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## H23G-1671: Brazil's Amazonian dams: Ecological and socioeconomic impacts (Invited)

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**Tuesday, 13 December 2016**

**13:40 - 18:00**

📍 *Moscone South - Poster Hall*

Brazil's 2015-2024 Energy Expansion Plan calls for 11 hydroelectric dams with installed capacity  $\geq 30$  MW in the country's Amazon region. Dozens of other large dams are planned beyond this time horizon, and dams with  $< 30$  MW installed capacity number in the hundreds. Amazonian dams have substantial environmental and socioeconomic impacts. Loss of forest to flooding is one, the Balbina and Tucuruí Dams being examples (each  $\sim 3000$  km<sup>2</sup>). If the Babaquara/Altamira Dam is built it will flood as much forest as both of these combined. Some planned dams imply loss of forest in protected areas, for example on the Tapajós River. Aquatic and riparian ecosystems are lost, including unique biodiversity. Endemic fish species in rapids on the Xingu and Tapajós Rivers are examples. Fish migrations are blocked, such as the commercially important "giant catfish" of the Madeira River. Dams emit greenhouse gases, including CO<sub>2</sub> from the trees killed and CH<sub>4</sub> from decay under anoxic conditions at the bottom of reservoirs. Emissions can exceed those from fossil-fuel generation, particularly over the 20-year period during which global emissions must be greatly reduced to meet 1.5-2°C limit agreed in Paris. Carbon credit for dams under the Climate Convention causes further net emission because the dams are not truly "additional." Anoxic environments in stratified reservoirs cause methylation of mercury present in Amazonian soils, which concentrates in fish, posing a health risk to human consumers. Population displacement is a major impact; for example, the Marabá Dam would displace  $\sim 40,000$  people, mostly traditional riverside dwellers (*ribeirinhos*). Various dams impact indigenous peoples, such as the Xingu River dams (beginning with Belo Monte) and the São Luiz do Tapajós and Chacorão Dams on the Tapajós River.

Brazil has many energy options other than dams. Much energy use has little benefit for the country, such as exporting aluminum. Electric showerheads use 5% of the country's power. Losses in transmission lines (20%) are far above global averages and can be expected to increase as Amazonian hydroelectric dams far from consumer centers come on line. Brazil has tremendous wind and solar potential, but these do not have the same priority as dams. At the root of many questionable policies is a decision-making process in need of reform.

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