This update on PURC research and outreach is intended to serve as an overview for PURC Executive Committee members. Below are the highlights of a very active year. At the end of this summary is a list of recent research papers that are also available through the research papers search engine on the PURC website at www.purc.ufl.edu.
Public Utility Research Center 2013 Annual Report to the PURC Executive Committee

UPDATE ON PURC RESEARCH AND OUTREACH

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HIGHLIGHTS

41st Annual PURC Conference


NEW Online Course: Economics of Pricing

PURC is proud to announce its first online training program launched this October. This foundational course helps decision-makers develop rate structures that promote financial sustainability, while encouraging efficiency and fairness.

Dr. Ted Kury was sought out by the Wall Street Journal

The Wall Street Journal approached Dr. Kury to compose an article about why burying power lines may not be the best answer to preventing storm outages.

FCC interest in PURC research

The Federal Communications Commission, Wireline Competition Bureau / IATD, approached PURC about past work PURC has done on telecommunications competition. PURC held a conference call with the staff and provided PURC’s extensive database on telecom markets.

PURC Presentations at the 125th NARUC Annual Meeting

PURC provided five presentations at the 125th NARUC Annual Meeting, including a participation in a panel on enhancing international programs and a session reviewing Florida’s Energy Efficiency and Conservation Act.
Video Trainings for the FPSC

PURC developed a video training series for new staff members. The training modules included “Purpose and Role of Utility Regulation” and “Basics of Utility Regulation”.

FPSC Leadership Development in Utility Regulation Training Program

Delivered twice this year, this training seminar series provided FPSC staff with technical and practical information to develop leadership and management skills in a state regulatory agency.

FPSC Fundamentals of Utility Regulation Training Program

This training program provided more than 65 FPSC staff members with an overview of the fundamentals of utility regulation in Florida.

NARUC Risk Management Project

PURC developed a risk management course in response to NARUC’s request for proposal and was selected to deliver the course in two locations nationwide.

PURC Presentations at Gartner Symposium ITXPO 2013

PURC Director, Dr. Mark Jamison, talked with the group about the need to understand the regulatory system from the inside and about strategies for developing new paradigms for regulation.

PURC Director of Water Studies, Dr. Sanford Berg, facilitated a session where participants described their challenges in water utilities, focusing on information (benchmarking), internal incentives, institutional capacity building, leadership, and ways to improve governance.

PURC Director of Leadership Studies, Araceli Castaneda, conducted a leadership workshop where CIOs discussed their current and future challenges. The session ended with a call for action on what, as leaders in their field, the CIOs should do to face these issues.

Energy Efficiency in the European Union – PURC published paper

For over a year, PURC Policy Analyst, Dr. Lynne Holt, and PURC Senior Fellow, Mary Galligan, have been researching the energy efficiency within the European Union. Their research paper was met with great interest as it was published in the Electricity Journal, August/Sept. 2013, 33-42 edition.
PURC/World Bank International Training Program on Utility Regulation and Strategy

One hundred and forty five people attended courses in 2013. Since its inception in 1997, this program has educated more than 2,800 professionals representing 151 nations. Chairman Ronald Brisé was a featured speaker in June.

PURC Advanced International Practices Program

Twenty-six infrastructure professionals from around the world participated in this year’s courses on energy pricing, benchmarking, and next generation networks.

National Science Foundation Grant Awarded

Dr. Mark Jamison was awarded a National Science Foundation grant to examine barriers to adoption of solar technologies in developing countries.

Other Research

PURC researchers have written papers on regulation and politics, renewable energy, time-of-use pricing, the effects of ISOs, benchmarking water systems, and common carrier regulation, to name a few.

Body of Knowledge on Infrastructure Regulation (BoKIR) web site

PURC expanded this online resource to include more information about clean energy and energy efficiency.

Director of Energy Studies earns Ph. D

Dr. Ted Kury has completed his Ph. D. Ted’s dissertation was on the effectiveness of energy markets and on carbon pricing.
PRIMARY RESEARCH PROJECTS

Should utilities be required to bury power lines to protect them?

No. According to the article and research composed by PURC Director of Energy Studies, Dr. Ted Kury, for the Wall Street Journal city requirements to relocate electricity distribution lines underground would likely lead to an inefficient use of electricity consumers’ money. The city government is not as likely as the utility or its regulator to possess the technical expertise necessary to decide whether this undergrounding is either feasible or prudent. The relocation of some power lines underground may provide a cost-effective strategy to mitigate the risk of damage to elements of a utility’s infrastructure, but these cases should be evaluated individually by the local distribution utility and its regulator. A government mandate to bury power lines will likely result in greater costs for all electricity consumers with no guarantee of increased system reliability.

What are the challenges in quantifying optimal CO2 emissions policy? The case of electricity generation in Florida.

Implementing public policy without understanding its economic impacts can be costly and unproductive. This problem is paramount when a price of carbon dioxide (CO2) emissions is considered as a vehicle for abatement. The United States Congressional Budget Office, Environmental Protection Agency, and Department of Energy’s Energy Information Administration have all released their estimates of the macro-economic impact of various proposals for environmental legislation. The focus of these studies is on the level of output variables such as the amount of CO2 emissions, the cost of emissions allowances, and the broad impact of increased electricity prices, rather than on the marginal effects of policy change. This paper utilizes a model that simulates the dispatch of electric generating units in the state of Florida under various prices for CO2 emissions, and analyzes the challenges that may arise in the determination of optimal emissions abatement policy.

What is the role of the regulator in promoting cost-effective renewable energy projects?

The role of energy sector regulators in facilitating renewable energy (RE) projects depends on the laws and policies established in the executive and legislative branches of government. Dr. Sanford Berg shows how ten functions of energy sector regulators in developing (and developed) countries affect the pace and pattern of investments in renewable energy in his article “Regulatory Functions Affecting Renewable Energy in Developing Countries.” This article appeared in the Electricity
The article concludes that public policy partly determines the extent to which renewables are adopted in a developing (or developed) country.

What role do regulators play when it comes to energy efficiency?

Sector regulators generally have significant roles in the implementation of renewable energy initiatives. They also have roles to play in promoting energy efficiency since EE can be expanded via utility actions (incentivized and monitored by the regulator) and actions by other agencies. The former include reduced line losses, improvements in load patterns and system reliability, decision-relevant customer billing information, energy audits, and smart grids. The adequacy and cost-effectiveness of utility programs clearly falls under regulatory oversight. Other agencies set appliance standards, provide government financial support, create tradable certificates, award tenders, and establish targeted government programs, like improving EE in schools and hospitals. The sector regulator must then factor in the interdependencies among EE programs when determining the cost-effectiveness of utility-based programs.

What are the regulatory challenges associated with renewable energy?

The most recent additions to the Body of Knowledge on Infrastructure Regulation (BOKIR) include new Frequently Asked Questions related to the regulation of state-owned utilities and how energy regulators can promote cost-effective renewable energy and energy efficiency. A key point is that ultimately, public policy determines the extent to which renewables are to be incorporated into a developing (or developed) country’s generation mix. Energy sector regulators implement that policy—thus affecting the pace and pattern of RE investments and connections to the grid. New regulatory RE objectives specified in legislation are likely to require the agency to balance fundamental goals of affordability, cost recovery (for sustainable utility operations), and fairness (since implicit cross-subsidies may be required to meet new policy mandates). The issues surrounding renewable energy illustrate need for processes that clearly identify objectives, alternative strategies, and regulatory choices that balance those objectives in a politically acceptable manner.

Is common carrier still relevant for telecommunications in the U.S.?

Not for economic regulation, according to PURC Director Dr. Mark Jamison. He and Dr. Janice Hauge examine the historical development of the common carrier concept and find that the justifications for economic regulation were based on the carriers having substantial market power. The authors also examine more recent justifications put forward for regulating telecommunications, such as special infrastructure and general purpose technologies, and find that telecommunications in the U.S. does not fit these categories, either.
How can utility regulators provide incentives for efficient financing?

Some water utilities in the U.K. are financing with almost 90% debt. This appears to impose unnecessary risks and financing costs on customers according to the water regulator, OFWAT. To address this issue, Drs. David Sappington and Mark Jamison construct an incentive scheme that rewards utilities for choosing more optimal capital structures.

Do new firms imitate others, or develop new business models?

This study of 1067 market entries by U.S. Competitive Local Exchange Carriers (CLECs) from 1996 through 2004 finds that the start-ups imitate entry decisions of and gravitate toward markets that are densely populated by other start-ups. While start-ups avoid markets already densely populated by corporate ventures, they do imitate the market entries of corporate ventures. The study was conducted by Drs. Richard Gentry, Thomas Dalziel, and Mark Jamison.

Can mergers in network industries spur new technology adoption?

“Yes”, according to research by Drs. Mark Jamison and Janice Hauge. Using a simulation model, the research finds that customers can be made better off by new technology adoption even if the adoption is made economical only by a significant increase in market concentration.

How should competition regulators adapt market definition tools to evolving markets?

This paper examines the development of market analysis for mergers in the United States. Merger Guidelines were developed to reduce risks for businesses considering merging. The current process for defining markets was introduced in the 1982 Merger Guidelines, but was based on court cases and scholarly research stretching over some decades. The basic approach is to select a group of products that might constitute a market and analyze whether, if these products were produced by a monopoly, the firm could profitably increase price. This approach is not without controversy and challenges, but it remains a core approach. More recently the role of developing market definitions has been diminished by the development of tools for looking at product substitutability more directly. The paper’s author, Dr. Jamison, suggests how these tools might be adapted to markets that are undergoing constant change.

What is best practice in the governance for state-owned water utilities?

The fundamental lesson that emerges from surveying developing countries is that sector regulation has to be embedded in an adequate and consistent institutional framework in order to have a positive impact on performance. Sector regulation, by itself, is no guarantee of performance improvements in the drinking water supply and sanitation sector. Case studies and empirical analyses suggest that without significant changes in the supporting institutions, the standard tools of regulation will not be effective. This conclusion is disturbing, especially for developing countries,
since it means that the establishment of a regulatory agency might raise hopes, but ultimately, the agency’s rules are unlikely to improve performance without additional, politically difficult initiatives.

**How can benchmarking techniques incorporate factors beyond managerial control into efficiency scores?**

Yardstick comparisons represent one way to reduce the information asymmetry experienced by regulators. Quantitative studies can identify strong and weak performers, however they should take into account factors that are beyond managements’ control. This study computes efficiency scores that control for the effects of environmental variables, using data from Brazilian electricity distributors for the period 2004 - 2009. The methodology has several steps, starting with electricity sales and customers as the two outputs of the utility, and Capital Costs and Operating Expenditures as the inputs. The next step includes data on unique conditions facing each utility, the resulting efficiency scores are adjusted. This methodology overcomes limitations associated with the one employed recently by the Brazilian regulator. The paper illustrates the usefulness of more comprehensive approaches to evaluating the performance of electricity distribution companies.

**How sensitive are efficiency rankings?**

If regulators are to devise incentives for improving sector performance, they must have confidence that efficiency measures are robust. PURC hosted a Japanese scholar who shared data over one thousand Japanese water utilities (for 2004 and 2005). This study compared a number of model specifications to determine the sensitivity of efficiency rankings to model assumptions. The consistency of the performance scores depended on types of models being estimated. If regulators are to use performance scores to set targets and establish incentives for improving efficiency, they need some assurance that the results are not dramatically affected by how the empirical model is specified. With such a large sample, the PURC researchers were able to identify when results were not robust, signaling to regulators that quantitative studies required great care if they are to be used to reward or punish utilities.

**How cost effective is hydroelectric power?**

Hydroelectric power plants account for more than 85 percent of the electricity produced in Brazil. The net social benefits of hydro depend on initial investment and the timing of cash flows based on a plant’s Capacity Factor--CF (and valuation of non-monetary impacts over time). The inter-temporal timing issue also involves balancing the use of the energy stored in reservoirs and the likelihood of future replenishment in the presence of climate variability. The purpose of this study is to present the facts regarding CFs for hydroelectric plants in Brazil: by region and plant size large, small, and micro). The study also describes how the planning for expansion has been effected by ecological and social concerns.
Non-cooperative entry deterrence in a uniform price multi-unit capacity auction

This article examines firms’ bidding behavior in an energy market capacity auction with multiple units and where allocations impact other parties. An incumbent is willing to deter entry by bidding below its net marginal cost. Numerical simulations reveal that the incentive to deter entry may cause an incumbent to preempt entry, even at a substantial loss, resulting in large inefficiencies. In addition, because a less efficient supplier shoulders relatively little of the burden of entry deterrence, it may secure greater profit than its more efficient counterpart.

What's the price of subsidized entry in energy capacity auctions?

This paper examines the effect of subsidized entry of electricity generation capacity on the outcome of centralized capacity auctions with multiple units. Subsidized entry suppresses capacity prices and induces an inefficient allocation of capacity. Subsidized entry also alters the generation portfolio determined by the capacity auction, leading to lower expected electricity prices in subsequent market interactions. These effects reduce total industry profit, but may benefit customers. Subsidized entry has long-term adverse impacts. The suppressed capacity and electricity prices reduce unsubsidized firms' incentives to undertake generation capacity investments. The long-term resource adequacy issues associated with insufficient capacity investment may dominate the potential short-term benefits of subsidized entry.

How do consumer advocate negotiations affect consumers?

Over the past 25 years, the practice of negotiated settlements (or stipulations) has come to increasingly replace the rate-of-return regulation used by US and Canadian regulators to set rates of public utilities firms. In spite of its prevalence, this practice has been largely neglected by economists. The consensus in recent research is that the motivations for parties to settle a rate case are different from that in litigation. Consequently, a new theory is required to analyze such agreements.

What factors affect inefficiency in water utilities?

This paper examines inefficiencies in Japanese water utility companies. Efficiency in this context is defined as a firm's capacity to maximize output given a fixed level of inputs. The findings suggest that the average operation rate, customer density and size variables are associated with lower levels of inefficiency (or higher levels of efficiency), while water purification (a conditioning variable capturing low initial water quality), subsidies and outsourcing are associated with higher levels of inefficiency. Since inefficiency exists, there is an opportunity to improve Japanese water utilities by working on emulating “best practice” firms whenever possible and by providing a regulatory framework that can set appropriate incentive schemes to do so.
How can utilities best prepare for severe storms?

PURC continues to assist Florida’s electric utilities by coordinating a research effort in the area of hardening the electric infrastructure to better withstand and recover from hurricanes.

What impacts customers’ water usage?

This study of water usage in Hong Kong found that per capita usage is insensitive to price but dependent upon past usage, income, weather, and seasonal factors. Income growth countered what would otherwise have been a downward trend. The paper makes recommendations for water use policy in Hong Kong.

Can time-of-use rates be win-win for customers and utilities?

Based on an examination of time-of-use rates in California, this study finds that option design allowing a utility’s customers to allocate their consumption to be billed at the fixed and daily-varying time-of-use rates offers a win–win mechanism for electricity procurement in the face of uncertain spot prices and hedging options. Even if all customers have the same risk preferences, the proposed mechanism is Pareto-superior to the tariffs and procurement strategies commonly used in North America.

Will customers shift demand to off-peak with time-of-use rates?

Based on a pilot study in British Columbia (Canada), this study finds that customers will shift usage from peak to off peak when on-peak prices rise relative to off-peak prices. However, the movement was small unless remotely activated load-control devices were used. These devices tripled the percentage shift.

How does wind generation impact electricity prices when other renewable sources are present?

Wind generation can reduce wholesale electricity market prices by displacing conventional generation. But what if wind competes with other renewable sources, such as hydroelectric generation? Using data from the Pacific Northwest region of the United States, this study finds that increased wind generation reduces wholesale market prices by a small, but statistically significant, amount. While a hydro-rich system can integrate wind generation at a lower cost than a thermal-dominated region, the direct economic benefits to end-users from greater investment in wind power may be negligible.
What impacts the effectiveness of energy efficiency policies?

The United States and the European Union have taken different approaches toward energy policy as illustrated by their respective policies on carbon emissions reduction. A comparison of those policy approaches suggests that the interaction of policies must be well understood in order to achieve success in three key areas: energy efficiency, electricity production from renewable sources, and carbon market/tax.

Can new technologies lower the cost of solar energy?

New solar PV materials based on earth-abundant elements may lower the cost of solar PV, but the materials have to be developed. In response to this challenge, PURC has joined engineers from three universities to develop and test such new materials. PURC is examining the market for solar PV so that the materials development team has benchmarks for costs and product characteristics. This project is funded by the National Science Foundation’s Sustainable Energy Program.

How can regulators effectively address the frictions between their formal and informal roles?

PURC researchers examine the formal and informal roles of regulators in helping stakeholders find feasible outcomes that satisfy political aspirations. While the political process reveals public values and preferences, it generally lacks concrete information on what is truly achievable given the physical, economic, legal, and institutional realities that a country faces. This research identifies tactics that help identify the “sweet spot”, where aspirations and reality meet. The paper also examines governance structures for regulators and state-owned enterprises.

Research with Thammasat University

For the second time, Thammasat University of Thailand hired PURC to conduct research on telecommunications competition and deliver a seminar on the research findings. This year PURC produced two research papers. One examined the Federal Communication Commission’s approach to market definition and market analysis, and the other examined new developments in market analysis for mergers.

SUN Agreement

A cooperative agreement was arranged between the University of Florida’s Public Utility Research Center and the Second University of Naples, Department of Economics. The primary objective of this agreement is the development of cooperative efforts between PURC and SUN, which will enhance the academic and research interchange between the two institutions. No formal project has begun; yet proposed research programs include the following: the governance model of public utilities; public utility regulation demand analysis of transport services; human resource practices and leadership. This agreement is now active and due to expire January 5, 2016.
Towards Convergence: Thailand’s Telecom and Broadcasting Policy

Interns from the National Broadcasting and Telecommunications Commission of Thailand, Natchaya Taweewitchakreeya & Roswan Sangprasert, composed a book on convergence as a result of the research they conducted during their internship at PURC in 2012.

OUTREACH

Plans for the 41st Annual PURC Conference


Alternative Regulation for the Electric Industry Seminar for the Kansas Corporation Commission

Is the U.S. system for regulating electricity broken? Maybe. But if regulators wait until it is clear that the system is broken before making changes, they will be too late. This was the underlying theme for PURC Director Mark Jamison’s seminar to the Kansas Corporation Commission, Dr. Jamison explained that multiple forces are driving unprecedented change in the sector, leading people to question the current industry and regulatory models. He compared several alternative methods of regulation for their impacts on three imperatives, namely improved cash flow, improved efficiency incentives, and adaptability to future industry changes. He concluded that most alternative methods focus on improving cash flow, but would improve efficiency or adaptability only under certain conditions. He explained that regulators should experiment with alternative mechanisms and learn from each other.

Consumer Engagement in Regulation: Panacea or Paralysis?

Does customer involvement in regulation improve outcomes? Not always, according to PURC Director Mark Jamison. Speaking at the Australian Competition and Consumer Commission annual conference in Brisbane, Australia, Dr. Jamison explained that the key question is, ”Who do we expect to change when regulators and customers engage?” Most discussion on customer engagement is about customers informing regulators about customer preferences and utility practices. Learning by regulators is important, but so are the building legitimacy, ensuring regulator integrity, and engaging in adaptive learning that are largely about changing customers. An over emphasis on changing regulators can result in pandering to current norms, which hinders institutional strengthening and adaptive work.
**PURC's participation in CS Week's Executive Forum**

For CS Week’s Executive Forum, Dr. Jamison and Ms. Castaneda developed and conducted a panel on how utilities can involve customers in new programs. Featuring speakers from several Florida organizations, including the Office of Public Counsel, the panel highlighted best practices and new innovations. CS Week is held annually in Tampa, Florida, and highlights how utilities can best engage in customer service.

**The Battle of Undergrounding Transmission**

The costs and benefits of relocating power lines underground is a complicated question. Organizers of the 2013 EEI/NRECA Transmission Siting Workshop brought Dr. Ted Kury, Director of Energy Studies and Roger Anderson of Columbia University together to deliver the keynote presentation in Richmond, Virginia. The speakers elaborated on their respective essays from the Wall Street Journal and addressed questions from the audience. Dr. Kury discussed his position that the costs and benefits of undergrounding vary considerably from one project to the next, and that a uniform policy would likely lead to a waste of resources.

**American Economic Association Presentation by Mark Jamison**

Dr. Jamison presented his research on the relevance of common carrier regulation in telecommunications. Based on an examination of the historical development of the common carrier concept, Drs. Jamison and Hauge concluded today’s markets do not fit the traditional motivations for concept.

**How can regulation of energy utilities be improved?**

How can regulation of energy utilities be improved? That was the question for a PURC workshop at Gartner Symposium ITXPO 2013 in Orlando, Florida, on October 8, 2013. Utility executives from North and South America discussed problems of political interference, lack of understanding of the utility business, lack of accountability, and economic incentives that encourage inefficiency. PURC director Mark Jamison explained that these are the very problems that regulatory commissions were supposed to in some sense solve when they were developed about 100 years ago in the United States. The sense in the workshop was that while having expert and independent utility regulatory agencies is important, the traditional design of the regulatory system and the growing impact of environmental regulators, who do not bear the consequences of their decisions, were unsustainable for today’s energy business. Dr. Jamison talked with the group about the need to understand the regulatory system from the inside and about strategies for developing new paradigms for regulation.
Water is a Sick Sector: Where are the Healers?

In a 2008 Report, Goldman Sachs labeled the water sector “the petroleum for the next century.” They forecast a sustained focus and investment in the global water sector for years to come. They also point out that the US alone has an estimated backlog of $300 billion to $1 trillion of infrastructure replacement and upgrades (for security) that involves investment rates of up to twice the growth rate for GDP. The OECD argues that meeting the water reform challenge requires establishing fundamental (1) improvements in financing, changes in governance, and increased coherence between water and sectoral policies. A strong case can be made that water reforms will not take place, due to the political economy of water: key stakeholders will block needed reforms, further delaying investments. Drawing upon some recent experiences in the developed and developing world, one can identify some bright spots that illustrate how leadership can improve water sector performance. However, the global foundational elements are extremely shaky: (1) dramatic changes in public attitudes towards pricing and allocating water are unlikely; (2) there will be no dramatic changes in water sector governance (for water resource management and water utility regulation and operations); and (3) the political will to address water use across sectors is pitifully weak. In Dr. Sanford Berg's workshop at Gartner Symposium ITXPO 2013 participants described their challenges, focusing on information (benchmarking), internal incentives, institutional capacity-building, leadership, and ways to improve governance. The group concluded that communication and citizen education were necessary to improve public understanding of why prices for water and wastewater services can be expected to rise.

PURC Leadership Workshop at Gartner Symposium ITXPO 2013

“In five years from now, what do you want to have accomplished, what do you want to be most proud of?” This is the question that PURC director of Leadership Studies, Araceli Castaneda asked a group of Chief Information Officers during the PURC leadership workshop conducted at the Gartner Group Symposium ITXPO 2013 in Orlando, Florida on October 9. The question prompted the discussion among CIOs, a Gartner Group representative, PURC Director, Mark Jamison, and Araceli Castaneda, who identified and debated some of the current and future challenges being faced as CIOs. Clear subjects of concern moving into the future ranged from cultural shifts within their organizations to the lack of understanding between industry and regulatory bodies on roles and regulatory matters. The session ended with a call for action on what, as leaders in their field, the CIOs should do to face these issues.

How is Florida doing in terms of energy efficiency?

Quite well, according to research conducted for the Florida Public Service Commission and the Florida Department of Agriculture and Consumer Services. Florida's programs are both effective and cost efficient. PURC Director Mark Jamison presented the research to the NARUC Staff Subcommittee on Energy and the Environment at the 125th NARUC annual meeting in Orlando on November 17, 2013. The research included examinations of the types of programs used in Florida, how Florida compares with other states, and how stakeholders view Florida's policy. All indications are that Florida's policies are serving the state well. The research was conducted in 2012 by PURC,
Electricity Market Reform in Nigeria: Learn from the Past or Doomed to Repeat It?

Nigeria is in the midst of an energy market reform effort that will almost certainly serve as a model for future reform efforts in Sub-Saharan Africa. It remains to be seen whether that model will be one to emulate or to avoid. In his presentation “Electricity Market Reform in Nigeria – Learn from the Past or Doomed to Repeat It?” given to the International Relations Committee at the 125th NARUC Annual Meeting in Orlando, PURC Director of Energy Studies Ted Kury discussed these efforts. He shared experiences from PURC training programs conducted with Nigerian electricity market participants, the hybrid ratemaking approach of the Multi Year Tariff Order, the innovative function of the Nigerian Bulk Electricity Trading PLC, and mileposts for continued reform. He concluded that Nigeria has taken great pains to learn the lessons from others and is well on the way toward achieving their goals, but cautioned that 2014 will be an interesting year for the reform efforts.

Energy Efficiency as part of carbon reduction efforts in the EU

Dr. Holt discussed her recent research (with Mary Galligan), which focused on the varying policy approaches to energy efficiency in the United States and the EU at the 125th NARUC Annual Meeting in Orlando.

Association of Latin American Water Regulators Annual Meeting

In November, Dr. Berg gave several presentations at the Annual meeting of the Association of Latin American Water Regulators in Montevideo, Uruguay. He focused on governance issues associated with the regulation of municipal and state-owned utilities. In particular, the Board of Directors can play an important role in developing better incentives for managers. Many PURC alumni have important positions in regulatory commissions in Latin America: they turn to PURC for studies and capacity building.

Other Research Conferences

PURC researchers presented papers at the International Industrial Organization Society Conference, the Florida Energy Summit and the Telecommunications Policy Research Conference. Also at the International Industrial Organization Society Conference, PURC awarded its annual “Best Paper in Regulation” award. PURC researchers spoke at several international conferences, including the CARILEC workshop on renewable energy in Barbados, a Utilities Regulations and Competition Authority (URCA) meeting in the Bahamas, the Organisation of Caribbean Utility Regulators’ 11th annual conference in Belize, the International Energy Regulation Conference and the University of Finland’s International Energy Policy Conference. The presentations covered renewable energy, regulatory governance, and leadership topics.
PURC Visiting Scholars

Visiting Scholars are often catalysts for PURC Research, and this year was no exception. This year PURC had three visiting scholars: Fernando Prado (Escola Politécnica da Universidade São Paulo), Luis Guttierez (Rosario University, Colombia), and Atanas Georgiev (Sofia University St. Kliment Ohridski, Bulgaria). Fernando initiated a project on Brazilian hydroelectric dams. A joint paper, “Capacity Factors of Brazilian Hydroelectric Power Plants: Implications for Cost Effectiveness” was the result of this collaboration. Currently hydro accounts for 85 percent of the electricity produced in Brazil. This study presented the facts regarding capacity factors for hydroelectric plants in Brazil: by region and plant size (large, small, and micro). In addition, comparisons with wind are presented, since these two alternative technologies represent the most cost-effective renewable energy options for countries like Brazil in the medium term.

Luis Guttierez earned his PhD in Economics from the University of Florida and is currently Professor of Economics at Rosario University, Colombia. During his Visiting Scholar year he assisted several graduate students with their work on cross-subsidies and the impacts on service quality. He also completed a study on broadband in Colombia.

Atanas Georgiev participated in the Advanced International Practices Program. He attended the Energy Pricing and Benchmarking Infrastructure Operations courses. The purpose of the stay was to learn more about how a university can host a center such as PURC.

Results of the 40th Annual PURC Conference


Body of Knowledge on Infrastructure Regulation (BoKIR) Web site

PURC expanded this valuable online resource to include more information about clean energy and energy efficiency. New links to other databases will be integrated into the site, and 10 new Frequently Asked Questions and 20 new references pertaining to clean energy have been added. Currently, the web site provides tutorials, literature surveys, self-paced tests, and more than 500 downloadable references on utility regulation, as well as a regulatory glossary translated into several different languages.
Other:

On May 22nd, PURC hosted a group from Global Jax that included six international participants. The meeting was informational, and covered the work of PURC and a brief synopsis of utilities in the area (GRU). The meeting was led by Dr. Berg. Dr. Berg discussed the BOKIR and the FAQs on Renewable Energy and Energy Efficiency. PURC’s Director of Leadership Studies, Araceli Castaneda, shared the importance of leadership in the field of regulation and its effects on organizational performance. Fernando Prado (PURC Visiting Scholar) also was present at the meeting and presented a brief synopsis of his research with Brazilian water utilities. Ed Regan (PURC Research Associate) also participated sharing the findings from the recent FEECA report.

PURC is also a member of a consortium that won the USAID Clean Energy IDIQ for critical priority countries.

TRAINING AND DEVELOPMENT

FPSC Fundamentals of Utility Regulation Training

PURC delivered a three-day training which provided an overview of the fundamentals of utility regulation in Florida for 65+ FPSC staff members during January and February of this year.

FPSC Leadership Development in Utility Regulation Training Program

Delivered twice this year, this training seminar series provided 35+ FPSC staff members with technical and practical information to develop leadership and management skills in a state regulatory agency.

Purpose and Role of Utility Regulation Video Training for the FPSC

This module was designed to provide new regulatory staff with a basic understanding of why Florida regulates utilities and the role that regulation plays in ensuring sufficient and efficient utility service for the state. This module would also be of interest to new commissioners and experienced staff wanting to renew their understanding of purpose and role.
Basics of Utility Regulation Video Training for the FPSC

This module was designed to provide new regulatory staff with a basic understanding of how the main features of regulation are performed and the issues faced. This video module would also be of interest to new commissioners and experienced staff wanting to renew their understanding of the bigger picture of regulation.

33rd and 34th PURC/World Bank International Training Programs on Utility Regulation and Strategy

One-hundred forty infrastructure managers learned from each other and from leading experts during the January and June deliveries of this biannual, two-week program in Gainesville. The program is designed to enhance the economic, technical, and policy skills required to design and manage sustainable regulatory systems for infrastructure sectors. The participants studied ongoing infrastructure reform programs, networked with international speakers, and offered their own insights into regulatory policies.

2013 PURC Advanced International Practices Program

PURC delivered three courses under its Advanced International Practices Program: Energy Pricing, Benchmarking Infrastructure Operations, and Telecom Policy and Regulation for Next Generation Networks. In attendance were 26 participants from 15 nations. Participants of the energy course performed price reviews and analyzed financial statements for rate setting. Benchmarking participants assessed how information on trends in key performance indicators helps decision-makers. Telecom participants examined the foundations, drivers, and policy priorities for NGN. Dr. Jamison, Dr. Berg, Dr. Kury, and Ms. Castaneda designed and delivered the courses during the 10-day program.

Practicing Leadership in a Political Environment: A One-Day Intensive Training Workshop for Emerging Leaders in Utility Policy

In January and June, Dr. Jamison and Ms. Castaneda delivered leadership workshops for regulatory professionals, who examined the activities, behaviors, mindsets, and skills of a successful leader during this training workshop designed by PURC for emerging leaders in utility policy.

Economics of Pricing

PURC developed and launched an online learning platform with the introduction of the Economics of Pricing Course in October. The course was designed to introduce engineers, lawyers, and other professionals to the conceptual framework for designing price structures in infrastructure industries.
When implemented, these rate designs can promote efficiency and financial sustainability. In addition, the course illustrated how to minimize the efficiency impacts of cross-subsidies when several customers in separated markets are purchasing one or more products from a network. This foundational material will help decision-makers develop rate structures that promote financial sustainability, while encouraging efficiency and fairness.

**PURC Executive Academy**

PURC is developing an executive academy for senior managers and executives in utilities and regulatory agencies. The academy will assist them with organizational development, strategy, managing the political context and aligning purpose with stakeholders.

**NARUC Risk Management Proposal and Grant**

How can commissions ensure that they are making smarter risk-based decisions? PURC and the National Regulatory Research Institute (NRRI) will offer NARUC and the PUCs with three one-day trainings on the application of probability, understanding of risk modeling, strategies for risk management, and sources of risk in the electric utility industry. This training has been developed in response to the NARUC Request for Proposals to Develop Training Programs for Risk-Based Decision-Making for State Public Utility Commissions issued December, 18, 2012, and will be delivered in 2014.

**Design and Proposal of a Public Utility Economics Course**

In August of 2013, PURC developed and submitted a proposal and syllabus for a Public Utility Economics course in response to the Florida Energy Systems Consortium (FESC) Education Program Solicitation. In December of 2013, FESC selected the course for funding. The course will focus on energy sustainability and will be targeted to upper level undergraduates from any college at UF who have fulfilled a prerequisite in the principles of microeconomics. The proposal included the creation of a 4 credit course offered by the Economics Department to be taught in the Warrington College of Business Administration (WCBA), a non-credit course offered online, and a video archive that can be used for multiple purposes, including allowing future UF students to access the course online if there are sufficient resources.

**Training Program on Broadcasting Competition**

In November 2013, PURC provided a one-week course on broadcasting competition. The course examined the media convergence, channel sharing policies, the effects on competition, and emerging trends in broadcasting competition. The course was conducted for the National Broadcasting and Telecommunications Commission of Thailand (NBTC).
PURC Regulatory Training Course for the Project Management Unit of the Power Holding Company of Nigeria (PHCN)

In August of this year, Dr. Ted Kury and Dr. Rajnish Barua delivered a one week regulatory foundations training for officers from Transmission Company of Nigeria, Ministry of Power, Presidential Task Force on Power, Project Management Unit in Accra, Ghana.

PURC Regulatory Training Course for Nigerian Electricity Regulatory Commission (NERC)

This training program not only focused on regulatory foundations but also provided training on regulatory issues that NERC needs to fulfill its many obligations for the long run. The five-day course was conducted twice over two consecutive weeks for about 100 staff members in April of this year in Accra, Ghana.

Regulation of Next Generation Networks for the Hong Kong Office of Communications Authority

How can regulators address the new issues created by next generation networks (NGN)? This was the theme of a course provide by PURC for OFCA in February 2013. The course examined NGN technologies, radio spectrum issues, regulatory convergence, innovation, connectivity, pricing, network economics, and universal service.

Course on Infrastructure Sharing for Broadcasting

In December 2012, PURC provided a course on infrastructure sharing in broadcasting. The course examined the economics and logistics of sharing, business models for infrastructure sharing, the effects on competition, and emerging trends in resource sharing. The course was conducted for the NBTC of Thailand.
FACULTY RESEARCH FOCUS

Mark A. Jamison, Director

Dr. Jamison conducts studies on leadership in regulation, regulation and strategy in telecommunications, and regulatory institutions. In recent years, his research has been presented at meetings of the American Economic Association, Industrial Organization Society, Western Economic Association, Australian Competition and Consumer Commission, Telecommunications Policy Research Conference, the Caribbean Electric Utility Services Corporation, the Organisation of Caribbean Utility Regulators, and the National Association of Regulatory Utility Commissioners. He was the principal investigator for the research on Florida’s Energy Efficiency and Conservation Act and was awarded a National Science Foundation grant to examine barriers to adoption of solar technologies in developing countries. He has conducted training programs for regulatory organizations in Africa, Asia, Australia, the Caribbean, Central America, Europe, North America, and South America.

Sanford V. Berg, Director of Water Studies

Sanford Berg retired in July from traditional classroom teaching at UF after 42 years of service. He will continue to contribute to PURC outreach and research initiatives. This past year he focused on issues associated with ways the regulatory system promotes or weakens infrastructure performance. In a Report to the United Nations Economic Commission for Latin America and the Caribbean, Best practices in regulating State-owned and municipal water utilities, he concluded that that sector regulation has to be embedded in an adequate and consistent institutional framework in order to have a positive impact on performance. As part of that project, he collaborated with Dr. Lynne Holt on a paper on “The Importance of Transparency and Information for State-owned and Municipal Water Company Regulation: Theory and Practice (under review). A related article appeared in the journal LEX Locals—Journal of Local Self Government, “Managing Public Utilities: Lessons from Florida” (2013), co-authored by Nuno Ferreira da Cruz and Rui Cunha Marques (both former PURC Visiting Scholars).

Dr. Berg also completed a World Bank funded project to add material on renewable energy and energy efficiency to the Body of Knowledge of Infrastructure Regulation (BoKIR) www.regulationbodyofknowledge.org. He subsequently revised some of the answers to eight Frequently Asked Questions in the BoKIR into publications. His article “Regulatory Functions

Ted Kury, Director of Energy Studies

Dr. Ted Kury’s research has focused on three current issues confronting energy markets: the efficacy of relocating power lines, the complexity in determining optimal levels of carbon dioxide abatement, and the effects of restructured electricity markets. The relocation of power lines is a complicated question because relocation is very expensive and does not necessarily reduce the damage associated with storm events. In areas more susceptible to storm surge and flooding, the relocation may even increase damages, leading to a waste of valuable consumer and utility resources. Understanding how the efficacy of undergrounding changes with location is critical to ensuring that customers are receiving safe, reliable electricity service at just and reasonable rates. Economic theory provides clear guidelines on what constitutes optimal levels of production for any good – the point at which the marginal cost is equal to the marginal benefit. However, in practice, these curves are not always well-behaved, and this can lead to different characterizations of the optimum. So while an understanding of these costs and benefits is necessary to determine optimal levels, it is not sufficient, and public policy should take this into account. Restructured electricity markets have led to more opportunities, but it is not clear how these opportunities are distributed. Dr. Kury’s research has shown that the benefits of increased trade in transparent wholesale markets are not uniformly distributed, with larger and privately-owned utilities more apt to participate. He is also addressing the question of whether this restructured market has influenced a utility’s decision to invest in transmission assets.

Lynne Holt, Policy Analyst

During 2013, Dr. Holt focused on energy efficiency, renewable portfolio standards, and carbon emission reduction in the United States and the European Union. In collaboration with Dr. Mary Galligan, she wrote papers about the different approaches taken by the U.S. and the EU toward these policy tools and the interaction of these policy tools.
Araceli Castaneda, Director of Leadership Studies

During 2013, Araceli Castaneda has focused on the development and implementation of leadership tools for professionals in the regulatory field. These tools are mostly oriented towards problem solving, helping leaders move forward in difficult times, accepting and adapting to change, and bringing awareness to personal strategies and skills to design next steps when faced with difficult challenges. She has also focused on the design of leadership skills for PURC’s new leadership initiative, the Executive and Leadership Academy.

David Sappington, Lanzillotti-McKethan Eminent Scholar

Professor Sappington’s recent research analyzes different elements of regulatory policy. In particular, his work demonstrates how alternatives to standard access pricing policies can provide stronger incentives for efficient operation by vertically-integrated network operators. His work in the energy sector explores the optimal design of policies to reward utilities for promoting energy conservation. His recent work also analyzes the benefits and costs of exposing regulated utilities to antitrust liability.

Amanda Phalin, Research Associate

Phalin's current research focuses on deploying solar technologies in the developing world. She is conducting market analyses in several emerging countries, including Brazil and China, to determine product competition, price points, input costs, regulatory barriers, and distribution issues for developers of a new, kesterite-based thin-film solar-panel technology. In addition, she has investigated the relationship between patent quality and the international transfer of solar technology. Using data from 84 countries, Phalin also explored whether strengthening a country’s intellectual property rights (IPR) laws increases patent filings in this sector. She found a generally positive and statistically significant relationship between patent quality and the international transfer of solar technology. The analysis also showed that—contrary to other research—IPR laws alone generally have no effect or a negative effect on technology transfer in this sector when a quality measure is included. Finally, results demonstrate that climate affecting the intensity of sunlight alone does not determine solar technology inflows. Rather, infrastructure, IPR laws, and human capital combined with this indicator are important.
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