

THEOCRACY ALERT!

COMMANDMENTS OR BILL OF RIGHTS?

FEAR OR REASON?

SUBMISSION OR FREEDOM?



- ★ The 1st Commandment mandates: "Thou shalt have no other gods before me." The First Amendment guarantees you can choose any god, many gods, or none at all.
- ★ Reason-based laws allow for exceptions, such as for self-defense. Religious absolutes do not.

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ENERGY

Solar on Demand

Cheap energy from sunlight could displace kerosene in African villages

In rural sub-Saharan Africa, only one in six people has access to electricity. Kerosene lamps provide a primary light source in many households—at a cost to both health and wealth. A villager in Kenya or Rwanda pays dozens of times more for kerosene than an American spends on grid electricity for a comparable amount of lighting. Charging a mobile phone at a kiosk is even more expensive. "The poorest people in the world are not just paying a bit more for their energy; they're paying a disproportionate amount," says Simon Bransfield-Garth, CEO of Azuri Technologies, a solar services firm based in Cambridge, England. Kerosene lamps also pollute the air, and the fuel poses a poisoning hazard, especially to children.

Solar kits for lighting and charging batteries are a promising alternative, but many rural families cannot afford the upfront cost of \$50 or more. So Azuri and several other firms sell solar kits on a pay-as-you-go plan, which drives down the customer's initial investment to around \$10. Families then pay for energy when

they need it or when they can (say, after a successful harvest). After the solar kit is paid off, any subsequent electricity is free.

The idea is gaining steam. Azuri counts more than 21,000 solar customers. M-KOPA Solar, which builds on the widespread M-Pesa mobile payment network, serves 40,000 households. And U.S.-based Angaza Design is on track to reach 10,000 customers in the next year or so.

Scaling the technology to even more households could prove challenging. Some start-ups are running into limits of capital as they await reimbursement from new customers. The cash-flow constraints only intensify when customers default.

Still, the rollout may offer important lessons for the rest of the world. "There are all these debates about when solar will reach grid parity in the U.S. and elsewhere," says Bryan Silverthorn, chief technology officer for Angaza. "Africa is a place where, for a huge swath of the population, solar energy is now the cheapest option. No one knows what will happen next."

—David Wogan

BY THE NUMBERS

1 in 6

Number of recent daters who have received a breakup text, e-mail or online message, including nearly one in 10 daters over the age of 50.

GETTY IMAGES (top); SOURCE: "ONLINE DATING & RELATIONSHIPS," BY AARON SMITH AND MAEVE DUGGAN, PEW INTERNET & AMERICAN LIFE PROJECT, OCTOBER 21, 2013 www.pewinternet.org/Reports/2013/Online-Dating.aspx (bottom)