Question 1 (10 pts): The Lemmer article (p. 159) suggests that one benefit of infrastructure management is to replace older stock with newer, more productive and less energy-intensive technologies. How does reliability theory (as introduced in the Frangopol article) differ in its approach to infrastructure management?

Question 2 (25 pts): The Humplick and Paterson article distributed in class discusses a framework for managing performance and gives examples for road and pavement systems. Tables 1-5 in this paper give example categories for tracking road system performance, and suggest indicators (and units).

Using the same hierarchy of tables (1-5) as used in Humplick for road systems, recreate Tables 1-5 for the case of managing electricity infrastructure provision. As best you can, try to ‘map’ each of the indicators given for roads with a corresponding indicator for electricity. Be sure to suggest the correct units of measurement.

Question 3 (20 pts): Choose 2 of the ‘new’ indicators you created in Question #2 that are located in different tables (e.g., one from Table 1 and one from another Table). Using the ‘Canning’ dataset in class, track the performance of these indicators over time. Track these indicators for ‘US only’ and ‘World Overall’. Note that one of the 2 indicators you choose must contain data that is not contained in the dataset (e.g. a per-capita or per-unit-GDP value). You will need to find a separate reference for this data (feel free to use Web searches for this data – the ‘Statistical Abstract of the United States’ and the World Bank and OECD web sites all contain useful data).

Consider the best way of presenting the trends over time for your indicators. This may be in the form of a specific type of graph or chart.