“What matters is that this decade is warmer than the last decade, and that decade was warmer than the decade before it.”
1. A limit, or cap, on emissions is established for each covered company or facility. By design, that cap will be lowered over time and thereby greenhouse gas emissions will be reduced and emissions targets will be reached.

2. A company must obtain permits, or allowances, for each ton of pollution its facilities emit. Allowances are the currency of emissions trading schemes. One metric ton of carbon dioxide or its equivalent is equal to one allowance, and companies obtain allowances for every metric ton of CO2 their facilities emit. To obtain allowances, companies may be given some for free or buy them either from other companies or at an auction, which is held at least once annually. The auction will raise funds that can be used to spur development of clean energy products to lower emissions as well as to aid electricity ratepayers facing higher bills.

3. To meet the cap and reduce emissions, a company can improve operations and invest in clean technology, it can buy allowances from another company that doesn’t need all of its allowances, or it can obtain allowance offsets by cleaning up pollution at another source.

GROWING TREND A scattering of cap-and-trade schemes and carbon tax programs are occurring around the world.
Resources Institute, another Washington-based think tank. “In Washington, D.C., there is a perception that cap and trade is dead,” he says. “It is an idea that people thought about, but it has gone nowhere. But internationally, and to some degree in California and other parts of the U.S., there is a lot of activity.”

The growing mix of national and regional attempts to cut greenhouse gas emissions through trading schemes is laid out in the EESI study. It found emerging programs in many places around the globe.

**FOR EXAMPLE,** the European Union’s emissions trading scheme, which began in 2005, is the world’s largest carbon trading program. It includes 27 EU member countries as well as Croatia, Iceland, Norway, and Liechtenstein. Switzerland is likely to join this year. The program covers 40% of greenhouse gas emissions in the EU.

Another example is the Regional Greenhouse Gas Initiative, which was launched in 2009 and includes nine northeastern U.S. states. It has been moderately successful but limits power plant emissions only in the participating states. The actual emissions covered under the initiative are far below the set cap because of a shift by utilities to natural gas as a power plant fuel. As a result, in early February, the initiative announced it was lowering its greenhouse gas emission caps by 45%.

Also in the U.S., California began its own cap-and-trade program last month. It will eventually cover 85% of greenhouse gas emissions in the state. The program addresses emissions from power plants and industries and by 2015 will include transportation. Quebec just announced its intention to join California, and the two are developing a protocol to combine their programs.

Elsewhere, Australia began an emissions trading scheme in July 2012, according to EESI, in which companies can purchase fixed-price allowance permits. In 2015, the Australians plan to link their program with the EU trading program, with a goal of fully integrating the programs by 2018.

New Zealand also is exploring cap and trade and hoping to begin a full trading program by 2015. Tokyo began a cap-and-trade program in 2010 to reduce greenhouse gas emissions in the metropolitan area. South Korea is planning a carbon trading scheme, scheduled to start in 2015, with a goal of covering 60% of its greenhouse gas emissions.

And China, the world’s top greenhouse gas emitter, is preparing a pilot cap-and-trade program to involve five cities and two provinces. China’s pilot program addresses carbon emissions per unit of gross domestic product. It will not limit overall emissions. The country hopes to begin this pilot program this year and roll out a national program in 2015.

To understand the goals and challenges of cap-and-trade systems, two examples stand out: the EU’s system (see page 16) and California’s program (see page 22).

The EU program covers some 2 billion metric tons of emissions from 11,000 power stations and manufacturing facilities. The EU had considered including aviation emissions but has postponed the inclusion and now hopes for a global framework to tackle aviation emissions next fall. In all, the trad-
“In Washington, D.C., there is a perception that cap and trade is dead.”

The EU trading scheme accounts for more than three-quarters of international carbon trading. Participation is mandatory. Each year the emissions cap in the EU is reduced by 1.74%, meaning that by 2020, emissions from participating sectors should be 21% lower than when the scheme began in 2005.

As the main market for credits generated by emissions-saving projects around the world, the EU trading scheme is also a major source of investment in environmentally sustainable development in emerging countries. Because of its scale and scope, Europe’s system has become the blueprint for subsequent schemes now cropping up around the world.

However, the EU trading scheme is in crisis. The carbon price has tanked with the decline in demand for allowances that has resulted from the current economic recession and slowing manufacturing. To try to bump up the price of carbon, the EU is exploring postponing—or backloading—the release of allowances to the trading market. It is too early to know whether such measures will be successful.

The low price is causing uncertainty over long-term investment and is also cutting the market’s potential to generate money earmarked for planned investments in cleantech projects. It is also threatening to derail the EU’s path to targeted emissions reductions.

CALIFORNIA’S cap-and-trade program is just getting under way. California, with the world’s eighth-largest economy and some of the most rigorous environmental regulations in the world, is often cited as an environmental and economic model for the U.S. and the world.

Its program is part of a large package of greenhouse gas reduction initiatives. The state’s goal is to cut greenhouse gas emissions to 1990 levels by 2020, a 15% reduction in what would have been emitted without controls.

In all, about a half-million metric tons of annual emissions are affected and about 600 plants will be included in the program. The California cap-and-trade program is in a trial phase and is being modified as it is implemented.

The program is designed to be phased out in 2020. However, state officials and environmental activists would like to see it modified and extended until 2050 to yield deeper greenhouse gas emissions cuts. If California succeeds in meeting its 2020 goals and reducing emissions over the next seven years, the program will be seen as a model for how to cut emissions.

If the California scheme fails, and the fundamental problems being experienced by the EU scheme continue, a crisis of confidence in the use of emissions trading schemes will likely follow.

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