# Business Sustainability,
# Pious Baloney
# and
# Other Observations of the Electrical Scene

by

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[ Abstract ]

A business is sustainable if , after the original capital investment, revenues from sale of product to willing customers at competitive prices covers cost of production and profit, without government subsidies or periodic cash injections. Unless the business meets that definition, it will fail upon removal of external support. By that definition, most sustainable energy ventures are not sustainable in a business sense.

In addition, sustainable energy initiatives lean on the electric industry, which depends on injections of outside cash from new investors to meet current obligations and pay previous investors. That business model is not sustainable without government action to limit competition that will imperil the utility's ability to raise capital. Yet government policy now has encourages more competition in the electricity market. The foundation assumed for much sustainability planning, then, may not, itself, be sustainable.

Efforts to promote sustainability in the environmental sense could founder on lack of sufficient consideration for sustainability in the business sense.

## Opening Confessional

I confess. I'm not sure what "sustainability" means. I work with sustainability consultants. I try to extract the pith from their murky prose often without success. I work on Wall Street. I read sanctimonious statements in corporate reports with more suspicion than admiration. Perhaps I come from a suspicious part of the world. Do these standard definitions help ?

Definitions of Sustainability

... the capacity to endure. [a]

... the long term maintenance of responsibility. [a]

... harvesting or using a resource so the resource is not depleted... [b]

... meet[ing] present needs without compromising the ability of future generations to meet their needs. [c]

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Sources:

a. Wikipedia
b. Merriam -Webster
c. UN World Commission on Environment and Development

Those words reek of wooly thinking and possible violations of the laws of thermodynamics. They remind me of the most memorable phrase to emerge to date from the GOP presidential primaries: "pious baloney." Then again, according to some hard-headed investment types with whom I work, "stock price performance can be positively influenced by the quality of a company's sustainable practices." [1] That is real. Is sustainability a serious concept wrapped in waffle? Or is it pious baloney?

**Business Sustainability Defined**

Leaving definitions of environmental sustainability to others, I will propose another concept, business sustainability. You heard it here first. You are present at the creation.

> A business is sustainable if, after initial investment, revenues from sale of product to willing customers, at a competitive price, covers cost of production plus return on capital, without need for government subsidies or periodic injections of cash to support the business.

"Hold on", you say, " I didn't come all the way to Pittsburgh to hear that what every business person expects of business is a new concept! Most firms would close down a business that could not meet that definition -- or at least most of it, anyway. " Okay, I didn't produce something original. But wait.

**Sustainable Electric Offerings**

Think about green, sustainable offerings in the electricity sector. Most involve purchase of product mandated by government, with a tax credit or other subsidy to supplement profit-- or as a headline describing the business read, "Companies Are Virtually Assured of Profits." [2] Meaning that hardly anybody would buy the product ( or invest to produce it) if the the producer had to function as an ordinary business. That might not be so if we had a long term energy policy that priced in externalities (meaning taxes on goods that produce carbon emissions, affect health or undermine national security) . But we don't.

Without the props provided by government , many green offerings would collapse, or better still, never see the light of day. Meaning that they are not sustainable. Unless cost of sustainable offerings ( excluding benefits of subsidies and tax credits) comes

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[1] Richard Rudden and Kyle Rudden, "The Case for Sustainable Investing", Target Rock Advisors, Feb. 15, 2012, p.8.

[2] Eric Lipton and Clifford Krauss, "Rich Subsidies Powering Solar and Wind Projects", *New York Times,* Nov. 12, 2011, p.A1.

down to a level competitive with that of dirty offerings, they will become entitlements for their providers and burdens for others, the renewable equivalent of the late, expensive and unlamented PURPA contracts, a well intentioned program that turned into a racket.

Consider those costs of support in the current political and economic environment. Can we depend on the sustainability of subsidies and tax credits that sustain the sustainable offerings? Can we depend on continuance of renewable purchase mandates that raise the price of electricity? People in the 99% class cannot afford luxuries. Protecting the grandkids' environment is a luxury now that grandpa has lost his job, grandma's pension was slashed, and both wonder whether Medicare will be around when they need it. So the weather gets warmer? Big deal!

You may have noticed that a significant number of politicians and opinion makers regard global warming as a plot or fraud, characterize most environmental measures as "job killers", and want the government out of the energy sector. You may have noticed, too, that natural gas -- the "clean" fossil fuel alternative -- has hit a price too low to beat, a price that could drive coal and renewables out of business. In that environment, I would not depend on the longevity of government programs that promote use of products that many electricity regulators, as well as politicians regard as unnecessarily expensive and detrimental to industry in the state whose utilities they regulate. You should hear some of the regulators!

The chief executive of the world's largest owner of onshore windmills, Iberdrola, came out for a halt on his home turf. Renewable technologies account for 13% of the electric bill but produce only 3% of electric supply. "It makes no sense ... Spain is installing the most expensive technologies .... instead of looking for those which are cheapest."[3] Spain, of course, has serious economic problems. But so do we.

Renewable mandates attract resources to market but do not incentivize producers to furnish resources at competitive prices. The buyer, after all, has to buy. Price does not matter. Imposing a tax on externalities ( say a carbon tax) would not only increase sales of renewables but also encourage producers to lower costs, because they would have to compete against non-renewable solutions, such as consuming less energy.

Let me put it this way. As an investor I do not want to put my money into the development or sale of products that depend on the fickle fancies of politicians unless I am handsomely compensated for the additional risk.

In the end, the renewable resource becomes a sustainable line of business only when it sells at a competitive price. Note that I did not say an equal price. People might pay

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[3] Pilita Clark, "Iberdrola backs freeze on subsidies", *Financial Times*, Feb. 13, 2012, p.19.

more for perceived benefits such as reliability and stable price ( if they cannot achieve those benefits through financial instruments) , nationality of energy source and even snob appeal. Unfortunately, electricity markets as presently constituted put the greatest weight on tomorrow's price and assume away any risk that they cannot financially hedge, so don't count on the long -run- low- risk-low- price -superior product winning out. Especially since producers have dumped risks of volatility and reliability on customers who don't make the procurement decisions.

**Sustainable Electric Utilities**

So, is the electricity industry refurbishing to support an unsustainable concept? Meaning that all those windmills in the Dakotas will stop turning, that the electric industry will not need those transmission lines and new operating algorithms --- all done in by cheap natural gas or triple pane windows or waste gas vented from blast furnaces[4]? Let me add more complications to the picture.

The planners for the sustainable future will rely on the electricity industry to deliver their products. Renewables, by and large, produce electricity, often nowhere near the customers. They require transmission and distribution lines and back-up power. Reducing petroleum usage in transportation requires electrification. Getting electric utilities off conventional coal combustion could make a big dent in carbon emissions, as it did during Great Britain's dash to gas in the 1990s. Carbon free nuclear plants produce electricity, too, and not much else except hot water.

Now, think about the electric industry's business model. The industry rarely collects enough money from sales to pay its expenses, pay a return on capital, fund capital expenditures and repay debt that it owes. It regularly raises money from new investors to pay those obligations and to pay off old investors. What does that business model look like? A Ponzi scheme, perhaps? "How could a Ponzi scheme last for 120 years?", you ask. So, is this a sustainable Ponzi scheme? When will investors awaken to the possibility that another set of investors will not bail them out? And why does it matter?

Taking the questions in reverse order, it matters because we should not rely on an unsustainable business entity to deliver our sustainable future to us. You don't want to produce your sustainable product at Point A, which you intend to sell to consumers at Point B and discover that the delivery mechanism in between no longer functions.

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[4] McClatchy-Tribune Regional News, "Bill would update definition of renewable energy for steelmaker," *energycentral*,Feb. 23, 2012, ,

As to why the scheme has survived and thrived, the answer is simple: regulation. Investors believe that the regulator can keep the electric utility in business indefinitely. Somebody will always want electricity and the electric company will have the monopoly on furnishing it. The electric company can sell securities to raise money to build what it wants because investors have no doubt that customers will pay for the electricity that it produces, and that future investors will put in money to pay out old investors.

Due to the regulated framework, electric utilities operate in a peculiar way favorable to renewables. Utilities have limited reason to worry about the cost of what they sell as long as the regulator approves. If the government says do it, they do it as long as they can pass on costs to consumers.

But, wait a minute, hasn't the government deregulated much of the industry, removed the monopoly, introduced competition? How can policymakers convince unregulated entities to enter unsustainable lines of business? They can't, unless they back up those lines with sales contracts to regulated utilities or their customers. Experience shows the wisdom of such a stance. Merchant (unregulated) generators have gone bankrupt and others teeter on the precipice. Regional transmission organizations have encountered difficulty securing more generating capacity by only using market prices to entice providers. The missing money problem they call it. The concept of the merchant transmission line died, too. Builders want contracts or regulated rates of return to induce them to make long term commitments.

Contracts with whom? With utilities or directly with big customers. But utilities will become more reluctant to sign contracts as they lose their hold on customers, won't they? Why make a long term commitment to buy a product that you sell to customers who have only a short term commitment to buy from you? It sounds as if regulators will have to maintain enough of the utility's monopoly to enable it to sign those contracts. Consider the contradictions. The government wants to bring consumers the purported benefit of competition ( lower prices?) while promoting the purported benefits of sustainability (lower carbon emissions, green jobs, greater energy security but higher prices). How does the government get disaggregated components of the supply chain to buy the higher priced product? Simple. It makes them do it. It regulates.

The British opted for a green future. They kept a regulatory framework enshrining competition as its deity, but they tell the companies what to do, and they put out incentives and disincentives that only a fool would ignore. ( As an example, the owners of Drax, the biggest generating plant in Western Europe, recently said they would convert from coal to biomass for the right subsidy, which they did not get, incidentally. Aside from that, are there enough coconut shells in the world to fuel Drax?) The British re-regulated, in effect, but did not admit it.

We, on the other hand, attempt to move in two directions at once without considering consequences, and in the process create an electric industry structure that would have made Rube Goldberg proud. Policy makers here refuse to set priorities, do not recognize conflicts and confuse means with ends. They eschew market -oriented solutions while extolling the virtues of the market. They abhor the simplest tool, a carbon tax, because taxing carbon either violates a religious vow to avoid all new taxes or because it makes costs apparent, while the cost of the renewable program gets buried in the electric bill.

Will we spend billions to rebuild the grid, with the money better spent helping Americans produce and consume energy more efficiently? The more important question is: what is the primary goal, of policy here: sustainability, lower carbon emissions, more renewables, green jobs, reduced energy imports, more efficient energy usage, lower costs to consumers, profit opportunities for investors, making America more competitive? All of the above? That's the answer and that's the problem. With limited resources we can't do all of the above. Anyway, some goals conflict with others. The British, at least, admitted that their program would raise prices, although they claimed that the latest government program would reduce the increase in prices.

**Historical Insights**

Consider two comments made years ago but still pertinent. Charles P. Sparks, the aptly named electrical engineer, presenting to The Institution of Electrical Engineers when he became president of that august British body back in November 1915, said:

> The economical use of fuel has been hindered in this country by its low price. Until some other primary source of power and heat is found, the world may be considered to be living on its capital, i.e. the stored energy in the coal, and to be using fuel wastefully to the prejudice of future generations. [5]

Isn't that what this is all about, stripped of the pious baloney? Or, in the immortal words of Rowland Howard, "Waste not, want not..."

Historian of technology Thomas P. Hughes diagnosed the problem back in 1980:

> ... technology is ...a complex system of interrelated factors with a large technical component. Technical refers primarily to tools, machines, structures and other devices. Other factors embedded in technology besides the technical, are the

[5] Charles P. Sparks, "Inaugural Address", *The Journal of The Institution of Electrical Engineers*, December 1915, p.10.

economic, political, scientific, sociological, psychological, and ideological.

... we often confuse technical and technological problems... technological problems and conflicts are not solved or resolved until they are correctly diagnosed and responded to as technological rather than technical....

The reason technical responses to the energy problem are not sufficient is that it is technological in character. [6]

I would argue that governmental response to energy problems, over decades has consisted of an uncoordinated and well lobbied set of technical fixes, rather than a policy, that is, a technological solution. How many of those fixes have proved sustainable in a business or environmental sense?

**Policy Sustainability, Cost of Capital and Present Value**

Now, let's return to business sustainability. The environmentally sustainable resources coming to market flunk the business sustainability test unless:

- Government mandates usage---But government can rescind the mandate, which raises risk of investment-- not a truly sustainable product, then.

- Government institutes a tax on externalities which makes the product more competitive in the market-- Definitely a more efficient way to go, but still subject to changes in the tax law, which adds to the investment risk.

- They can compete with unsustainable resources in providing value to consumers. -- Investors, then incur ordinary business risk, rather than that plus political risk.

Higher risk requires a higher return in order to sustain investment. This concept got little attention during electricity deregulation and, as far as I can tell, not much attention in discussions of sustainable resources. Higher return requires higher prices, I would suggest. How did they beat this problem in the old days of independent power production? Simple. They lay the risk on the utilities via contracts backed by the credit of the utilities. Sounds like a free lunch? Well, it took a while before somebody figured out that leaning on the utility's credit does not come for free, but they did figure it out. Risk does not go away. It just gets shifted.

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[6] Thomas P. Hughes, "Technological History and Technical Problems", in Chauncey Starr and Philip C. Ritterbush, *Science, Technology and the Human Prospect* (NY: Pergamon Press, 1980), pp.142-143.

Which brings me back to the electricity industry. I don't think that dumping renewable power purchase agreements on utilities or having them make huge investments to support a possibly unsustainable business makes sense without unambiguous governmental backing. The government should not say that the utility industry has the obligation to invest billions of dollars to accommodate Product X and then walk away when somebody introduces Product Y that can do the job better for less. At least that is what investors and industry executives believe. When they discover that they have erred, they will raise the cost of capital to reflect the greater risk. This is not a new problem. Read the parliamentary debates when new gas light technology came to market or when an enterprising pioneer tried to introduce new, large steam turbines that threatened the regulated incumbents with their small, reciprocating engines.

Most business people try pick the low hanging fruit before moving in with the ladders. That makes sense. Consider the present value of money. Make the big profit as soon as possible and enjoy the returns earned on that cash for as long as possible. Don't start with the hardest, least profitable part of the harvest and attempt to live off those meager profits until you get to the profitable produce. Rain could ruin the harvest at any time. All the more reason to bring in the most easily harvested fruit first.

Resources for the Future concluded that "Pricing is both an effective and cost effective solution."[7] Meaning that a policy that raises the price of the offending good will reduce its consumption. That's the simplest way to cut our energy usage and emissions. After reaping the benefits of using tax policy, pricing and some legislation to deal with market imperfections -- -probably the easiest and cheapest means to cut our emissions and leave something for our grandchildren--- then we should move on to the complicated, more expensive means of achieving our goals.

We have reversed the order. That does not look like a sustainable business proposition.

**Conclusion**

"Sustainable" has joined the lexicon of policymakers, alongside words like "solidarity," "authentic" and "transparency", vague but impressive words to which no right thinking person could object. "Sustainable" could leave that revolving lexicon quickly enough, though, if industry cannot deliver those sustainable goods in an economical, business-like manner to consumers who want them. This is technological problem, not a technical one. Solve the problem with that in mind.

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[7] Kristin Hayes, "Toward a New National Energy Policy", *Resources*, Winter/Spring 2011, p.19.