



Toward a Wiser Use of Energy

By Rabbi Yonatan Neril¹

One of the most significant sustainability challenges of our time is how we produce, use, and relate to energy. Prior to the industrial revolution, the most important sources of energy for human uses were animals, people, wood, wind, and water. This changed with the invention of the steam turbine, internal combustion engine, and jet engine, and the use of fossil fuels like coal, oil and gas and of nuclear power. While these technologies greatly increased material standards of living among human societies, they also have driven significant environmental changes which are beginning to have noticeable impacts worldwide, including climate change, the BP oil spill, and Japan's nuclear crisis. What can we learn from the Jewish tradition about how to use energy responsibly?

Use Energy Wisely

The Jewish tradition teaches us to use energy wisely. In some cases, wasting energy is a violation of Bal Tashchit, the prohibition not to waste excessively.² For example, the Talmudic Sage Mar Zutra stated, "One who covers an oil lamp [causing the flame to burn inefficiently] or uncovers a kerosene lamp [allowing the fuel to evaporate faster] violates the prohibition of Bal Tashchit."³

Based on this teaching of the Talmud, the Ben Ish Chai (Rabbi Yosef Chaim ben Eliyahu), a major halakhic authority of 19th century Iraq, addressed a related case in which a person lit two wicks in oil for use at night. The person left both wicks lit throughout the night in the event they woke up in the middle of the night and needed to see. In order to prevent waste, the Ben Ish Chai instructed the person to extinguish one wick before going to bed, since were they to get up they would only need the minimal light of one wick and keeping the second wick lit would be a transgression of Bal Tashchit, the prohibition not to destroy or waste.⁴ This halakhic responsa shows a high degree of concern for the wasting of energy and the unnecessary use of oil, in a case where a person does not derive benefit from the additional use of energy.

Similarly, the Ben Ish Chai discusses a case in which a person puts a large amount of oil before Shabbat in a lamp in their home in order for it to remain lit for all of Shabbat. He rejects this practice as a waste of oil and a transgression of Bal Tashchit, since the light from this lamp will not be of benefit to a person during the day in their sun-lit home.

In our time, this responsa may be relevant concerning leaving lights, heaters, air conditioners, or other appliances running for all of Shabbat or during the week when a person will not derive benefit from them. Doing so for a significant portion of the time may be considered a violation of Bal Tashchit.

¹ The author would like to thank Evonne Marzouk for her helpful comments in developing this article.

² For more on this topic, see the Jewcology resources on Bal Tashchit.

³ Babylonian Talmud, Tractate Shabbat 67b. Translation by Dr. Akiva Wolff based on commentary of Rashi. Rabbi Moshe Yitzhak Forehand, in *Bircat Hashem* p. 144, comments on the statement of Mar Zutra that the person's action is considered 'in a destructive manner' since a person does not use the portion of oil that is lit in order for it to burn faster. He also explains that Maimonides did not mention this case of wasting energy in his writing on Bal Tashchit because he may have found this case to be obvious and therefore implicitly included through mention of the other cases (water, clothing, etc). In addition, Rabbi Forehand argues that the wasting of oil occurs as a direct consequence of the person's action (p. 348).

⁴ *Torah Lishma*, section 76.

Another area where this may apply is in 'standby' appliance use in most homes. According to the Energy Analysis Department of the Lawrence Berkeley National Laboratory, "A surprisingly large number of electrical products—TVs to microwave ovens to air conditioners—cannot be switched off completely without being unplugged. These products draw power 24 hours a day, often without the knowledge of the consumer. A typical American home has forty products constantly drawing power. Together these amount to almost 10% of residential electricity use."⁵

If the Ben Ish Chai was concerned about the unnecessary use of one wick in an oil lamp, how much the more so should we be concerned about dozens of appliances that quietly, constantly use energy without benefiting the user?

For Our Health

Modern energy use causes pervasive air pollution in most of the major cities in the world. The pollution comes from many sources, including motor vehicles, industrial factories, and power plants that produce electricity for lighting and appliances at homes and offices. Studies show a correlation between air pollution and premature deaths due to lung cancer. Researchers conclude that when air pollution in a city declines, the city benefits with a directly proportional drop in death rates.⁶ According to 2008 estimates from the World Health Organization, "air pollution is a major environmental risk to health and is estimated to cause approximately two million premature deaths worldwide per year."⁷ A joint Israeli-US study found that more people die in Israel from air pollution than from traffic accidents (which is also more than who die from terrorist attacks).⁸ Researchers also note that air pollution can trigger depression, anxiety and anger in some people.⁹

How does Jewish tradition recognize the importance of protecting our health from the impacts of air pollution? One example involves the Mishnah stating that tanneries, which produce noxious odors, must be sufficiently distanced from human settlements so as not to negatively affect people in the vicinity.¹⁰ Rabbi Ezra Batzri, former head of the Sephardi Rabbinical Court in Jerusalem, writes that causing harmful forms of pollution to others is "not to be considered as inconsequential. [Rather] they are matters of Jewish law that stand up at the heights of the world." He notes therefore that a character trait of a righteous person (Midat Hasidut) is being careful about not damaging others even indirectly.¹¹

By using less energy, we can reduce the amount of coal and gasoline burned, and reduce the health impacts from the resultant air pollution. Given the significant damages to human health, it would seem that the unnecessary or wasteful use of energy goes against rabbinic advice concerning not damaging other people.¹²

Green is Clean: Keeping Cities Beautiful and the Air Clear

⁵ Online at <http://standby.lbl.gov/>

⁶ "Cleaner Air Brings Drop in Death Rate," Nicholas Bakalar, *The New York Times*, 3-21-06, based on a study published in *The American Journal of Respiratory and Critical Care Medicine*, 3-15-06.

⁷ <http://www.who.int/mediacentre/factsheets/fs313/en/> Fact Sheet #313, August 2008.

⁸ The two and a half year study was conducted in 2003 by a team from Israel's Ministry of Environment, the Israeli Union for Environmental Defense, and the US Environmental Protection Agency. A summary of the study is available at <http://www.adamteva.org.il/?CategoryID=424&ArticleID=391&SearchParam=air+pollution> A related study, "Assessing the spatial and temporal variability of fine particulate matter components in Israeli, Jordanian, and Palestinian cities," *Atmospheric Environment* 44 (2010) notes how urban air pollution is a significant contributor to the disease burden in the Middle East. Online at http://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.pubfulltext/publication_id/53977

⁹ As reported in Miller Mccune News, based on the study published in the *Journal of Economic Psychology*. The study was conducted by Tamir Levy of Netanya Academic College and Joseph Yagil of Haifa University. The study noted how days with poor air quality tend to negatively impact trading on the stock market. Article online at <http://www.miller-mccune.com/business-economics/smoggy-days-make-for-sickly-stock-market-28076/>

¹⁰ Bava Batra 25a.

¹¹ Sefer *Dinei Mamonot*, 2nd chapter on damages, page 376, note 9, and elsewhere.

¹² For more on this topic, see the Jewcology resources on environmental damages.

Keeping cities beautiful is not only a modern challenge-- in Talmudic times, the Sages enacted legislation to maintain the beauty of the cities of the land of Israel. The Mishnah states that trees had to be distanced from city walls, which according to the Talmudic sage Ulah was to preserve the beauty of the city.¹³ This source indicates how maintaining a city's beauty is a significant concern in the Jewish tradition. The Talmud discusses how large ovens were not allowed in Jerusalem, lest the smoke from the ovens blacken the walls of the Holy City and make it less beautiful.¹⁴ Furthermore, the Mishnah prohibited using olive wood, grapevines and fruit-bearing fig trees and date palms for burning in the Temple in Jerusalem, which according to some rabbinic views was because they produced excessive smoke.¹⁵ Jerusalem had the highest level of sanctity of all cities in the Land of Israel, and which required that its physical beauty, including air quality, be preserved.

Within its walls, G-d commanded the priests to raise up a pleasing aroma through the burning of incense at the Temple in Jerusalem.¹⁶ The Talmudic sage Rabba bar bar Chana taught that the pleasant smell of the incense reached all the way to Jericho, over ten miles away. The air was so fragrant that women did not need to put on perfume. In Jerusalem, the smell of incense was so strong that a bride, known for wearing strong perfume, would not need to put any on.¹⁷ This Talmudic teaching conveys that pleasant fragrance was the dominant smell in Jerusalem, stronger than anything else that was put into the air.

In our times, Jerusalem is blessed with the pleasing smell of many bakeries and flower shops. Yet many thoroughfares also smell of air pollution, due to exhaust fumes of carbon monoxide, sulphur dioxide, and other not-so-pleasing air pollutants. In 2007, Jerusalem experienced 33 high air pollution days, due in large part to the personal and industrial energy use of its 750,000 inhabitants.¹⁸ Beyond Jerusalem, a thick layer of smog often hangs over the coastal plain of Israel from Ashkelon to Netanya and blemishes the beauty of the land of Israel.

While the rabbinic laws to preserve the beauty of Jerusalem and Israel's cities are for the most part not in force today, we would be wise to consider their wisdom for our current situation. By reducing and cleaning our energy use, we can preserve the sanctity of our holiest city and the land of Israel. These lessons can also lend wisdom for the health and beauty of cities outside of Israel.¹⁹

Shabbat, Fire, and Energy

When we speak about human energy use today, we are primarily speaking about our use of fire. Fire is the paradigmatic technology, which human beings use to master the world. Fire enabled metallurgy, the shaping of mineral ores into tools, which over human history have become more and more advanced. Today we have a lot of machines which rely on fire: internal combustion engines in our cars, power plants that produce electricity, and lights and appliances in our homes and offices that run on electricity. The tremendous wealth of modern society stems from the use of industrial technology powered by fossil fuels that have been ignited by fire.

Rabeinu Bachya (Spain, 1255-1340) teaches that "Fire, i.e. light, was the first of the activities G'd engaged in when creating the universe."²⁰ He also notes that "Making fire is an appropriate example of basic human

¹³ Mishna to Bava Batra 24b, and commentary of Rashi there.

¹⁴ Babylonian Talmud, Tractate Bava Kama 82b, and commentary of Rashi there. Maimonides codifies this in Mishna Torah, Hilchot Beit Habechira, 7:14.

¹⁵ Mishna Tamid 29a and Talmud p. 29b. Based on the statement of Rav Papa in the Talmud, this is the explanation of Rabeinu Gershom, Mefaresh, and one view cited by the Rosh.

¹⁶ For more on the significance of the Temple's incense, see the article by Baruch Hirchkopf in the Eitz Chaim Hee series, online at <http://canfeinesharim.org/community/parshas.php?page=15747>

¹⁷ Babylonian Talmud, Tractate Yoma 39b

¹⁸ "Air Quality in Israel: Now and Tomorrow," "Israel Environment Bulletin," vol. 33, March 2008, published by Israel Ministry of the Environment, online at http://www.sviva.gov.il/Environment/Static/Binaries/Articals/p0462_3-6_1.pdf

¹⁹ However, from the perspective of Jewish law, the aforementioned laws do not apply to cities outside of Israel. See commentaries of Ramban, Ran, and Nimukei Yosef to Bava Batra 24b.

²⁰ Commentary to Exodus 35:2, citing Genesis 1:2, in Torah Commentary by Rabbi Bachya ben Asher, translated and annotated by

activity seeing that most of the principal activities we are engaged in cannot be performed satisfactorily if one were not able or allowed to make fire.” For six days we are supposed to properly use fire, which represents human mastery over the world.

The Torah teaches, “You shall not kindle fire in any of your dwelling places on the Sabbath day.”²¹ On Shabbat, we are instructed to refrain from using fire, demonstrating that true mastery belongs to G-d alone. As Rabbi Sampson Raphael Hirsch teaches, “. . .the ability to produce fire artificially is just that which first gave Man his true mastery over the materials of the world. Only by means of fire can he create his tools.”²² Rabbi Hirsch explains, “On Sabbath the cessation of work is the belief and acknowledgment that the ability to 'master matter,' the creative productive power that Man has, is lent to him by God, and is only to be used in His service.”²³

We mark the entrance and exit of Sabbath by lighting candles, and on the seventh day itself rest from using fire. Shabbat is the prime way that a Jew is supposed to learn balance in how to use fire, and by extension, energy and technology. According to traditional Shabbat observance, there is rest from cars and computers, Blackberries and cell-phones, stereo music, trains, and alarms.²⁴ By bringing some of this rest into our world today, we can reduce the amount of energy we need and also help us put ourselves in correct relationship with our use of energy.²⁵

Global Impacts

Fossil fuels power our industrial society, and this energy use has significant impacts, including global climate change. A typical American household consumes over 12,000 kilowatt-hours of electricity per year. Each kilowatt-hour of electricity from a coal-fired power plant releases over two pounds (nearly 1 kilo) of carbon dioxide (CO₂).²⁶ Per capita energy consumption in Israel, while below that of the US, is on the rise. Burning wood, coal, and oil lets off carbon dioxide. Carbon is stored in these fuel sources, and through the combustion process of fire, carbon connects with oxygen from the air to form CO₂.²⁷ This CO₂, along with other ‘greenhouse gases,’ is contributing to global changes in the earth’s climate. Burning fossil fuels is heating the planet, melting the ice caps, raising the sea level, and making forest fires more common.

A consensus of international scientists—i.e. the mainstream in science-- state that human-caused global climate change is likely to bring on more severe heat waves, storms, floods, and droughts, with major impacts on human societies.²⁸ A 2011 major study “directly links rising greenhouse-gas levels with the growing intensity of rain

Eliyahu Munk, Lamda Publishers, Brooklyn, NY, 2003

²¹ Exodus 35:2, Judaica Press translation.

²² Commentary to Exodus 35:3

²³ Commentary to Exodus 35:3

²⁴ The halakic permissibility of using electricity on Shabbat is based on *pikuach nefesh* [saving a human life]: since we need electricity for emergency and security services, we can use it generally for other needs in a passive sense. For a 250-page exploration of Jewish law in relation to electrical appliances, including refrigerators, alarm systems, dishwashers, and elevators, see [Shabbat and Electricity](#), by Rabbi L.Y. Halperin, compiled by Rabbi Dovid Oratz, Institute for Science and Halacha: Jerusalem, 1993.

A disagreement existed for many centuries between the Karaites and rabbinic Judaism starting in the eight century concerning whether can have fire burning on Shabbat. The Karaites understood the command 'don't kindle fire' as 'don't use fire.' The Rabbis saw the prohibition as not 'lighting' fire, and not about not using fire at all.

²⁵ For more on this theme, see the Jewcology dvar Torah on Shabbat, written by this author.

²⁶ <http://www.worldwatch.org/pubs/goodstuff/lighting/>

²⁷ Fossil fuels are also called hydrocarbons, because chemically they are long chains of carbon

²⁸ See the Assessment of the Intergovernmental Panel on Climate Change (IPCC), online at www.ipcc.ch The data is detailed in the Synthesis Report from a gathering of 2,500 scientists and based on their research. For additional information refer to the US Climate Change Science Program Report [Analyses of the Effects of Global Change on Human Health and Welfare and Human Systems](#) See also the statement of Canfei Nesharim's science and technology advisory board, online at <http://canfeinesharim.org/learning/environmental.php?page=22256>

and snow in the Northern Hemisphere,” adversely impacting hundreds of millions of people.²⁹ Leading climatologists stated “with a high degree of confidence” that the extreme heat waves like those that occurred in Texas and Oklahoma in 2011 and Moscow in 2010 “were a consequence of global warming.”³⁰ In Hurricane Sandy of 2012, a number of scientists partially attribute to climate change the strength of the storm surge that caused widespread destruction in New Jersey and New York.³¹

Toward Sustainable Energy Use

One way we can reduce the impacts of our use of fire is to use more renewable energy. In 1981, the Lubavitcher Rebbe made a call to significantly increase the use of solar energy in the United States. He said, “Very soon, the entire country should switch, first of all, to energy that can be generated from the sun's rays in the [US] south, which should be supplied to the entire country.”³² His call to use renewable energy is relevant today more than ever. Solar energy utilizes fire in a different way, by making use of the tremendous energy reaching the earth from the fire that is the sun. For example, solar water heaters harness the sun's rays to heat water and thus reduce electricity demand. The Good Energy Initiative works to provide financial incentives to poorer families in Israel to use solar water heaters instead of conventional heaters that rely on burning fossil fuels.³³

An individual might say to him or herself: 'But I am just one person—my consumption has a negligible effect on the global climate. There are 6.9 billion people in the world³⁴ and 10.5 million people in Israel—my using energy wisely won't make a difference!' This way of thinking goes against the advice of the Sages, who said that a person needs to act as if the entire world was created for them.³⁵

An individual can make a difference by using less energy, i.e., by driving less, eating less meat or globalized food, or taking fewer plane trips. It is in this realm of personal consumption that Jewish thought may best inform our energy and climate challenges today and empower us to change. Bal Tashchit of energy, protecting the health of our neighbors, maintaining the beauty of cities, and not making fire on Sabbath all have in common the restraint of individuals to achieve a higher purpose. These teachings instruct us about prudent, conscious, and elevated use of energy. Energy is a precious resource that must be used wisely. If not, its misuse has serious consequences for people and the planet.

The prophet Isaiah repeatedly calls on the Jewish people to be a “light unto the nations.”³⁶ Rabbi David Kimchi explains that 'light' here refers to the Torah.³⁷ In our times, let us find inspiration and light in the profound teachings of our tradition that address our central challenges. And let the light that emerges from our example

²⁹ “Human contribution to more-intense precipitation extremes,” Min, S.-K. et al. *Nature* **470**, 378-381 (2011). As reported in “Increased Flood Risk Linked to Global Warming, by [Quirin Schiermeier](#), *Nature News*, 2.16.11, online at <http://www.nature.com/news/2011/110216/full/470316a.html#B1>

³⁰ See also “Perceptions of Climate Change,” James Hansen et. al, *Proceedings of the National Academy of Sciences*, <http://www.pnas.org/content/109/37/E2415.full.pdf+html>

³¹ “Hurricane Sandy Underscores Climate Change Threat to Coasts,” Union for Concerned Scientists, 10.30.2012 Online at http://www.ucsusa.org/news/press_release/hurricane-sandy-climate-change-coasts-0345.html The article notes, “Oceans have absorbed much more of the excess heat from global warming than land and scientists understand that when hurricanes form, higher water temperatures can energize them and make them more powerful. Warming is also causing the atmosphere to hold more moisture and concentrate precipitation in stronger storms, including hurricanes. In the case of Hurricane Sandy, it retained much of its strength as it tracked across ocean water that was 9 degrees (F) warmer than average for this time of year.”

³² As quoted in [Mind over matter : the Lubavitcher Rebbe on science, technology and medicine](#), by Rabbi Menahem Mendel Schneersohn, original Hebrew edition compiled by Joseph Ginsburg and Herman Branover; edited and translated into English by Arnie Gotfryd. Jerusalem: Shamir, 2003. p. 257. The talk, given in Yiddish and with English subtitles, is available online at www.chabad.org

³³ For more on this project see <http://www.goodenergy.org.il/language/en-US/En/Projects/Project-Portfolio/Kol-Dudi-Solar-water-heaters.aspx>

³⁴ According to United Nations statistics, 2011.

³⁵ Gemara Sanhedrin (get exact source)

³⁶ Isaiah 42:6 and elsewhere in the Book of Isaiah

³⁷ Radak, France, 1160-1235, commentary to Isaiah 42:6

reveal to the world a new sustainable path.

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Rabbi Yonatan Neril founded and directs Jewish Eco Seminars, which engages and educates the Jewish community with Jewish environmental wisdom. He has worked with Canfei Nesharim since 2006 in developing educational resources relating to Judaism and the environment.