

GAO Highlights

Highlights of [GAO-23-105005](#), a report to congressional requesters

Why GAO Did This Study

Over the last few years, companies have launched large constellations of satellites to provide services such as phone and Internet access. This trend is expected to accelerate, with tens of thousands of additional satellites expected to be launched by the end of the decade. Stakeholders have raised questions about federal consideration of potential environmental and other effects as the number of satellites orbiting the Earth increases.

GAO was asked to review existing policies related to environmental effects of large constellations of satellites. This report examines: (1) how federal agencies consider potential environmental and other effects from large constellations of satellites and (2) how FCC determines whether licensing large constellations of satellites requires an environmental assessment or environmental impact statement. GAO reviewed relevant laws, regulations, and studies, and compared FCC's processes and procedures to the Council on Environmental Quality's regulations and guidance. GAO also interviewed FCC and other agency officials.

What GAO Recommends

GAO is recommending that FCC (1) review and document whether licensing large constellations of satellites normally does not have significant effects on the environment, (2) establish a timeframe and process for a periodic review of its categorical exclusion under NEPA, and publish both on its website, and (3) identify and make public factors FCC considers when determining if an extraordinary circumstance is present. FCC agreed with our recommendations.

View [GAO-23-105005](#). For more information, contact Andrew Von Ah at (202) 512-2834 or vonaha@gao.gov or Karen Howard at (202) 512-6888 or howardk@gao.gov.

November 2022

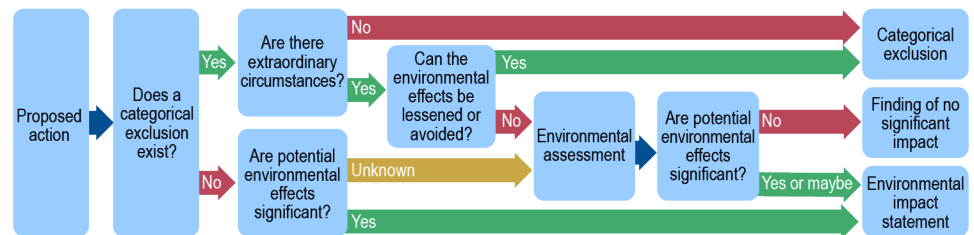
SATELLITE LICENSING

FCC Should Reexamine Its Environmental Review Process for Large Constellations of Satellites

What GAO Found

The National Environmental Policy Act (NEPA) requires federal agencies to consider the environmental effects of major federal actions prior to making decisions and to involve the public. Agencies do so by preparing an environmental assessment or an environmental impact statement, or both, unless a "categorical exclusion" applies. A categorical exclusion may be applicable if the proposed action is in a category the agency has already determined does not normally have significant environmental effects. Even when a proposed action is covered by a categorical exclusion, agencies must evaluate whether the action presents extraordinary circumstances that require preparation of an environmental assessment or environmental impact statement.

Process for Implementing the National Environmental Policy Act's (NEPA) Requirements



Source: GAO analysis of NEPA and Council on Environmental Quality's implementing regulations. | GAO-23-105005

Federal agencies consider potential environmental and other effects from large constellations of satellites through licensing and other efforts. GAO reported that these effects could include sunlight reflections, orbital debris, and launch emissions. The Federal Communications Commission (FCC) and the Federal Aviation Administration consider these potential effects when licensing satellite transmissions and launch and reentry vehicles, respectively. Other federal agencies fund or lead research on these potential effects.

GAO found that FCC has not sufficiently documented its decision to apply its categorical exclusion when licensing large constellations of satellites. In 1986, FCC created a categorical exclusion for all actions except those meeting specific conditions. These conditions are largely focused on environmental effects on the Earth's surface, such as the construction of facilities to be located in an officially designated wildlife preserve. FCC officials told GAO that the agency invokes its categorical exclusion when licensing large constellations of satellites. The Council on Environmental Quality, which oversees agencies' implementation of the National Environmental Policy Act, recommends that agencies periodically review categorical exclusions to ensure they remain current.

FCC has made changes to the categorical exclusion. However, FCC has never reviewed and documented whether it should apply to large constellations of satellites. GAO also found that FCC does not have a process or timeline for periodically reviewing its categorical exclusion and publishing the information on its website. Further, FCC has not identified and made public factors it considers in determining whether extraordinary circumstances are present. Taking these actions would better position FCC to ensure that its decisions to apply its categorical exclusion are current and transparent when licensing large constellations of satellites.