

Should we get our electricity by burning trees?

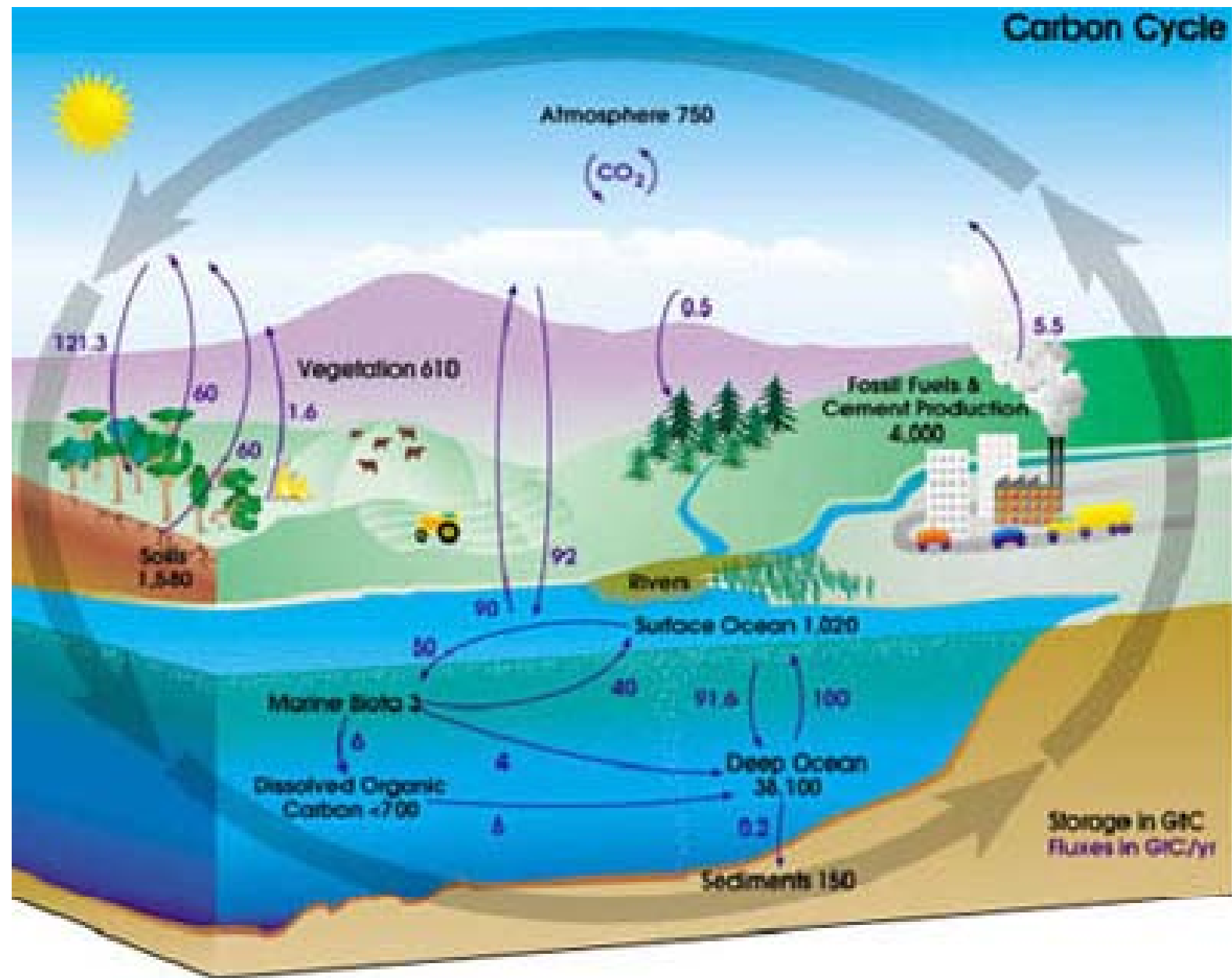
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Using wood for heat and power seems like such a good idea

- A lot of forest has regrown in New England in the past 100 years – wood is abundant
- Many of us heat with wood that we gather and cut locally so we are familiar with it
- The assumption of carbon neutrality
 - Cutting and burning a tree releases the carbon dioxide that the tree absorbed while growing
 - A new tree will grow and reabsorb the released carbon dioxide

Carbon Cycle



State, national and international policy supports these propositions

- All states that have a renewable portfolio standard treat burning biomass to produce heat or electricity as carbon neutral
- As a result, it is eligible for carbon credit payments from the federal government
- European governments also make this assumption as well

Additional benefits of biomass

- It is a national resource that will reduce our dependence on foreign energy
- Biomass is lower in sulfur dioxide emissions (acid rain) and mercury
- It will create local jobs

Unfortunately, there are some atmospheric downsides

- It is not carbon neutral, but emits more carbon dioxide than a coal burning powerplant
- The carbon is released in a minute, but can take a century to be reabsorbed by replacement trees
- Wood burning produces much higher serious air pollutants including asthma causing particulate matter and additional components than does coal

The demand for biomass exceeds supply

- Biomass power plants exceed the supply several times over
- This problem will get worse as Europe imports wood from the US to “reduce” its own carbon emissions by co-firing wood with coal

Biomass electricity will compete with other forest services

- Forests provide multiple services and benefits
 - Biodiversity
 - Water quality and quantity including flood control
 - Biodiversity and wildlife
 - Carbon sequestration
 - Timber
 - Air quality
 - Soils production and erosion control
- New England forests have been lost twice since European settlement
- One of the reasons that carbon dioxide is building up as slowly as it does is because of the regrowth of Eastern forests

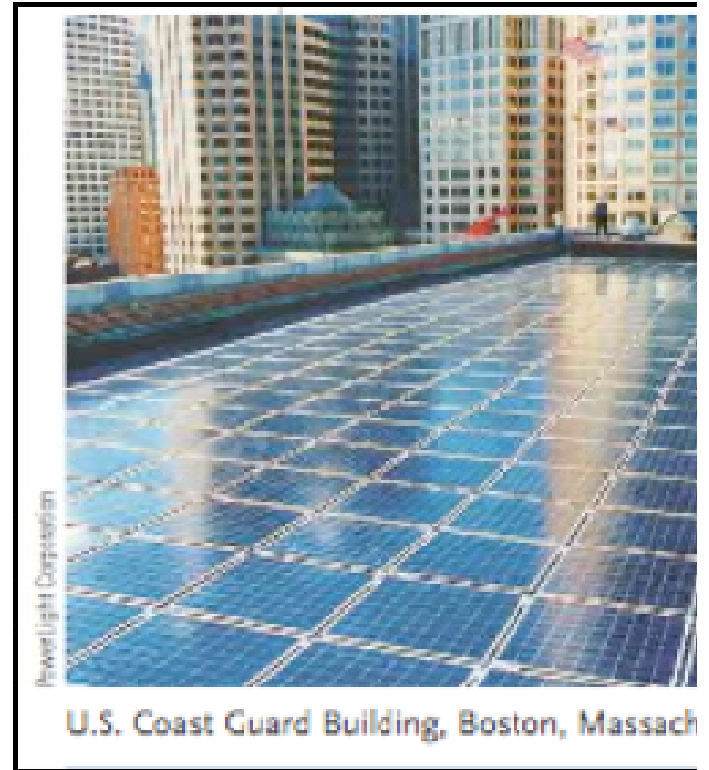
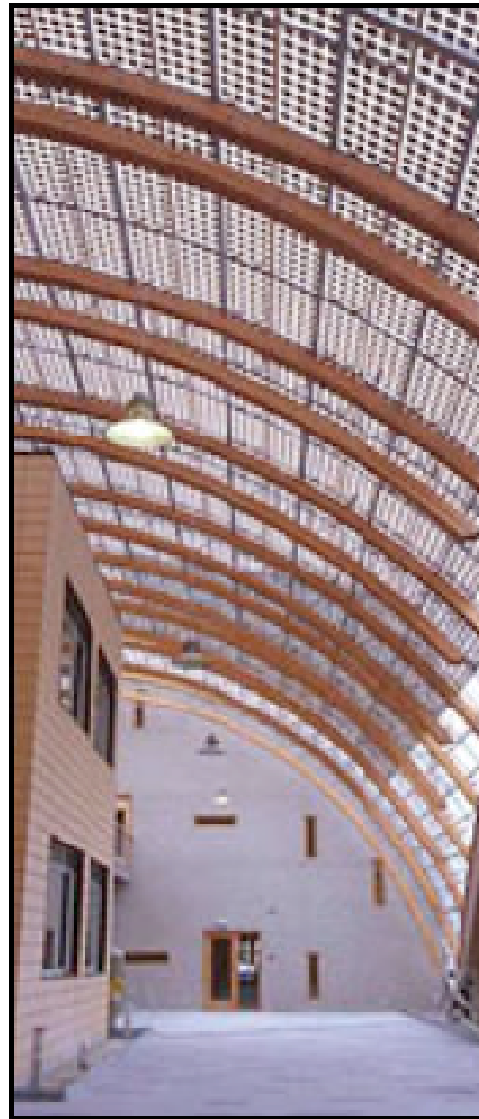
It is important to examine the science of carbon dioxide and pollution

- It is essential to do the carbon accounting correctly before we start handing out subsidies that might cause more harm than good
- It is essential to get the pollution damage costs right
- The policies should be driven by the facts and not the politics of any energy source

We each have a responsibility to use electricity wisely

- Each of our demand for electricity services generates demand for more electric power generation
- Each of us can meet our electricity service needs with less electricity
- We should all be aware of the damage that our current consumption of electricity causes
 - Should we continue to buy coal generated electricity from mountain top removal?
 - Should we continue to spew one-third of all carbon dioxide from our electricity consumption?
 - What sources can we use that lower damages to our health, the climate system and the environment?





Solar Decathlon

Entry from Tufts/Boston Architectural College

Affordable Housing Entry





California



Galicia Spain



Denmark