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**Report finds that renewable energy  
promotes U.S. job growth better  
than investment in fossil fuels**

**FOR IMMEDIATE RELEASE**

**Berkeley** — Investing in renewable energy such as solar, wind and the use of municipal and agricultural waste for fuel would produce more American jobs than a comparable investment in the fossil fuel energy sources in place today, according to a report issued today (Tuesday, April 13) by researchers at the University of California, Berkeley.

"Across a broad range of scenarios, the renewable energy sector generates more jobs per average megawatt of power installed, and per unit of energy produced, than the fossil fuel-based energy sector," the report concludes. "All states of the Union stand to gain in terms of net employment from the implementation of a portfolio of clean energy policies at the federal level."

Daniel Kammen, a professor in the Energy & Resources Group and in the Goldman School of Public Policy, and head of UC Berkeley's Renewable and Appropriate Energy Laboratory (RAEL), directed the team that reviewed 13 previous reports that looked at the economic and employment impacts of the clean energy industry in the United States and Europe. Though the independent studies used a range of different methods that made comparison difficult, their uniform conclusions held up under scrutiny, he said.

"Renewable energy is not only good for our economic security and the environment, it creates new jobs," Kammen said. "At a time when rising gas prices have raised our annual gas bill to \$240 billion, investing in new clean energy technologies would both reduce our trade deficit and reestablish the U. S. as a leader in energy technology, the largest global industry today."

Kammen released the report at a forum in Seattle on the New Apollo Energy Project, an initiative to replace the energy bill now languishing in Congress with a new bill emphasizing energy independence

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and weaning the U.S. from a reliance on imported fossil fuels by 2010. The project is spearheaded by U.S. Representative Jay Inslee (D-Washington), who is sponsoring the day-long forum at Seattle's Jackson Federal Building.

The UC Berkeley report found that a comprehensive, coordinated energy policy works best, emphasizing not only renewable energy sources but also energy efficiency and sustainable transportation. These "yield far greater employment benefits than supporting one or two of these sectors separately."

"While certain sectors of the economy may be net losers, policy interventions can help minimize the impact of a transition from the current fossil fuel dominated economy to a more balanced portfolio that includes significant amounts of clean energy," the report continued. "Further, generating local employment through the deployment of local and sustainable energy technologies is an important and underutilized way to enhance national security and international stability."

In their study, Kammen and colleagues Kamal Kapadia and Matthias Fripp of the Energy & Resources Group considered all types of job creation, both direct — those created in the manufacturing, delivery, construction and installation, project management and operation and maintenance of the different components of the technology or power plant under consideration — and indirect, that is, those induced through multiplier effects of the industry under consideration. Installing wind turbines, for example, is a direct job, while jobs created to manufacture the steel used to build the wind turbine are indirect jobs.

They then calculated the jobs created by investing in renewable energy sources so that by 2020 they constitute 20 percent of all energy sources. They assumed various mixes of renewable energy sources, from the current situation, where the bulk of renewable energy is from burning of waste or biomass, such as corn stalks (85 percent, versus 14 percent for wind energy and a mere one percent from solar), to improved scenarios in which wind energy dominates at 55 percent of all renewable power sources, biomass energy makes up 40 percent and solar photovoltaic constitutes 5 percent.

The non-renewable alternative, in which fossil fuels comprise the 20 percent that could have been renewable sources by 2020, were assumed to be either half coal-powered and half natural gas, or 100 percent natural gas.

They found that for all feasible scenarios, the renewables industry consistently generated more jobs per average megaWatt generated in construction, manufacturing and installation, in operations and

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maintenance and in fuel processing, than the fossil fuel industries. In the scenario assuming most renewable energy comes from biomass burning, this could amount to as many as 240,000 new jobs created by 2020, versus no more than 75,000 new jobs if the country sticks to fossil fuels. Investment in renewables also generates more jobs per dollar invested than the fossil fuel energy sector.

Most states would benefit from the move to renewables, the study found. The Midwest, for example, has the best wind power resources in the United States. According to Greenpeace-USA, North Dakota alone has enough to produce 1.2 trillion kilowatt hours of electricity each year, which amounts to 32 percent of the total U.S. electricity consumption in 2002.

Part of the job-creating advantage of renewables over fossil fuels lies in the fact that the employment rate in fossil fuel-related industries has been declining steadily, Kammen said, for reasons that have only little to do with environmental regulations. Though a shift from fossil fuels to renewables in the energy sector will create some job losses, these losses can be adequately compensated for through a number of policy actions.

"For too long, innovations in solar, wind, and biomass/waste technologies, green buildings, highly efficient vehicles, and construction practices that minimize waste have languished in the market despite impressive technical advances, cost reductions, and great potential that make these renewable energy technologies competitive with imported oil and gas supplies," Kammen said. "Investment in new renewable energy sources leads to roughly ten times more jobs than a comparable investment in the fossil-fuel sector. This difference underscores the economic benefits of moving our economy and society from one of energy 'hunter gatherers' to one of 'energy farmers' and innovators."

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