

**Fareed Zakaria**

## 'Cathedral Thinking'

**ENERGY'S FUTURE:** Until we solve climate change, says James E. Rogers, we need even the dirtiest fuel.

**E**VERY DAY, AMERICANS PLUG their cell phones, iPods and laptops into the wall, unaware that most of their electricity comes from coal, the dirtiest form of energy production. Duke Energy, which operates 20 coal-fired power plants, is the third largest producer of carbon emissions in the United States. Yet Duke's chairman and CEO, James E. Rogers, is an ardent climate-change lobbyist, advocating for emission reductions, carbon trading and cleaner technologies. In the second installment of our series of conversations about the future of energy, NEWSWEEK's Fareed Zakaria spoke to Rogers about his seemingly awkward balancing act. Excerpts:

**ZAKARIA: Coal is cheap and plentiful, but 40 percent of the CO<sub>2</sub> emissions the United States produces come from coal. What should we do?**

**ROGERS:** The difficulty with using coal is that when you burn it, it produces significant emissions like sulfur dioxide, nitrogen oxide, mercury and fine particulate, as well as CO<sub>2</sub>. One of our challenges is to find a way to use this plentiful resource we have and reduce the emissions. We have made significant progress on reduction of sulfur dioxide, nitrogen oxide, mercury and fine particulate over the past several decades. We need now to turn our attention to making significant reductions of CO<sub>2</sub>. **Environmental scientists say to me that coal is 80 percent of the climate-change problem. That is, if you can't solve coal, you're not going to get a handle on global warming. Is that right?**

I would quarrel as to whether coal is 80 percent of the problem. It primarily

plays a role in the 35 to 40 percent of the total U.S. emissions which come from power plants.

**But if you count India and China, which get the vast majority of their electricity from coal, don't you get a different sense of the scale of this problem?**

Absolutely. In fact, one of the statistics is that 85 percent of the incremental emissions of CO<sub>2</sub> is going to come from developing countries, primarily China and India.

**So what do we do?**

First, we need to make significant investment in the research and development of carbon capture and sequestration. Carbon-capture technology has been with us for a long time; it's the sequestration [taking carbon that has been captured from coal plants and injecting it into the earth in either liquid or gas form] that is the issue. We are experimenting with lots of technologies to capture, but we have yet to do a major sequestration project.

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**Given that time is pressing, is there a way to speed this up?**

My judgment is that more dollars and more focused effort, like a Manhattan or Apollo project, would accelerate the results. Still, it takes going through a couple of generations of technology, having an operating period of three to five years, to see how it works. There is a significant amount of regulation that will have to be written about who has the liability

for the CO<sub>2</sub> in the ground. There are a lot of technical issues around storage that need to be resolved, and regulations need to be written with respect to that. And the carbon has to be stored near the places where coal is burned. We really have to understand the geology that underpins those areas.

**Why is the existing technology for clean coal not usable yet?**

We have proved that we can do carbon capture in a laboratory, with small amounts, but we haven't proved it on 600- or 1,000-megawatt units, which are huge coal units. Secondly, we haven't tested significant storage of CO<sub>2</sub>. And those storage areas may not be in the same place as where the power plants are, and that means you have to find a way to transport the CO<sub>2</sub> to areas that have the geological formations to store it.

**Everything you are saying here suggests that the only likely positive scenario has at least a 20-year time span. Yet you listen to someone like Al Gore and it sounds like we don't have 20 years.**

That's why we can't take anything out of the energy equation—coal, nuclear, gas, energy efficiency and renewables. I think we have had chronic underinvestment in energy efficiency. We really need to accelerate that. Mitigation of climate change is not going to happen fast enough. That is the reality. We need

to think in a broad sense about both adaptation [to climate change] and mitigation [of it]. We really have to have what I would call cathedral thinking, where we are looking out and saying we need to address this problem over many decades, in the same way the cathedrals of Europe took many decades to build. It is going to take many decades of both mitigation and adaptation to get to the right place on this planet.