

WILL INTERNATIONAL TRADE LAW INHIBIT OR PROMOTE GLOBAL ARTIFICIAL PHOTOSYNTHESIS?

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ABSTRACT

Artificial photosynthesis (AP) is an area of well-advanced research involving large international groups at the cutting edge of synthetic biology and nanotechnology. In simple terms it offers to produce a cheap source of hydrogen for fuel through using sunlight to split water, as well as making basic starches by a process involving absorption of carbon dioxide via the enzyme RuBisCO. As the proliferating numbers of university-based research teams working in this area begin to combine, there will be a natural escalation of the expected time for a global roll-out of AP domestic and international devices. Policy attention will then turn to whether international governance systems (particularly including international trade law) will assist or hinder this process. The stakes are high – global AP offers a solution not only to human energy, food and water needs (burning hydrogen fuel creates pure water) but to the rising atmospheric carbon dioxide levels linked to climate change problems. This paper begins to examine how governments seeking to promote and subsidize AP products may interact with international trade and investment law. It involves analysis in this context of WTO multilaterals and U.S. bilaterals in relation to intellectual monopoly privileges (IMPs), “Doha-minus”

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provisions, definitions of technological “innovation,” non-violation nullification of benefits requirements, textual inhibitions on science-based cost-effectiveness assessment of new technologies, as well as investor-state dispute settlement provisions.

KEYWORDS: *artificial photosynthesis, TRIPS, intellectual monopoly privilege, Doha-minus, international trade law, patents, investor state dispute settlement, non-violation nullification of benefit*