

Stuck in Windsor Castle with the Solar Blues Again

The Windsor Energy Consultation takes place later this week. Each year in early March, a select group of energy experts, players, policymakers, and officials meet at Windsor Castle outside London.

My briefing to those assembled will be central to the main theme in this year's Windsor meetings – identifying the investments necessary to address worldwide energy needs moving forward. But my focus will be on how to integrate the various energy types with a widening range of investment sources.

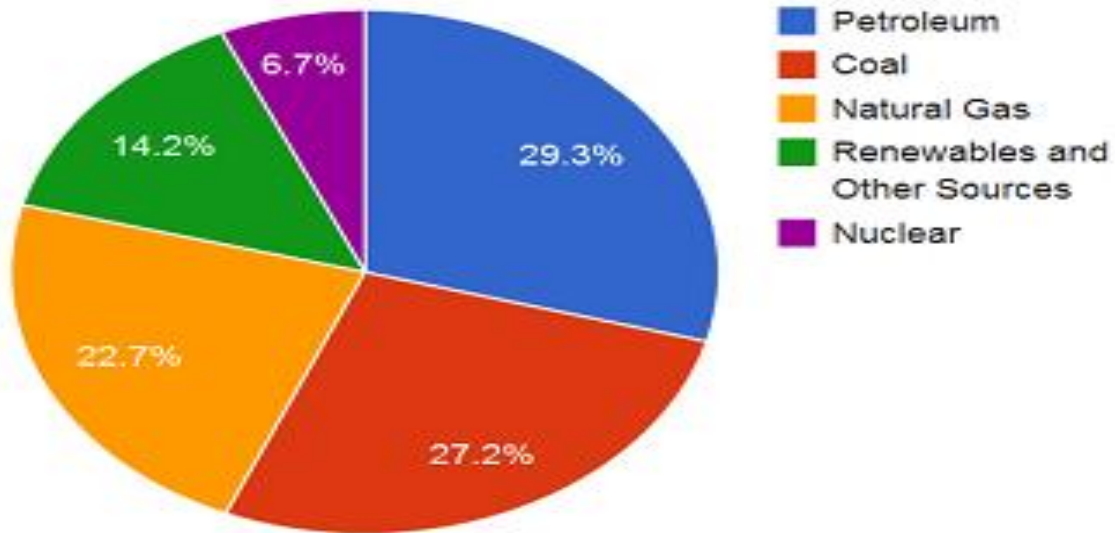
Last time in *ECRG Intelligence* I discussed that portion of my Windsor briefing considering the accelerating energy infrastructure crisis. While outlining the concern, I made reference to emerging change in the composition of energy sourcing.

That is the element I will be expanding upon today, with particular reference to the prospects for renewables. Despite the presumption in some quarters, it is a mixed bag when it comes to what the composition of energy sources will look like several decades from now.

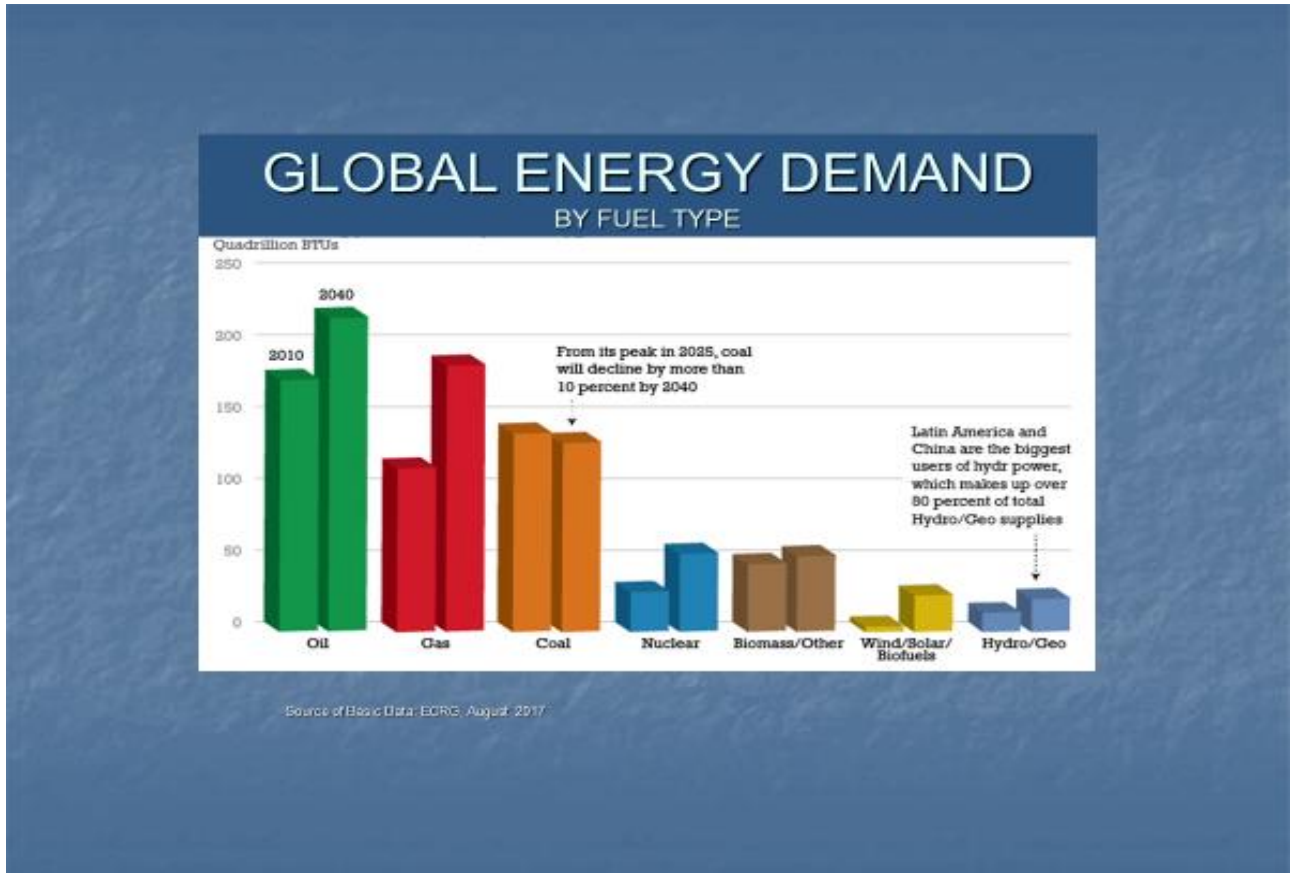
In advance of my full comments at Windsor later this week, I will also provide today some of the slides I will employ in that presentation.

While solar, wind, biofuel, and (to a lesser extent) geothermal have been heralded as the wave of the future when it comes to the global breakdown in energy sources, there will be no change in the top three current sources by 2035. As I explained in the most recent *ECRG Intelligence*, oil, natural gas, and coal will remain the dominant energy sources worldwide over the next 15 years and change.

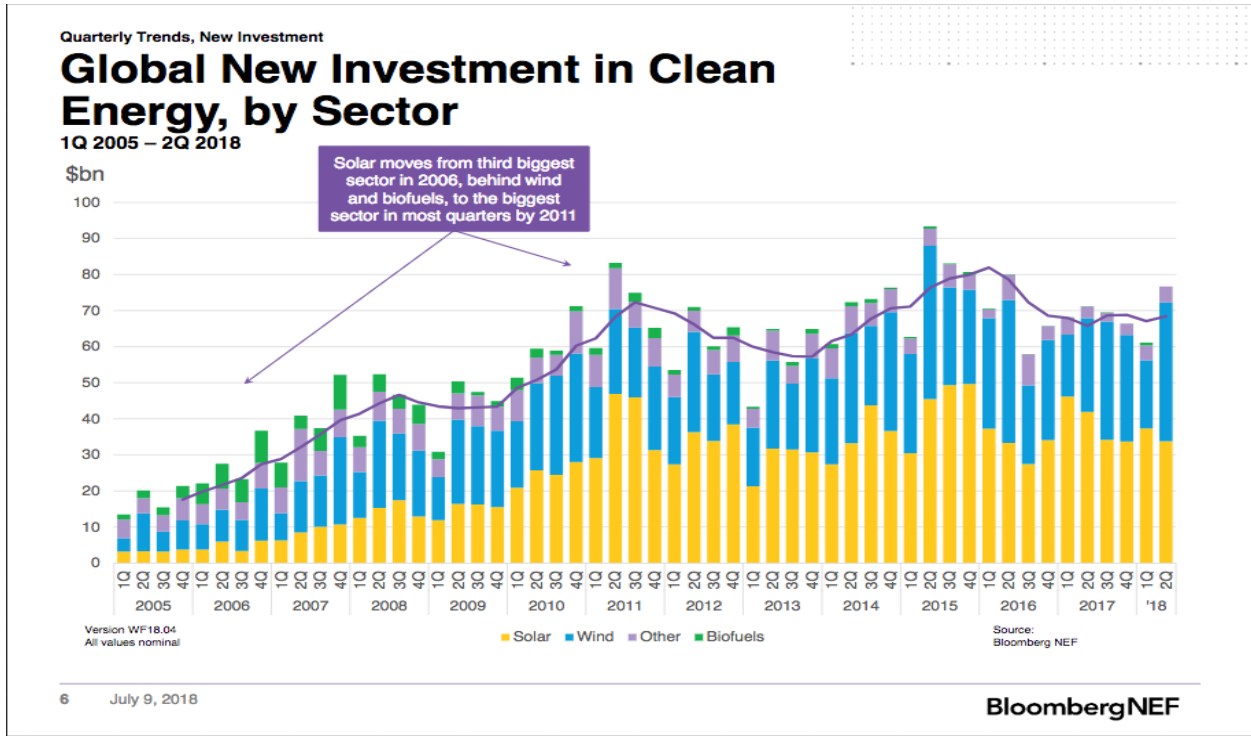
World Energy Mix 2035 (EIA Data)



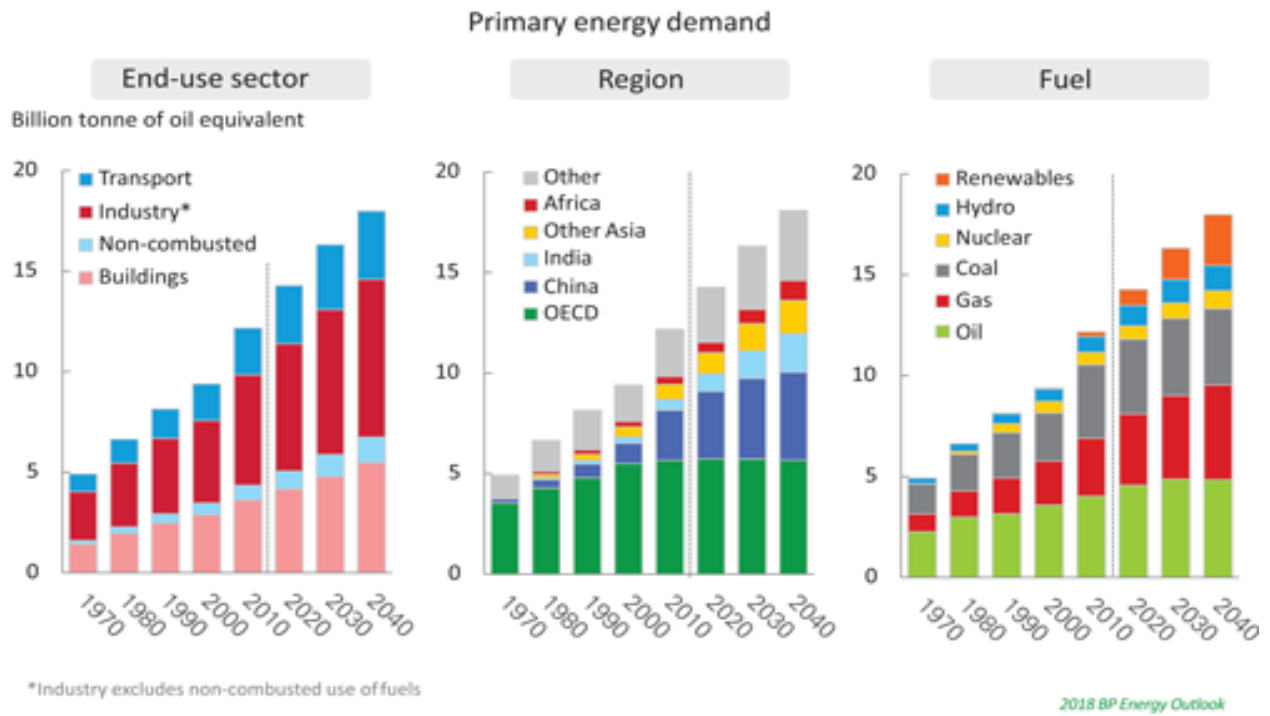
Nonetheless, renewables on a percentage basis – solar and wind in particular – will realize the greatest increases in meeting worldwide demand...



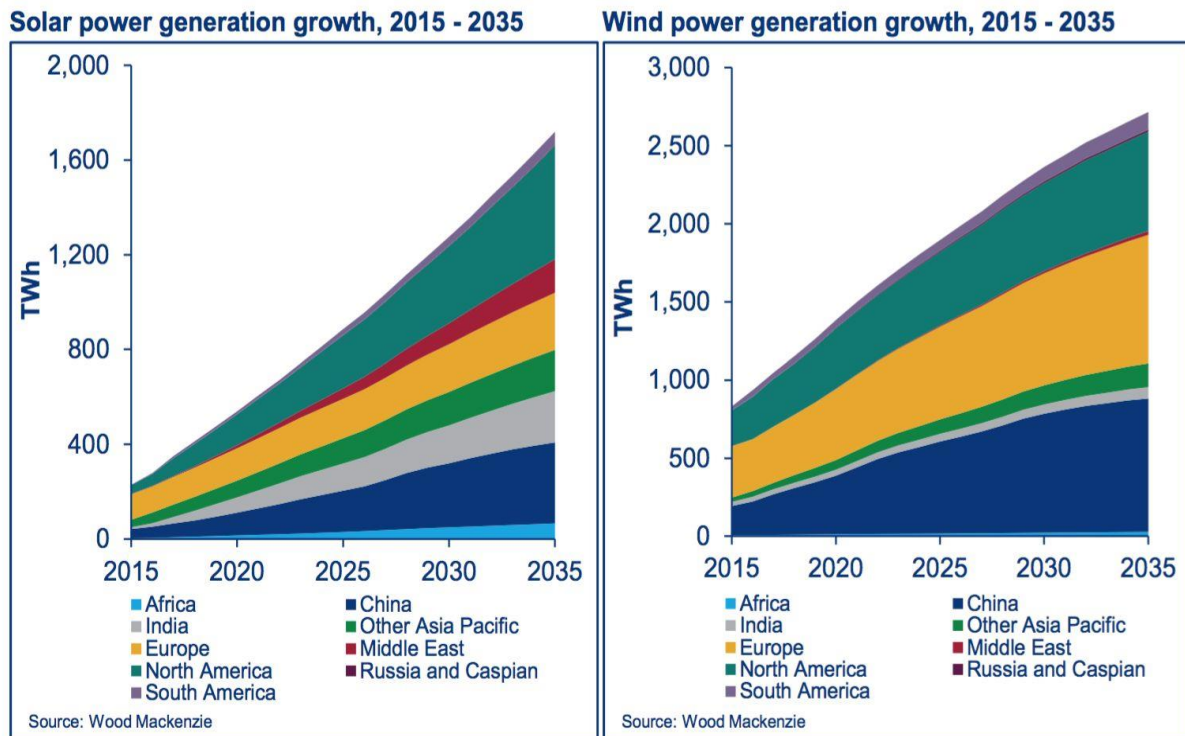
...in overall energy investment totals...



...in comparison to other energy sources across use sectors, regions, and fuel types...



and specifically, when considering the amount of power generated from solar and wind alone.



All of these trends are indicators of a rising global move toward renewables.

But, as my briefing will also conclude at Windsor, there is a ceiling forming.

SWFs Not Easy Being Green

Initially, there were indications that Sovereign Wealth Funds (SWFs) were moving into green and environmentally-friendly investments. Through 2017, that appeared to be a rising theme.

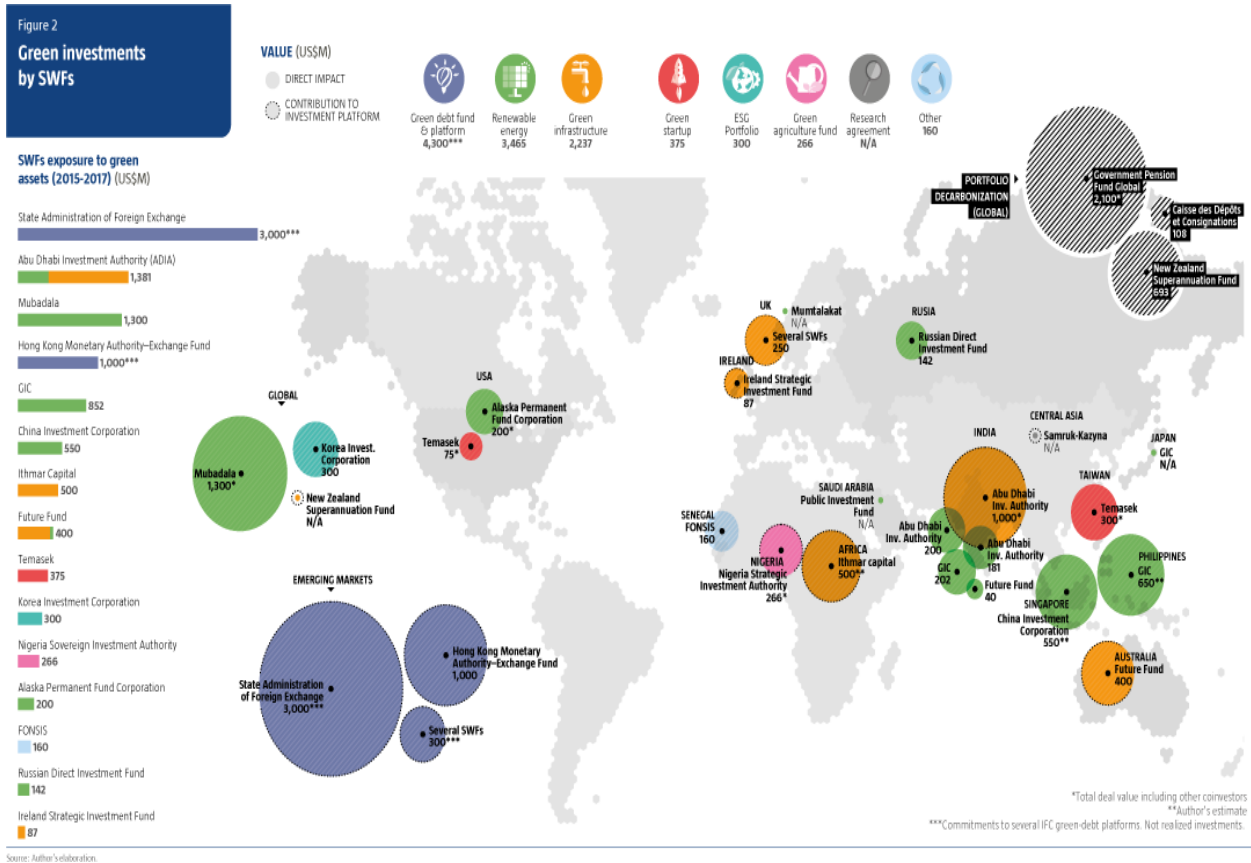
There are at least 92 SWFs worldwide, collectively controlling at least \$7.5 trillion in assets under management. A SWF invests proceeds from natural resource sales (crude oil and natural gas leading the list) or national surplus revenues from broader exports or excess currency reserves (primarily from forex trading). As the name implies, most of the funds are owned by sovereign (i.e., central) governments, although a few – such as Alaska and Alabama state funds investing oil/gas proceeds – are not national in nature.

Despite much of the capital coming from energy sales, the majority of SWF investment is not in energy projects at all.

The investments are limited by a combination of government policy constraints and legislative restrictions. Also, each fund's rationale further restricts the purpose for any investment. There are five basic types of SWF objectives, each involving a different "reserve" goal: (1) fiscal stabilization (primarily to guard against commodity or resource price volatility having an adverse central budgetary impact); (2) savings (to preserve and grow wealth for future generations); (3) reserve investment (investing excess reserves to manage currency exchange volatility); (4) economic development and diversification; and (5) pension reserve (to offset future retirement funding shortfalls).

SWFs usually seek lower risk targets in longer-term investments. That means much of what is invested ends up being in low-return but safer sovereign debt issued by other governments. For that reason, US treasury bonds (and to a lesser extent treasury notes and bills) are well-represented.

All told, SWF money may find its way into renewables and has contributed to new projects in various regions, especially when such investment is included in plans covered by goal #4 above (economic development and diversification).



But this is not developing into a major expanding source of renewable investment. Even with additional projects coming on board, management of SWFs has yet to receive significant home government stimulus to expand into the sector.

Grid & Parit(y)

There are also three other contributors to the ceiling forming.

First, despite being the single biggest change in the energy mix with a prominent push coming by 2020-2022, solar and wind remain intermittent power sources. That means neither generates power all the time (the sun doesn't always shine, and the wind doesn't always blow).

This requires that more traditional backup generating facilities remain on line to cover intermittence resulting from a shortfall in electricity generation. It is on the surface paradoxical that a rise in solar and wind power results in the international prolonging of the very hydrocarbon-fueled power plants renewables were intended

to replace.

The “holy grail” to break this cycle will be major advances in large-scale battery technology and longer-term storage capability. Some advances are in evidence, but the genuine breakthroughs have not yet taken place.

Second, the need to retain alternative backup, combined with the operational costs of plants and the application or phasing out of publicly-funded stimulus projects, rebates, incentives, credits, subsidies and the like, have distorted estimates of genuine costs per unit of power generated. In some cases (Germany, for example), this matrix has resulted in significant increases in consumer prices.

Finally, such government involvement, and requirements that excess backup remain available, have obliged a revision in the meaning of grid parity.

Grid parity refers to renewables like solar and wind reaching a generating cost equivalency to conventional fuels. Such parity had been considered evidence that the age of renewables in electricity production had finally arrived.

However, revised calculations are now casting doubt on the actual cost of alternative energy sourcing, with additional concern associated with added expenditures for infrastructure and delivery.

Some decisions are now being made with ecofriendly, carbon reduction, sustainable, and neutral impact parameters incorporated into planning. In such cases, additional generating costs are tolerated.

Yet for much of the global energy funding community, the bottom-line return on investment (ROI) remains the dominant factor.

That may be the most significant near-term cap of all. In many parts of the world, it is simply cheaper to use traditional sources. The net price of environmental impact is recognized. But the crushing need for more electricity is simply too strong.

About the Author



Dr. Kent Moors is an internationally recognized expert in oil and natural gas policy, risk management, emerging market economic development, and market risk assessment.

He serves as an advisor to the highest levels of 27 countries, including the U.S., Russian, Kazakh, Chinese, Iraqi, and Kurdish governments, to the governors of several U.S. states, and to the premiers of two Canadian provinces. He's served as a consultant to private companies, financial institutions and law firms in 29 countries, and has appeared more than 2,300 times as a featured radio-and-television commentator. He appears regularly on ABC, BBC, Bloomberg TV, CBS, CNBC, CNN, NBC, Russian RTV, and the Fox Business Network.

A prolific writer and lecturer, his six books, more than 2,700 professional and market publications, and over 650 private/public sector presentations and workshops have appeared in 47 countries.



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