accommodate the resource needs of nearly seven billion individuals, the most practical solution calls for a more efficient production and use of the earth's finite resources. As many national economies are currently dependent on natural resources, the exploitation of ecosystems for their natural resources is commonplace and the degradation of these ecosystems is often overlooked in favor of short-term economic gains. These short-term solutions to the international community's continued dependence on traditional sources of natural resources as well as the use of outdated techniques for the processing and consumption of these materials all point towards a destructive trajectory. There are three potential areas of intervention and improvement, and they include the production, processing, and consumption of resources. Resources that need to be managed range from food and water to forests and energy sources. In a 21st-century context, the use of the term resource efficiency generally refers to energy consumption since the discovery, exploitation, and consumption of natural sources of energy is a primary concern for many countries worldwide.

Explanation of the Problem

History of the Problem

With the world population approaching seven billion people, resource efficiency has become a paramount policy topic. The sustainability level of the ecosystems that are being exploited to process rare and valuable natural resources depends on the particular methods that are used during the production, processing, and consumption stages. Although the biggest offenders in terms of inadequate environmental standards are developing countries, **developed countries** like the United States also have plenty of opportunities to further improve resource efficiency. During the 2002 World Summit on Sustainable Development, the United Nations Environmental Program helped establish the ten-year framework of programs (10YFPS), a tool for measuring the progress of efforts directed towards the sustainable production and consumption of natural resources. The next 10YFP on sustainable consumption and production (SCP) will be issued in 2012, following a review of the current policy in 2010 followed by a yearlong revision process in 2011. SCP

developed country—a country that has a high level of economic development and political stability.



promotes resource efficiency as a tool to disassociate environmental degradation from economic growth.

Importance to the United States

Improving the efficiency of its resource consumption provides the United States with a huge opportunity to reduce its environmental footprint. The United States is second only to Monaco in the number of motor vehicles per capita, which as of 2009 stood at 828 motor vehicles per 1000 people. As motor vehicles run primarily on gasoline, easily accessible sources of the fossil fuels that are needed to operate these vehicles are becoming increasingly limited. Such high rates of fossil fuel consumption require companies to drill in less than ideal locations in search of new sources, leading to potentially severe environmental consequences beyond the most visible disasters such as gas leaks and oil spills. These environmental consequences also include debates concerning whether extensive natural resource development should be permitted on protected federal lands such as the Article National Wildlife Refuge (ANWR) in northern Alaska. The carbon footprint resulting from the consumption of gasoline in cars alone could be significantly reduced if the government invests more money in public transportation projects. The increased use of subways, monorails, **maglev trains**, and other forms of high-speed mass transit in the appropriate locations would likely reduce the United States' carbon footprint considerably. However, energy conservation is a much less appealing solution to the nation's energy problems since conservation policies are generally not as convenient and consumer-friendly as efforts to improve energy efficiency.

maglev train—*a system of transportation that uses magnetic levitation to suspend, guide, and propel a train.*

Recent Developments

In the broader context of sustainability, resource efficiency is only one component of the larger picture. From air, water, and soil pollution and solid waste to energy and natural resource consumption and the contamination of these natural resources, the total effect of resource development on a given ecosystem includes all pre-production, production, distribution, use, and disposal processes. Monitoring these five distinct phases allows for five areas of intervention. Energy efficiency efforts are largely focused on the consumer end and on the energy production sector. Besides energy, another major resource efficiency concern is clean water. Companies like Pepsi and Nestle focus on water rather than energy as their primary resource efficiency initiative. Although companies can maximize their water efficiency in their production and distribution processes, they can also indirectly contribute to the efficient use and disposal of these resources as well. For example, when a company designs a beverage container to be more eco-friendly, a simple printed message on the bottle encouraging customers to recycle

the bottle can also promote the 3R campaign to reduce, reuse, and recycle certain materials like plastics and aluminum.

A more direct way to improve water efficiency is to target water use in individual households. The Environmental Protection Agency (EPA) has promoted water efficiency in houses through initiatives like the Water Saver Home administered by the California Urban Water Conservation Council. Other initiatives like the EPA's WaterSense program promote water efficiency on a wider scale by partnering with key utility, manufacturing, and retail companies that produce and sell water-efficient products.

Congressional Action

Energy Star

Energy Star is a joint project between the Department of Energy (DOE) and the Environmental Protection Agency. The joint effort has been successful in optimizing the opportunity to practice resource efficiency at the individual and household level by certifying and promoting energy efficient consumer products. Energy Star uses a win-win method that allows consumers to conserve energy and save money without directly impacting their convenience. In 2010 alone, Energy Star saved US citizens \$18 billion in lower energy costs and prevented the emission of a level of greenhouse gas output equivalent to what 33 million cars could produce in a single year.

National Action Plan for Energy Efficiency and SEE Action

The Department of Energy's program, The State and Local Energy Efficiency Action Network (SEE Action) works to scale up proven energy efficient and cost effective initiatives by the year 2020. The SEE Action, which operates at both the state and local level, primarily utilizes funds provided by the **American Recovery and Reinvestment Act (ARRA)**. The program is seen as a catalyst for the EPA's National Action Plan for Energy Efficiency, which plans for substantial national progress in energy efficiency by 2025 and presents ten implementation goals such as establishing cost-effective energy efficiency as a high-priority resource, establishing reliable cost-effectiveness tests, establishing effective energy efficiency delivery mechanisms, and aligning customer pricing and incentives to encourage investment in energy efficiency that states, utilities, and other stakeholders in the energy efficiency debate can consider in order to achieve this goal. As of November 2008, more than 120 organizations had endorsed the plan's recommendations or made commitments to take energy efficiency in the United States to the next level within their respective spheres of influence.

American Recovery and Reinvestment Act (ARRA)—a massive economic stimulus package enacted by Congress in February 2009 in response to the financial crisis of 2008

Focus of the Debate

Conservative View

Conservatives are quite active in the Energy and Commerce Committee in the House, which controls any legislation concerning energy efficiency initiatives. They blame the high unemployment rate on excessive government regulations. Currently there are a number of pending reforms targeting these regulations such as a review of the EPA's control of Florida's nutrient water and its impact on job creation in the area as well as reviews of the EPA's various **emission standards**, particularly those concerning greenhouse gas emissions. Further efforts to undermine the EPA's authority include the TRAIN Act, which looks to review the cost-benefit analysis of the EPA's most recent mandates and regulations in the hopes of preventing many of these policies from being implemented.

emission standard—requirements that set specific limits to the amount of pollutants that can be released into the environment.

Liberal View

Liberals recognize the need for more aggressive environmental policies and regulations to protect the environment from extensive degradation. They are in favor of the more aggressive economic policies and regulations that attempt to mitigate the United States' dependence on foreign resources such as crude oil and various mined minerals. Former Vice President Al Gore, whom many consider to be the face of the environmental movement from a public policy standpoint, often references the lack of political willpower for sustainable development and further consideration of industrial impacts on the environment as ridiculous, claiming that living in a country with a prosperous economy is meaningless if the earth's habitability is compromised in the process.

Presidential View

The President stands behind the Environmental Protection Agency (EPA) and other federal initiatives designed to enhance resource efficiency. The EPA is looking to revise **ozone** regulations in the near future, which may produce a measurable impact on the national economy. The new standards would cost the economy anywhere from \$19 billion to \$90 billion, which would make it the most expensive regulation ever imposed by the agency in economic terms. The president is still in favor of rulings such as the modification of the ozone standards that protect the environment even if such regulations negatively impact the development and growth of local and state economies to an extent.

ozone—a colorless unstable oxygen gas found in the upper atmosphere that is responsible for absorbing most of the ultraviolet radiation generated by the sun .

Interest Group Perspectives

Natural Resources Defense Council (NRDC)

The Natural Resources Defense Council supports efforts to curb global warming, remove toxic chemicals from the environment, move past the age of oil dependence, and more stringent environmental protection in general. Their support of resource efficiency comes in various forms as described by their six priorities of curbing global warming and creating a clean energy future, reviving the world's oceans, defending endangered wildlife and wild places, protecting our health by preventing pollution, ensuring a safe and sufficient water supply, and fostering sustainable communities. Under the group's Curbing Global Warming and Creating the Clean Energy Future priority, the improved energy efficiency of buildings and vehicles, resource conservation, and the increased use of renewable energy are all thought to work simultaneously towards improving the nation's economy, creating jobs, and a reducing negative impacts on the environment. Besides their promotion of clean energy policies, another priority of the NRDC is to ensure a safe and sufficient water supply. The NRDC seeks to not only maximize water efficiency but also to prevent pollution.

US Chamber of Commerce

The US Chamber of Commerce is primarily concerned with the economic potential of resource efficiency. The cost savings resulting from efficient energy use and the potential for the creation of job opportunities are both appealing aspects of improved resource efficiency. The Chamber is less supportive of the Obama administration's environmental agenda, however. Even so, recent developments such as President Obama's decision to turn down the EPA's modification of the national ozone standard have garnered support from the Chamber. The White House ended up agreeing with all the points the Chamber promoted in opposition to the EPA's decision. The Chamber was primarily concerned with the potential obstacles to creating new jobs faced by US as a result of the decision as well as the general burdens caused by imposing new regulations on American businesses. Although the ozone regulations do not apply specifically to the resource efficiency debate, this point of contention does illustrate the consistent sparring between the EPA and the Chamber, which are usually at opposite sides of the political spectrum, with President Obama and his administration's environmental agenda usually supporting the EPA. However, if energy efficiency does indeed create jobs and generate revenue as some models predict, then the Chamber will likely support programs and initiatives

that attempt to improve energy efficiency.

National Petroleum Council

The National Petroleum Council (NPC) is a subdivision of the DOE and functions to advise the Secretary of Energy on matters relating to oil and gas. Thus, the NPC is for the most part in favor of resource efficiency as it conserves crucial oil and gas resources. However, since the opinions of the oil and gas industries also influence the overall opinion of the NPC, the NPC does not totally support all efforts to improve resource efficiency. As of 2009, the American Gas Association urged policymakers to develop North American **natural gas** and oil reserves. The NDC's assessment, published under the title "Prudent Development: Realizing the Potential of North America's Abundant Natural Gas and Oil Resources", states that potential sources of gas and oil are both abundant and reliable and thus can and should be developed. This proposal for the further development of the United States' natural resource reserves stands in contrast to the EPA's and NRDC's stance of working with sources that have already been developed and pursuing improved resource efficiency instead.

n a t u r a l g a s—
flammable gas, consisting largely of methane and other hydrocarbons, occurring naturally underground and used as fuel.

Possible Solutions

Integrated Natural Resource Management (INRM)

Integrated Natural Resource Management (INRM) stresses a comprehensive and cooperative approach to managing the valuable natural resources found in some of the country's large military facilities. INRM plans are planning documents that allow military installations to implement landscape-level management of their natural resources will coordinating with various stakeholders. The plans ensure that military operations and natural resources conservation are integrated and consistent with stewardship and legal requirements. INRM plans also provide for the management of natural resources, including fish, wildlife, and plants, allow multipurpose use of these resources, and provide public access necessary and appropriate for those uses, without any net loss in the capability of an installation to support its military mission. Implementation of the INRM is managed by the Department of Defense (DoD) with the help of the Fish and Wildlife Service. Although INRM plans apply only to military installations, such partnerships between local stakeholders and federal departments can provide a model for other programs designed to ensure the sustainable development of resources found in tracts of government-owned property.

Support for Local Energy Development

Some policymakers believe that system-wide improvements in

energy efficiency can best be acquired by promoting energy efficiency at the residential and local level. For example, Amory Lovins, an environmental scientist and Chairman of the environmental organization Rocky Mountain Institute, has promoted the implementation of a “soft energy path” involving efficient energy use, diverse and renewable energy sources, and an increased reliance on “soft energy” technologies that are flexible, simple, and compatible with the specific energy needs of neighborhoods, communities, and cities. These soft energy technologies are those based on solar, wind, geothermal, and other renewable energy sources, which are then matched in scale and quality to the particular characteristics of the communities they are designed to serve. Significant improvements in resource efficiency on a national scale can then be achieved once these community-specific renewable energy systems are implemented throughout the country. By replacing the United States’ current energy infrastructure with a soft energy system, supporters of soft energy also hope to eliminate the environmental and geopolitical stresses generated by a “hard energy” strategy dependent on nuclear energy and imported fossil fuels.

Lovins has also promoted a stronger emphasis on “negawatts”, a theoretical unit of saved energy, in an effort to encourage the creation of a secondary energy market where households and facilities that reduce their overall energy consumption can sell their “saved” energy to consumers demanding higher levels of energy use. By providing monetary rewards for efforts to improve energy efficiency, it is hoped that these economic incentives will in turn promote energy efficiency on a national scale. Despite the appeal of this negawatt concept, the costs and challenges of creating a large-scale negawatt market capable of equilibrating energy supply and demand for millions of producers and consumers are particularly daunting.

Broad Federal Initiatives

Designing broad federal initiatives to promote resource efficiency and the development of renewable energy is another possible approach to the United States’ resource challenges. Lawmakers can use programs implemented in other countries as models. In Germany, for example, politician and solar energy advocate Hermann Scheer authored the one-page Renewable Energy Sources Act of 2000 that revolutionized the way German electricity distributors operated. As a result of Scheer’s law, Germany has made more than €24 billion generating over 20,000 megawatts of emission-free energy for its national **energy grid**, and thousands of new jobs were created in order to implement and maintain the large production facilities needed for the program. The success of Germany’s renewable energy program also proves that economic development does not have to come at the expense of the environment. Scheer’s law has been replicated to some extent in other coun-

energy grid—a vast, interconnected network for delivering electricity from suppliers to consumers.

tries, but these programs have yet to yield similar returns. Implementing such broad and costly reforms in the United States will likely prove to be difficult given the current economic and political climate as well as the influence of large energy producers that rely on fossil fuels, but efforts to implement widespread reforms at the federal level should nonetheless be considered.

Questions a Bill Should Address

To what extent should the regulations protecting the environment and the resources of tomorrow's economy be allowed to stifle job growth and investment in today's struggling economy? What checks and balances can be implemented in order to ensure that neither the EPA nor the Energy and Commerce Committee overstep their bounds and hamper each other's actions? Which of the five steps in the resource cycle should legislative efforts focus on directly? Is energy the most important natural resource, or are food, water, and other natural resources more paramount? How should the government restructure its energy efficiency programs to address a potential change of focus? Which departments should be tasked with the responsibilities of creating and implementing these various resource efficiency programs? How will government-sponsored programs be enforced in terms of providing incentives and ensuring compliance?

Summary and Conclusion

Increased resource efficiency is definitely an attainable policy supported by a wide array of political, business, commercial, and environmental interests. The difficulty of implementing programs designed to enhance resource efficiency, of course, lies in convincing various stakeholders that such aggressive pieces of legislation will indeed prove to be beneficial for parties impacted by these policies. Resource efficiency is generally viewed as an excellent solution to the issue of sustainable development, but the transition to an energy infrastructure that focuses on these concerns will prove to be difficult in the face of opposition provided by large energy corporations, small businesses, and conservative politicians opposed to increased government regulation. President Obama and his administration are committed to a comprehensive environmental agenda and seek cooperation from the various stakeholders in the energy and environmental sectors. Looking to other countries such as Germany for guidance or at the guidelines provided by United Nations Environmental Program could also prove to be quite helpful. Lastly, decisions as to what part of the resource development cycle has the highest potential for improvement could result in the im-

plementation of programs promoting increased energy efficiency, which could in turn serve as examples for improvements in the other sectors of the cycle. And while consumers have already been pushed toward resource efficiency with initiatives like the 3R's program and incentive programs like Energy Star, many opportunities for improvement remain in the pre-production, production and distribution sectors of the resource development system.

Bibliography

“AGA Urges Policy Makers to Endorse Recommendations of National Petroleum Council.” American Gas Association. 15 September 2011. <<http://www.aga.org/Newsroom/news-releases/releases-2011/Pages/AGA-Urges-Policy-Makers-to-Endorse-Recommendations-National-Petroleum-Council.aspx>>.

Davis, Stacy C., Susan W. Diegel, and Robert G. Boundy.
“Transportation Energy Data Book: Edition 30.” Office of Energy Efficiency and Renewable Energy. U.S. Department of Energy. 2011. <http://cta.ornl.gov/data/tedb30/Edition30_Full_Doc.pdf>.

Eisenberg, Ross. “The President Makes the Right Call on Ozone.” *ChamberPost*. U.S. Chamber of Commerce. 2 September 2011. <<http://www.chamberpost.com/2011/09/the-president-makes-the-right-call-on-ozone/#more-12706>>.

House Committee on Natural Resources. <<http://naturalresources.house.gov/>>.

House Energy and Commerce Committee. <<http://energycommerce.house.gov/>>.

“Integrated Natural Resources Management Plans.” U.S. Department of Defense and U.S. Fish and Wildlife Service. May 2004. <<http://www.fws.gov/habitatconservation/INRMP%20Fact%20Sheet.pdf>>.

National Action Plan for Energy Efficiency. *National Action Plan for Energy Efficiency Vision for 2025: A Framework for Change*. 2008. <<http://www.epa.gov/eeactionplan>>.

“Resource Efficiency.” United Nations Environmental Programme. 2010. <<http://www.unep.org/pdf/brochures/ResourceEfficiency>>.