

**Carter Bales, Chairman, Managing Partner, and Co-Founder,
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United States



Where do you see opportunities for powerful, effective investing today?

Mr. Bales: A number of powerful macro-forces centered on rising and increasingly volatile commodity costs and existing inefficient resource-management practices, along with certain special attributes of environmental markets, create strong investment opportunities in environmental sectors. Environmental markets are already large, are growing rapidly, and offer a significant opportunity for the specialist investor, specifically

in asset-light-oriented investing in the middle and lower middle market of five industrial segments: energy efficiency, clean energy, water resources and reclamation, waste-to-value, and environmental services.

Recent successes in the environmental products and services industry are showing the way, and investors have begun to pay attention. In the middle and lower middle markets, there is substantial opportunity in rapidly growing companies in the environmental business sector, specifically in companies that have already been validated by a market response and have sustainably differentiated products and business systems together with reasonable sales records—and are working to achieve full competitive scale. Growth investing is more to be recommended than venture (early stage) investing, and most investors are working to avoid the uncertainty of technology risk. Owing to the inefficiency of resource management in North America, we believe that extra-normal returns should be available to the investor.

Investing in environmental markets should yield broader beneficial outcomes in addition to attractive economic returns, since the societal co-benefits of such investments are usually quite material. Pollution of the air, water, and land is increasingly perceived as a major socioeconomic problem by governments at all levels, the public at large, and a growing number of business leaders, as are dwindling supplies of freshwater and resultant water stress and the growing costs and environmental burden of waste management. Improved resource management should thus lead to many benefits for society, such as cleaner air and water and reduced waste and pollution. Such societal co-benefits help make environmental markets attractive destinations to invest not only for profit but also for impact—without the need to trade-off on either objective.

What sector has had the most significant impact on the renewable energy landscape thus far? Why?

Mr. Bales: In the aftermath of the cleantech bubble, the recent rise of residential solar in the United States offers a powerful example of how environmental macro-forces can converge to create market opportunity in quick order within the larger North American environmental-opportunities industry. After an influx of venture capital and government support beginning in the mid-2000s, the cleantech bubble burst in the midst of a confluence of factors, such as insufficient investment, cheap natural gas, volatile silicon and other component prices, the global financial crisis, the rise of international competition, and more.

But what heralded the end of the cleantech bubble proved a powerful driver of residential solar today. Chinese manufacturing commoditized solar PV and helped lower the cost for all, thus helping to scale the market. Although the developments that facilitated today's

solar PV market caused some investors to lose money, grid-competitive solar PV has now created a sustainable market opportunity for higher margin, customer-facing businesses and distributed-generation projects in North America. While residential solar was non-economic ten years ago, today it compares favorably on a cost basis to retail electricity rates for a majority of the U.S. population. In the United States, PV module prices fell nearly 80% from 2008 to 2012, and balance of system (BOS) costs fell as well in 2013, continuing into 2014.

The U.S. residential solar industry evolved to focus on its comparative advantages in the service and customer-facing ends of the supply chain, becoming “survivors.” For many customer-facing businesses and distributed-generation projects in North America, these positive developments in residential solar are poised to continue, as high electricity prices, financing mechanisms allowing installation without up-front cost to homeowners (the third party model), net metering agreements, and a favorable Investment Tax Credit (ITC) make residential and commercial solar installations financially attractive in most U.S. states. In particular, financing models that help consumers overcome the first cost-bias in purchasing decisions have played a major role.

The residential solar market segment has experienced healthy and sustained growth in recent years. New residential PV installations increased more than a third (year-over-year) in 2013, to roughly 770MW, which accounts for 20% of total U.S. PV capacity installed that year. Customer-sited PV capacity growth is expected to exceed utility-scale solar growth between 2013 and 2015 (which is projected to double over that period). There is room for further development of the solar residential market, particularly given rising electricity prices, low costs of solar PV, available financing, and increasing consumer interest. In particular, decreases in residential solar PV costs in the U.S. are expected to be further driven by efficiency gains in installation and Balance-of-System (BOS) costs rather than reduced panel costs. The future of solar in North America appears bright.

Debates about environmental issues and solutions are common among the public and governments. What role do you think investors could play in establishing active working relationships with all stakeholders to effectively address environmental challenges?

Mr. Bales: Environmental challenges are complex and require close understanding. Markets are where environmental challenges, as well as solutions, play out. Capital is often the difference between progress and platitudes. Investors can thus play an important role in communicating their understanding and working knowledge of environmental markets to other stakeholders, who may not be as familiar with or may not understand often-complex market dynamics and the environmental landscape from an investment

perspective. Investors can also serve an important role in drawing awareness to and highlighting market-specific challenges or barriers that inhibit progress to those at the policy and public level, providing an essential bridge between multiple parties. Money talks.

BIOGRAPHY

Carter F. Bales, Chairman & Managing Partner, co-founded NewWorld Capital Group, LLC, in June 2009. NewWorld is a private equity firm that invests in selected segments of the environmental opportunities sector with special focus on energy efficiency, clean energy, water resources and reclamation, waste-to-value, and environmental services (www.newworldcapital.net).

Before NewWorld Capital Group, Mr. Bales was Managing Partner Emeritus at The Wicks Group of Companies, LLC, a private equity firm focused on the information industries in the United States. He co-founded Wicks in 1989 and was a managing partner until assuming the Emeritus title in August 2006.

From 1978 to 1998, Mr. Bales was a director of McKinsey & Company, where he held senior leadership positions, including founding the consultancy's practices in environmental management, information industries, and state and local government, and leading the information technology practice. He was a member of McKinsey's Board of Directors for seven years and, early in that period, led a project to redefine the firm's strategy. Mr. Bales left McKinsey in 1998 but he continues to serve as an emeritus director and senior advisor to McKinsey on environmental matters.

Early in his career, Mr. Bales served as Assistant Budget Director (Acting) for The City of New York, where he led the development of New York City's air pollution, solid waste management, and water supply programs, in addition to developing the city's program planning and budgeting (PPBS) system.

Mr. Bales has extensive experience in helping businesses strengthen competitive strategies, grow sales, improve profitability, and improve and scale operations. His career has focused heavily on strengthening business operations and helping companies build value for stakeholders.

Mr. Bales has been active in environmental matters for more than 35 years. In recent years, he has focused on environmental economics and how energy efficiency improvements can be achieved in cost-effective ways. In 2007, Mr. Bales worked with

McKinsey to prepare the report entitled, *Reducing U.S. Greenhouse Gas Emissions: How Much at What Cost?* In 2008 and 2009, he worked with Project Catalyst and other initiatives in framing the economics of environmental improvement strategies in the United States and elsewhere.

Mr. Bales is a recognized expert in the environmental field; in addition to publishing a number of relevant articles, he is frequently an invited speaker on the topic. His article, “Containing Climate Change” (co-authored with Rick Duke), appeared in *Foreign Affairs* (September-October 2008). He serves on the boards of a number of leading environmental organizations, including The Center for Market Innovation at the Natural Resources Defense Council, the Advisory Council to Resources for the Future, and The Nature Conservancy. Mr. Bales is a member of the Council on Foreign Relations.

Mr. Bales is a director of Coolerado Corporation, a NewWorld portfolio company.

Carter Bales graduated from Princeton University with a BA in economics and he holds an MBA from Harvard Business School. He received an Honorary Doctorate in Humane Letters from Skidmore College for his environmental leadership.