



BY RON WILSON, EXECUTIVE EDITOR

## Oil prices, technology, and the cost of ignorance

**T**he world has just had a graphic demonstration of the workings of supply and demand in the oil industry. Supply of sweet, light crude became insufficient for the demand, and its price shot up. In response to the higher prices, demand for gasoline in the United States dropped, and the price shot back down again. In light of this dramatic performance, it is worth asking whether quick, technically feasible applications of

electronics could significantly reduce demand in the short term.

We are looking for feasible and fast solutions, so converting the entire Western world's vehicle fleet to fuel cells is out. So is covering two Southwestern states with photovoltaic cells or building a set of experimental but full-scale fusion reactors. Relatively quick measures do exist, however, and, unsurprisingly, they focus not on fundamental changes in society but on increasing efficiency.

One example dear to the hearts of many commuters is traffic control. In much of North America and, from the little we have seen, industrializing Asia, the entire notion that you can enhance rather than impede the flow of traffic by properly regulating traffic lights is an as-yet-unmade discovery. The cost of this ignorance is horrendous. Estimates show that a third of the fuels vehicles in urban areas consume go to waste because of unnecessary acceleration, almost entirely after a traffic control or jam has slowed the vehicle. Technologically simple computerized sensor and control networks and known algorithms could cut this waste by a large factor. The amount of necessary capital equipment and labor

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would be trivial in comparison with the savings and within the resources of even state-level governments without huge national subsidies. The only shortage is in the skill to install and operate the networks and the knowledge to recognize the problem.

Public transportation presents a similar example. Most municipalities in the world wear about their necks as a token of honor an ever-moving, constantly belching necklace of huge diesel buses, with a ratio of average payload weight to vehicle weight that would embarrass a Hummer owner. Municipalities could inexpensively replace most of these monstrosities with fuel-efficient small vans, directed by a network of GPS (global-position-system) sensors, traffic monitors, requester terminals, and computers,

creating an on-demand public-transit network that would function at a fraction of the fuel consumption and congestion generation of the behemoths. Again, there is no new technology here, and adequately suitable vehicles are currently languishing in automotive-dealer inventories.

Or consider where the demand for all that sweet, light crude oil comes from. The most dramatic increase isn't from sport-utility vehicles or corporate jets. It's from diesel generators because, in much of the developing world, local demand for electricity—partly created by our desire for cell phones and TV sets—is soaring. In countries that lack generation and distribution infrastructure, only local diesel generators can meet that demand. Hence, the demand for diesel soars—driving refineries to capacity and creating a shortage of sweet, light crude oil. (There is no shortage or price premium for high-sulfur crude, by the way. Few refineries can produce diesel from it.) So what would be the impact on demand if we focused our photovoltaic and storage efforts and subsidies not on wealthy North Americans' rooftops, but on developing-world towns and villages?

Many such opportunities exist to use a little understanding, a little technology, and a little capital to make a significant decrease in fuel consumption. And, as noted, a small decrease in consumption can make a big difference in global inflation pressure. But rest assured that these things will not happen. Inefficiency is one of the costs nature imposes as the price of public ignorance of technology. **EDN**

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