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ANNUAL REPORT



The ClimateWorks Foundation supports public policies that prevent dangerous climate change and promote global prosperity.

ClimateWorks' goal is to limit annual global greenhouse gas emissions to 44 billion metric tons by the year 2020 (25 percent below business-as-usual projections) and 35 billion metric tons by the year 2030 (50 percent below projections).

These ambitious targets require the immediate and widespread adoption of smart energy and land use policies. ClimateWorks and its network of affiliated organizations promote these policies in the regions and sectors responsible for most greenhouse gas emissions.

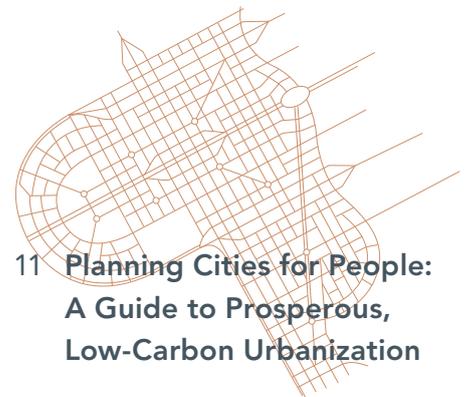
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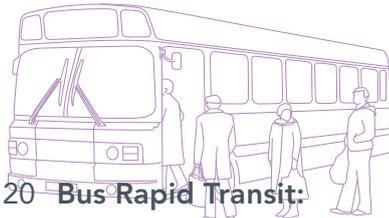
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A new cement factory in Shandong, China, uses the latest kiln technologies to dramatically reduce carbon emissions and save money.



# Toward a livable climate

As the world enters the second decade of the 21<sup>st</sup> century, the human race faces daunting challenges and huge opportunities in equal measure: How can world leaders help lift the next billion people out of poverty while conserving the natural resources needed for our survival? How can more people gain access to secure, reliable, and affordable supplies of energy without exacerbating air pollution and the carbon dioxide emissions that cause climate change? In a time of fiscal austerity, what can be done to revitalize stagnant economies, unleash the power of innovation, and create jobs for the next generation of workers?

At the ClimateWorks Foundation, our mission is to support adoption of the public policies that can prevent dangerous climate change and promote prosperity. Our philanthropy focuses on the regions and economic sectors responsible for most of the world's anthropogenic CO<sub>2</sub> emissions. We can't guarantee that reducing carbon emissions will fix the intertwined challenges of poverty alleviation, resource conservation, and economic growth, but there is overwhelming evidence that these problems are exacerbated by the way we currently produce and consume energy.

Indeed, access to energy is necessary for human development. For those living in poverty, energy makes the difference between walking a mile to gather untreated water and having the power to treat it and pump safe drinking water nearby. For developed and developing countries alike, clean and secure energy offers a competitive advantage. Fast-growing nations have to deliver clean, reliable energy to millions of newly arrived city dwellers. Developed nations with advanced, efficient energy systems are discovering that clean energy fosters job creation and economic growth, while those that depend on fossil fuel technologies struggle with volatile fuel prices, air pollution, and health impacts.

## The ClimateWorks Network: Regional Climate Foundations



### Best Practice Networks



#### POWER

The Regulatory Assistance Project



#### BUILDINGS & APPLIANCES

The Collaborative Labeling and Appliance Standards Program

The Global Buildings Performance Network



#### INDUSTRY

The Institute for Industrial Productivity



#### TRANSPORT

The International Council on Clean Transportation

The Institute for Transportation and Development Policy



#### FORESTS & LAND USE

The Climate and Land Use Alliance

### Physics and politics: Forces in tension

Because the laws of physics apply equally around the planet, the technologies that will solve the energy challenge will look similar from Delhi to Dallas, and from Berlin to Beijing. A wind farm in Jiangsu, China, will require the same kinds of power-system management and grid-integration technologies as one in Andalucía, Spain, or Texas, USA. Low-carbon urban development worldwide shares common attributes: mixed-use development, easy access to transit, and people-centric streetscapes.

Of course, physics is one thing; politics is quite another. The decision of Germany's politicians to make their relatively cloudy nation the global leader in solar energy might seem odd to the residents of sunny Florida. Nevertheless, today Germany is the world's top solar innovator and job creator, while Florida's political leaders recently blocked efforts to expand renewable energy in their state.

The organizations in the ClimateWorks Network focus on these interwoven aspects of the climate challenge: the physics, which determine the types of technical solutions that can reduce carbon emissions, and the politics, which reflect public awareness and ultimately control how we produce and consume energy. Using their expertise in both realms, ClimateWorks' Network partners and grantees identify policy solutions, promote them in the geographic regions and economic sectors responsible for most of the world's carbon emissions, and see them through to successful implementation.

### The power of teamwork

When ClimateWorks began its operations three years ago, our initial challenge was to create a global network of institutions to promote clean energy and low-carbon land use policies. Since then, we have established regional partnerships in China, India, Europe, the United States, Brazil, Mexico, and Indonesia, and developed partnerships with technical experts in the power, buildings, appliances, industry, transportation, and forests sectors.



Workers assemble solar panels in Germany, a world leader in solar energy.

With these partners—the affiliated organizations that make up the ClimateWorks Network—we assembled strategy teams to focus on slashing carbon emissions in each region where we work. We mapped these top-emitting regions and sectors on a chart we call the “ClimateWorks Sudoku” (see page 34). The Sudoku shows the quantity of CO<sub>2</sub> equivalent emissions that can be reduced by adopting smart policies; for each square on the Sudoku, the Network assigns a team to work toward enactment of those policies.

These teams, composed of experts in global best practices, clean technologies, and local political conditions, collaborate to ensure the greatest chance of policy success and to accelerate solutions to our energy problems. So when an air pollution regulator in California proposes a new rule that will cut emissions from cars, our teams in Europe, China, and India will study that rule for lessons they can apply in their venues—and will reciprocate by sharing their own expertise with our teams in California.

## A race to the top

As we look back on 2010, we see a few trends that give us hope for the future—and some disturbing roadblocks. Atop our list of hopes is the growing international movement to make cities more accommodating for people. In “Planning Cities for People,” on page 11, leading urban designers posit eight principles of smart, low-carbon urban growth. These principles are particularly important in countries like China and India, which will build most of our planet’s new cities over the next four decades.

Similarly, we are inspired by the strong leadership Europe continues to show in pushing the envelope of low-carbon industrial development. Germany deserves special credit here: Its early experiments with solar energy policy, launched by a few activists in Aachen in the early 1990s, led to the creation of one of Europe’s first national renewable energy standards and have helped Germany maintain its position as the world leader in solar



A recent study shows that India's wind power potential is more than 10 times larger than its installed capacity.



China leads the world in wind turbine manufacturing and installed wind power capacity.

*“Coming together  
is a beginning.  
Keeping together  
is progress.  
Working together  
is success.”*

— Henry Ford

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energy deployment and innovation. Germany’s conservative government recently upped the ante, calling for 80 percent renewable energy by 2050—the most aggressive renewable energy goal in the industrial world.

Taking advantage of a narrow political window at the European Commission, ClimateWorks Network partners are working to replicate Germany’s model across the continent. Their plan is laid out in “Getting to Zero: Roadmap to a Low-Carbon Europe,” on page 23. Europe’s continued leadership in this area is critical, as it helps heighten the sense of competition in the global “race to the top” that is under way on climate and energy. China and India, with their own domestic energy and climate goals, are both worthy contenders in this race.

Meanwhile, the United States is of two minds when it comes to climate and energy. At the sectoral and state level, important progress is being made to increase vehicle fuel-economy standards, scale up energy efficiency, and implement state-based renewable energy and climate policies. But growing political intransigence in Congress means the U.S. is taking a piecemeal approach where it needs a comprehensive strategy. As the rest of the world moves to address the planet’s pressing energy and climate challenges—and as nations rush to reap the harvest of technology innovation, economic growth, and job creation that accompanies action on climate—the U.S. is its own worst enemy. The political divide between proponents of clean energy technologies and defenders of fossil fuel interests is as wide as ever. ClimateWorks’ partners are working to identify viable solutions to these challenges; while we remain optimistic about continued progress in the states, the stagnation in Washington, D.C., is disturbing.

Of course, as the political battles are fought, won, and lost, the condition of our climate system is deteriorating. Scientists continue to find ever-strengthening signals of the impact caused by carbon emissions. Record floods in the Ohio and Mississippi rivers and across Pakistan; widespread droughts in the Amazon rainforest, China, southern Europe, and the American Southwest; megafires in Australia, eastern Europe, and Brazil—these are the telltale signs of climate change. Indeed, the climate is responding to its bulging carbon load the way climate scientists have long predicted it would.

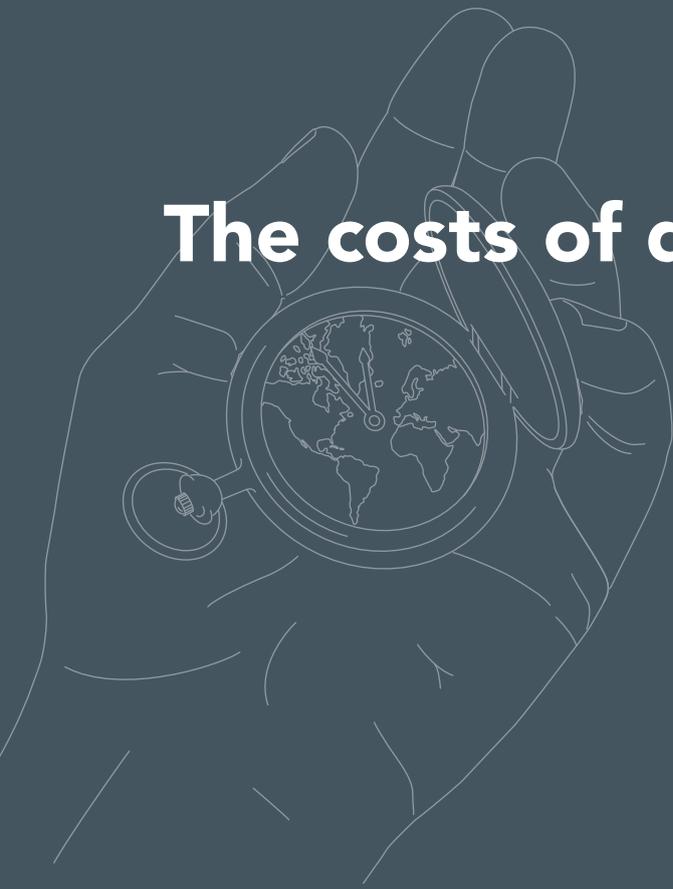
As natural systems are upended, the lives of billions of people hang in the balance. Our partners around the world share a sense of urgency born of a deep and abiding sense of duty to our fellow human beings. We are proud of their work and honored to support them as they promote low-carbon prosperity for people everywhere.

William K. Reilly  
*Chairperson of the Board*

Hal Harvey  
*Chief Executive Officer*

Mark Burget  
*President*

# The costs of delay



The physics of the earth harbor a frightening punch line for the climate change story: Even though the consequences of climate change persist for the very long term, the time to avoid those consequences is very short. A delay—of even a decade—in reducing CO<sub>2</sub> emissions will lock in large-scale, irreversible change. Delay also increases the risk that the whole climate system will spin out of control.

This message may be alarming, but it is not alarmism; it's physics. And the earth's climate physics have serious implications for political action and technological innovation in the coming decade.

## The story has five parts:

### 1. Stabilizing CO<sub>2</sub> at any concentration requires very low emissions

Carbon dioxide persists in the atmosphere for a very long time; because it can accumulate for millennia, stabilizing concentrations at any level ultimately requires nearly zero emissions.

### 2. Carbon "sinks" are disappearing

Natural safety valves—primarily the biosphere and oceans, which absorb almost half our CO<sub>2</sub> emissions—are shutting down as they become saturated with CO<sub>2</sub>.

### 3. Many impacts of climate change are irreversible

Projections suggest we will lose 18 to 35 percent of all species due to climate-forced extinctions. Other natural system changes, from ocean circulation to ice melt, are irreversible for at least thousands of years. And because many impacts lag behind historic emissions, we have yet to experience their full effect.

### 4. The system can spin out of control

If the natural system crosses certain tipping points, it can unleash runaway climate change. If the tundra thaws, for example, it will vent a vast store of now-frozen methane, a potent greenhouse gas. Such changes are powerful, uncontrollable accelerants.

### 5. Acting now saves money

The economic costs of stabilizing later, even at a higher CO<sub>2</sub> concentration, will be very painful or even impossible.

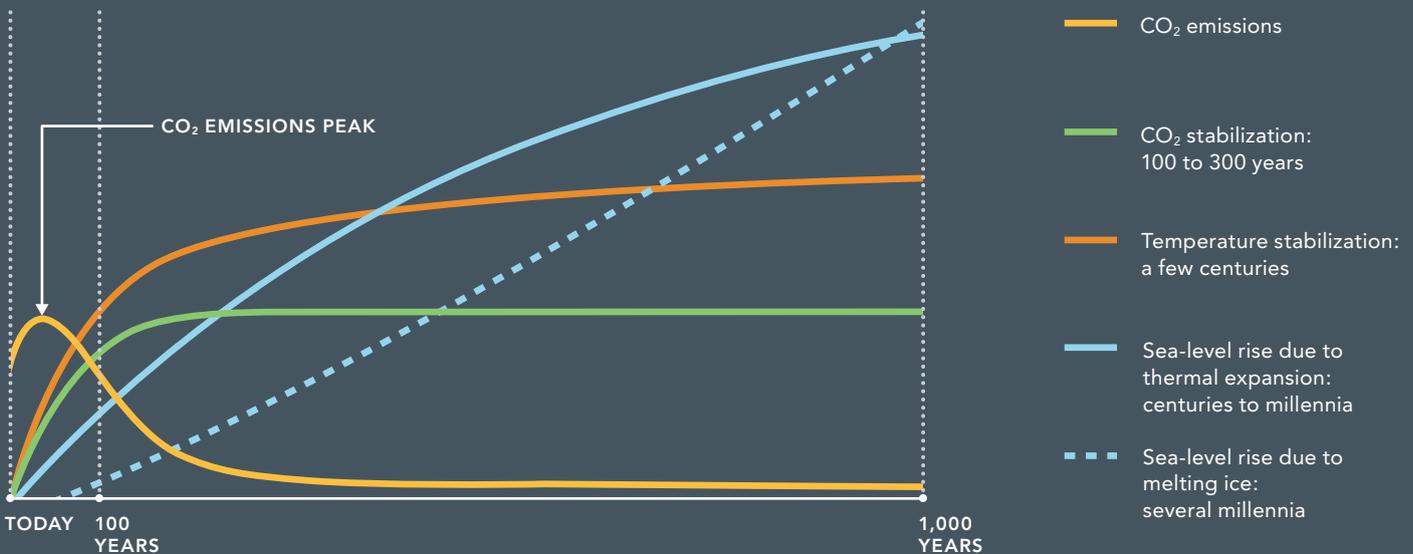


Burning fossil fuels has emitted as much carbon in the past 50 years as had been sequestered over millions of years.



## Many impacts lag CO<sub>2</sub> emissions

CO<sub>2</sub> concentration, temperature, and sea level continue to rise long after emissions are reduced.



Source: Intergovernmental Panel on Climate Change, *Climate Change 2001: Synthesis Report—Summary for Policymakers*. [www.ipcc.ch/pdf/climate-changes-2001/synthesis-spm/synthesis-spm-en.pdf](http://www.ipcc.ch/pdf/climate-changes-2001/synthesis-spm/synthesis-spm-en.pdf)

## The earth's carbon budget

Given carbon dioxide's persistence in the atmosphere, it is useful to think of emissions in terms of a carbon budget, or a maximum volume of cumulative emissions that will allow atmospheric concentrations to stabilize.

To limit average global warming to 2° C—a threshold most climate scientists describe as a dangerous tipping point—the world will need to stabilize atmospheric CO<sub>2</sub> at about 450 parts per million (ppm). This corresponds to a total carbon budget of about 1,000 gigatonnes, or a trillion metric tons, of emissions for 2000–2050. But in the first five years of this century, the world burned through nearly 20 percent of this 50-year carbon budget. At the current rate of emissions, the full budget will be depleted in less than 20 years.

## We must act now

Addressing climate change is like turning an ocean liner: Changing course takes time, and no amount of rudder, applied too late, can hit the mark. The world must start to reduce emissions now, or it will not reach any meaningful CO<sub>2</sub> concentration target. The upshot is that the next decade is critical.

The longer we wait, the more drastic the cuts—and associated costs—will be. If we delay action for even a decade, CO<sub>2</sub> concentrations will likely blow past 450 ppm and unleash dangerous, nonlinear ecological and geophysical responses. If, instead, we step up to the challenge and pass strong energy policies and invest aggressively in clean energy R&D, we have a fighting chance of containing CO<sub>2</sub> concentrations at 450 ppm—and averting a climate catastrophe. ■

For more information, including references to peer-reviewed source documents, see "The Costs of Delay" at [www.climateworks.org/CostsOfDelay](http://www.climateworks.org/CostsOfDelay).



Our planet is already experiencing the extreme weather of climate change, from drought in China to record floods in Pakistan and elsewhere.





Well-designed cities prioritize people over cars and offer convenient transit, walking, and biking options.



# Planning cities for people:

## A guide to prosperous, low-carbon urbanization

In 2009 the human race crossed a significant milestone: We became an urban species, with more than 50 percent of people living in cities rather than rural settings. This urban migration has deep implications for humans' well-being, and for the well-being of our planet.

Cities offer several advantages: City dwellers generally have better access to basic services like clean water, electricity, and transportation than do their rural counterparts. With the right policies in place, high-density cities can minimize their use of limited natural resources and reduce their environmental impact and carbon emissions.

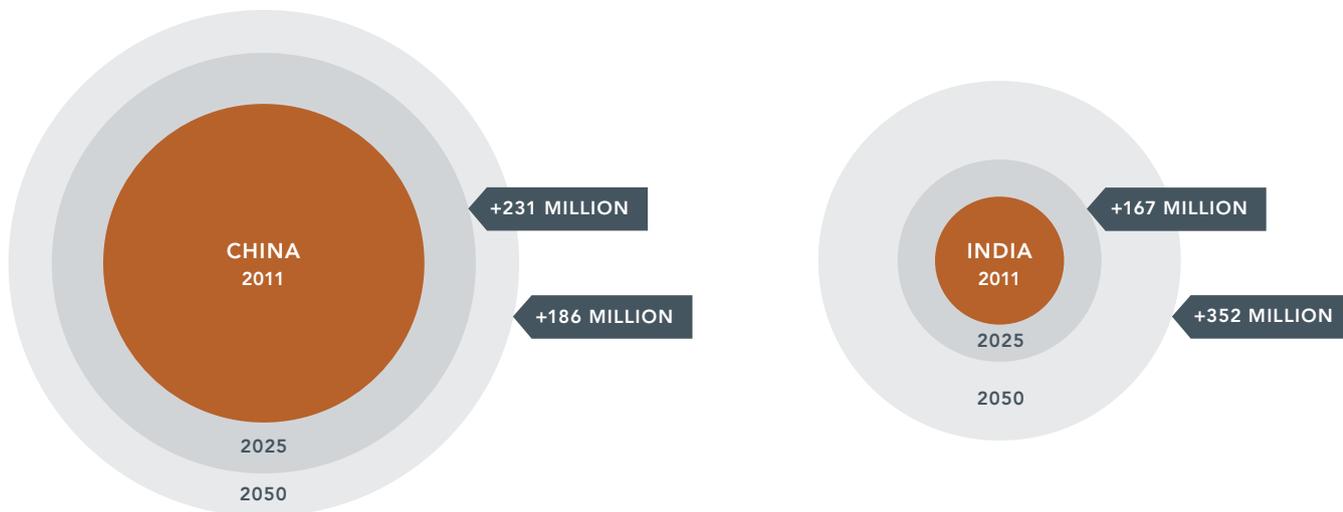
But these benefits are not a given; in fact, poorly planned cities can exact a huge toll on the environment and on residents' quality of life. Done right, cities slash waste, reduce air and water pollution, and provide appealing spaces for people to work, shop, and socialize. Done wrong, cities sprawl across the landscape, shrouded by pollution and riven by congested highways; in the process, they lock in unsustainable patterns of energy use for decades.

### **The rise of new megacities**

The threat of unplanned urban expansion is acute in the world's fastest-growing megacities, where the consequences are already visible in heavily polluted skies—and in the gridlocked roads and highways that cause much of this pollution. While the human health impacts of pollution are often a primary impetus to improve city planning, leaders should also be concerned about other major impacts of sprawl—namely, the lost income and hampered economic productivity that result from traffic jams and the inefficient use of expensive, polluting oil.

As the human population swells to more than 9 billion by 2050, and as cities become home to an expected 70 percent of that population, the way cities are planned and built will help determine whether the world succeeds in addressing its energy and climate challenges. Nearly all of this

## Urban population growth



### Cities, carbon, and climate change

With smart planning, urban designers in China, India, and Latin America could reduce CO<sub>2</sub> emissions by roughly 0.6 gigatonnes (billion metric tons) per year by 2030—equivalent to eliminating approximately a fifth of transportation sector emissions. This reduction would result primarily from establishing more-efficient transportation patterns. Further reductions can be realized, of course, by designing energy efficient buildings and powering them with clean energy.

population and urban growth will take place in less-developed regions of the world,<sup>1</sup> presenting an extraordinary opportunity and equivalent threat: Put simply, smart urban planning is a key component of our efforts to prevent dangerous climate change, while unplanned cities could lock in high carbon emissions and serious, irreversible consequences.

China, for example, is experiencing the greatest urban population boom in human history—an explosion that is expected to continue. The United Nations estimates that 231 million people will be added to Chinese cities by 2025 and another 186 million by 2050—roughly equal to the populations of Indonesia and Brazil, respectively. To prepare for this growth, Chinese leaders are planning and building at least 1,000 brand-new cities. Which path will they choose?

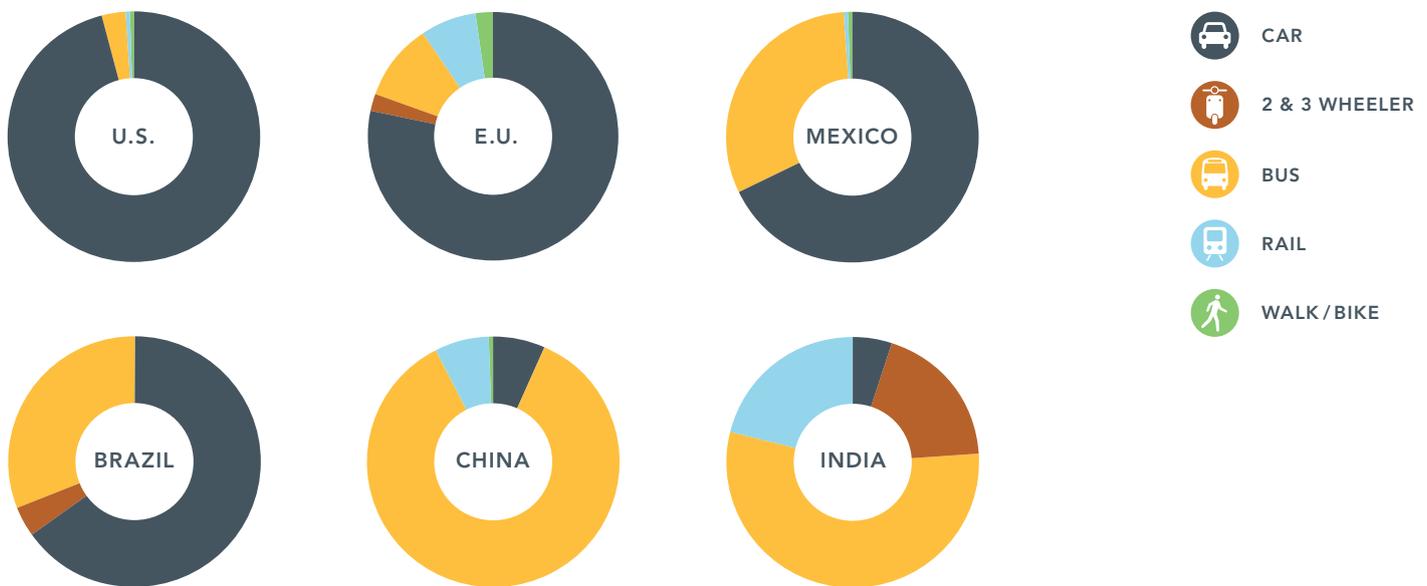
In India, the U.N. projects that cities will gain 167 million people by 2025 and absorb an additional 352 million residents by 2050. Recent research by the McKinsey Global Institute estimates that India's urban expansion will require the construction of 700 million to 900 million square meters of residential and commercial space per year—equivalent to building two new Mumbais or another Chicago each year.<sup>2</sup>

China's and India's continued, rapid economic growth is being driven largely by the tens of millions of people in both nations who are migrating from rural areas to cities, in search of greater job opportunities, higher incomes, and an improved quality of life. As incomes rise, car ownership is also growing rapidly; China recently surpassed the United States as both the largest consumer of oil and the largest car market in the world. Like the U.S. cities of the 1950s and '60s, Asia's booming cities are trying to accommodate the explosive growth of automobile travel by building highways, ring roads, and parking lots.

<sup>1</sup> United Nations, Department of Economic and Social Affairs, *World Urbanization Prospects, the 2009 Revision*. [http://esa.un.org/unpd/wup/doc\\_highlights.htm](http://esa.un.org/unpd/wup/doc_highlights.htm)

<sup>2</sup> McKinsey Global Institute, *India's Urban Awakening: Building Inclusive Cities, Sustaining Economic Growth*, April 2010. [www.mckinsey.com/mgi/publications/india\\_urbanization/index.asp](http://www.mckinsey.com/mgi/publications/india_urbanization/index.asp)

## Regional modes of transportation, as of 2005



### Sustainable urban development can:

- Improve people's mobility
- Enhance economic activity
- Improve air quality and public health
- Reduce carbon emissions
- Preserve arable land
- Create a harmonious, prosperous society

However, China's and India's high population densities exacerbate the problems inherent in car-centric development. Despite the incredible pace of road construction, traffic in Beijing is frequently at a standstill; one recent Beijing traffic jam lasted nine days and stretched for 100 kilometers.<sup>3</sup> In Shanghai, projections show that car use will need to be restricted to improve human mobility; only increased public transit, bicycling, and walking will bring congestion back to a manageable level. The reality is that, because of space limitations, high-density cities simply cannot be designed around the car.

Leaders in fast-growing countries like China and India have a limited window of opportunity to plan for prosperous, livable, low-carbon cities. These cities must make public transit and pedestrian and bike routes their top priorities. Without this planning, these burgeoning cities will not reach their full potential. They will be gridlocked and polluted. Tens of millions of people will suffer the daily misery of gridlocked commutes, countless square kilometers of arable land will be needlessly lost, and the cities' powerful economic engines will stall as goods and people become mired in congestion. Such cities will also struggle to attract the high-tech businesses and top-notch talent that are crucial to maintaining economic growth, as talent will flow to places that offer a high quality of life.

The way these cities are planned will determine whether people can move around easily, use energy and other resources efficiently, and even enjoy their day-to-day activities. The choices urban designers make today will have long-term consequences, since infrastructure, once built, tends to last for many decades.

<sup>3</sup> BBC, "China Traffic Jam Stretches 'Nine Days, 100 km,'" 23 August 2010. [www.bbc.co.uk/news/world-asia-pacific-11062708](http://www.bbc.co.uk/news/world-asia-pacific-11062708)

*To enhance humans' well-being and reduce carbon emissions, cities must follow the basic tenets of sustainable urban design.*

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## Trend spotting: Public infrastructure investments

As fast-growing nations plan their new cities, more-developed countries face the challenge of replacing old urban infrastructure with modern, efficient technologies and practices. Such modernization is “essential for sustaining or enhancing living standards in an increasingly competitive global marketplace,” according to a recent report from the Urban Land Institute (ULI) and Ernst & Young. Globally, nations are expected to invest \$30 trillion to \$40 trillion over the next two decades to rebuild, repair, and replace aging infrastructure.<sup>4</sup>

However, the United States is a clear global laggard, with a backlog of at least \$2 trillion in needed upgrades. “America’s unwillingness to confront its infrastructure challenges is undermining the ability of our urban areas to compete globally,” says ULI Executive Vice President Maureen McAvey. “If we persist with shortsighted decisions, we will lose talented workers and companies to nations and cities overseas that are committed to infrastructure as a vital component of livability and economic viability.”<sup>5</sup>

## Eight principles of smart urban growth

To enhance humans’ well-being and reduce carbon emissions, cities must follow the basic tenets of sustainable urban planning. A review of best practices in urban development from around the world yields eight clear, quantifiable principles that can be applied in almost any urban setting. These principles, which can be refined and adapted to local conditions, are a recipe for efficient, prosperous cities.

Compiled by a world-renowned team—including urban design experts at the Institute for Transportation and Development Policy, the China Sustainable Energy Program, and Calthorpe Associates—these eight principles depend on and reinforce one another. When applied together, they result in cities that reduce waste, pollution, and blight; enhance economic growth; and allow people to thrive.

1. Develop neighborhoods that promote walking
2. Prioritize bicycle networks
3. Create dense networks of streets and paths
4. Support high-quality transit
5. Zone for mixed-use neighborhoods
6. Match density to transit capacity
7. Create compact regions with short commutes
8. Increase mobility by regulating parking and road use

<sup>4</sup> Money Morning, “Global Infrastructure Spending to Reach \$35 Trillion Over the Next 20 Years,” 5 February 2009. [www.dailymarkets.com/economy/2009/02/05/global-infrastructure-spending-to-reach-35-trillion-over-the-next-20-years](http://www.dailymarkets.com/economy/2009/02/05/global-infrastructure-spending-to-reach-35-trillion-over-the-next-20-years)

<sup>5</sup> Urban Land Institute and Ernst & Young, Infrastructure 2011: A Strategic Priority, 16 May 2011. [www.uli.org/sitecore/content/ULI2Home/News/PressReleases/Archives/2011/2011PressReleases/2011InfrastructureReport.aspx](http://www.uli.org/sitecore/content/ULI2Home/News/PressReleases/Archives/2011/2011PressReleases/2011InfrastructureReport.aspx)

### 1. Develop neighborhoods that promote walking

Walkable streets and neighborhoods are the foundation of every great city. Walking reduces auto dependence, supports public transit, improves health, and promotes community. Simple measures—such as limiting road width, block length, and setbacks between buildings and sidewalks—encourage walking. Sidewalks that feature amenities like shaded areas, benches, and street lighting also encourage foot traffic. Designing streets that are safe to cross and providing appealing pedestrian routes should be the first priorities for establishing livable, low-carbon cities.

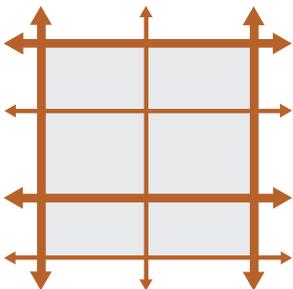
- Shorten street crossings and emphasize pedestrian safety and convenience.
- Encourage ground-level activity and create places to relax along primary pedestrian routes.



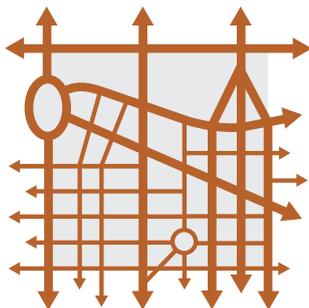
Well-lit, car-free streets, with a mix of ground-floor shops and services, encourage people to walk, gather, and socialize.



Convenient public transit, like the bus rapid transit system in Ahmedabad, India, is a hallmark of efficient, prosperous cities.



**NETWORK OF ARTERIALS AND SUPERBLOCKS**



**NETWORK OF VARYING STREET WIDTHS AND BLOCK SIZES**

## 2. Prioritize bicycle networks

For generations, city dwellers relied on bikes; as recently as the 1980s, bicycling was the primary mode of transportation for millions of Chinese urban residents. However, bicycling is no longer safe or convenient in many cities. In recent years, cities across the globe have started to re-introduce bicycles as an integral part of city life because they provide an inexpensive, low-carbon way for people to travel between destinations, including transit stations. To ease congestion, reduce emissions, and improve health, cities must encourage bicycling by providing safe conditions, including bike lanes and secure bike parking.

- Design streets that emphasize bike safety and convenience.
- Create auto-free streets and greenways to encourage nonmotorized travel.

## 3. Create dense networks of streets and paths

Road design should maximize passenger mobility rather than vehicle throughput. Wider streets are not necessarily more efficient. In fact, large single-use developments and superblocks divided by wide roads often contribute to traffic congestion. Case studies show that a dense network of narrow streets can improve traffic flow while creating more direct routes and improving pedestrian safety. Narrow streets that allow one-way motor traffic as well as bicycles and pedestrians can reduce congestion—and fuel use—by minimizing traffic signal delays.

- Create dense street and path networks that enhance walking, bicycling, and vehicle traffic flow.
- Manage traffic volume and speed by dispersing heavy traffic over narrow, parallel routes rather than concentrating it on a few major arterials.



Bike lanes should be protected from car traffic.

#### 4. Support high-quality transit

New York City, Singapore, Curitiba, and other affluent cities have the densest public transit networks in the world. While metro can be an integral part of a transit network, a growing number of cities are turning to bus rapid transit (BRT) for its low cost, quick implementation, and flexible routes. Each city will need to determine the appropriate mix of transit solutions for local conditions, but cities can guarantee the overall success of their transit by providing frequent, fast, and direct service in easily accessible locations.

- Ensure frequent and direct transit service.
- Locate transit stations within walking distance of homes, jobs, and services.

#### 5. Zone for mixed-use neighborhoods

Traditional neighborhoods had lively streets where children played sports and the elderly played board games; many people lived near their work. It was the mix of shops and services close to homes and jobs that gave these areas their charm and identity. By trading traditional housing for modern single-use residential developments, many communities are losing their unique sense of place and the efficiency of compact neighborhoods. The cities of tomorrow need to combine the benefits of modern housing with the best qualities of traditional urban neighborhoods.

- Encourage an optimal balance of housing, commerce, and services through zoning codes.
- Provide a variety of accessible parks and open spaces, and preserve and reuse unique cultural and historical assets.



In Curitiba, Brazil, high-rise development is focused within 200 meters of mass transit lines.

## 6. Match density to transit capacity

High density is crucial to low-carbon cities, but density alone is not enough. To avoid congestion, housing must be located close to public transit and jobs. Density also needs to be related to the capacity of all modes of transportation. If roads are designed with bike- and pedestrian-friendly corridors and transit priority lanes, they can support greater mobility and allow for higher-density development. Activities should be concentrated to make walking, cycling, and taking mass transit more convenient than driving. This will shorten trip distances and save travel time.

- Match density to the maximum peak-hour capacity of a transit system.
- Maximize transit systems' capacity to accommodate each area's mixed uses.

## 7. Create compact regions with short commutes

Community location has a long-term impact on sustainability. New city centers placed far from existing cities are inconvenient and rarely thrive. Urban planners can avoid this by locating compact new subcenters within or adjacent to existing cities. This strategy significantly decreases the cost of providing transit, utilities, and other services to these new locations, while reducing most residents' daily commute and protecting arable land. Decentralizing employment in locations that encourage reverse commutes will reduce peak-hour congestion on roads and transit systems.

- Reduce sprawl by focusing development in areas adjacent to and within existing cities.
- Create a jobs-housing balance within a short commute distance.

## 8. Increase mobility by regulating parking and road use

Avoiding gridlock requires limiting the use of vehicles to levels that the road network can support. Peak commute-hour car trips are often unnecessary and should be discouraged. There are many ways to discourage driving. London, Hamburg, and Zurich, for example, restrict parking in popular destinations served by public transit. Singapore and Stockholm have implemented road-use charges. Other cities should consider these strategies—which complement the above principles—to help relieve their congestion problems.

- Limit parking in key employment districts to discourage driving during peak traffic periods.
- Adjust road-use and parking fees by time of day and destination.



Singapore's Electronic Road Pricing system has cut congestion and raised money for public transit and other uses.



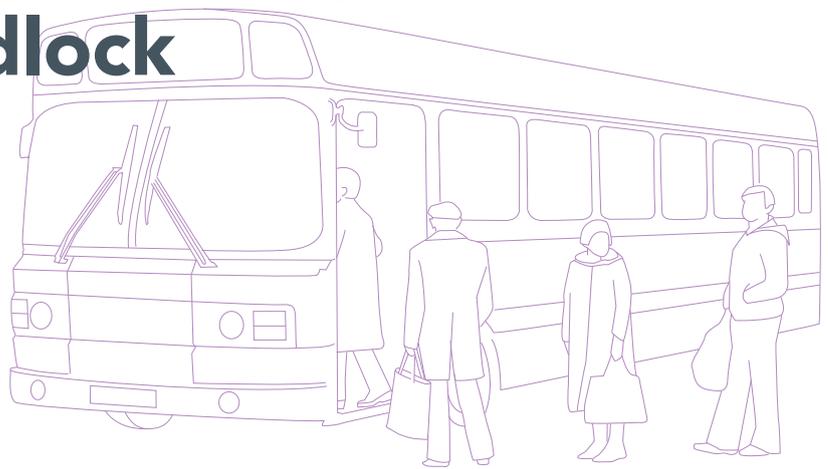
Vibrant neighborhoods like this one in Lyon, France, feature a mix of shops and services and offer easy access to transit.

## A race to the top for clean cities

Based on the latest research on development trends, urban design, and human well-being, it is safe to conclude that the cities that have embraced these principles are the most livable and economically secure cities in the world.

These principles synthesize international best practices; they can be modified to suit each city's challenges and opportunities. Some of these recommendations may not be consistent with current planning rules and regulations. But it is time to apply cutting-edge research about what makes cities successful and to reassess urban development in light of this enhanced understanding. The decisions that fast-growing nations make today will set patterns of behavior that last for generations, and will even determine the economic and environmental fate of their communities. Leaders who have the vision to adopt these principles will create cities that are the envy of the world. ■

# Bus rapid transit: Guangzhou's solution to gridlock



Guangzhou's bus stops were very congested in 2005, top; bus rapid transit has streamlined traffic.

Transit systems can act as the heart of a city, transporting people from the city center to its extremities and back again. Like people, cities need a healthy heart to thrive. But just as human arteries can become clogged and unhealthy, city streets can become congested and inefficient.

Guangzhou, China's third-largest city with 10 million residents, faces tough transit-related problems familiar to many fast-growing megacities: gridlock, air pollution, and growing greenhouse gas emissions. To address these urgent threats to economic productivity and human health, Guangzhou leaders opted for an increasingly popular solution: bus rapid transit, or BRT.

BRT is an innovative mass transit system that combines the efficiency and comfort of underground metros with the flexibility and relatively low cost of buses, and offers significant environmental benefits. While subways and light rail can play a vital role in many regions, BRT systems can be built in a fraction of the time and at a fraction of the cost of rail-based transport, helping cities keep pace with urban growth.

Because BRT systems utilize bus-only lanes, and passengers pay at the station rather than on the bus, BRT offers faster travel times than traditional buses. The decreased travel times also result in reduced pollution, as buses no longer idle in traffic. And because the station floor is at the same level as the bus floor, individuals with limited mobility can board more easily.

Guangzhou city leaders recognized these benefits and turned to the Institute for Transportation and Development Policy (ITDP), part of the ClimateWorks Network, to help design its world-class BRT system. ITDP co-led the planning and design with the Guangzhou Municipal Engineering Design and Research Institute, from drafting early concepts in 2005 through implementation and operation in 2010. ITDP also offered its technical expertise to promote bicycling in Guangzhou and help plan and expand greenways throughout the Pearl River Delta.



As seen in this 2006 photo, gridlock was common in Guangzhou.



Just four years later, the same stretch of road features dedicated lanes that allow buses to zip along unhindered by car traffic.



In Guangzhou, people can park their bicycle at BRT stations or rent one at 113 bike-sharing stations along the bus line.

Guangzhou’s BRT was designed with the rider in mind: It is the first BRT system to connect directly to a metro system, and the first in China to include bike parking at its stations. Its buses operate both within and outside the BRT corridor, making use of regular bus stops. It also features an extensive bike-sharing system, and the city of Guangzhou constructed hundreds of kilometers of greenways for pedestrians and cyclists.

These amenities make it easier and more attractive for riders to reach their final destination. In the first six months of operation, cycling jumped 50 to 100 percent along some sections of the BRT corridor. By the end of the year, 980 buses were moving 800,000 passengers per day along 23 kilometers of dedicated BRT lanes. At rush hour, the system carries more than triple the passengers of any other BRT line in Asia; it boasts the third-highest ridership of any subway line in mainland China.

ITDP continues to provide technical support for the second phase of Guangzhou’s BRT. By sharing global best practices, ITDP helps local leaders seamlessly integrate buses, trains, walking, and bicycling, thus reducing emissions, improving people’s health, and invigorating the heart of the city. ■

Guangzhou has developed vibrant mixed-use neighborhoods and created inviting paths like the Donghaochong Greenway.





Expanded transmission capacity is a crucial step toward zero-carbon power in Europe.



# Getting to zero: Roadmap to a low-carbon Europe

When the European Union announced in 2009 that it would pare its greenhouse gases by 80 to 95 percent from 1990 levels by 2050, a daunting question arose: How to get there?

In the decade leading up to its ambitious announcement, the E.U. had established itself at the forefront of climate and energy policy. Its leaders were among the first to recognize that deep cuts in greenhouse gas emissions were needed to help prevent dangerous climate change and build a more sustainable energy future. While they knew that such reductions were technically achievable—and scientifically necessary, if global temperature increases were to be held at 2° C—no country in the world had yet made such an aggressive commitment. To achieve this goal, the E.U. countries would need to craft a comprehensive, Europe-wide energy plan that showed emissions approaching zero over time, something that had never been done before.

As E.U. leaders grappled with their newly defined climate objectives, the European Climate Foundation (ECF)—part of the ClimateWorks Network—was mulling a parallel project to identify rigorous, pan-European emissions-reduction targets. Michael Hogan, then director of ECF’s power program, stopped in Brussels to meet with Christopher Jones, then a unit head at the Directorate-General for Energy at the European Commission. Jones was unsure how to comply with the new mandate to slash emissions. An initial analysis had shown that the only way to meet the target was to reduce emissions from the energy sector to almost zero.

“Commission members knew their goal meant fully decarbonizing the power sector, probably by 2040 at the latest,” Hogan says. “But no one had sat down and figured out whether you could do that.”

## *The European Climate Foundation brought together disparate stakeholders to discuss the future.*

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### **The value of independent analysis**

For a variety of reasons, the European Commission was not ready to conduct its own analysis. The pending appointment of a new commission and the E.U.'s bureaucratic processes meant that even if funding could be found, any study might be delayed for months or years. Meanwhile, the politics were bogging down in traditional rivalries: power companies versus government bureaucrats, NGOs versus industrial concerns. Many E.U. Member States found it difficult to look beyond short-term political agendas; none of them were making a serious effort to work together toward decarbonization.

So when Hogan told Jones that ECF might be able to help, "You could see the wheels turning," Hogan says. ECF had already established itself as an analytical, nonpolitical organization with independent funding and a reputation for objective, high-quality work. Jones asked whether ECF would be willing to take on the enormous analytical task of charting a pathway to full decarbonization—not with E.U. sponsorship, but independently. "I got on the train back to The Hague and called Jules Kortenhorst, who was then CEO of ECF," Hogan says. "I told him, 'You cannot believe the opportunity that has been dropped in our lap.' Jules immediately recognized the opportunity and the amount of resources it would require." The ECF board agreed, and the Roadmap 2050 project was born.

What followed was an intense, concentrated study, underpinned by technical, economic, and policy research from some of Europe's leading analysts: McKinsey & Company, energy consulting firm KEMA, Imperial College London, and the Office for Metropolitan Architecture. The work also tapped the deep subject-matter expertise of the Regulatory Assistance Project (RAP), ClimateWorks' Best Practice Network for the power sector, and E3G, an ECF grantee. ECF simultaneously consulted with academics, transmission operators, and leading NGOs, and convened a core working group of representatives from Europe's top utility companies.

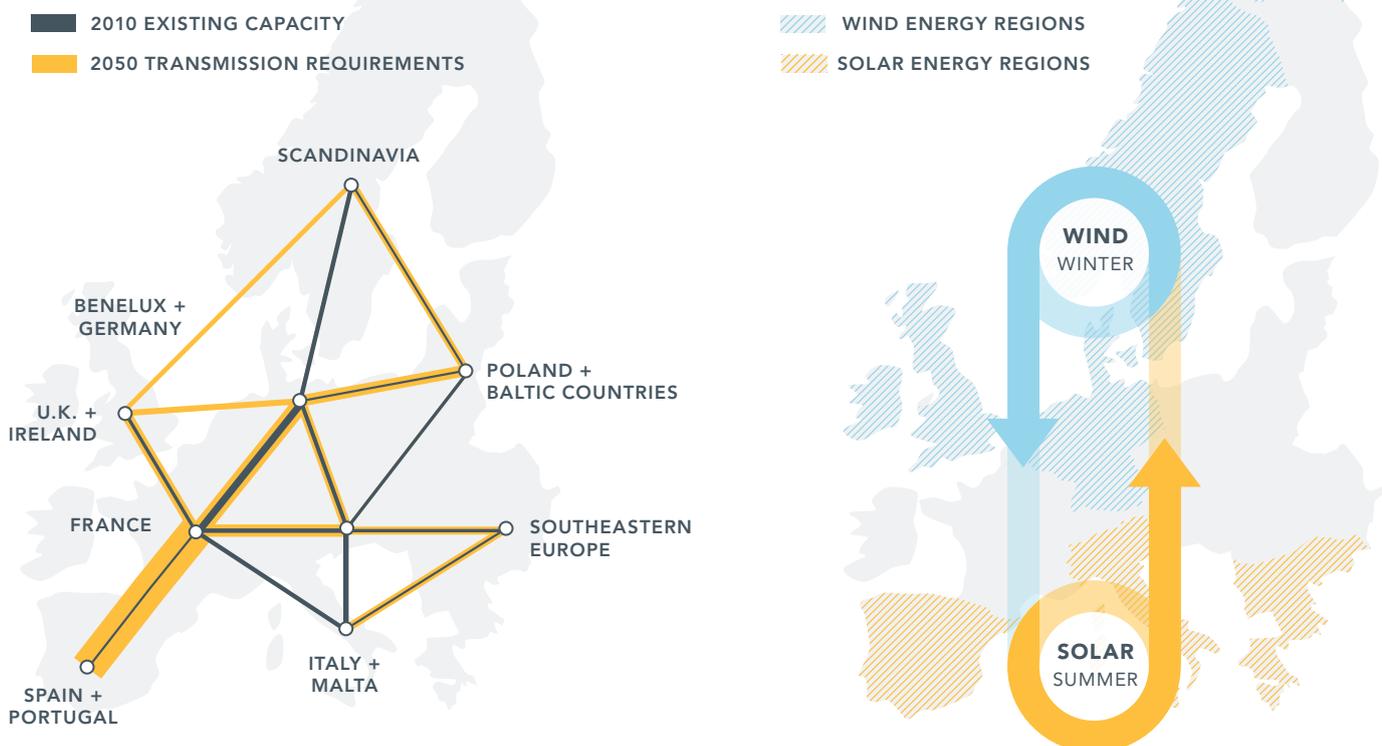
Arne Mogren represented the power company Vattenfall in the core working group. “For the power industry, it’s very important to support a process in society that stabilizes policies in the long term,” he explains. “ECF played an important role in getting the different interests in the same room to discuss the future rather than the conflicts of today. It would be very hard for anyone else to drive that process.” (Mogren has since succeeded Hogan as ECF’s power program director.)

## Leaving miracles (and other assumptions) at the door

At the outset, ECF laid out the criteria that would guide its approach, including the decision to avoid prescribing specific solutions. Instead, ECF adopted a “backcasting” methodology, working back from the desired end state: an 80 percent reduction in E.U. greenhouse gas emissions by 2050. The only caveat was that any solution must deliver the same level of reliability that power customers enjoy today. Rather than forecasting what technologies Europe should depend on in 2050—an “inertia-creating discussion,” says ECF Public Affairs Associate Dries Acke—this backcasting focused on the commonalities among multiple scenarios through which the goal might be achieved.

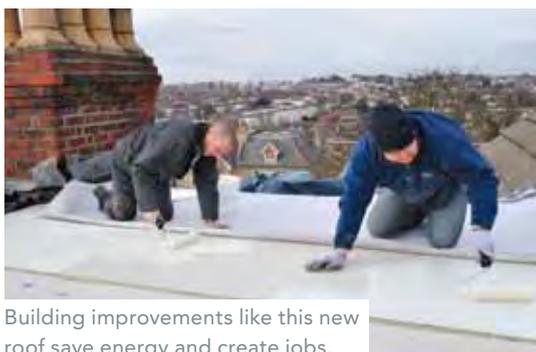
### Expanded transmission and renewable sources can supply reliable energy

Renewable energy systems, such as solar and wind, should be built where resources are most abundant. An expanded interregional transmission grid would allow local surpluses to feed demand elsewhere. Connecting a mix of intermittent sources greatly improves the stability of supply.





Diverse clean energy sources will help build a low-carbon future.



Building improvements like this new roof save energy and create jobs.



Improved insulation can slash energy use and heating costs.

Another guiding principle, Hogan says, was “to ask people to believe as few things as possible.” That is, planners were not allowed to postulate any fundamental technological breakthroughs: no cold fusion, no miracle batteries, not even tidal power. Nor could they lean on carbon offsets or energy imports from outside Europe, like solar power from North Africa or geothermal from Iceland. In addition, human behavior was assumed to remain constant; in 2050, for planning purposes at least, the group presumed that people would still be watching television and driving cars.

### Three roads to low carbon

The Roadmap 2050 analyses found that the E.U. can achieve its goal of reducing emissions 80 percent from 1990 levels by 2050 through a combination of:

- Reducing emissions from the power sector to nearly zero
- Dramatically scaling up energy efficiency improvements
- Shifting to electric and fuel cell vehicles, and heat pumps for buildings

To achieve the shift to a nearly zero-carbon power supply, Roadmap 2050 charts the course to three equally realizable scenarios in which renewable energy sources provide increasing percentages—40, 60, or 80 percent—of base load power. In each case, the remainder is split between nuclear and fossil fuels with carbon capture and storage. (A 100 percent renewable scenario was also considered, but it could not be achieved at a comparable cost without importing solar power from North Africa and achieving technological breakthroughs in geothermal energy.)

Roadmap 2050 shows that the transition to clean energy can be accomplished using existing technologies and at a reasonable price, while maintaining the reliability European energy consumers expect. However, to realize these goals, Europe’s leaders must enact urgent policy changes over the next five years. These policies include aggressive energy efficiency standards and financial incentives that encourage low- and zero-carbon energy sources (and discourage high-carbon fuels). Postponing action will raise the costs substantially.



By managing electricity demand and transmission, energy system operators can integrate significant renewable sources.



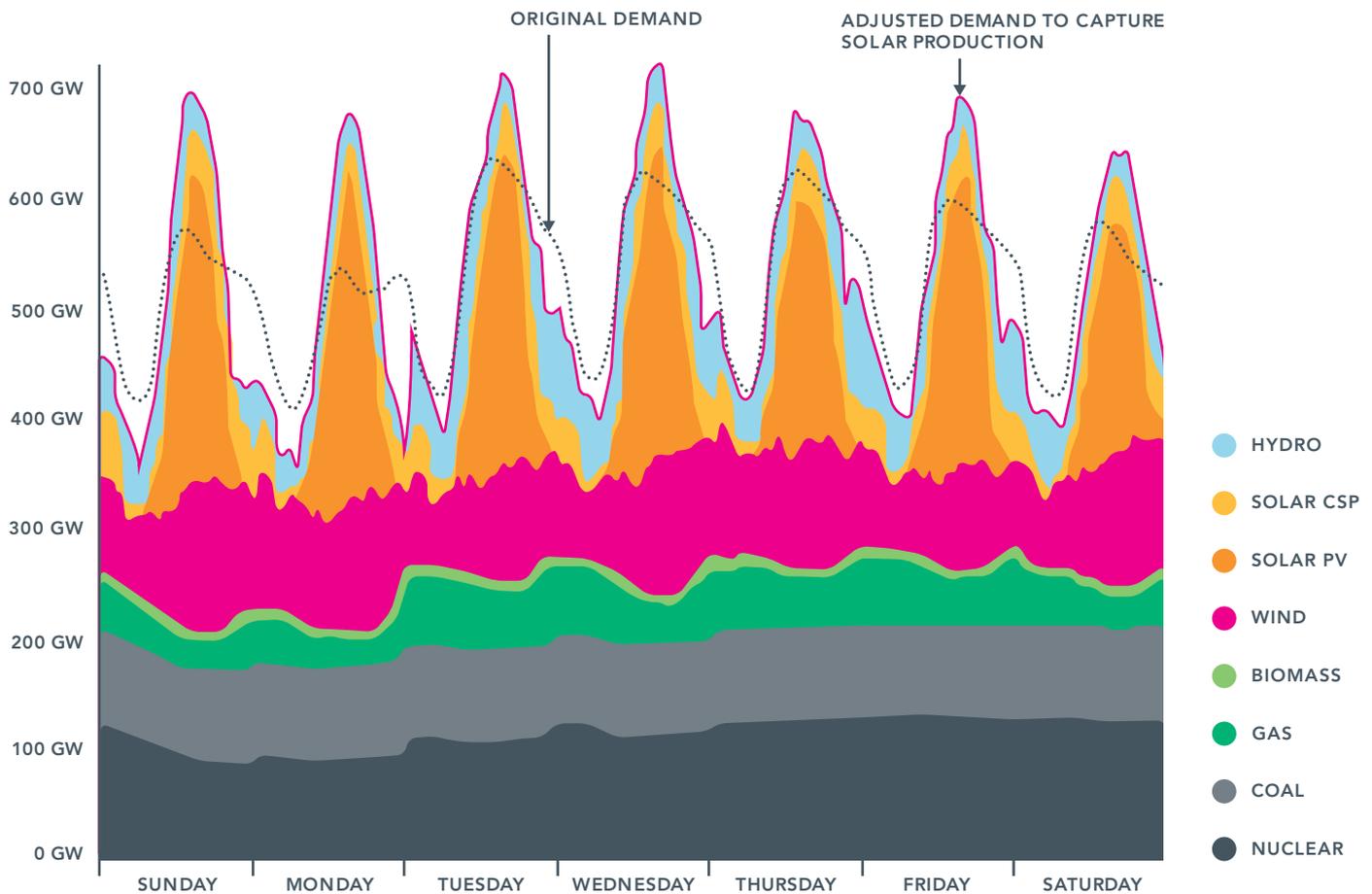
A zero-carbon power supply requires massive deployment of clean energy sources such as concentrating solar power.



Increased reliance on wind power and other clean energy can bolster economic stability.

## Managing demand to match supply

Demand response systems encourage consumers to adjust their energy use so that demand corresponds to energy supply. This graph shows that the original demand (the dotted line) can be shifted (the magenta line) to make use of peaks in solar production.



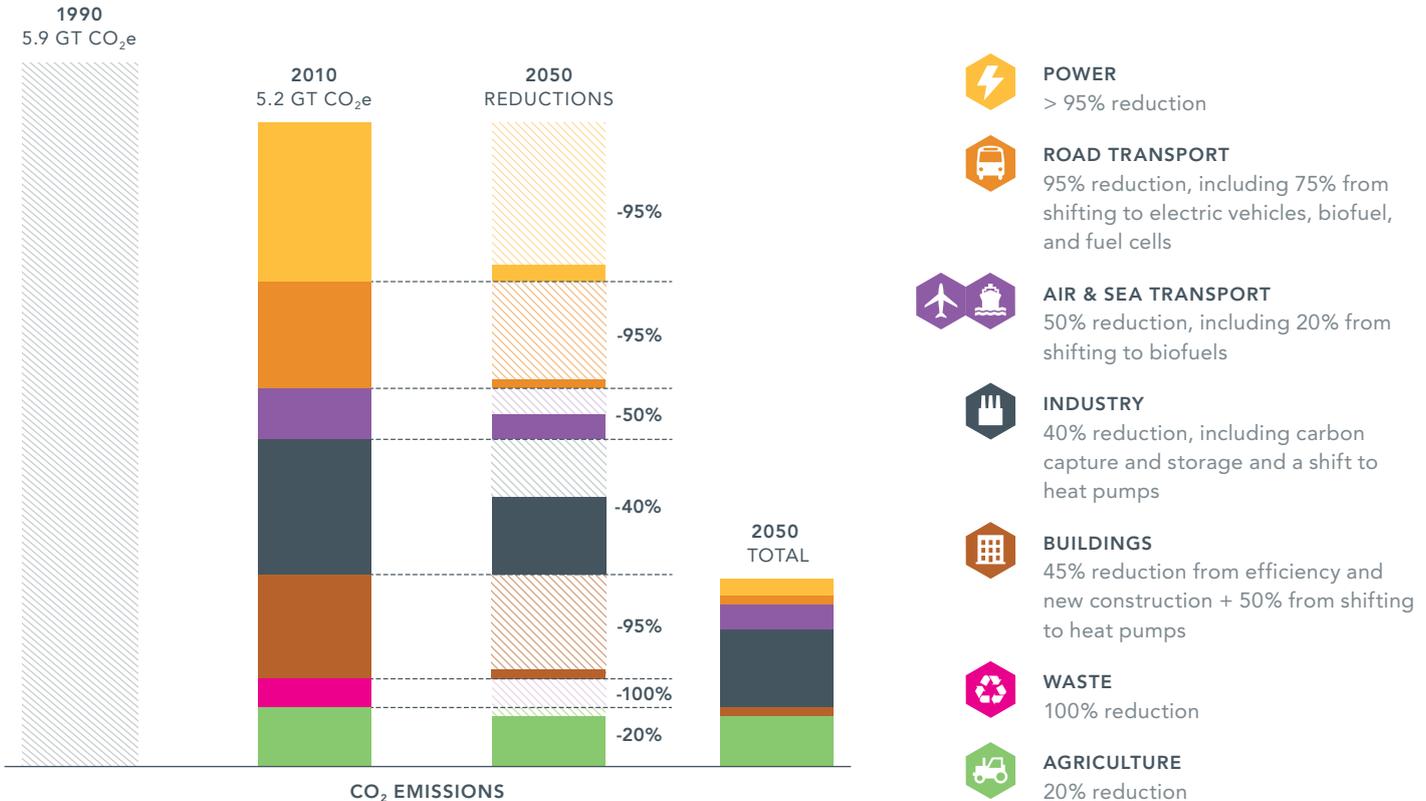
*By reducing its greenhouse gas emissions 80 percent by 2050, the E.U. would eliminate 4 gigatonnes of CO<sub>2</sub> equivalents per year.*

The analysis also addresses a thorny problem: how to integrate a large proportion of intermittent renewable energy without jeopardizing reliability.

- **Interregional transmission:** An expanded trans-European transmission grid, connecting renewable energy resources to one another and to the major power markets, can eliminate gaps between supply and demand for intermittent sources. Renewable energy capacity, such as solar and wind systems, would be built where resources are most abundant; local surpluses would feed demand elsewhere.
- **A mix of renewable sources plus backup capacity:** Utilizing diverse energy sources greatly improves the stability of supply. For example, wind and solar are often complementary: Solar generates more energy in the summer and during the day; wind tends to produce more energy in the winter and at night. Limited use of natural gas-fired power plants could provide backup capacity.
- **Demand response:** Some power demand can be shifted within a 24-hour period to match fluctuating supply. Many energy companies currently offer incentives to shift power use from daytime, when demand is high, to nighttime, when it is low. But with much higher penetration of renewable sources, such demand management may encourage energy use during the day, when solar supply peaks.

## 80% reductions in CO<sub>2</sub> emissions, by sector

The European Union can meet its goal of reducing CO<sub>2</sub> emissions 80 percent by 2050; this chart shows the required reductions by sector. These figures are based on the McKinsey Global Greenhouse Gas Abatement Cost Curve, with large efficiency improvements already included in the baseline, and carbon capture and storage applied to 50 percent of the emissions from the cement, chemistry, iron and steel, and petroleum and gas industries.



### Roadmap 2050: Major findings

- Europe can largely decarbonize its economy by 2050, but it will require a nearly zero-carbon power supply and a substantial expansion of the trans-European transmission grid. The massive deployment of solar panels, wind turbines, transmission lines, and (to some degree) new nuclear plants will require significant shifts in energy policy—such as binding efficiency targets and financial incentives for low- and zero-carbon energy sources—and compelling initiatives to win public acceptance.
- In the short term, a greater reliance on renewable energy will raise the cost of electricity over the baseline. However, that increase will disappear over the medium and long term. By 2050, thanks in part to efficiency improvements, the overall cost of energy will drop, saving consumers €1,500 per household per year.
- Renewable sources will remain inadequate to power heavy industry, which will still require fossil fuels. Using them will demand extensive development and deployment of carbon capture and storage technologies.
- Over 40 years, the transition will require an investment of about €7 trillion (€2.8 trillion more than the baseline scenario) in new energy efficiency measures, clean technology, and infrastructure. It will create between 300,000 and 500,000 jobs, balanced against some 250,000 jobs lost in fossil fuel industries.
- Increased reliance on renewables and decreased reliance on fossil fuels will bolster economic stability due to reduced volatility in fuel prices.
- To realize the 2050 goal, the transition to clean energy must begin in earnest within five years. Delay will double the annual investment required to €25 billion per year, starting in 2035.

*A shift to clean energy would eventually drop the overall cost of energy, saving consumers €1,500 per household per year, and create 300,000 to 500,000 new jobs.*

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### **A new low-carbon perspective**

The ECF completed its study in April 2010. “It was incredibly fast work,” Hogan says. “It probably should have taken three years. We did it in 10 months. For this work to have maximum impact, it needed to hit the front pages of the newspapers in the spring of 2010. And we hit it.”

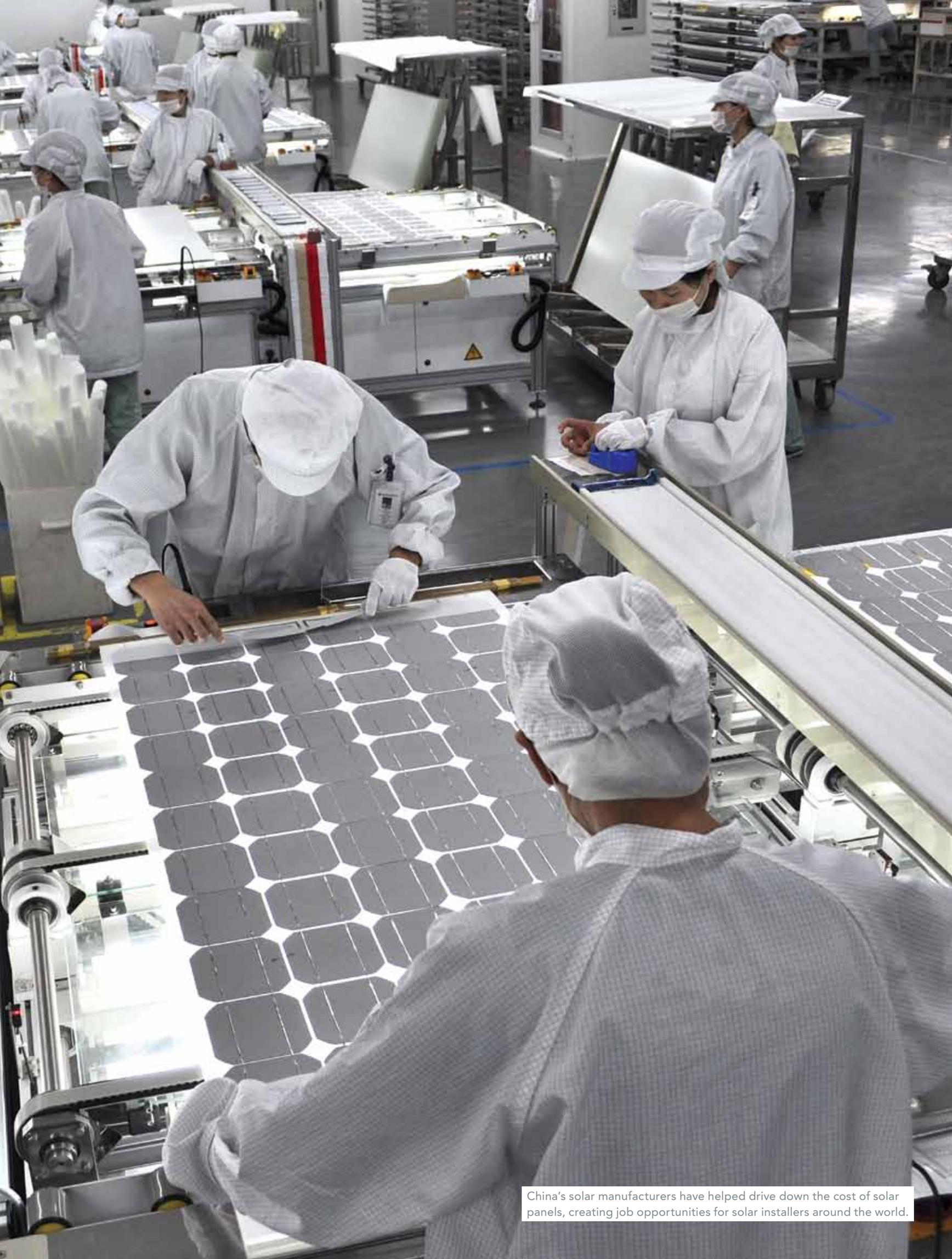
Hogan credits the report’s success to its fact-based analysis and ECF’s close collaboration with the European Commission and key stakeholders. The utilities represented in the core working group were given the option of taking their name off the final document; only two opted to do so.

Then began “a seemingly endless round of presentations” to introduce the plan to the E.U. Member States: 15 national launches, 49 conferences, 76 briefings. “It was properly a traveling circus,” laughs ECF’s Acke. But the push has paid off.

Helen Donoghue is leading the task force that is compiling the European Commission’s own Energy Roadmap 2050, to be published in November 2011. “We found the ECF work incredibly valuable,” she says. “They did a lot of the heavy-lifting work of developing the set of issues around 2050.” Key to ECF’s credibility, Donoghue says, are the transparency of its conclusions and the impressive list of stakeholders it consulted. “When you know that the main conclusions have been discussed with this broad range of organizations within Europe, this is very reassuring.

“ECF’s work didn’t just repeat the same work done by everyone else,” Donoghue continues. “It broke new ground, especially the work done by Imperial College London and KEMA on infrastructure. That is work we are not able to do with our own model, and we have already used it for our own infrastructure package.”

The conclusions of ECF’s Roadmap 2050 are now mainstream political thinking in the E.U. Member State ministries. Now ECF is scrutinizing the policies needed in the shorter term, through 2030. “As much as it’s important to frame the discussion,” Acke notes, “it’s also important that you stop roadmapping after a while and move to concrete action.” Next it’s up to government leaders to enact the necessary policies to help Europe navigate to a zero-carbon future. ■



China's solar manufacturers have helped drive down the cost of solar panels, creating job opportunities for solar installers around the world.



# ClimateWorks: A global network

In order to prevent dangerous climate change, most climate scientists agree that atmospheric concentrations of carbon dioxide and “equivalent” gases (CO<sub>2</sub>e) must not exceed 450 parts per million (ppm). If the world exceeds this limit, average global temperatures are expected to rise more than 2° C—a tipping point that could unleash dangerous, nonlinear changes to our climate system. To reach this goal, we must ensure that global greenhouse gas emissions do not exceed 44 billion metric tons by the year 2020 (25 percent below business-as-usual projections) and 35 billion metric tons by 2030 (50 percent below projections).

These ambitious targets will require the nations responsible for most greenhouse gas emissions to quickly adopt policies that promote clean, efficient energy technologies and low-carbon land use practices. Many of these policies are well known: Appliance and vehicle fuel economy standards save money for consumers while enhancing a nation’s economy and energy security; building codes improve the safety and comfort of buildings while reducing energy expenses for occupants; renewable energy standards create jobs and markets for clean sources of electricity while reducing air pollution.

ClimateWorks’ mission is to help nations adopt these policies and take the path to low-carbon prosperity. Our funding supports a global network of affiliated organizations in the geographic regions and economic sectors responsible for most greenhouse gas emissions: the United States, the European Union, China, India, and Latin America; and the power, buildings and appliances, industry, transportation, and forests and land use sectors.

To prioritize our work, we analyze the technical potential for CO<sub>2</sub>e reductions by region and sector, using projections that show likely emissions through the year 2030; these potential emissions reductions are presented graphically in the “ClimateWorks Sudoku” on page 34. Each row of the Sudoku shows the potential for emissions reductions by country or region; each column total shows potential reductions by sector. (All figures are presented in gigatonnes [Gt], or billions of metric tons, of CO<sub>2</sub>e.)

# The ClimateWorks Sudoku

Greenhouse gas abatement potential, 2030

	 POWER	 BUILDINGS	 APPLIANCES	 INDUSTRY	 VEHICLES & FUELS	 TRANSPORT SYSTEMS	 FORESTS	TOTAL	 CLIMATE POLICY
UNITED STATES	1.5	0.4	0.2	0.5	0.8	*	0.2	3.6	+
EUROPEAN UNION	0.7	0.3	0.1	0.5	0.4	*	0.2	2.2	+
CHINA	3.6	0.4	0.3	3.7	0.7	0.6	0.3	9.6	+
INDIA	1.2	0.1	0.1	0.7	0.1	0.1	0.1	2.4	+
BRAZIL & MEXICO	0.1	0.0	0.0	0.2	0.1	0.1	2.0	2.5	+
INDONESIA	0.2	0.0	0.0	0.1	0.1	*	1.8	2.2	+
REST OF WORLD	2.8	0.6	0.5	1.9	0.6	*	3.9	10.3	+
<b>TOTAL</b>	<b>10.1</b>	<b>1.8</b>	<b>1.2</b>	<b>7.6</b>	<b>2.8</b>	<b>0.8</b>	<b>8.5</b>	<b>32.8</b>	<b>+</b>

The Sudoku shows the emissions reductions that are technically feasible in the world's highest-emitting nations, regions, and economic sectors in the year 2030. The total for each shows the technical potential for emissions reductions by country or region; each column total shows potential emissions reductions by sector. The ClimateWorks Network focuses on the regions and sectors with the greatest potential to reduce greenhouse gas emissions.

 Areas where we do not focus are shown in gray.

Figures are presented in gigatonnes (Gt), or billions of metric tons, of CO<sub>2</sub>e that could be avoided per year in 2030.

Note: These figures have been updated to reflect version 2.1 of the McKinsey Global Cost Curve, supplemented with additional, consistent analysis of transportation systems.

\* Current estimates not available.

+ In addition to our work in the world's top-emitting regions and sectors, ClimateWorks supports national and multilateral climate policies such as a cap on greenhouse gas emissions. While such policies can achieve substantial reductions in CO<sub>2</sub> emissions, we do not list the abatement potential in this column because it would double-count some of the tons identified in the sectors.

## The team approach—how it works

To ensure that our partners' knowledge is applied with the greatest possible impact, the ClimateWorks Network assigns a mixed team of regional and sectoral experts to promote low-carbon policies in the highest-emitting areas, represented by each square on the Sudoku.

The ClimateWorks Network features more than 40 teams focused on reducing greenhouse gas emissions. The members of these strategy teams—several of whom are pictured in these pages—develop integrated, cohesive strategies to support clean energy, energy efficiency, and sustainable forest management.

ClimateWorks also conducts nonpartisan policy analysis and other research to help government leaders assess proposed policies, regulations, and multilateral agreements. We support research on the effects of non-CO<sub>2</sub> climate-forcing gases (known as “short-lived forcers”) such as black carbon (or soot), methane, and fluorinated gases.

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### A strategy team in action

In each region where we work, our local partners tap the expertise of other ClimateWorks Network members that focus on a particular sector. In the United States, for example, the Energy Foundation has teamed with the Regulatory Assistance Project (RAP) to spur utilities' spending on large-scale energy efficiency programs. RAP focuses on detailed technical and policy analysis, which it uses to educate policymakers on the benefits of energy efficiency, such as consumer savings, economic stimulus, and reduced pollution. The Energy Foundation's grantees work on the

advocacy side, engaging a broad coalition to encourage utilities to deliver large-scale energy efficiency programs and services to their customers.

Thanks largely to the efforts of the Energy Foundation and RAP, annual electric and gas utility spending on energy efficiency grew 33 percent in the past year. U.S. utilities are now on track to spend \$8 billion per year on improving efficiency by 2012.

# The ClimateWorks Network

## Promoting regional expertise

In the top-emitting regions, ClimateWorks supports Regional Climate Foundations staffed by in-country political experts who have a deep understanding of local conditions. These foundations use a broad portfolio of grants, contracts, and direct programs to conduct detailed policy analyses, develop advocacy campaigns, and organize coalitions to support policy solutions. This map shows the emissions reductions that are technically feasible in the world's highest-emitting regions and sectors in 2030.

## Sectors



POWER



BUILDINGS



APPLIANCES



INDUSTRY



VEHICLES  
& FUELS



TRANSPORT  
SYSTEMS



FORESTS  
& LAND USE

3.6

GT TOTAL

1.5 0.4 0.2 0.5 0.8 0.2

## United States

The Energy Foundation works in the United States to advance new energy technologies that enable economic growth with far less pollution.

## Brazil & Mexico

In collaboration with the William and Flora Hewlett Foundation and other organizations, ClimateWorks' **Latin America Program** provides analytical support to help Latin American officials create sector-specific policies that grow their economies while reducing greenhouse gas emissions.

2.5

GT TOTAL

0.1 0.2 0.1 0.1 2.0

## Spreading best practices

For each high-emitting sector, ClimateWorks supports Best Practice Networks staffed by policy analysts, technology experts, and former regulators who consult with governments to craft effective policies that reduce emissions while fostering innovation, job creation, and economic growth.



POWER

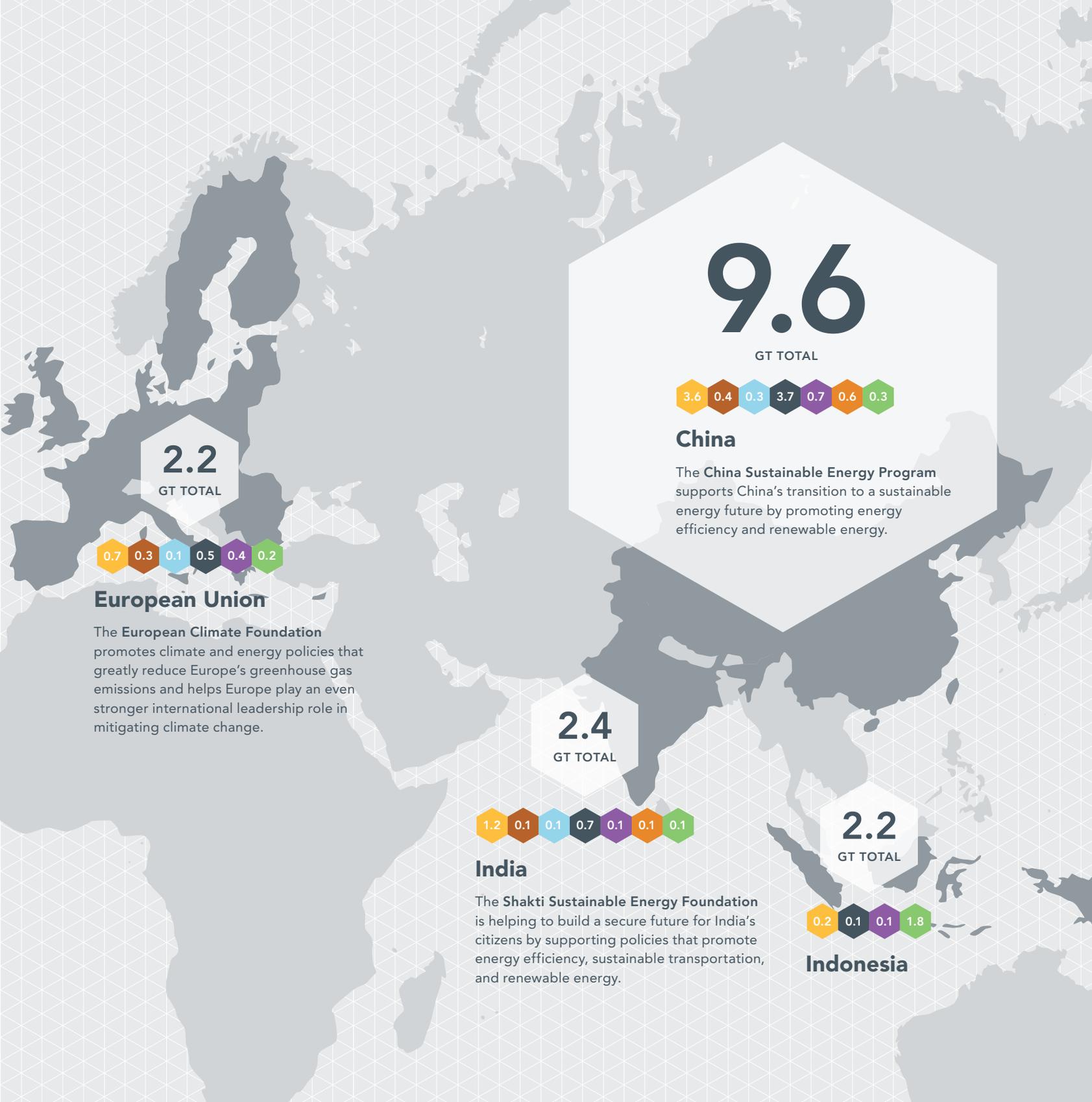
The **Regulatory Assistance Project (RAP)** focuses on the long-term economic and environmental sustainability of the power sector; its global team of experts provides technical and policy assistance to government officials on a broad range of energy and environmental issues.



BUILDINGS & APPLIANCES

The **Collaborative Labeling and Appliance Standards Program (CLASP)** serves as the leading international voice and resource for energy standards and labeling for commonly used appliances.

The **Global Buildings Performance Network (GBPN)** focuses on the design, implementation, and enforcement of building codes for new buildings, as well as the retrofit of existing buildings.



2.2

GT TOTAL



### European Union

The **European Climate Foundation** promotes climate and energy policies that greatly reduce Europe's greenhouse gas emissions and helps Europe play an even stronger international leadership role in mitigating climate change.

9.6

GT TOTAL



### China

The **China Sustainable Energy Program** supports China's transition to a sustainable energy future by promoting energy efficiency and renewable energy.

2.4

GT TOTAL



### India

The **Shakti Sustainable Energy Foundation** is helping to build a secure future for India's citizens by supporting policies that promote energy efficiency, sustainable transportation, and renewable energy.

2.2

GT TOTAL



### Indonesia



#### INDUSTRY

The **Institute for Industrial Productivity (IIP)** focuses on design, implementation, and enforcement of policies to promote energy efficiency, cogeneration, reduced process emissions, and improved productivity in the industrial sector.



#### TRANSPORT

The **International Council on Clean Transportation (ICCT)** assists with the design, implementation, and enforcement of vehicle efficiency and fuel standards in the countries responsible for 80 percent of the global auto market.

The **Institute for Transportation and Development Policy (ITDP)** promotes sustainable, equitable transportation policies that offer alternatives to driving, reduce local air pollution, and limit carbon emissions.



#### FORESTS & LAND USE

The **Climate and Land Use Alliance (CLUA)** is a collaborative initiative of the ClimateWorks, Ford, Gordon and Betty Moore, and David and Lucile Packard Foundations. Launched in 2010, CLUA supports the potential of forests and other land to mitigate climate change and deliver economic, social, and ecological benefits. CLUA focuses on tropical forests, primarily in Brazil and Indonesia. All CLUA grants are made by the member foundations; ClimateWorks' CLUA grants are listed with our financial statements on page 54.



China industry team, clockwise from left: Julia Reinaud and Jigar Shah, Institute for Industrial Productivity; Han Wei and He Ping, China Sustainable Energy Program; Mirka della Cava, ClimateWorks Foundation.



## The ClimateWorks Network: 2010 Snapshot

Following are highlights of our grantees' work to reduce greenhouse gas emissions.

### China

As China continues its phenomenal economic growth, the nation's policy-makers have committed to pursuing sustainable, low-carbon development as a matter of self-interest. China's 12th Five-Year Plan, which sets development and other goals for the years 2011–15, includes binding targets to reduce carbon intensity per unit of GDP, decrease pollution, boost non-fossil-fuel energy production, and increase forest coverage. For the first time, the plan underlines the importance of "effectively controlling greenhouse gas emissions."

China has also achieved several noteworthy milestones:

- Chinese manufacturers have almost halved the price of solar photovoltaics in the past two years.
- China has shut down more inefficient power plants in the past three years than the U.S. has—ever.
- A third of China's economy is now under a strict pilot program to advance efficiency and renewable energy.

China is now the world's leading manufacturer of both photovoltaic cells and wind turbines, and it has the world's largest installed base of wind power. China's leaders fueled this growth through mandates and feed-in tariffs and by supporting domestic industries that provided needed manufacturing capacity.

The **China Sustainable Energy Program (CSEP)**, ClimateWorks' Regional Climate Foundation in China, has played an important role in the development and implementation of these policies. With 10 years on the ground, an all-Chinese staff, and hundreds of grants to local experts, CSEP provides deep technical support to Chinese officials who have made China a leader in clean energy development and climate action.



China restructured its cement industry, closing older, polluting factories and promoting modern, efficient plants.



Effective government policies have accelerated the growth of China's booming wind power industry.



Strong fuel-economy standards drive innovation and create incentives for jobs like these, installing an electric battery in a Chevy Volt.



U.S.: 3.6 GT TOTAL

## United States

Although perhaps the biggest U.S. climate news—and the greatest disappointment—in 2010 was the failure of the U.S. Congress to pass comprehensive energy and climate legislation, that news was tempered by substantial progress on several key energy policy initiatives.

At the federal level, new fuel economy standards for cars, signed into law in 2010, represent the single biggest carbon reduction achievement in U.S. history. The standards, which are expected to reduce carbon emissions by 400 million tonnes per year by 2030, will also help reduce America’s addiction to expensive oil.

A significant victory occurred in California, where voters overwhelmingly defeated an attempt by the oil industry to roll back the state’s historic Global Warming Solutions Act of 2006—the most comprehensive climate policy in the United States, and one of the most aggressive greenhouse gas reduction efforts in the world. The act requires California to reduce greenhouse gas emissions to 1990 levels by 2020.

To date, California’s efforts on climate mitigation have driven billions of dollars of investments in clean technologies, turned the state into an international hotbed of clean tech innovation and job creation, and helped make California the largest U.S. market for solar power, advanced vehicles, clean fuels, and energy efficient building equipment.

In addition to the promising developments in California, Colorado utilities reached their 30 percent renewable energy mandate—eight years ahead of schedule. Colorado also made a decision to shutter numerous coal-fired power plants in what seems to be a growing trend: Coal is losing both popularity and market share in the U.S. as renewables become cost-competitive (in some markets) and as utilities gain experience in deploying them on a large scale.

The **Energy Foundation**, ClimateWorks’ Regional Climate Foundation in the United States, has been the leading philanthropic supporter of state and federal energy and climate policies in the U.S. for 20 years. The Energy Foundation’s experienced staff have crafted proven strategies that have helped transform the American energy landscape, including pioneering work on renewable energy standards, utility-scale energy efficiency, and preventing the construction of new coal-fired power plants.



U.S. vehicles and fuels team, from left: John German, International Council on Clean Transportation; Melinda Hanson, ClimateWorks Foundation; Jason Mark, Energy Foundation.

India power team, from left: Amol Phadke, Lawrence Berkeley National Laboratory (LBNL); Chinmaya Acharya, Shakti Sustainable Energy Foundation; Cathie Murray and Bob Lieberman, Regulatory Assistance Project; Deepak Gupta, Shakti; Ranjit Bharvirkar, LBNL.



INDIA: 2.4 GT TOTAL

## India

India is struggling to keep up with the mounting electricity demand associated with its strong economic growth. Its electric utilities are building more power plants, but new energy supply alone will not solve its power problems. India’s leaders are acutely aware of the need to expand the power supply while addressing related issues such as energy security, air pollution, public health risks, and greenhouse gas emissions.

India is also deeply concerned about climate change’s potential impacts on its citizens, and it has taken important steps to address its emissions and climate resiliency. Building on its 2008 decision to create a National Action Plan on Climate Change, including the National Mission on Enhanced Energy Efficiency (NMEEE), the Indian government in 2010 enacted penalties for industries that do not follow its energy efficiency standards. The NMEEE is projected to cut fuel use, reduce annual greenhouse gas emissions 99 million tonnes, and spur \$15 billion in energy efficiency investments through public-private partnerships.

India plans to capitalize on its abundant sunshine and meet its target of installing more than 20 gigawatts of solar power by 2022. In December, as part of its National Solar Mission, the Indian government finalized contracts for three dozen solar projects that will generate over 600 megawatts. Combined with India’s efforts on appliance efficiency standards, energy efficient building codes, and transit planning, these steps are putting India on the path toward a low-carbon future—but much work remains to be done.

The **Shakti Sustainable Energy Foundation**, ClimateWorks’ Regional Climate Foundation in India, was launched in 2008 to assist India as it grapples with the related challenges of alleviating poverty, improving access to energy, and reducing pollution and carbon emissions. Shakti’s staff, based in Delhi, conduct in-depth analysis of policy options that can transform India’s utilities, improve the productivity of domestic industries, and make India a leader in the deployment of clean, renewable energy sources. Shakti is also helping Indian consumers reduce their energy expenses by promoting standards for efficient buildings, vehicles, and appliances.



India's energy demand outstrips supply; daily blackouts prompt many people to resort to polluting diesel generators.



By increasing transmission capacity, energy efficiency, and renewable energy, India can solve its power supply challenge.



Energy labels help consumers choose products that save energy and money. Refrigerators with the E.U.'s new top rating use less than half the electricity of older models.



EUROPE: 2.2 GT TOTAL

## European Union

In October 2009, European heads of state agreed to reduce E.U. emissions by at least 80 percent by 2050. But in the wake of the global financial crisis, austerity measures have weakened European policymakers' appetite for new projects.

However, by highlighting the economic benefits of low-carbon policies, the **European Climate Foundation** (ClimateWorks' Regional Climate Foundation for the E.U.) and its grantees have managed to maintain most Member States' climate commitments. For example, Roadmap 2050 (described on pages 23–31) illustrates that shifting to a predominantly renewable electricity system would be as reliable as Europe's current power system, at a comparable cost. Roadmap 2050's fact-based analysis has been well received, and demand for additional technical support is high. The European Climate Foundation (ECF) and our best practice partners are conducting similar technical and financial analysis in other sectors, including transportation and appliances.

Germany stands out as an "early adopter" of the E.U. 2050 paradigm, and it is leveraging its first-mover advantage in solar power to push for even more-aggressive renewable energy targets.

In the United Kingdom, the Conservative government is making strong headway in prohibiting the development of new coal-fired power plants and has made its push for climate protection and energy security a central tenet of its political and policy platform. U.K. ministers have focused especially on promoting energy efficiency, and they support efforts to develop Britain's abundant offshore wind power potential. They see clean technology as the next great industrial boom and are actively promoting British clean tech companies.

The ECF maintains an active presence in Brussels, The Hague, Berlin, and London. ECF staff help ensure that Europe continues its strong tradition of global leadership in climate policy, and they advise the European Commission on the development of policies that can enhance and accelerate Europe's aggressive goals for climate and energy.



Europe appliances team, from left: Anita Eide, Collaborative Labeling and Appliance Standards Program; Patty Fong, European Climate Foundation; Mirka della Cava, ClimateWorks Foundation.



INDONESIA: 2.2 GT TOTAL

## Forests—Indonesia and Brazil

Deforestation, unsustainable forestry, and peatland degradation currently contribute more than 60 percent of Indonesia’s greenhouse gas emissions, which are expected to rise to almost 3 Gt in 2020. In Brazil, 75 percent of the country’s greenhouse gas emissions are due to forestry and agriculture.

In an effort to reduce the greenhouse gas emissions associated with deforestation and forest degradation, the ClimateWorks Foundation, in partnership with the Ford Foundation, Gordon and Betty Moore Foundation, and David and Lucile Packard Foundation, created the **Climate and Land Use Alliance (CLUA)**. CLUA’s goal is to reduce net greenhouse gas emissions and enhance carbon stocks associated with land use management in ways that protect the livelihoods and rights of indigenous peoples and poor rural communities, and to slow the loss of ecosystem services and biodiversity.

CLUA collaborates with ClimateWorks’ Regional Climate Foundations to secure international agreements for reduced emissions from deforestation and forest degradation (REDD) financing. (REDD+ indicates the inclusion of conservation, sustainable forest management, and enhancement of carbon stocks.) CLUA also works with governments and other foundations to identify funding gaps and align philanthropic support.

At the U.N. Climate Change Conference in Cancún, Mexico, in May 2010, nations reached an agreement on REDD+; donor countries have already pledged more than \$4 billion in fast-start REDD+ financing, including Norway’s pledges of up to \$1 billion each to Brazil and Indonesia. CLUA’s grantees work to help support such agreements and develop an effective system to monitor progress.

Brazil has pledged to reduce its deforestation in the Amazon region by 80 percent by 2020. The government of Indonesia has committed to reducing its emissions 26 percent by 2020; Norway’s investment may boost that to 41 percent.



Indonesia forests team, from left: Daniel Zarin, Chris Elliott, Chip Fay, and Rezal Kusumaatmadja, Climate and Land Use Alliance; Steve Rhee, Ford Foundation.



Healthy rainforests can absorb CO<sub>2</sub> and support local communities.



Mexico transport systems team, clockwise from top left: Alejandro Villegas-López and Magolis Briones, Hewlett Foundation; Walter Hook, Institute for Transportation and Development Policy (ITDP); Margarita Parra, Hewlett; Bernardo Baranda, ITDP; Joseph Ryan, ClimateWorks Foundation.

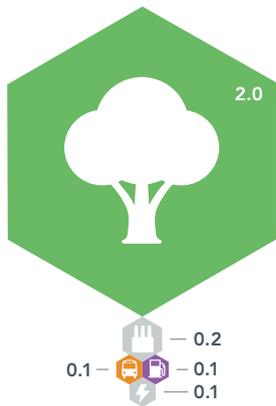
## Latin America

In Latin America, ClimateWorks focuses its work in Brazil and Mexico. Excluding forestry and agriculture, which are addressed by the Climate and Land Use Alliance (see page 46), the two countries account for almost 60 percent of the region’s emissions. Both countries have made strong commitments to reduce their emissions.

Mexico, the highest emitter of energy-related greenhouse gases in Latin America and the 13th highest in the world, has significant opportunities to reduce its emissions at a cost savings, including improvements in light-duty vehicle standards. It has committed to reduce its emissions by 30 percent from 2002 levels by 2020.

In 2010, Brazil created the National Climate Change Fund, which will collect up to 3 percent of oil revenues, to issue low-interest loans for investments in low-carbon technologies and fund grants for carbon-mitigation projects.

ClimateWorks’ grantees in Latin America provide technical assistance to support Brazil’s and Mexico’s efforts to lower their carbon emissions, reduce conventional pollution, improve public health, and enhance economic prosperity. We are exploring opportunities to expand our work in this region.



BRAZIL & MEXICO: 2.5 GT TOTAL



Strong multilateral agreements can achieve huge cuts in CO<sub>2</sub> emissions.



Solar cookers and diesel engine retrofits slash black carbon emissions.

## Climate policy, global initiatives, and research

In addition to our work in the world's top-emitting regions and sectors, ClimateWorks supports climate policies such as international treaties to cap or put a price on greenhouse gas emissions. We also support regional climate policies, including a binding E.U. agreement to reduce its greenhouse gas emissions 30 percent by 2020, and China's commitment to reduce the carbon intensity of its economy by 40 to 45 percent by 2020. To support our grantees' work, ClimateWorks also sponsors in-depth research and nonpartisan policy analysis.

Through our grantees, ClimateWorks provided analytical support for:

- China's adoption of a specific carbon-intensity target in its 12th Five-Year Plan, and allocation of this target to the provinces
- The U.N. Environment Programme's Emissions Gap Report, which identifies whether the national pledges in the Copenhagen Accord are sufficient to limit average global temperature increases to 2° C
- A report from the U.N. High-Level Advisory Group on Climate Change Financing (AGF) on how to scale up long-term financing for mitigation and adaptation in developing countries

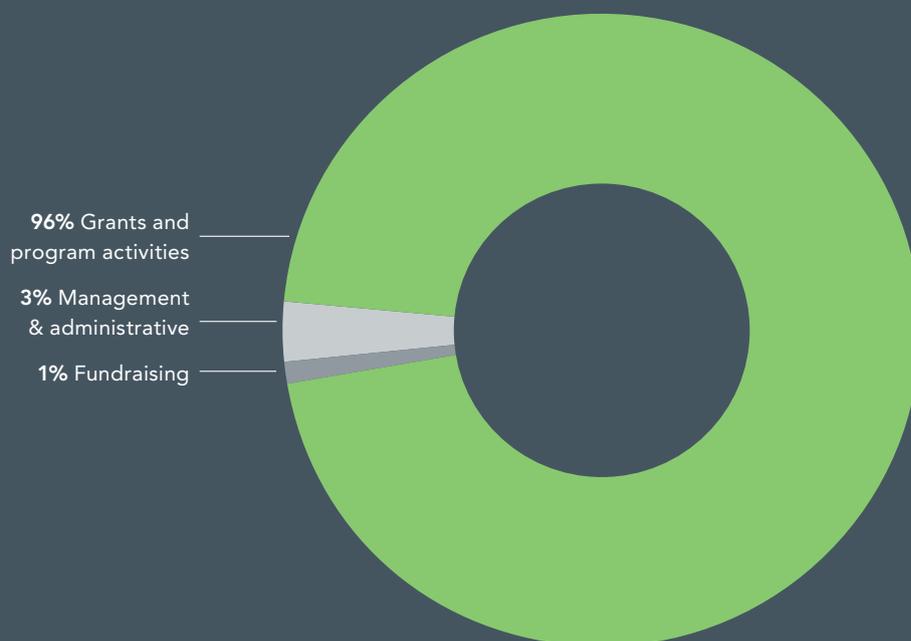
ClimateWorks also funded work to study the abatement opportunities for non-CO<sub>2</sub> climate-forcing gases (short-lived forcers), including black carbon, methane, and fluorinated gases. Our grantees' efforts helped boost the number of countries supporting action on hydrofluorocarbons under the Montreal Protocol and helped increase media coverage of issues related to black carbon. ■

# Financial statements

The ClimateWorks Foundation acts primarily as a wholesale grantmaker, distributing funds to other grantmaking organizations. We also provide nonpartisan analysis and technical support to policymakers. ClimateWorks makes grants to our Network members based on an analysis of the expected reductions in greenhouse gas emissions that can be achieved through policy reform and the probability of achieving these reforms. By coordinating our Network's efforts to reduce greenhouse gas emissions, we strive to ensure that the impact of our work is greater than the sum of our partners' individual efforts.

Part of ClimateWorks' overall strategy is to expand our partners' capacity to support effective climate and energy policy—and to incubate organizations in targeted regions and sectors where no such capacity exists. In 2010, ClimateWorks conducted significant grantmaking on behalf of the Shakti Sustainable Energy Foundation and the Climate and Land Use Alliance. We also provided seed funding and support for two new partner organizations: the Global Buildings Performance Network and the Institute for Industrial Productivity.

Our 2010 grants are listed following the financial statements. The vast majority—96 percent—of our expenditures supported our programs and grantees.



## Statements of financial position

December 31, (U.S. dollars in thousands)

	2010	2009
<b>Assets</b>		
<b>Current assets:</b>		
Cash and cash equivalents	\$40,635	\$21,735
Contributions receivable, net	157,193	139,226
Prepaid expenses and other current assets	1,363	963
<b>Total current assets</b>	<b>199,191</b>	<b>161,924</b>
<b>Long-term assets:</b>		
Property and equipment, net	5,284	3,313
Contributions receivable, net	96,362	188,093
Deposits and other assets	401	189
<b>Total long-term assets</b>	<b>102,047</b>	<b>191,595</b>
<b>Total assets</b>	<b>\$301,238</b>	<b>\$353,519</b>
<b>Liabilities and net assets</b>		
<b>Liabilities:</b>		
Current liabilities	\$10,318	\$3,667
Long-term liabilities	1,682	1,133
<b>Total liabilities</b>	<b>12,000</b>	<b>4,800</b>
<b>Net assets</b>	<b>289,238</b>	<b>348,719</b>
<b>Total liabilities and net assets</b>	<b>\$301,238</b>	<b>\$353,519</b>

## Statements of activities and changes in net assets

For the years ended December 31, (U.S. dollars in thousands)

	2010	2009
<b>Support and revenue</b>		
Contributions and contracts	\$93,158	\$60,130
Interest and other income	210	230
<b>Total support and revenue</b>	<b>93,368</b>	<b>60,360</b>
<b>Expenses</b>		
Grants awarded	120,501	92,712
Program activities	25,887	24,321
Management and administrative	4,222	3,203
Fundraising	2,239	1,798
<b>Total expenses</b>	<b>152,849</b>	<b>122,034</b>
Change in net assets	(59,481)	(61,674)
<b>Net assets</b>		
<b>Beginning of period</b>	<b>348,719</b>	<b>410,393</b>
<b>End of period</b>	<b>\$289,238</b>	<b>\$348,719</b>

This condensed financial information has been summarized from the ClimateWorks Foundation's audited financial statements. To obtain copies of the complete audited financial statements, please contact the ClimateWorks Foundation.

# 2010 Grant awards

## Regional Climate Foundations

Grantee	Purpose	Amount
<b>United States</b>		
Energy Foundation	To support U.S. programs	\$27,000,000
<b>China</b>		
Energy Foundation	To support the China Sustainable Energy Program	\$24,500,000
<b>Europe</b>		
European Climate Foundation	To support E.U. programs	\$13,775,200
<b>India*</b>		
Centre for Science and Environment (CSE)	To support CSE's renewable energy program in India	\$350,085
Confederation of Indian Industry	To support waste-fuel utilization in the cement industry, clean energy development, and civil society dialogue between India and the U.S. on climate and energy	344,382
Center for Study of Science, Technology, and Policy	To support energy efficiency in India's iron and steel industry, and the National Solar Mission	341,480
Consumer Unity and Trust Society	To study consumer behavior toward energy efficient products, and potential advocacy for demand-side management and renewable energy	277,964
Clean Air Task Force	To support cleaner wall materials and brick kilns in India	270,734
The Energy and Resources Institute	To support demand-side management for electricity distribution, studies of renewable energy resources in Gujarat, and urban mobility planning	227,443
Aspen Institute	To support civil-society dialogue between India and the U.S. on climate and energy	189,890
Center for Clean Air Policy	To support the Perform, Achieve, and Trade mechanism in India	175,000

Voluntary Organization in Interest of Consumer Education	To generate public demand for fuel efficiency and appliance efficiency standards	161,000
World Resources Institute	To support the EMBARQ program in Indore and Jaipur and build communications capacity	150,000
Yale University	To survey public awareness of and opinions on climate change in India	100,000
Centre for Environmental Planning and Technology	To support energy efficient buildings in India	94,402
e-Parliament Initiative	To support parliamentary action for an ambitious shift to solar power	90,000
Centre for Environment Education	To support sustainable transportation policies in India	70,932
Centre for Media Studies	To support media initiatives on urban mobility issues	61,400
Natural Resources Defense Council	To support energy efficient buildings in Hyderabad and promote U.S.-India cooperation on climate and energy	60,000
Indian Institute of Technology Madras	To develop long-term energy and development pathways for India	49,967
Tata Institute of Social Sciences	To support a series of climate policy workshops in India co-hosted by the Delhi Science Forum	48,894
Clean Air Initiative for Asian Cities	To support collection and analysis of city-level data on nonmotorized transport infrastructure	45,000
Administrative Staff College of India	To support energy efficient buildings in Hyderabad	38,300
Alliance to Save Energy	To support two state-level workshops to catalyze adoption of energy conservation building codes	30,000
Parisar Sanrakshan Sanvardhan Sanstha	To support public acceptance of bus rapid transit in Pune	21,900
Winrock International India	To support analysis of existing models of renewable energy services for the poor	14,094
<b>India total</b>		<b>\$3,212,867</b>
<b>Latin America*</b>		
Instituto de Energia e Meio Ambiente	For technical assistance to Brazilian agencies on climate mitigation in key sectors	\$262,587
El Poder del Consumidor	To support fuel economy standards in Mexico	75,000
Centro Mexicano de Derecho Ambiental	For technical support to develop a climate action plan for Mexico City	40,000
<b>Latin America total</b>		<b>\$377,587</b>
<b>Regional Climate Foundations total</b>		<b>\$68,865,654</b>

\* In India and Latin America, we made several grants directly to local grantees because our Regional Climate Foundations were not yet fully established in 2010.

## Climate and Land Use Alliance\*\*

Grantee	Purpose	Amount
Instituto de Pesquisa Ambiental de Amazônia	To support implementation of Brazil's emissions-reduction targets	\$2,078,349
Woods Hole Research Center	To reduce land use emissions in Brazil	915,111
Coalition for Rainforest Nations	To support reduced emissions from deforestation and degradation (REDD) in developing countries	870,000
University of Colorado at Boulder	To support the Governors' Climate and Forests Task Force	825,739
Tebtebba Foundation	To support indigenous peoples' effective participation in REDD+ processes	600,000
Union of Concerned Scientists	To support the Tropical Forest and Climate Initiative	550,000
Center for International Forestry Research	To support REDD+ in Indonesia and two Forest Day Learning Events at COP 16 in Cancún, Mexico	495,000
Instituto do Homem e Meio Ambiente da Amazônia	To monitor deforestation in the Brazilian Amazon	494,628
Samdhana Institute	To facilitate REDD activities in Indonesia, enhance community preparedness to negotiate for REDD-financed activities in traditional territories, and develop an inclusive, participatory, spatial plan in Papua	470,000
Instituto de Estudos Socioeconômicos	To analyze and monitor land use legislation in Brazil and investment in the Brazilian Amazon and support Rede-Brasil in coordinating feedback on Brazilian Development Bank projects	450,000
Global Canopy Programme	To support the REDD Desk knowledge platform, the Little Climate Finance Book, and the Forest Footprint Disclosure Project	423,175
International Union for Conservation of Nature	To establish an alliance of community and indigenous organizations to promote REDD strategies in Mesoamerica	400,000
Voluntary Carbon Standard Association	To incorporate project-level activities into broader greenhouse gas mitigation accounting frameworks	356,205
International Centre for Research in Agroforestry	To develop effective low-carbon development strategies at the subnational level to reduce land use emissions and increase carbon stocks in Indonesia	349,984
Bank Information Center	To ensure environmental and social safeguards in the design and implementation of the Forest Carbon Partnership Facility and the Forest Investment Program	321,750
Amigos da Terra—Amazônia Brasileira	To advance policy and market mechanisms to reduce greenhouse gas emissions from ranching	300,000
Instituto Centro de Vida	To support implementation of the REDD plan of the state of Mato Grosso	300,000
Rainforest Action Network	To address international market incentives that drive the conversion of Indonesian rainforest into pulp and paper plantations	290,000
Kemitraan	To help build forest and climate governance in Indonesia	280,000

Centro Agronómico Tropical de Investigación y Enseñanza	To strengthen the capacity of indigenous territories to participate in and formulate REDD+ initiatives	250,000
Center for International Policy	For Avoided Deforestation Partners to build support for forest conservation and U.S. financing for REDD+	250,000
Forest Peoples Programme	To strengthen the land and resource rights of forest peoples and their organizations in Indonesia	249,672
Center for International Environmental Law	To support indigenous peoples' and local communities' rights in the emerging international framework for forest conservation	200,000
Environmental Investigation Agency	To ensure the sustainability of the global wood trade using international policy tools such as REDD, the U.S. Lacey Act, and the European Union Timber Regulation	200,000
World Resources Institute	To improve forest governance in Brazil and Indonesia to enable sustainable implementation of REDD+	198,000
ClientEarth	To provide legal and policy services to E.U. institutions through the first year of implementing the European Union Timber Regulation	150,000
Life Mosaic	To develop audiovisual climate literacy tools for forest-dependent peoples in Indonesia	137,060
Fundação Avina	To support the Brazilian Ministry of Environment on REDD initiatives	132,000
Ateneo de Manila University	To analyze the scientific efforts and institutional dynamics that led to consensus on Indonesia's estimated emissions numbers and nationally appropriate mitigation actions	92,736
Germanwatch	To facilitate implementation of fast-start REDD financing in Germany	85,000
World Wildlife Fund	To design communications strategies to promote Mexican REDD+ policies favoring community forest management	40,000
<b>CLUA total</b>		<b>\$12,754,409</b>

\*\* CLUA is a collaborative initiative of the ClimateWorks, Ford, Gordon and Betty Moore, and David and Lucile Packard Foundations. CLUA's unique funding model allows its member foundations to coordinate their grantmaking to reduce greenhouse gas emissions from tropical deforestation and other land use changes. All CLUA grants are made by the member foundations. CLUA grants from all of its member foundations, including ClimateWorks, totaled \$32.5 million in 2010.

## Best Practice Networks

Grantee	Purpose	Amount
Institute for Transportation and Development Policy (ITDP)	To support ITDP's work	\$5,250,000
Regulatory Assistance Project (RAP)	To support RAP's work	5,080,000
International Council on Clean Transportation (ICCT)	To support ICCT's work	4,783,000
Collaborative Labeling and Appliance Standards Project (CLASP)	To support CLASP's work	4,735,000
Institute for Industrial Productivity (IIP)	To support IIP's work	1,476,000
Buildings Performance Institute Europe	To support the European hub of the Global Buildings Performance Network	387,497
Institute for Market Transformation	To support the U.S. hub of the Global Buildings Performance Network	354,900
<b>Best Practice Networks total</b>		<b>\$22,066,397</b>

## Climate policy, global initiatives, and research

### Climate policy

Bipartisan Policy Center	To support U.S. climate policy programs, including the American Energy Innovation Council	\$8,500,000
The Nature Conservancy	To support The Nature Conservancy's efforts to advance local and national climate policy	1,000,000
European Climate Foundation	To help track, assess, and compare countries' climate mitigation	963,000
No on 23—Californians to Stop the Dirty Energy Proposition	To support the No on 23 campaign	900,000
World Resources Institute	To develop standardized, comparable indicators of major economies' clean energy competitiveness	395,000
New Venture Fund	To help track national climate change commitments and performance	349,512
Climate Action Reserve	To support general climate activities of California's Climate Legacy program	100,000
California State Protocol Foundation	To support general climate activities of California's Climate Legacy program	35,000
<b>Climate policy total</b>		<b>\$12,242,512</b>

### Short-lived forcers

Clean Air Task Force	To support international policy work with the Arctic Council and the U.S. diesel retrofit campaign	\$1,130,000
Institute for Governance and Sustainable Development	To promote international policies to curb emissions of short-lived forcers and amend the Montreal Protocol to regulate a broader range of f-gases	1,000,000
European Climate Foundation	To support the Deutsche Umwelthilfe “Soot-Free for the Climate” European diesel filter campaign	715,000
Clean Air-Cool Planet Inc.	To support reductions in black carbon emissions implicit in Arctic Council commitments	100,000
Bund für Umwelt und Naturschutz	To support the “Soot-Free for the Climate” campaign in Europe	85,000
<b>Short-lived forcers total</b>		<b>\$3,030,000</b>

### Carbon capture and storage

European Climate Foundation	To support carbon capture and storage (CCS) strategy and grants management	\$1,000,000
<b>CCS total</b>		<b>\$1,000,000</b>

### Education and other

Aspen Institute	To educate members of Congress on energy and climate issues	\$300,000
Resource Media	To provide strategic communications support to the Intergovernmental Panel on Climate Change	75,000
Commonwealth Club	To support the Climate One program	50,000
University of California, Davis	In recognition of Arthur H. Rosenfeld’s public service and contributions to the field of energy efficiency	50,000
Sustainable Markets Foundation	To support 350.org’s mission to build a global grassroots movement united around solutions to the climate crisis	25,000
Other gifts		42,000
<b>Education and other total</b>		<b>\$542,000</b>

**Climate policy, global initiatives, and research total** **\$16,814,512**

<b>Total 2010 grants</b>	<b>\$120,500,972</b>
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# Who we are

The ClimateWorks Foundation supports public policies that prevent dangerous climate change and promote global prosperity. ClimateWorks partners with an international network of affiliated organizations—the ClimateWorks Network—to promote these policies in the geographic regions and economic sectors that have the greatest potential for reducing greenhouse gas emissions. Our Network partners include:

- China Sustainable Energy Program
- Climate and Land Use Alliance
- Collaborative Labeling and Appliance Standards Program
- Energy Foundation
- European Climate Foundation
- Global Buildings Performance Network
- Institute for Industrial Productivity
- Institute for Transportation and Development Policy
- International Council on Clean Transportation
- Regulatory Assistance Project
- Shakti Sustainable Energy Foundation

## Our funders

ClimateWorks was launched in 2008 with the support and vision of three foundations: the William and Flora Hewlett Foundation, the McKnight Foundation, and the David and Lucile Packard Foundation.

We are grateful to our three founding donors for their generous gifts, which enabled ClimateWorks to build the ClimateWorks Network. Their contributions include support for the ClimateWorks Foundation as well as direct gifts to the affiliated organizations in our Network.

We also thank the other forward-thinking donors whose philanthropy helps expand the capacity of organizations across the global ClimateWorks Network. These donors include the Arcadia Fund, the Children's Investment Fund Foundation, John and Ann Doerr, the Ford Foundation, the Pirojsha Godrej Foundation, the Grantham Foundation for the Protection of the Environment, the Grousbeck Family Foundation, the Kresge Foundation, the McCall MacBain Foundation, Stiftung Mercator, the Mertz Gilmore Foundation, the Gordon and Betty Moore Foundation, the Oak Foundation, the Pisces Foundation, Meher Pudumjee, the Schmidt Family Foundation, Elizabeth Simons and Mark Heising, the TomKat Trust, the TOSA Foundation, and the United Nations Environment Programme—Global Environment Facility.

## Our board of directors

William K. Reilly, *Chairperson*  
United States

Richard C. Levin, *Vice Chairperson*  
United States

Bertrand Collomb  
France

Jamshyd N. Godrej  
India

Charles O. Holliday Jr.  
United States

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United States

Mario Molina  
Mexico

Madame Chen Zhili  
China

Hal Harvey, *Ex Officio*  
United States

## Our management council

Mark Burget  
*President, ClimateWorks Foundation*

Christine Egan  
*Executive Director, Collaborative  
Labeling and Appliance  
Standards Program*

Chris Elliott  
*Executive Director, Climate and  
Land Use Alliance*

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for Industrial Productivity*

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*Vice President of Programs,  
ClimateWorks Foundation*

Christine Salembier  
*Chief Operating Officer,  
Regulatory Assistance Project*

## Our staff

### Executive Office

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*Chief Executive Officer*

**Mark Burget**  
*President*

Brent Harris  
*Chief of Staff*

Elizabeth Hood  
*Operations and Human Resources Associate*

James Kleven  
*Associate Director of Operations and Human Resources*

Laurie McManus  
*Executive Assistant to the President and Chief of Staff*

Gretchen Rau  
*Associate to the CEO*

Jessie Rountree  
*Executive Office Associate*

Clara Vondrich  
*Director of Leadership Initiatives*

### Programs

**Heather Thompson**  
*Vice President of Programs*

Jennifer Cruz  
*Executive Associate, Latin America*

Mirka della Cava  
*Program Officer, Efficiency*

Melinda Hanson  
*Senior Program Associate*

Colin Kelly  
*Program Associate*

Charlie McElwee  
*Program Officer, Policy*

Sarah Nichols  
*Director of Knowledge Management*

Melissa Nunan-Lew  
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Gavin Purchas  
*Program Officer, Power*

Prodipto Roy  
*Program Assistant*

Joseph Ryan  
*Vice President, Latin America Program, and Program Officer, Transportation*

### India Energy Initiative

**Seema Paul**  
*Vice President and Director*

Makeeba Browne  
*Operations Associate*

### Strategic Planning and Network Health

**Jennifer Fox**  
*Director of Strategic Planning and Network Health*

Ann Cleaveland  
*Senior Planning Associate*

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**Matthew Lewis**  
*Director of Communications*

**Zack Macdonald**  
*Director of Philanthropy*

**Brigid McCormack**  
*Director of External Affairs*

Nelsa Avallon  
*Philanthropy Associate*

Aimée Derbes  
*Communications Associate*

John Ford  
*Senior Philanthropic Advisor*

Debra Jones  
*Associate Director of Communications*

Jessica Leas  
*Associate Director of External Affairs*

Kelley Nelson  
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Catherine Rondinaro  
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Brad Weinrieb  
*Manager, Philanthropy and External Affairs Communications*

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*Vice President and Chief Financial Officer*

Jessica Brown  
*Accounts Payable Specialist*

Dana Cunningham  
*Administrative Assistant*

Anthony Fernandez  
*Associate Director of Information and Technology*

Brian McCracken  
*Director of Finance and Grants Administration*

Sean Scanlon  
*Senior Accountant*

### Global Research

Casey Cronin  
*Senior Research Associate*

Ruoting Jiang  
*Research Associate*

Laura Segafredo  
*Research Associate*

To learn more about the ClimateWorks Network's efforts to rapidly improve energy efficiency, scale up deployment of clean energy technologies, and dramatically slow the destruction of tropical forests, please visit [www.climateworks.org](http://www.climateworks.org).

If you'd like to be added to our mailing list, please contact us at [info@climateworks.org](mailto:info@climateworks.org).



Photo credits: pages 10–21, courtesy of the Institute for Transportation and Development Policy, except page 17, lower left, courtesy of the Municipality of Curitiba; page 49, lower left, courtesy of the Clean Air Task Force.

Design: Hyperakt, [www.hyperakt.com](http://www.hyperakt.com)

