

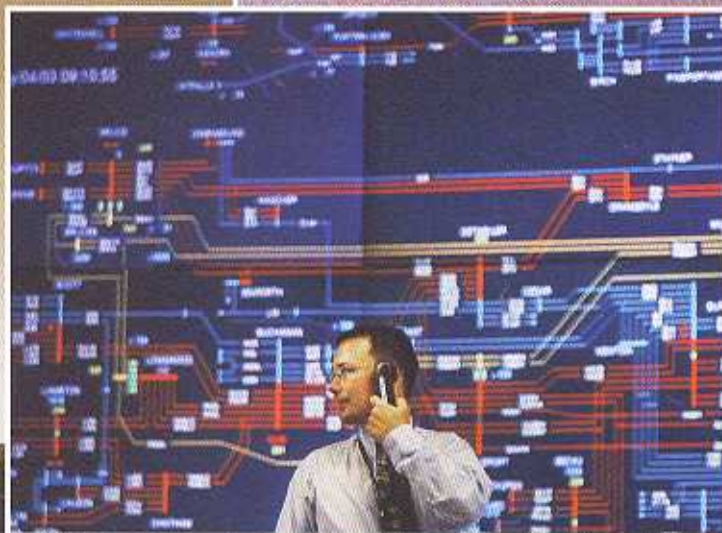
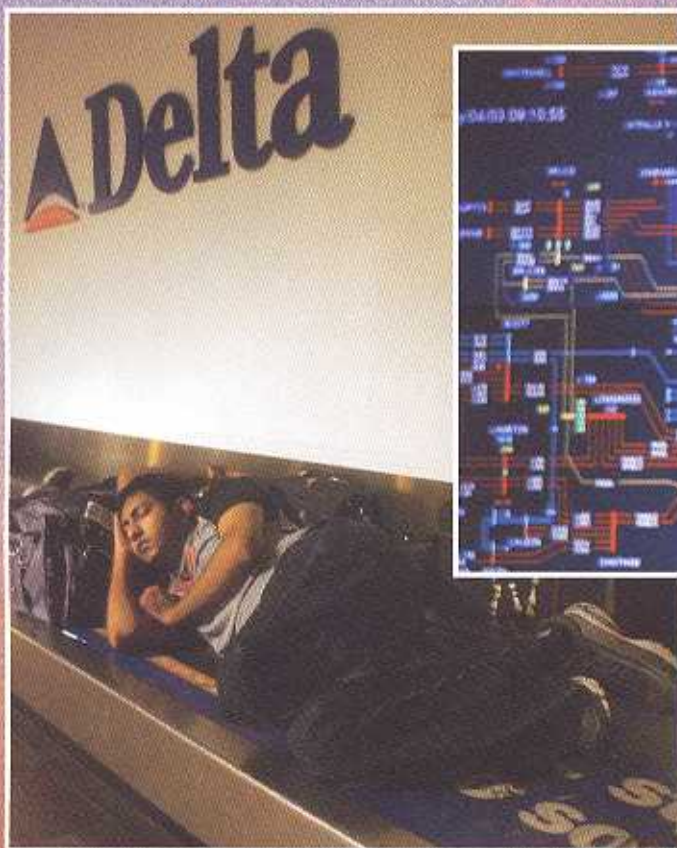
Energy Flow in Technological Systems

The Toronto skyline at dusk with no lights visible is a rare sight. Nevertheless, just such an event occurred on August 14, 2003 during the largest blackout in the history of North America. The lights also went out in most of southern Ontario, New York State, Ohio, and Michigan. Airports were filled with stranded travellers waiting for flights to take off. As you can see on the next page, one man found a place to sleep on a luggage conveyor belt.

Elsewhere, people were rescued from stalled elevators and subway trains. Citizens began directing traffic because the traffic lights were not operating. Over 50 million people found themselves without electrical power.

Power grids are designed to share power over large areas — to prevent occurrences such as the blackout. In this case, the opposite happened. Many electrical power-generating stations connected to the same grid automatically shut down when the grid failed. In the photograph on page 139, an operator stands in front of a screen showing a power grid near Toronto. The operator was one of thousands of power company employees who worked throughout the night to try to restore power to the public.

In this unit, you will learn about the development of technologies that provide power for electrical energy and transportation. You will learn how one form of energy is transformed into another. The blackout of August 14, 2003 is a striking example of why society needs to find ways to conserve energy and to improve technologies that provide energy.



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