

ESD.934, 6.974

Engineering, Economics and Regulation of the Electric Power Sector

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Homework HW2.

You have to start to describe the power system that you have chosen in a coarse form (later you will be analyzing it in more detail and you will be updating this first version). Try to include the major features that have been covered in class: physical, economic & regulatory. You are not expected to have complete answers for all these topics so early in the course, or to understand the issues involved, but make a first try. Write the document so that it can grow later, as you gather more information and understand better the issues.

- Basic geographical, economic, social, political or other salient features of the country or state where the power system is located. No problem with “cut and paste” in this first description.
- Annual electricity consumption, peak demand, characteristic load shape. Breakdown of consumption into sectors (residential, industrial, services).
- Installed generation capacity, technology mix (in energy and capacity). If available: typical efficiency and availability values, loading factors of each technology. Types of ancillary services that are employed and how they are regulated. Environmental impact of generation activities.
- Name the relevant regulatory institutions and the major companies that provide electricity services. Are they national or international firms? If international, provide some basic information of their international activity. Match the basic activities in electricity supply (distribution, generation, retail, transmission, system operation, power exchange, fuel supply) with these companies.
- Identify the major pieces of organization / regulation in this power system. Read (at least to have a first rough idea of the scope of the contents) the highest norms in rank (in some cases the current Electricity Act will be enough, in other cases you will have to read some major decree or ministerial / governmental order also) and briefly describe the relevant features of the regulatory framework: unbundling of the activities, existence and basic characteristics of wholesale and retail markets, who makes what decisions concerning generation and transmission investments, who performs the function of system operation, existence of any organized market institution or power exchange, use of any mechanisms of support of generation with renewable energy sources and/or cogeneration, markets for green house gas (GHG) emissions, participation in broader (regional) electricity markets, etc.
- Major “recent” (last 10 or 15 years) changes of the regulatory framework of this specific power sector.
- Indicate the information sources that you have used in your search.

Recommended length of your description: no more than 10 pages (it is fine, even better, if you describe what you have to say in less pages), Times New Roman 11 point (or similar), single space. Simple, direct writing style is fine, but, please, be careful with typos, mixspelinfs, etc.

As indicated above, write the document so that it can grow, as you learn more about the course material and about the power system you have chosen. You will be using this same power system to examine the distribution network activity, generation, wholesale market, system operation, market power potential, transmission, tariffs, renewable generation, security of supply, participation in broader regional or international markets, energy efficiency measures, promotion of clean technologies, and so on.

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