

Sir,

Your lament for Europe's money-losing electric utilities (12 Oct), pickled in their own brine, begs the question whether old, long- and often still-subsidized oligopolies should be bailed out or shielded from competition when they bet against innovation and lose. They were supposed, but failed, to prepare for renewables by reinvesting their hundreds of billions of Euros' windfall from billing customers for the first decade's tradeable carbon emission credits they'd been given for free. Now they're whingeing that disruptive technologies are upending their old models. Of course: should we reject mobile phones because they disrupt wireline telcos? A well-designed, technology-neutral electric capacity market is worthwhile, but botched investment strategy should not be rewarded, nor should shareholders be surprised that utility shares no longer perform like bonds when 21st-Century technology and speed collide with 20th- and 19th-Century institutions, rules, and cultures.

You echo utilities' scapegoating of renewables for trends they reinforced but didn't cause, so let's note that by counting renewables' gross not net costs, you omit major benefits to customers. As renewables burgeoned, Germany's wholesale electricity prices fell nearly 60%, enriching industries—thousands of which also shifted billions of Euros' annual costs to German households via tripled exemptions from paying grid fees and renewable surcharges. But wholesale price drops will soon reach German households too, as they've begun to do on the shared Austrian grid. The majority of renewable capacity—investments most big utilities spurned—was bought instead by citizens, communities, or cooperatives, microinvesting as little as \$600 for good returns. And Germany's 382,000+ new renewable jobs, welfare relief, corporate and export earnings, and tax revenues yield not just long-term but *current* macroeconomic net benefits to the national economy.

You say "nobody really knows" what will happen when renewables rise from 22% to 35% of German electricity. But it's encouraging that in Denmark, averaging 41% last year, or in Spain (48%) and Portugal (70%) for the first half of 2013, grid engineers skillfully managed the more complex dispatch, aided by new grid agility from flexible demand and distributed intelligence. Careful EU and US simulations have found at least 80–90% feasible, often with little or no bulk storage. Distributed resources could further cut risks, ease grid stability management, and shrink utilities' investment burdens.

Beyond Europe, nonhydro renewables (a) in China, India, Japan, and Germany now outproduce nuclear power, (b) last year in China added more generation than nuclear plus fossil sources, and (c) globally in 2011 and again in 2012 won a quarter-trillion dollars of investment and added over 80 billion watts of capacity. Solar additions are now overtaking windpower's, scaling even faster than cellphones. Thus not just European but global electricity providers need new business, revenue, and regulatory models, being developed in efforts like my organisation's 'e-Lab' industry forum.

The parallel energy-efficiency revolution—US weather-adjusted electricity use per dollar of GDP fell 3.4% in 2012 alone—is also starting to outpace service growth, shrinking utilities' revenues. Buildings using zero net electricity pay zero net revenue to utilities selling electricity by the kWh. A way forward may be the Fort Collins, Colorado municipal utility's imminent bidirectional value tariff: supplier and customers will pay each other the fair value of the services they exchange.

An 80%-renewable, half-distributed, nearly decarbonised, highly resilient US grid could cost virtually the same as business-as-usual, but could best manage its risks—security, technology, finance, climate, health, fuel, and water—and, uniquely, prevent cascading blackouts. Such transformative benefits justify transitional growing pains—not protection for incumbents already compensated for the known competitive risks they got wrong. Ordering new coal plants in the face of renewable mandates and emerging carbon trading was akin to buying up carriage-makers as automobiles emerged to relieve London's horse-manure crisis.

Thanks — ABL
