



SCHOOL OF COMPUTING AND ENGINEERING SCIENCES

Master in Sustainable Energy Transition

MSSET 8104: Energy Policy, Laws, and Regulation

End of Semester exam, 2026

DATE: 24th April 2026

TIME:18.00-2030

Instructions

The paper has three sections: A, B, and C.

Answer **ALL** questions in sections A and B, and any **ONE** other question in section C

SECTION A (15 Marks)

1. Describe two consequences of poor coordination between energy, climate, and industry policies (2 marks)
2. Explain the importance of governing law and jurisdiction clauses in international energy contracts. (2 marks)
3. Explain the concept of the increasing block tariff and its policy purpose (2 marks)
4. State the difference between regulatory instruments and fiscal instruments in energy policy (2 marks)
5. Define energy governance and explain two roles of government in electricity systems (3 marks)
6. Compare the single buyer model and wholesale electricity markets (2 marks)
7. Explain regulatory capture and its effects (2 marks)

SECTION B (20 marks)

1. Discuss two climate-driven regulatory reforms that a government can introduce to support the transition to a low-carbon energy system. (5 marks)
2. Electricity sector reforms in many countries have involved different forms of privatization aimed at improving efficiency, attracting private investment, and reducing fiscal burdens on governments.

- a. Describe the term privatization as used in the electricity sector. (2 marks)
 - b. Describe three forms of privatization used in the electricity sector and explain the circumstances under which governments may prefer each model. (6 marks)
 - c. Critically evaluate two risks associated with electricity sector privatization, particularly in developing countries. (2 marks)
3. Describe how regulators use cost-of-service regulation to determine electricity tariffs. (5 marks)

SECTION C (15 Marks)

1. The government of Kenya plans to develop a 150 MW solar plant through a Public-Private Partnership (PPP) model to support the country's clean energy transition and reduce dependence on thermal generation. The project will be implemented by a private consortium under a Build–Own–Operate–Transfer (BOOT) structure with a 25-year concession period. The electricity generated will be sold to the national utility under a long-term Power Purchase Agreement (PPA). The contractual structure includes several key agreements: a concession agreement, an engineering, procurement, and construction (EPC) contract, a financing agreement, an operation and management (O&M) agreement, and a power purchase agreement. During the project implementation, challenges such as delays in grid connection infrastructure, concerns about tariff affordability for consumers, exchange rate fluctuations, and public debate on whether private investors were receiving excessive returns emerged.
 - a. Explain the concept of project lifecycle contracts in energy infrastructure development (4 marks)
 - b. Using this case, describe the role of each of the following contracts in the project lifecycle (8 marks)
 - i. Concession agreement
 - ii. EPC contract
 - iii. Financing agreement
 - iv. O&M agreement
 - c. Discuss how proper contract design and risk allocation can improve the bankability and long-term success of renewable energy projects in developing countries. (3 marks)
2. The government of an emerging economy is undertaking reforms to modernize its electricity sector and attract private investment in clean energy infrastructure. Historically, the electricity

system has been operated by a vertically integrated state-owned utility responsible for generation, transmission, distribution, and retail supply. To improve efficiency and promote competition, the government plans to introduce electricity market liberalization. The reform package includes:

- Unbundling the vertically integrated utility into separate generation, transmission, and distribution companies
- Introducing Independent Power Producers (IPPs) to compete in electricity generation,
- Establishing an independent energy regulator responsible for tariff-setting and market oversight, and allowing third-party access to the national transmission grid to enable competition among generators.

While these reforms are expected to increase investment and improve operational efficiency, critics argue that electricity market liberalization may lead to other challenges, particularly in countries with weak institutional capacity.

- a. Explain the concept of electricity market liberalization and discuss why governments pursue liberalization reforms in the electricity sector. (5 marks)
- b. Analyze how unbundling and the introduction of Independent Power Producers (IPPs) can promote competition and investment in electricity markets. (6 marks)
- c. Evaluate two potential risks associated with electricity market liberalization in developing countries and explain how regulators can mitigate these risks. (4 marks)