

17.10: The Ninth Commandment

IT MUST BE ACKNOWLEDGED THAT THERE ARE RISKS IN TAKING NO RISKS

Some things for which there are no suitable substitutes are inherently dangerous. We must avoid becoming so risk adverse that we do not allow dangerous, but necessary activities (some would put sex in this category) to occur. A prime example is nuclear energy. The idea of using a “controlled atom bomb” to generate energy is a very serious one. But the alternative of continuing to burn large amounts of greenhouse-gas-generating fossil fuels, with the climate changes that almost certainly will result, or of severely curtailing energy use, with the poverty and other ill effects that would almost certainly ensue, indicates that the nuclear option is a good one.

So it is necessary to manage risk and to use risky technologies in a safe way. As discussed in Chapter 15, with proper design and operation, nuclear power plants can be operated safely and spent nuclear fuel can be processed safely. Modern technology and applications of computers can be powerful tools in reducing risks. Computerized design of devices and systems can enable designers to foresee risks and plan safer alternatives. Computerized control can enable safe operation of processes such as those in chemical manufacture. Redundancy can be built into computerized systems to compensate for failures that may occur. The attention of computers does not wander, they do not do drugs, become psychotic, or do malicious things (although people who use them are not so sure). Furthermore, as computerized robotics advance, it is increasingly possible for expendable robots to do dangerous things in dangerous areas where in the past humans would have been called upon to take risks.

Although the goal of risk avoidance in green chemistry and green technology as a whole is a laudable one, it should be kept in mind that without a willingness to take some risks, many useful things would never get done. Without risk-takers in the early days of aviation, we would not have the generally safe and reliable commercial aviation systems that exist today. Without the risks involved in testing experimental pharmaceuticals, many life-saving drugs would never make it to the market. Although risks must be taken judiciously, a total unwillingness to take risks will result in stagnation and a lack of progress in important areas required for sustainability.

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