

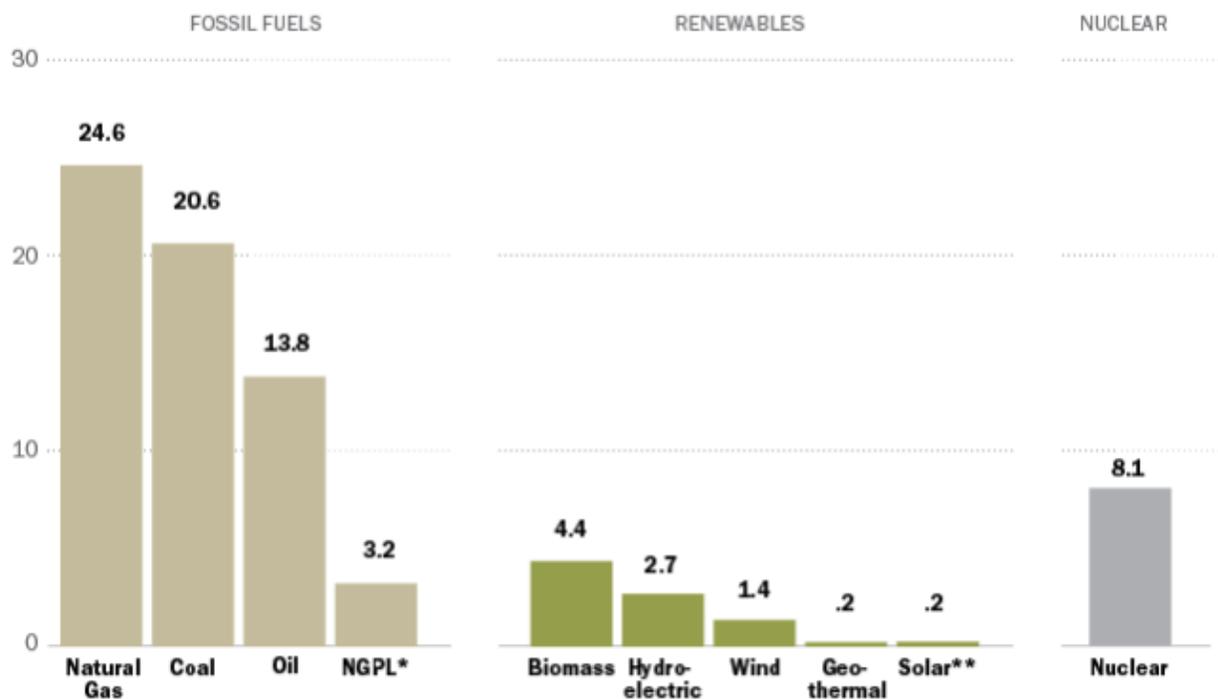
Data on biomass markets used for renewable energy:

Bryan Thiriot, Five County Association of Governments. (DRAFT) September 30, 2013

The share of total U.S. energy produced from renewable sources — biomass, hydroelectric, wind, solar and geothermal — has crept higher over the past six years, responding to both government policies (from federal tax credits to state standards for electricity generators) and public pressure. The renewable share of domestic energy production grew from 7.2% in 2001 to 11.8% in the first half of this year. Pew Research Center, September 26, 2013

U.S. Domestic Energy Production, by Source, 2012

All figures in quadrillion Btu



*Natural gas plant liquids

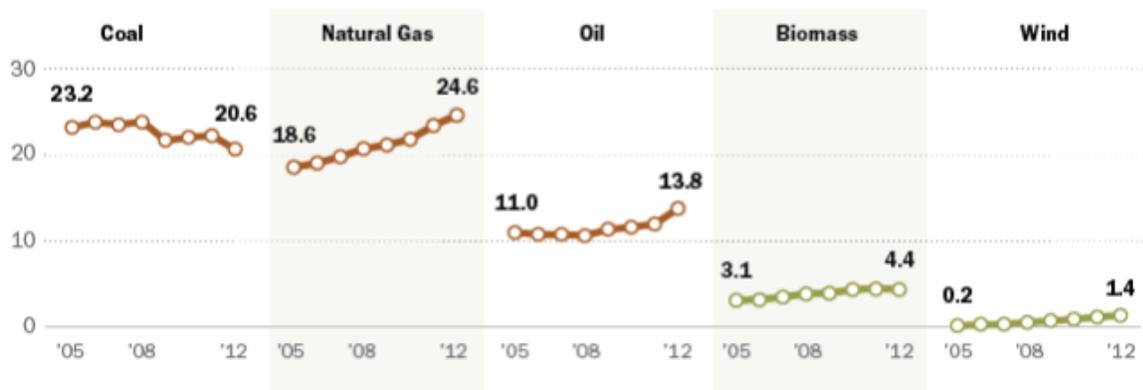
**Photovoltaic and thermal

Source: "Monthly Energy Review," September 2013, U.S. Energy Information Administration

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U.S. Domestic Energy Production, by Source, 2005-2012

All figures in quadrillion Btu



Source: "Monthly Energy Review," September 2013, U.S. Energy Information Administration

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These charts were released by the Pew Research Center on September 26th, 2013.

Factors contributing to the absence of an infrastructure for harvesting, processing, and marketing forest biomass in Utah.

1. Forests have been customarily managed by public administrators, not by entrepreneurs and private industry. The culture of administration, particularly in the public sector, does not often lend itself to the development of creative ways to generate profits, develop products, find markets, and compete. Moreover, administrators are largely prevented by rule and statute from exploiting public stewardships for private, economic gain – either for themselves or for others – without long, unbiased bidding and application processes and heavy restrictions thereafter for the sake of the public interest.

When a public administrator approaches a problem, he is trained to do so according to mandates promulgated in the public interest – which, in the case of forests, entails environmental interests, with or without the actual presence and activities of persons – and they are held accountable to bureaucratic superiors, elected representatives, attorneys, and public hearings for their actions.

The intangible, yet arguably most potent, force behind public sector motivation is the allocation of tax dollars, which are requisitioned from the public and not earned as business profits would be.

2. Forestry officials have customarily prioritized tree and forest preservation, due to simplistic, public-interest demands, which has led to a weighted emphasis on fire mitigation and

suppression – when fire was, for time immemorial, the means by which nature would regenerate new forests and habitats. This has led to undue tree and shrubbery congestion, very poor tree health, increased insect damage and death, a loss of foliage and animal habitat, an immeasurable increase in catastrophic wildfires, and diminished recreational and economic uses such as livestock grazing.

3. Whenever attention has been given to forest products, it has been primarily concentrated on timber uses. However, timber harvesting does not utilize the entire range of biomass, leaving heaps of slash behind, while tearing up forest floors, leaving work incomplete amid depressed construction markets, and generally aggravating locals and vacationers who desire a pristine ambience.

4. Forest administrators possess a vast understanding of forestry and forest preservation – and perhaps a much greater understanding of what ought to be done to properly manage their stewardships than what they are permitted to do by regulation or by mandates tied to budget allocations. Their duties have been compelled by conservation and ecology at the expense of overseeing greater uses of forests as a natural, renewable resource. Such emphases have focused narrowly on grazing and timber, but little, if anything, about the fundamental chemical components of biomass – particularly carbon and its useful derivatives – is ever acknowledged.

5. A study of biomass markets has been inhibited by a combination of scanty knowledge about carbon and hydrocarbon derivatives and a lower likelihood that a rural-orientation will be entirely aligned with the global marketplace.

6. Technologies for the harvesting and process of the full stream of biomass feedstocks are relatively historic, but the profitable generation of byproducts is a new and relatively unknown science.

7. Many have arisen in recent years touting the latest machine or technology for processing biomass, but the final byproducts they generate remain of lesser value because they lack the full range of reciprocally necessary technologies required to achieve full refinement and maximum profitability.

8. Whenever officials meet together to elicit solutions to the biomass dilemma, they often express frustration over the lack of known companies possessing the right combination of technologies or markets to begin converting biomass into a valuable, natural, renewable resource.

Components of a solution to the biomass market dilemma.

At the outset, public administrators must make a greater effort to defer to private industry and the drivers of market demand to dynamically seek out the highest and best solutions.

The following criteria must underlie the right industry participants:

1. Companies that do not promote a single technology, but which have assembled the best groupings of mutually dependent technologies to achieve the most valuable byproducts possible.
2. Companies that thoroughly clear biomass without leaving residues of slash.
3. Preferably, companies that also offer to re-seed and treat soils.
4. Companies that follow accepted forestry protocols.
5. Companies that neither solicit nor incur public expenditures.
6. Companies that produce byproducts that are valuable enough to be driven by long-term market forces and are resistant to economic downturns.
7. Companies that are oriented by profits and minimize energies spent to impress public administrators with their environmental altruism.
8. Companies whose business models seem to best benefit rural economic development.
9. Companies need a dedicated supply of biomass feedstock, for example 10 years contracts, etc.

Additionally, the public sector must minimize (or remove) the barriers to production by allowing free (albeit responsible) access to public lands for the removal of biomass.