Course Name: Public Policy and Planning of The Energy Sector

Semester: Fall 2015

Location: LLILAS – SRH 1.320

Day/Time: Thursday from 2:00 – 5:00 pm

Instructor: Amaro Pereira, Ph.D.

Office Location: LLILAS – SRH 1.324

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Office hours: by appointment

Course summary:

During the last two decades, power sector in both developed and developing countries experienced reforms in its regulatory framework, which aimed at introducing competition in electricity generation and commercialization. In order to understand the reasons which have motivated these changes, the present course covers three main areas: economic regulation of the energy sector; possible market designs for more efficient electricity supply; and comparison of energy planning in developed and developing countries, with a special focus on regulation of Brazil's electricity sector. As a former adviser to Brazil's state-owned Energy Planning Company, Professor Pereira brings a perspective based on his experience and expertise in this field. He is currently a professor in the Energy Planning Program at the Federal University of Rio de Janeiro (COPPE-UFRJ).

Grading Schedule

20%: General participation, measured by attendance and commentary on reading materials in class

30%: Presentation of a country case study

50%: Term paper

Schedule of Topics:

(Class #1 – August, 27)

1. Competitive markets
2. Natural monopoly

(Class #2 – September, 03)

3. Network industries
4. Contestable markets

Readings:

- Varian, Hal R. (1992). "Microeconomics Analysis". 3rd ed. W.W. Norton & Company Inc. Chapter 13 (Competitive Markets).

- Economides, Nicholas. Competition Policies in Network Industries: An Introduction. In: The New Economy and Beyond: Past, Present and Future. Series Economic and Public Policies.

- Joskow, Paul L. (2008). "Incentive Regulation and Its Application to Electricity Networks". Vol 7 (4) pp. 547-560.

(Class #3 – September, 10)

5. Energy market regulation
6. Principles of energy princing

(Class #4 – September, 17)

7. Energy market framework
8. Energy security
9. Energy investment analysis

(Class #5 – September, 24)

10. Short-term energy planning

(Class #6 – October, 01)

11. Long-term energy planning

Readings:

- Bhattacharyya, Subhes C. *Energy Economics: Concepts, Issues, Markets and Governance*. Ed. Springer, 2011. Chapter 28 (Regulation of Energy Industries)

- Kirschen, D. S.; Strbac, G. (2004). *Fundamentals of Power System Economics*. *Ed*. John Wiley & Sons. Chapters 1, 2 and 3

- Mazer, Arthur. *Electric Power Planning for Regulated and Deregulated Markets*. IEEE PRESS, 2007. Chapter 2, 4, 5 and 6

- Pereira Jr, A.O. ; Cunha da Costa, R.; Costa, C.V.; Marreco, J.M.; La Rovere, E.L. Perspectives for the expansion of new renewable energy sources in Brazil. Renewable and Sustainable Energy Reviews 23 (2013) 49–59 53.

(Class #7 – October, 08)

12. Country studies (presented by the students)

(Class #8 – October, 15)

13. Country studies (presented by the students)

Readings:

- Wolak, F. A. (n.d.). Market Design and Price Behavior in Restructured Electricity Markets: An International Comparison. www-leland.stanford.edu/~wolak.

- Students' choice

(Class #9 – October, 22)

14. Evolution of Brazilian power sector
15. First restructuring

(Class #10 – October, 29)

16. Energy rationing in 2001
17. New regulatory framework

(Class #11 – November, 05)

18. Brazilian electricity market

(Class #12 – November, 12)

Readings:

- Von der Fehr, N.H.M; Wolak, F.A. Power Sector Reform in Brazil – Some Issues. Draft Report, 2003.

- CARPIO, Lucio G.T.; PEREIRA JR, Amaro O. "Independent Operation by Subsystem: Strategic Behavior for the Brazilian Electricity Sector". Energy Policy. 34 (2006) pp. 2964-2976.

- PEREIRA JR, Amaro O.; SOARES, Jeferson B.; OLIVEIRA, Ricardo G.; QUEIROZ; Renato P. "Energy in Brazil: Toward the Sustainable Development?" Energy Policy. 36 (2008) pp. 73–83

- L.A. Barroso; H. Rudnick; S. Mocarquer; B.Bezerra. Auction approaches of long-term contracts to ensure generation investment in electricity markets: Lessons from the Brazilian and Chilean experiences. Energy Policy 38 (2010) 5758–5769.

- Carlos Batlle; Luiz A. Barroso; Ignacio J. Perez-Arriaga. The changing role of the State in the expansion of electricity supply in Latin America. Energy Policy 38 (2010) 7152–7160.

(Class #13 – November, 19)

19. The economics of renewable energy

Readings:

- Olmos, L.; Ruester, S.; Liong, S.J. On the selection of financing instruments to push the development of new technologies: Application to clean energy technologies. Energy Policy, 43 (2012) 252–266.

- Albadi, M.H; El-Saadany, E.F. Demand Response in Electricity Markets: An Overview. IEEE, 2007.

- Edenhofer, O.; Hirtha, L.; Knopf, B.; Pahle, M.; Schlömer, S.; Schmid, E.; Ueckerdt, F. On the economics of renewable energy sources. Energy Economics, 40 (2013) S12–S23.

- Kleit, A.N.; Michaels, R.J. Reforming Texas Electricity Markets: If you buy the power, why pay for the power plant? Energy & Environment, Summer 2013.

- Meier, P.; Vagliasindi, M.; Imran, M. The Design and Sustainability of Renewable Energy Incentives: An Economic Analysis. The World Bank, 2015.

- REN 21. Renewables 2015: Global Status Report. Renewable Energy Policy Network for 21st Century, 2014.

- Batlle, C., Barroso, L.A., 2011. Review of Support Schemes for Renewable Energy Sources in South America. Working Paper. IAEE Energy Forum, 2011.

- ICA. Renewable Energy for Electricity Generation in Latin America: the Market, Technologies and Outlook. 2010. Chile. ICA Latinoamérica.

(Class #14 – December, 03)

20. Final term paper

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259.

By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

Policy on Academic Integrity:

Students who violate University rules on academic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students, and the integrity of the University, policies on academic dishonesty will be strictly enforced. For further information please visit the Student Judicial Services Web site: http://deanofstudents.utexas.edu/sjs.