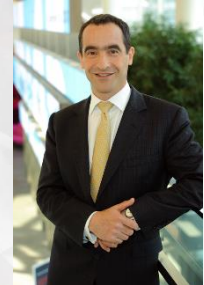


AN ENERGY SECTOR TRANSFORMED MUST BE AN ENERGY SECTOR REFORMED

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That the world's energy system has begun a grand transformation to a cleaner, more local future is no longer a controversial statement.

The transformation may be furthest advanced in electricity, where renewable energy has made huge strides in the past few years, but it is also beginning in transportation, and will in due course ripple through the staid worlds of space heating and manufacturing. It is proceeding as rapidly in the developing world as in the developed world, with China the leading country for clean energy investment, and massive growth in off-grid systems in energy-poor regions.

For the first time now, serious figures are talking about complete decarbonization of the energy system. At their Summit this year in Germany, G7 leaders committed to phasing out fossil fuels by the end of the century. The Pope, in his recent encyclical *Laudato Si*, spoke about the need to replace the use of fossil fuels.

This new, mainstream embrace of decarbonization has caused a rift in the fossil fuel sector. It is no longer credible to dismiss the idea out of hand as childish and unrealistic. Only the coal industry, aware of the mortal threat to its existence and pummeled by recent bankruptcies, has no choice but to challenge the decarbonization agenda. Most of the rest of the fossil fuel industry is finally coming round to the reality of a carbon-constrained future – though their preferred contribution appears to be to throw coal to the lions.

The struggle between those seeking to transform the energy sector and those defending the status quo is simplistically depicted as being all about climate change: one side wants to deal with it, one side wants to keep making money. More nuanced analysis juxtaposes the enormous co-benefits of clean energy, such as improved

air quality, local jobs, technological breakthroughs and economic resilience, with the colossal externality costs of fossil fuels, in terms of impacts on public health, costs of defense, exposure to commodity prices and so on.

There is, however, a third level on which the struggle between defenders of clean and fossil energy must be understood, and that is in terms of the social structures in which we want to live.

Fossil-based energy lends itself to scale and centralization. Physical centralization – huge oil, gas and coal-fields, massive power stations, a universal grid, pipelines, refineries and the like – as well as the inevitable fellow-travellers of political and economic centralization.

If asked to describe the world's energy system, there are two diagrams you can draw. The first would be a Sankey diagram, showing where fuels are extracted, where they are refined and converted, where most of the energy is lost as waste heat, and where the remainder is consumed as useful power. The second depiction, equally valid and comprehensive, would be a systems dynamics diagram. One of the main "causal loops" in this diagram would show the fossil fuel industry gorging on subsidies and externalising substantial costs onto others, helping it to generate massive profits, of which it spends a meaningful proportion on lobbying, physical protection, community compensation and even – as history has repeatedly shown – downright bribery. These actions, in turn, help protect political access and entrenched economic advantage. This is as much a part of the old energy system as any pipeline or power station.

And now a confession. This causal loop is one of the main reasons why I founded New Energy Finance over a

decade ago. I am not an activist, and not really an environmentalist (just a keen outdoorsman). And despite the analysis laid out above, I am certainly no Marxist. But I am profoundly bothered when I see unfair, oppressive, society-harming actions by the energy industry.

This goes back at least to 1995, when I was working for the international news agency which broke the news of the hanging of Ken Saro-Wiwa, the Nigerian writer and environmental activist who campaigned against the dumping of petroleum waste in his native Ogoniland. I remember my shock and disgust. I am still disgusted when I see U.S. senators openly funded by fossil fuel companies, fighting to maintain the tax privileges of that industry. I am disgusted when the U.K. Competition and Markets Authority says, as it did this July, that utilities have been overcharging their customers by more than a billion pounds a year. I am disgusted when I see oil-funded dictatorships failing their populations and shoring themselves up with foreign mischief-making. I am disgusted when I see corrupt governments and global conglomerates flouting the principles of transparency. I am disgusted when I see coal companies rushing, like cigarette companies of old, to addict the next developing country to their poisonous products. I am disgusted when I see politicians – in the free world, mind! – forbidding scientists from discussing the negative impacts of fossil fuel use, and shackling their economies to the industries of the past.

I will be quite honest, at the risk of ruffling feathers: these things bother me much more than the occasional drought, wild-fire or hurricane, against which a wealthy and well-governed world should be able to protect itself. Oil spills, gas explosions and coal ash floods upset me too, but not as much as the cynicism with which they are implicitly accepted as the inevitable price to pay for our enjoyable lifestyles.

In 1995, when Saro-Wiwa was judicially murdered, I felt helpless. Now, however, I do not. Back then it was impossible to envisage a different world. Back then, health, wealth and happiness were inextricably linked to fossil fuels and their attendant corrupt, corrosive centralization of power. Now we know another way is possible. Back then I was a news industry executive, now I am playing my bit part as the world moves from old energy to new.

Clean energy is inherently more local, more distributed, more accountable. While Germany's big four utilities own the bulk of the fossil and nuclear generating capacity, they own only a small proportion of its renewable energy capacity; the general public owns many gigawatts of the latter either directly or via retail funds. Some may find

wind farms ugly, some may find them beautiful; either way, they make us talk about the trade-offs we are making to generate electricity. In the past, there were no discussions about the relative aesthetics of open-cast coal mines and gas fields in far-away countries. Energy efficiency happens in all of our homes and offices. People with solar panels on their roofs look at their utility bills in a completely different way from those that do not. Around the world there is new interest in mutualizing municipal utilities. Even the gas industry, in future, is going to be local, with fracking coming soon to a village near each of us, as it already has in some parts of the U.S.

Transportation too is going to be transformed, and this will shake the oil industry to its core. More than half of the world's population now live in cities, and cities around the world are blighted by the impacts of fossil fuel combustion on air quality, and by the impact of personal vehicles on quality of life. The shift is unstoppable to electric vehicles, public transport, walking and cycling, shared ownership and other, cleaner options.

As the energy system goes clean, so it will become more local, more human in scale and more digital. To quote Marshall McLuhan, the grandfather of post-modernism: "The personal and social consequences of any medium result from the new scale that is introduced into our affairs by any new technology." The future clean energy system is going to be more open, more accountable, more answerable to the community, and more socially inclusive.

As it stands, the energy industry is almost as bad on social inclusiveness as it is on sustainability. At one of the leading traditional energy events in Houston this year, the proportion of women speakers was just 7 percent. At event after event, I have found myself on all-male panels. I attended one session on sustainable transportation in Davos that had just one woman among 50 participants. Lord Browne, now one of the world's most vocal openly gay business leaders, felt compelled to conceal his sexuality throughout his 41-year career at BP. In a decade building Bloomberg New Energy Finance, I came across just one black utility company CEO outside Africa. I cannot recall how many times I have sat through meetings on global energy poverty at which every single participant was white.

Energy must be just about the most socially conservative – no, I will use the correct word, *backward* – industry in the world. At times it seems as if the main criterion for leadership is to be a straight white male, born between 1950 and 1965.

This is starting to change, but not fast enough. Women are disproportionately disadvantaged by energy poverty, bearing the extra workload and health impacts of cooking with traditional biomass. Access to modern energy is essential for women to enjoy basic healthcare, particularly during childbirth, and for girls to have time to study¹.

Gender in the energy sector is not just a question of fairness, it is also a question of effectiveness. Women may hold up half the sky, but more importantly they also buy half the world's appliances, half the world's energy and half the world's cars – and, if they do not, they should and soon will. They are a huge part of the market the energy industry needs to understand. Women also offer half the world's talent. There is a growing body of work showing that those companies that have diverse management teams and boards outperform those that do not.

Three years ago, I set the Bloomberg New Energy Finance team the target of 30 percent women thought leaders at our Summit. It is not a quota, it is a target, and I have been encouraged in this ambition by the success of the 30 percent club, of which I was unaware at the time I set the goal. We are not there yet – at this year's Summit the figure was still only 21 percent.

Meanwhile, however, every member of the Bloomberg New Energy Finance organization has received training on the importance of inclusion along the lines of gender, race, sexual orientation, and other dimensions of difference, and on the unconscious biases that can interfere with awarding jobs, assignments and promotions to the most promising candidates. I have spoken to all of our office managers on how an intimidating culture can take hold and inhibit women and other underrepresented groups from contributing to their full abilities.

The leadership of Bloomberg LP have been highly supportive; they have launched an initiative called Enterprising Women – positioning Bloomberg as a champion for women and women's issues throughout the financial services industry and beyond.

There are already a wide range of initiatives around the world, aiming to support women and minorities to progress more rapidly in the energy industry (see the list below). I will be encouraging the Bloomberg New Energy Finance Team to reach out and offer support wherever

possible. Bloomberg New Energy Finance can only benefit: while we have had senior women team members from the start, we still have some way to go to increase our diversity – and our performance will only improve as we do.

As the energy sector undergoes the profound transformations we expect in the coming two decades, it would be inconceivable for it to end up with its leaders as a group looking the same as their current equivalents. Hints of the energy sector's future can be gleaned from other sectors that have thrown off centralized, state-dominated models and become dynamic, competitive and less macho – such as telecoms, media and (a few decades behind them) the airline industry.

The revolution afoot in energy, driven by new technologies and distributed generation, can and should mean a democratization of social as well as electrical power.

We need to work together to ensure that a transformed energy industry is also a reformed energy industry.

SELECTED DIVERSITY-RELATED INITIATIVES IN THE ENERGY SECTOR

This is not an exhaustive selection. If you work with any others, please put us in touch.

BP Women's International Network

BP Pride Group for LGBT employees

<http://www.bp.com/en/global/corporate/careers/working-at-bp/diversity-and-inclusion.html>

C3E initiative of US DOE within the Clean Energy Ministerial

Global Alliance for Clean Cookstoves

<http://cleancookstoves.org/>

Energia – international network on gender and sustainable energy

<http://energia.org/>

The Hawthorne Club

<http://thehawthornclub.com/>

DOE Minorities in Energy Initiative

<http://energy.gov/diversity/services/minorities-energy-initiative>

LGBT Professional Oil Industry Network Singapore

Power Africa's Women in African Power initiative

¹ Ashden Report: Does Energy Access Benefit Women? Beyond Anecdotes: A Review of the Evidence, May 2012. https://www.ashden.org/files/pdfs/reports/Ashden_Gender_Report.pdf

Queers for the Climate

<https://groups.google.com/forum/#!forum/queers-for-the-climate/join>

Shell LGBT network

<http://www.shell.com/global/aboutshell/careers/shell-diversity-inclusion.html>

Solar Sister

<http://www.solarsister.org/>

WISE Campaign (promoting women in STEM)

<https://www.wisecampaign.org.uk/>

Women in Sustainability, Environment and Renewables

<http://masdar.ae/en/adsw/detail/women-in-sustainability-environment-and-renewable-energy-forum-wiser>

Women in Cleantech and Sustainability

<http://womencleantechsustainability.org/>

Women's Oil Council

Women in Nuclear

<http://www.win-global.org/>

Women's Engineering Society

<http://www.wes.org.uk/>

Women in Renewable Energy Scotland

<http://www.wirescotland.com/>

ESMAP community on gender and energy

<https://collaboration.worldbank.org/groups/gender-and-energy>

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