



NAIC/Center for Insurance Policy and Research (CIPR) Infrastructure Investments Study

Economic Infrastructure Definition

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Infrastructure Definition

A standard, or commonly used, definition of infrastructure is not readily available in today's market. The meaning of infrastructure can vary from one party to another and can encompass a broad spectrum of different attributes, as well as investment risks. A clear definition is therefore, critical so that investments in those assets provide the intended benefits of diversification, stable and predictable cash flows, and protection. It would also be helpful in framing the discussion of infrastructure investments in this study and how the U.S. insurance industry can participate more effectively in this market going forward.

For the purposes of this NAIC/Center for Insurance Policy and Research (CIPR) Infrastructure Investments Study, we will use the definition from the study which focuses on *Economic Infrastructure* only: "Long-lived, capital intensive, large physical assets that provide essential services to a country, state, municipality or region and contributes to its economic development or prosperity, including..."

SECTORS	EXAMPLES OF ASSETS
Transportation	Roads (streets and highways), bridges, tunnels, public transit, rail, airports, and maritime and inland waterway ports
Broadband	For rural communities (includes other high-speed data and communication conduits)
Telecommunications	Wireless towers
Waste Management	Wastewater, stormwater, solid waste, sewage, landfills, land revitalizations and Brownfields
Power and Energy	Power utilities, power generation, transmission and distribution facilities, renewable energy, pipeline energy processing, distribution and storage, offshore infrastructure, production platforms, and liquefied natural gas (LNG) terminals
Water and Water Resources	Drinking water, flood risk management (dams and levees), water supply and waterways

The sectors and examples of assets that are considered infrastructure for the analysis is provided for transparency. The definition of sectors and assets, include a relatively wide range of assets, but at the same time, is not overly broad in scope to avoid potential investment risks.

Definition Methodology

Given the challenge of developing a definition of infrastructure that would be amenable to a wide range of interested parties, it was determined that it would be appropriate for this study, we began the Request For Information (RFI) process with focusing on the definition topic on it. We developed a working definition based on those of the American Society of Civil Engineers (ASCE) and the Trump administration and a survey of participants about the reasonableness and scope of the definition.

We received 14 written responses from state insurance regulators, insurance companies, trade associations, asset managers, and others. Their thoughts and perspectives on the proposed definition. The suggestions for the definition, as well as the sectors and examples of infrastructure, were reviewed, and where appropriate, incorporated into a more refined definition of infrastructure. We also conducted a conference call to discuss the revised definition, as well as specific exclusions to the definition.

Based on feedback from a majority of respondents, the revised definition was developed using a characteristics-based approach. Infrastructure assets provided the key defining factors. This was the most significant revision to the definition. The characteristics the most important were highlighted in the definition: 1) large physical assets; 2) long operational life; 3) high capital intensity; 4) need or service; 5) not easily duplicated (i.e., designed for a specific purpose with no alternative uses); and 6) having a positive net present value where the assets are physically located.

Table 1: Comparison of NAIC/CIPR and IAIS Infrastructure Sectors and Assets

SECTORS	NAIC/CIPR STUDY	IAIS
Transportation	Roads (streets and highways), bridges, tunnels, public transit, rail, airports, and maritime and inland waterway network	Airports, ports, roadways, and railway network
Broadband	For rural communities (includes other high-speed data and communication conduits)	
Telecommunications	Wireless towers	Core telecom infrastructure such as broadband equipment, optical fibers, radio masts, etc.
Waste Management	Water, stormwater, solid waste, sewage, landfills, and brownfields revitalizations and Brownfields	Facilities dedicated to waste management and recycling
Power and Energy	Power utilities, power generation, transmission and distribution facilities, renewable energy, pipelines, energy processing and distribution, offshore infrastructure, production platforms, and liquefied natural gas (LNG) terminals	Generation, transmission, distribution, storage, and distribution
Water and Water Resources	Drinking water, flood risk management (dams and levees), water supply and waterways	Water supply/distribution and wastewater collection/treatment

The IAIS' definition also identifies assets that are not considered infrastructure investments. Table 2 shows the specific assets of the infrastructure sectors.

Table 2: IAIS Infrastructure Investment Exclusions

SECTORS	IAIS EXCLUSIONS
Transportation	Car, aircraft, boat manufacture and spare parts for aircrafts, etc.
Telecommunications	Production and selling of phone instruments with or without contract with the end consumer and for private use
Waste Management	Using spare parts from scrapped vehicles for other vehicles
Power and Energy	Batteries used in electric cars and insulation of houses
Water and Water Resources	Fixing water pipe leakages

Concluding Comments

The economic infrastructure definition in this study was developed with input and feedback from market participants and researchers. The definition of infrastructure assets: large physical assets, long operational life, high capital intensity, essential need or service, not easily replaced, and critical to economic development. The definition incorporates a relatively wide range of assets, but at the same time, is not overly broad, possibly introducing unintended investment risks. Overall, it is generally a good fit with the infrastructure definition that the IAIS uses for reporting and data collection purposes, except for the inclusion of social infrastructure in the IAIS definition.

Following from this economic infrastructure definition, the study turns to the investigation of the remaining request for information components: Investment Characteristics, Market Size, Credit Performance, NAIC Treatment of Infrastructure, Insurance Industry, and Resiliency of Infrastructure Projects. Future research overviews of these study components will be similarly produced.