



Efficiency and renewables redux

The twin strategies of generating more renewable energy while using all energy more efficiently have been touted together so often in recent years that they seem almost to be hyphenated.

"The first part of renewable energy is energy efficiency," said Paulo Frankl of the International Energy Agency at the 6th European Conference on Green Power Marketing in October. In IEA's scenario for limiting atmospheric carbon emission to 450 parts per million by 2030, renewables and biofuels combined with energy efficiency account for more than 75% of total annual CO₂ cuts, he noted.

Other analysts as well as policy-makers make the same connection: renewables and energy efficiency go hand in hand. Switzerland, for instance, is counting on both to achieve its goal of a 2,000-watt per capita society by 2035 (see story page 18).

Certainly clean energy in the form of renewable heat can form a strong partner with energy efficiency, as Germany has showed with its policies to expand renewable heat while upgrading building standards (see story page 3). Biomass and geothermal energy stand to be the big winners in any policy that rewards both electricity and heat production.

In addition, widespread application of smart meters – still more a technology concept than a practical program – would help balance electricity demand with variable renewable resources, as Australia is trying to do (see story page 17).

Yet assumptions about combining efficiency with renewables mask underlying challenges. As one industry observer has noted, energy efficiency is widely considered low-hanging fruit – but fruit that hangs low tends to be rather squishy. Governments in Europe, Japan and the United States have for decades subsidized home insulation and industrial energy savings, and while achieving reductions in energy use

per GDP have barely made a dent in energy demand. If energy efficiency is the Holy Grail of low-carbon policies, it remains elusive as an effective strategy for achieving large-scale reductions in carbon emissions.

Questions also remain about who pays the bills for renewables/efficiency improvements. Homeowners and business owners can benefit directly by investing in renewable heat but, as the German renewables association BEE points out, the investor-user problem forces property owners that rent their buildings to bear the costs of renewable heat systems while tenants may balk at paying for the benefits.

What's more, using energy more efficiently, by definition, means using less of it. Lower energy demand is a boon to policy-makers seeking to meet carbon-reduction goals. Renewable energy developers, though, will feel the pinch if countries significantly reduce the electricity they use, which also will reduce the amount of renewable energy they need.

For the near term, efforts to slash CO₂ emissions likely will prove so difficult that decision-makers will be forced to rely on both energy efficiency and renewables as worldwide demand grows for electricity, heat and fuels. Eventually, though, governments, utilities and renewable energy companies will be forced to confront the contradictions of trying to boost clean energy generation while, in essence, lowering their renewables targets by cutting overall energy use.

In the end, energy efficiency will leap forward only when utilities are routinely rewarded for making best use of the energy they generate instead of profiting from generating as much as possible – a policy in which renewable resources might end taking a back seat.

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