Final Report

Exchange Trip and Follow-up Activities of Thai Energy Delegates on Energy Regulatory and Planning Practices to Washington and Oregon project

27 September to 5 October 2008
2 January to 29 January 2009

Palang Thai & A World Institute for a Sustainable Humanity (A W.I.S.H)
Sponsored by blue moon fund

The “Exchange Trip of Thai Energy Delegates on Energy Regulatory and Planning Practices to Washington and Oregon” project brought high level Thai and US counterparts together in Washington and Oregon for a set of conversations that have laid the foundation for potentially historic reforms to power sector planning and regulation in Thailand. The exchange comprised a week of visits in late September 2008 to renewable energy installations as well as round-table discussions with energy decision-makers in the Pacific Northwest. Follow-up meetings and a public seminar in Thailand in January 2009 built on the momentum generated by the exchange.

As a result of these activities, the Thai Energy Regulatory Commission (ERC) has publicly stated their intention to support transition to an integrated resource planning process. The ultimate goals of this process include institutionalizing true least-cost power sector planning and utility incentive structures in a variety of ways that allow energy conservation and renewable energy to compete on an equal footing with supply-side options, and towards more meaningful public involvement in key decisions in the sector.

The exchange was organized by Palang Thai (a Bangkok-based energy NGO) and A W.I.S.H (an international umbrella organization for sustainability). The exchange was made possible by the generous support from the blue moon fund.

This report discusses the context for the study tour, and gives a chronological summary of the tour and follow-up activities, accompanied by a discussion of key issues addressed in dialogues between Thai delegates and American counterparts during the tour and subsequent follow-up activities. We characterize positions of key actors on contentious issues, and how they have shifted as a result of this project. We conclude with a discussion of outcomes, future strategy to move forward and an overview of the exchange trip organizers.

Background: Thailand energy power and power sector regulation
Compared to many other developing countries, Thailand has a relatively good record in energy efficiency and clean, decentralized power. But the existing successes are very small compared to conventional power system expansion, and compared to the country’s clean energy potential.

As of March 31, 2006 Thailand’s Demand Side Management (DSM)\(^1\) programs have documented savings of over 1300 MW at a fraction of the cost of building new power plants (EGAT 2006a). This is significant, considering that Thailand’s total peak load in 2008 was 22,568 MW.

Similarly, renewable energy and combined heat & power (CHP) generation are gaining a foothold. As of November 2008, Thailand’s Small Power Producer (SPP) laws have led to 690 megawatt (MW) of installed renewable energy capacity. If decentralized fossil-fuel CHP projects are included, the SPP program has over 3,900 MW of generation capacity installed. Thai utilities have begun taking advantage of opportunities for clean decentralized power, such as a 55 MW CHP plant at the new Suvarnaphumi Airport in Bangkok.

In May 2002, Thailand was the first developing country to adopt net metering regulations (known in Thailand as the Very Small Power Producer (VSPP) program) that facilitate interconnection of renewable energy generators and provide technology-specific feed-in tariffs to encourage renewable energy generation. Under these regulations, as of November 2008, 116 generators are online with installed capacity of 557 MW, and applications have been submitted from 741 VSPP projects exceeding 4700 MW in capacity. By June 2006, nearly 200,000 solar home systems had been installed in rural villages in Thailand, providing electricity to homes beyond the reach of the electricity grid.

However these modest positive steps have to be seen in the context of the overall power sector, in which energy efficiency and clean energy are marginalized, in which utilities invest much more heavily in conventional energy generation (natural gas, coal, hydropower imports from neighboring countries and plans for nuclear power). Utilities face incentivizes and historical momentum to focus investments almost exclusively on supply-side (generation) rather than demand-side measures (energy conservation). Decision-making in the sector largely takes place behind closed-doors, with decisions that frequently lead to violent confrontations between power plant developers and local populations.

Thailand’s electric utilities comprise the Energy Generating Authority of Thailand (EGAT) that owns and controls the country’s electricity transmission system about 50% of the country’s generation\(^2\); the Metropolitan Electricity Authority (MEA) that provides electricity distribution within the Bangkok metropolitan area; and the Provincial Electricity Authority (PEA) that provides electricity distribution to the rest of the country’s 76 provinces. All three are state-owned monopolies. The Petroleum Authority of Thailand (PTT) is a monopoly that has been largely privatized, and controls natural gas production and transmission within the country. Despite the establishment in spring of 2008 of the Energy Regulatory Commission (ERC), Thailand’s monopoly utilities remain largely self-regulating.

---

\(^1\) DSM refers to programs that systematically improve efficiency of electricity use or shifting load to off-peak periods

\(^2\) The majority of the remainder comes from independent power producers (IPPs) selling power generated from natural gas or coal under long-term take or pay power purchase agreements.
Thai electricity utilities profits are set according to a “cost plus” structure with a fixed rate of return. In other words, profits are set by the government to be equal to a certain percentage of expenditures. This means that the more utilities spend, the more profits they are allowed to accrue. These arrangements provide a mechanism to pass costs of investments (and even excessive investments) on to consumers. As such, the cost plus system provides strong incentives for rapid expansion of the electricity system, but at the expense of the consumer.

This incentive system has contributed to substantial overinvestment in electricity generation. Since the financial crisis in 1997/1998 Thailand has had more generation than needed and the costs of this excess capacity are ultimately reflected in tariffs that are higher than they need be. In 2003, Prime Minister Thaksin Shinawatra estimated that accumulated unnecessary investment in the power sector totaled 400 billion baht (US$10 billion). As of 2008 Thailand’s reserve margin is 29%, compared to an official target of 15%. Thailand’s electricity tariffs also pass fuel price volatility, as well as variations in costs related to take-or-pay provisions in IPP Power Purchase Agreements (PPAs), directly to consumers. This means that while electricity generation from fossil fuels such as natural gas and fuel oil are risky from an economic perspective, these risks are not borne by the generators themselves. The cost of these risks are passed directly to captive rate payers — who have virtually no voice in deciding what types of power plants are built.

Energy efficiency and renewable energy potential in the country is high. Among the most recent significant Thai DSM studies is a World Bank-commissioned report that, using conservative assumptions, estimates that 2,529MW (11,468GWh/year) of DSM in Thailand is “economic and achievable” by 2011 (du Pont 2005) at an average cost of 1.25 baht/kWh – considerably less than the roughly 1.5 baht/kWh busbar price for electricity from natural gas turbines. CHP potential can be gauged by industry applications: in 2007 the EGAT began briefly accepting applications for new CHP generators. Over 2400 MW applied to the program, but only 700 MW were accepted by the government, citing concerns that they needed to reserve demand for a new bidding program for conventional (less efficient, centralized) thermal generation. The Ministry of Energy in 2003 released estimates that Thailand has over 14,000 MW in renewable energy potential (Thai Ministry of Energy 2003), 7000 MW of which is biomass from agricultural residues.

Thailand is considering ‘going nuclear’. The Thai Power Development Plan (PDP) 2007 included 4,000 MW of nuclear energy. Revisions in 2009 lowered that figure to 2000 MW in response to lowered electricity demand projections in the wake of the global financial crisis. Hundreds of millions of baht have been allocated to provide scholarships for Thai students to study nuclear engineering and nuclear science abroad, and the government has started a large pro-nuclear education campaign targeting school children.

**Background: Pacific Northwest power sector and regulation**

While its energy sector and energy sector regulation are far from perfect, the Pacific Northwest (Oregon, Washington, Idaho, and Montana) has many lessons of interest to Thai energy planners and professionals. The bulk of the region’s power comes from hydroelectricity from large dams built in the 1930s through the early 1970s. But with most of the hydro potential exploited, and with increased environmental restrictions on large dam construction, utilities in
the region in 1970s and 1980s began a massive nuclear energy effort with 27 reactors planned. Because of delays, cost-overruns and high interest rates the nuclear experiment ended up being very costly. Rates doubled overnight, demand for electricity dropped. When the dust cleared only one nuclear power plant was completed and five were mothballed. Bond holders were left with a 2.25 billion dollar default – the largest in US history. Citizen activism in the wake of these issues led to a revolution in energy planning, with a regulatory process that was much more open to public participation that invited energy efficiency measures to compete on an even footing with new generation, and with incentive measures that allowed utilities to make money by helping customers save energy.

**Trip objectives**

The trip had several objectives:

1. **Develop contacts between Thai and US regulatory authorities, planners and utilities** to facilitate sharing of experiences, practices, challenges and lessons learned in tariff setting, public participation, project siting, long-term planning, and policies to promote energy conservation and renewable energy.

2. **Visit examples of renewable energy and conventional power generation power plants** to learn about industry trends, and utilities’ experience with these energy sources over extended time periods including assessments of relative costs and risk.

3. **Provide a forum and common set of experiences for divergent Thai energy actors to talk together and develop a working relationship to improve Thai energy planning and regulatory practices.**

4. **Provide opportunities for journalists to share and communicate the experiences and development of energy practices with the Thai public.**

**Participants**

Study tour participants hail from a variety of organizations and represent a variety of perspectives. The delegation included the chairman of the newly formed Energy Regulatory Commission, Dr. Direk Lavansiri, as well as three Energy Commissioners. This was their first international trip as Commissioners, and first exposure trip to regulatory commissioner counterparts outside of Thailand. This proved to be important as the trip was able to capture the attention of the regulators as they were defining their roles, priorities and identities as regulators. The Energy Regulatory Commission has key responsibilities in issuing licenses, approving rules and guidelines, enforcing compliance with rules, and in tariff approvals.

Mr. Alongkorn Ponlaboot, then Member of Parliament and currently Deputy Minister of Commerce, is an influential figure in the national government and was a member of the Parliamentary Energy Committee.

The Energy Policy and Planning Office (EPPO) is a government office that reports directly to the Prime Minister on energy issues. As the secretariat to the Energy Policy and Planning Council, it plays key roles in power sector planning, in tariffs, in facilitating private sector
involvement in the energy sector, in promotion of nuclear power, and in overseeing the Energy Conservation (EnCon) Fund. Ms. Narumon Intharak is a high-level policy and plan analyst at EPPO.

The delegates included high level (Governor or Assistant / Deputy Governor-level) executives from Thailand’s electricity and natural gas utilities (EGAT, MEA, PEA, and PTT) that build, operate, and distribute the nation’s energy.

University professors and NGO analysts provided representation from groups often engaged on the ground-level with residents of remote villages with a general focus on issues of transparency, accountability, public participation, and protecting the public from unscrupulous actors in the sector. The international NGO World Resources Institute (WRI) has worked with Thai NGOs and government on energy regulatory reform matters. Senior WRI associate Davida Wood joined the trip (on WRI budget) to learn more about Thai and Pacific Northwest regulatory practices.

Television and newspaper journalists accompanied the delegation writing a variety of articles, and developing a six short televised documentaries about energy planning, energy efficiency and renewable energy drawing on footage from the study tour.

Often these individuals (especially between government and NGOs) are on opposite sides of the fence on key issues, and in Thailand often talk at each other rather than with each other. For example, a high profile televised debate several years ago, between Mr. Witoon Permpongsachareon (from the NGO TERRA) and the director of the Energy Planning and Policy Office (EPPO) led to the cancellation of two controversial coal power plants and considerable loss of credibility to EPPO. At the same time, much can be accomplished by overcoming past differences and moving forward.

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Direk Lavansiri</td>
<td>Chairman</td>
<td>Energy Regulatory Commission</td>
</tr>
<tr>
<td>Dr. Pallapa Ruangrong</td>
<td>Commissioner</td>
<td>Energy Regulatory Commission</td>
</tr>
<tr>
<td>Dr. Supichai Tungjaitrong</td>
<td>Commissioner</td>
<td>Energy Regulatory Commission</td>
</tr>
<tr>
<td>Mr. Chalit Ruengvisesh</td>
<td>Commissioner</td>
<td>Energy Regulatory Commission</td>
</tr>
<tr>
<td>Ms. Nadhaporn Channoi</td>
<td>Legal officer</td>
<td>Office of Energy Regulatory Commission</td>
</tr>
<tr>
<td>Ms. Narumon Intharak</td>
<td>Policy and plan analyst</td>
<td>Energy Policy and Planning Office</td>
</tr>
<tr>
<td>Mr. Alongkorn Ponlaboot</td>
<td>Member of Parliament</td>
<td>House of Representatives</td>
</tr>
<tr>
<td>Dr. Toemchai Bunnag</td>
<td>Executive Vice President, strategic planning, gas unit</td>
<td>PTT Plc.</td>
</tr>
<tr>
<td>Mr.Wirush Kanchanapibul</td>
<td>Assistant Governor, Transmission System Operation</td>
<td>Electricity Generating Authority of Thailand (EGAT)</td>
</tr>
<tr>
<td>Mr. Kaew Kamolvutana</td>
<td>Director, Power Purchase Agreement Division</td>
<td>Electricity Generating Authority of Thailand (EGAT)</td>
</tr>
<tr>
<td>Mr. Pornthape Thunyapongchais</td>
<td>Governor</td>
<td>Metropolitan Electricity Authority (MEA)</td>
</tr>
<tr>
<td>Mr. Pongsakorn Tontivanichanom</td>
<td>Deputy Governor, Corporate Development</td>
<td>Provincial Electricity Authority (PEA)</td>
</tr>
<tr>
<td>Mr. Passorn Wiengket</td>
<td>Assistant Governor</td>
<td>Provincial Electricity Authority (PEA)</td>
</tr>
<tr>
<td>Ms. Puree Sirasooontorn</td>
<td>Assistant Professor of Economics</td>
<td>Thammasat University</td>
</tr>
<tr>
<td>Ms. Sarinee Achavanantakul</td>
<td>Business/Finance Lecturer and Editor of OpenOnline</td>
<td>Thammasat University</td>
</tr>
<tr>
<td>Dr. Saranarat Kanjanavanit</td>
<td>Secretary General</td>
<td>Green World Foundation</td>
</tr>
<tr>
<td>Name</td>
<td>Position</td>
<td>Organization</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Mr. Witoon Permpongsachareon</td>
<td>Secretary General</td>
<td>Foundation for Ecological Recovery</td>
</tr>
<tr>
<td>Ms. Sairung Thongplon</td>
<td>Manager</td>
<td>Confederation of Consumer Organizations, Thailand</td>
</tr>
<tr>
<td>Mr. Anubut Sangarasri</td>
<td>RE project finance officer</td>
<td>E + Co Thailand</td>
</tr>
<tr>
<td>Ms. Thananuch Sanguansak</td>
<td>Reporter, Editor</td>
<td>The Nation Channel</td>
</tr>
<tr>
<td>Mr. Kullapat Chankrailas</td>
<td>Producer</td>
<td>The Nation Channel</td>
</tr>
<tr>
<td>Ms. Orapin Lilitwisitwong</td>
<td>Anchor, Editor</td>
<td>Thai PBS</td>
</tr>
<tr>
<td>Mr. Satean Sangkum</td>
<td>Camera man</td>
<td>Thai PBS</td>
</tr>
<tr>
<td>Mr. Michael Karp</td>
<td>Chief Executive Officer and President</td>
<td>A World Institute for Sustainable Humanity (AWISH)</td>
</tr>
<tr>
<td>Dr. Chris Greacen</td>
<td>Director</td>
<td>Palang Thai</td>
</tr>
<tr>
<td>Ms. Chuenchom S. Greacen</td>
<td>Vice-director</td>
<td>Palang Thai</td>
</tr>
<tr>
<td>Dr. Tira Foran</td>
<td>Researcher</td>
<td>Unit for Social and Environmental Research (USER)</td>
</tr>
<tr>
<td>Mr. Davida Wood</td>
<td>Senior Associate</td>
<td>World Resource Institute</td>
</tr>
</tbody>
</table>

**Where we visited and who we spoke to**

In the course of the exchange the participants traveled from Seattle to Eastern Washington, then south and west to Portland, Oregon, and finally north back to Seattle with stops in Olympia and Satsop, Washington. The agenda was designed to start with a site visits to electricity generating facilities (wind, solar, nuclear, hydropower) to give people concrete experiences with technologies before moving into in-depth meeting room discussions. Reflecting the diversity of Thai participants, the US resource people in meetings included visits with regulators, senators, utility representatives, and non-profit organizations focusing on renewable energy, energy efficiency, and public-interest energy advocacy.

**Saturday 27 September 2008**

Delegates arrived Saturday 27 September. That evening in the Warwick hotel in Seattle they were welcomed with a cocktail reception hosted by A W.I.S.H.. Participants introduced themselves and their organization, and engaged in informal discussions. The venue coincided with the A W.I.S.H. annual meeting, so the A W.I.S.H. board of directors (most of whom work on a cross-section of Pacific Northwest public-interest energy issues) added depth and experience.

**Sunday 28 September 2008**

The delegation left Seattle and traveled by chartered bus over Stevens pass leaving the green mountains and dropping into the dry scrublands of Eastern Washington. We arranged a special Sunday visit to the Wild Horse Wind Farm. The facility provides
approximately 230 megawatts (MW) using 127 wind turbines installed in a facility that encompasses over 8,600 acres of open range and protected wildlife habitat. Wild Horse Wind Farm was built by Horizon Wind Energy as a turn-key project and was sold to Puget Sound Energy (PSE). It started producing power in late 2006. In Pacific Northwest, wind projects have become very competitive and the cheapest supply options, leading to tremendous growth in recent years. In contrast, large-scale dams and conventional coal, gas and nuclear plants are perceived by the Thai policy makers as the lowest-cost options.

In addition to the wind turbines, a 500 kW photovoltaic (PV) array converts sunlight directly to electricity. The array, which entered service in October 2007, currently comprises 2,700 solar panels. The delegation climbed inside a turbine tower, and also toured the PV facility. Delegates were also surprised how quiet the wind turbines were. It was easy to hold a conversation standing at the base of the turbine.

In the visitor’s center Puget Sound Energy’s David Bowen gave a powerpoint presentation about the site. Thai delegates were surprised to find that PSE finds that wind power is among its cheapest options for procuring new generation. Washington State outlaws new coal power generation, new large hydropower is impossible for environmental reasons, and natural gas has high price volatility. The biggest challenge to wind power in the region is not lack of wind, but lack of suitable sites with access to transmission lines.

Monday 29 September 2008

Our morning began with a visit to the headquarters of Energy Northwest for a presentation by Jack Baker, Vice President of Energy/Business Services. Energy Northwest is a not-for-profit Municipal Corporation that operates a variety of energy facilities including windfarms, small hydropower, and solar as well as the Pacific Northwest’s only operating commercial nuclear power plant, the Columbia Generating Station.
The Thai delegation was intrigued that a non-profit organization was running a nuclear power plant. The delegation was particularly interested in Energy Northwest’s rough assessment of the costs of various options, shown in the table below:

<table>
<thead>
<tr>
<th>Resource</th>
<th>Project Size</th>
<th>Levelized Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentrated Solar</td>
<td>30 MW</td>
<td>$114/MWh</td>
</tr>
<tr>
<td>Biomass Combustion</td>
<td>25 MW</td>
<td>$114/MWh</td>
</tr>
<tr>
<td>Biomass Gasification</td>
<td>21 MW</td>
<td>$106/MWh</td>
</tr>
<tr>
<td>Combined Cycle</td>
<td>117 MW</td>
<td>$128/MWh</td>
</tr>
<tr>
<td>Hybrid Solar Combined Cycle</td>
<td>147 MW</td>
<td>$129/MWh</td>
</tr>
<tr>
<td>Small Hydro</td>
<td>10 MW</td>
<td>$81/MWh</td>
</tr>
<tr>
<td>Wind</td>
<td>80-200 MW</td>
<td>$90/MWh</td>
</tr>
<tr>
<td>Future Nuclear</td>
<td>250-1500 MW</td>
<td>$100/MWh</td>
</tr>
<tr>
<td>Conservation/Energy Efficiency</td>
<td>Various</td>
<td>$30/MWh to ?</td>
</tr>
</tbody>
</table>

In contrast, in Thailand, nuclear power is assumed to be least cost. For the Thai audience, it was also significant that energy efficiency is presented by a utility, on the same page and on the
on a par with supply-side options, and the utility recognizes that energy efficiency costs per MWh are several times lower than new generation costs. Energy NorthWest’s high projected cost of combined cycle (natural gas) was of interest because Thailand relies on natural gas for about 60% of electricity generation.

After the presentation, the delegation traveled to the Hanford Nuclear reservation where we were permitted to view Energy Northwest’s **Columbia Generating Station** from a distance of about half a mile. The Columbia Generating Station is a 1250 MW uranium-fueled General Electric boiling water reactor. Of the five commercial reactors originally planned by Washington Public Power Supply System (WPPSS) for the State of Washington, this reactor was the only one completed. With the 1992 retirement of Oregon’s Trojan Nuclear Power Plant, it is the only commercial nuclear power reactor remaining in the Pacific Northwest.

Since the terrorist attacks in New York and Washington in September 11, 2001 the nuclear plant site has been off-limits to visitors. The plant is surrounded by a six-foot thick reinforced concrete the perimeter fence. From a small hill we were able to see the reactor building and temporary waste storage facilities.

Departing from the Columbia Generating Station, the group drove south to the Columbia River, and then west followed the river downstream to the Bonneville Dam. Along the way, the delegation spotted several wind farms either in operation or under construction. Semi trailer trucks passed us periodically loaded with nacelles and wind turbine blades bound for wind farms under construction. The impression that this had on the group was considerable – renewable energy is not ‘in the margins’ in the region. Rather, it is visibly an active part of the industry.

The **Bonneville Dam** is a hydroelectric dam spanning the Columbia River. Construction of first power house of the dam (526 MW) began in 1933 and was completed in 1937. A second power house (558 MW) was started in 1974, finishing in 1981. We were given a tour by Patrick Barry, a veteran officer in the visitor’s center. The facility is steeped in history – with construction beginning during the depression as an economic stimulus project amid controversy that the electricity from the facility would never be used.
The 14 dams on the mainstream Columbia River have had a strong negative impact on fish stocks. Dams interrupt the migration of anadromous fish. Salmon and steelhead return to the streams in which they were born to spawn; where dams prevent their return, entire populations of salmon die. The Bonneville Dam employs fish ladders to help allow fish to travel upstream. The visitor facility had under-water viewing windows from which participants could see salmon swimming upstream to spawn. When young fish swim downstream, their passage is facilitated by channels that allow a percentage of fish to avoid the turbine. We also saw turbines being replaced with new designs that kill fewer fish. The attention to fish and river ecology at Bonneville was of interest to many participants because the Pak Moon dam in North East Thailand has been very controversial because reductions in fish populations have left locals with no source of livelihood.

New turbines at Bonneville are designed with smoother edges to kill fewer fish.

The delegation spent the night at the Skamania Lodge, with a dinner banquet hosted by M-POWER.
This day marked the first of several peer exchanges in the trip. The days’ discussions were divided into two sessions. The first focused on energy planning and regulation. The second focused on renewable energy and conservation.

**Energy Planning and Regulation:** Our initial questions for this session addressed: How to achieve energy security while meeting economic, environmental and social goals? What supply options are considered and on what basis are they compared and selected to minimize risks to security and price as well as costs and impacts to consumers? What are the mechanisms to incorporate consideration of low-income users, economic and environmental impacts in energy planning and regulatory decision-making processes?

Michael Karp, the President and CEO of A W.I.S.H facilitated all three peer exchanges.

**Pacific Northwest panelists:**

Ken Niles, Assistant Director of Oregon Department of Energy – explained that nuclear and coal are no longer options for new electrical generation in Oregon. In the 1980s a voter initiative prohibited new nuclear power plants until (1) a high-level nuclear storage area is licensed and operating; and (2) if that happens then still no nuclear power plants are allowed until a citizen vote authorizes them. Coal is not an option because Oregon legislation requires that CO₂ levels will be 10% below 1990 levels by the year 2020, and 70% below by the year 2050. A Statewide renewable portfolio standard (RPS) requires that 5% of electricity is from renewable energy by 2011, 15% by 2015, and 25% by 2025. The Oregon Department of Energy helps by providing long-term fixed-interest loans for renewable energy.

John Savage, Oregon Public Utility Commissioner – discussed his agency’s role in reviewing utility plans and approving rates. This ended up being eye-opening for the new Thai regulators: in Thailand, utilities are guaranteed a specific return on invested capital. In Oregon, by contrast, the regulator reviews utility plans and offers comments on whether they think it is a good investment. The utility can do what it likes, but if the utility commission has indicated that an investment is not good, then that sends a signal to the utility that the commission may not allow the utility to allow those costs be recovered in future rate increase cases.
Bob Jenks’s organization, the Citizens Utility Board of Oregon was a surprise to the Thai delegation because his organization exists and has a seat at the table. Thailand’s Witoon Permpongsachoen asked Bob, “In Thailand there is not an entity like the Citizens Utility Board that has the authority to require utilities to answer your questions. Can you tell us about the enabling regulations that empower your organization?” Bob explained that all non-profit groups that represent customers have an opportunity to be approved by the Commission as interveners. These interveners are allowed access to all relevant documents in Commission proceedings, and have the authority to pose questions or request further data that utilities must answer. In addition, the Commission provides a budget for such groups to reimburse costs incurred in this work. Commissioner John Savage followed up by comment that citizen interveners groups are very valuable in the Oregon regulatory process. This differs strongly from the Thai situation in which NGOs representing small customers do not have access to documents, are not entitled to answers from government or utilities, must turn to sympathetic media to present their case, struggle for funding from foundations, and whose views are generally not appreciated by government.

The second panel focused on Renewable energy and conservation. The guiding questions were: What are policies, incentives, regulations employed to promote energy conservation and renewable energy? What are the current and target supply mixes? How cost effective are energy efficiency/conservation measures and renewable energy sources compared to other conventional options such as nuclear, fossil fuels and large hydropower? Are there any planning/regulatory/technical complications or system security concerns as result of growing grid-connected renewable energy? What are the impacts on carbon emissions? What roles do energy conservation and renewable energy play in helping to meet climate change mitigation goals?

Margie Harris, Executive Director, Energy Trust of Oregon described her organizations’ function. The Energy Trust is funded by a surcharge on utility bills. This money pays for incentives and energy audits that help customers to invest in energy efficiency and renewable energy. The Trust works with approved contractors to deliver the energy efficiency measures and install renewable energy systems. Since its first check in 2002, the program has reached a quarter of a million Oregonians.

Renewable Northwest Project is a network of businesses and nonprofit organizations that promotes solar, wind and geothermal energy. RNP focuses on policies, programs to expand retail markets for renewable energy, and on proper renewable energy siting. Policy Director Anne Gravatt explained how her program has helped in installation of 2300 MW of new renewable energy in the Northwest, most of which is wind power.

Jim Abrahamson, Energy Policy Director, Community Action Directors Association of Oregon explained how his organization bundles federal and local funds to do weatherization and bill assistance programs for low-income households.

The session was followed by small group breakout meetings, focusing on:

**Group 1: Energy Regulation** (Dialogue on future cooperation as well as discussions on regulatory issues including organizational designs, regulatory regime/philosophy for effective regulation, licensing, etc.) led by

Mr. John Savage, Oregon Public Utility Commissioner
Dr. Direk Lawansiri, Chair of Thailand Energy Regulatory Commission

**Group 2: Industry and trends** *(peer exchanges on industry practices and trends)* led by
Oregon and Thai utilities, Renewable Energy Northwest Project

**Group 3: Civil society: roles, strategies and challenges** led by
Jim Abrahamson, Community Action Directors Association of Oregon
Citizens Utility Board of Oregon

**Wednesday 1 October 2008**

Departing Portland, Oregon, the delegation traveled north to Olympia, Washington. Enroute we stopped near the site of the former Trojan nuclear reactor, which was operated during the 1970s and imploded in May 2006, twenty years before the expiration of its design lifetime. The plant suffered premature cracking of steam tubes four years after commissioning, and ultimately needed early replacement of the unit’s steam generators which prompted Portland General Electric’s decision to decommission the plant. The delegates saw a video of the implosion of the cooling tower, [http://www.youtube.com/watch?v=hr2TFLjA3jA](http://www.youtube.com/watch?v=hr2TFLjA3jA), which was later part of several Thai TV documentaries developed by journalists on the study tour.

In Olympia the delegation had an afternoon of meetings with Washington State power sector decision-makers on **supply procurement and plant siting**. Guiding questions were: *What is the process in procuring energy supplies? What is the process in power plant siting? How is the public consultation process carried out? With the challenges of growing demand, how can load growth be served in ways that share the benefits with -- and earns acceptance by -- local communities and public? What are some new technologies and trends that enable utilities, regulators and government to meet energy demand cost-effectively while addressing social and environmental concerns?*
Steve Johnson, Commissioner, Washington Utilities and Transportation Commission (WUTC) discussed the Integrated Resource Planning (IRP) process used by Washington State. The process was described as having four stages:

1. Assessing customer demand; existing resources; and transmission availability and cost
2. Determining what levels of reliability are acceptable; assessing financial risk
3. Developing key assumptions that determine power costs: natural gas price, CO2 regulations, renewable energy portfolio standard requirements
4. Conducting a resource portfolio analysis considering supply and demand options.

While earlier analyses were deterministic, current ones are stochastic --- a distribution of portfolios that vary in terms of price and risk.

After the IRP is issued, the utilities are required to put out an RFP to procure the required generation/energy efficiency assets. All documents are available for viewing by the commission and by intervenors.

This process addresses the heart of some of the problems that have plagued Thailand – where customer demand assessments have shown considerable consistent upward bias, where risk factors (fuel price volatility) are not considered, where modeling has been deterministic and therefore locks in (without acknowledging) a high level risk, and where there is no intervenor process.

Allen Fiksdal, Manager, Washington Energy Facilities Siting Commission discussed his agency’s role and history. The siting council is composed of: Department of Ecology, Fish & Wildlife, CTED, Department of Natural Resources, and the Utilities Transportation Commission.
commission is required for fossil-fueled plants 350MW and larger. The siting process includes an environmental review, and a public meeting process.

Power plant siting has been a contentious issue in Thailand, and villagers sometimes learn of new power plants when construction begins. Villagers claim that EIAs miss key factors (such as existence of coral reefs or whales, in the case of a coastal coal power plant that would have an extensive pier for coal imports)

We also heard presentations from, and had follow up discussion with, Steven Johnson (same name, different person) from the WA Public Utilities Distribution Association, Howard Schwartz, Senior Policy Advisor, Washington Office of the Northwest Power Planning Council/CTED, Dick Byers, Senior Policy Director, Washington Utilities Transportation Commission

The meetings included a thorough discussion of the regulatory process in the Pacific Northwest in which utilities have the opportunity to earn a return on their investments, but do not have the automatic right to. This is quite different from Thailand, where utilities – as state-owned enterprises – are guaranteed a return on invested capital, even if they ‘gold-plate’ investments or invest unwisely.

Thursday 2 October 2008

In the morning the delegation drove west from Olympia to Satsop Development Park, the home of two large unfinished nuclear reactors. On the way to the decommissioned plant, consulting economist Jim Lazar discussed the economic history of nuclear power in the Pacific Northwest. This economic history was crucial for the Thai audience because in Thailand the utility and government assume that nuclear power is the lowest-cost supply option. In Washington cost over-runs were extreme. Washington Public Power Supply (WPPS) nuclear plants were terminated because, according to Jim Lazar, even at 85% completed the cost to finish construction and commission the plants was more expensive than other options.
The unfinished Satsop Nuclear Power Plant was designed to house two 1250 MW pressurized water reactors. Construction of the Satsop Nuclear Power Plant began in 1977 and was halted in 1983 after a $961 million budget shortfall, leaving the plant 76% complete. The plant was maintained, ready for construction to be resumed, until 1994, when it was finally canceled. In 1995, a demolition plan was finalized that eventually turned the site into the Satsop Development Park which uses the facilities to house a water tank company, an internet server company, and other businesses.

Following the visit to Satsop part of the delegation toured the State Capitol, while journalists interviewed Jim Lazar further on nuclear economics.
The final working day of the study tour began with a presentations and a panel discussion hosted by the K&L Gates Law firm at the World Trade Center in Seattle. The peer exchange focused on Utility practices in supply procurement. Can load growth be met with renewables and conservation? Energy efficiency and conservation: what has been tried, what has worked and what more can be done? Distributed vs. centralized generation: where does the future lie? What are the utility practices in interfacing with renewables and co-generation?

Puget Sound Energy (PSE) is Washington State’s largest and oldest energy utility, serving more than 1 million electric customers and approximately 725,000 natural gas customers. PSE is an investor-owned utility. PSE Senior Advisor to the Chairman, Jerry Henry, discussed his company’s transition to a current situation in which energy conservation and windpower are seen (and being developed) as least-cost resources.

Seattle City Light is a municipal utility that provides electricity to the City of Seattle. It is governed by the City Council. A representative of the Superintendent discussed Seattle City Light’s commitment and record of meeting 100% of load growth through a combination of energy efficiency and renewable. Both PSE and Seattle City Light have substantial existing hydropower resources, and investing heavily in energy efficiency allows them to avoid investing in more expensive natural gas. The utilities told the audience that coal and nuclear are not politically possible in the state.

Northwest Power Planning Council (NPPC) develops and maintains a regional power plan and a fish and wildlife program to balance the Northwest’s environment and energy needs. Tom Eckman, Manager, Conservation Resources, discussed NPPC’s work in developing a 20-year electric power plan that will guarantee adequate and reliable energy at the lowest economic and environmental cost to the Northwest. The plan emphasizes energy conservation as a key resource. His talk, and his expertise, are very important for Thailand because of the primacy of the Power Development Plan in the dictating what types of power plants are built where and when in Thailand. The power development planning process in Thailand happens behind closed doors, based on deterministic forecast (which tend to be biased towards over-estimation of demand), and narrow in the options it considers. Tom’s work shows a remarkably different process (involving public input, considering energy conservation explicitly as well as renewable, and stochastic as opposed to deterministic) – and reaches very different results: prioritizing low-cost energy efficiency and renewable energy, and recognizing the risk. We were so impressed with the NWPPC’s work we invited Tom to Thailand for follow up work in January 2009.

A second panel discussion focused on steps towards a sustainable, accessible and equitable energy future. What visions do we hold for a desired energy future? How does climate change factor into this picture? To what extent each energy source (e.g. fossil fuels, nuclear, renewables and conservation) contribute to the desired future? What policies, regulations and reforms are needed to be in place move us towards the goal? How can public interest, environmental and consumer protection agenda be advocated in policy and decision making processes?

The Northwest Energy Coalition’s policy director Nancy Hirsh discussed her organization’s role in shepherding Washington and Oregon towards integrated resource planning as the WPPS nuclear fiasco was unfolding. Phil Rockefeller, Chair, Washington Senate Energy Committee was an important high-level participant – who discussed government involvement in supporting
renewables. The group also heard from Simon Fitch, Chief, Office of Public Counsel, Attorney General's Office of Washington and Energy Project manager Chuck Eberdt who addressed work on energy efficiency assistance for low-income ratepayers.

In the afternoon the delegation went to University of Washington to visit the university’s 5 MW gas cogeneration power plant. The facility provides steam for heating campus buildings. Cogeneration already accounts for about 3000 MW of electricity generation in Thailand, but the vast majority are large-scale facilities (20 MW or larger) in industrial applications. There is wide scope for smaller units driving absorption chillers to cool shopping malls, government buildings,
After the cogeneration tour (the last visit of the trip), the group decided spontaneously to meet to discuss what they had seen throughout the trip and how it might be applied in Thailand. We created a large round-table by moving students’ dining tables in the UW Student Union and had very fruitful and upbeat discussions, amidst studying students, pizza venders, and soda-pop machines. The meeting lasted about two hours. The discussion was a remarkable end to the trip – because it engendered a frank exchange of views, recognition by Thai utility officials that their organizations can improve in specific ways, and support expressed by the Thai regulatory authority and government officials for principles of integrated resource planning (IRP). Participants expressed an enthusiastic commitment to work together to adapt some of the best practices (including IRP and integrating DSMs and EE as supply options) in the Pacific Northwest for the Thai context.

The historic meeting in the UW Student Union

Saturday 4 October 2008

Part of the delegation returned to Thailand. A portion comprising mostly energy and utility officials left for Canada to visit the energy regulatory authority in Alberta – a side trip the regulator arranged for the delegation. Another group left for Lopez Island to discuss the history of the anti-nuclear movement with former activists; visit a net-zero energy affordable housing project; a zero-waste organic farm; and a recycling/reuse center for clothing, appliances, and household items.
Follow-Up Activities in Thailand: 2 – 29 January 2009

In early and mid-January 2009, Chris and Chom met in Thailand with study tour participants and their organizations to follow up on ideas and initiatives sparked by the study-tour, as well as to make arrangements and preparations for meetings, workshop and public seminars with Michael Karp of AWISH and Tom Eckman, Energy Conservation Manager from the Pacific Northwest Power Planning Council during the week of 26-29 January 2009.

These activities included:

- Several meetings with the Thai Energy Regulatory Commission (ERC) to discuss steps forward, including designs of follow-up meetings and workshops and how best to use Michael and Tom Eckman as resource persons.
- Study-tour participants from civil society groups had a meeting with EGAT’s Deputy Governor (and study tour participant) and his team to discuss possibility of working together to suggest ways EGAT could improve its practices to reduce impacts and make their business more environmentally and socially friendly.
- Follow-up meeting with the Thai PBS, tying the stories of nuclear failures in the Pacific Northwest with the Thai nuclear plan in Chumporn Province, a planned project site in Thailand. This led to a TV program series focusing on energy and nuclear with footage from both the US study tour and interviews/forums in Thailand.
- Meeting with broader civil society groups to share experiences and lessons learned from the study tour.

On 26 January, Michael and Tom arrived in Bangkok to join Chom and Chris for three days of intensive meetings and seminars with key energy agencies in Thailand:

Monday 26 January 2009

The evening of Michael Karp and Tom Eckman’s arrival, the two met with Chom and Chris to discuss the political terrain they would encounter. We set a key objective: to communicate PNW experience with energy conservation and true least-cost planning.

Tuesday 27 January 2009

From 9 to 5 we had meetings hosted by the Energy Regulatory Commission (ERC) with all ERC commissioners the including chairman; representatives from Thai electric utilities EGAT, MEA, PEA; from the Petroleum Authority of Thailand, from the Ministry of Energy, and from NGOs (Witoon Permpongsachoen – Foundation for Ecological Recovery and Sairung Thongplon – Consumer Organization of Thailand). The purpose of the meetings was to have ERC take leadership on the Thai side and bringing key stakeholders to participate in moving forward the agenda of adapting lessons learn from the study tour for improving Thai energy practices (IRP and integration of EE/DSM in planning and regulation).
In the morning, Regulatory Commissioner Dr. Pallapa Ruangrong gave an overview of the study tour including the places visited and key findings. Tom Eckmann discussed the experience of the Pacific Northwest in incorporating energy efficiency into power system planning, planning methodology, and results. Slides are available at: www.palangthai.org/docs. Those present acknowledged, for the most part, the benefits of including DSM as a supply side option, and the applicability to Thailand of a process similar to that used in the Pacific Northwest. In the afternoon participants engaged in an in-depth discussion of methodology used by NWPPC in developing their regional power plans.

Wednesday 28 January 2009

In the morning we met at the offices of the Energy Planning and Policy Office (EPPO) together with representatives from the Thai electricity Load Forecast Subcommittee (comprising Ministry of Energy, EPPO, utilities, and consultants).
The purpose of the meeting was to address the treatment of demand side management (DSM) and energy efficiency (EE) in energy planning. In Thailand DSM and EE are not integrated as supply options but rather are subtracted from load forecasts (on the demand side). Furthermore, DSM and EE amounts are incorporated exogenously, as a fraction of official DSM and EE targets, rather than endogenously (being allowed to compete on a cost-basis with supply options). Together these result in systematic bias to under-represent DSM. Because the Pacific Northwest Power Planning Council process is much more inclusive of DSM -- and leads to results that call for significant DSM -- a key goal of the meeting was for EPPO and the subcommittee to learn about IRP and integration of DSM and EE. And it was also important for the subcommittee to learn about the methodology to quantify the potential and realizable targets of DSM and EE measures to be able to better forecast the load.

The meeting included a presentation by EPPO on the role of DSM in Policy and Planning in Thailand. Tom’s presentation on Energy conservation and power planning in the Pacific Northwest incorporating energy efficiency into power system planning, planning methodology, and results. Tom’s presentation on load forecasting methodology and on measuring and verifying the savings from EE and DSM measures prompted an energetic discussion with many questions from the subcommittee. The subcommittee shared that they had plans to do more end-users surveys to be able to better forecast load and plan DSM measures.

In the afternoon we travelled to EGAT offices to meet with high level representatives from the EGAT DSM office and Power Development Planning (PDP) Division. The purpose of this visit was to encourage EGAT, a primary driver of the current PDP process, to have a buy-in in a process of integration of DSM into the planning process, a first step toward an IRP process. For a start, EGAT’s own DSM division (a very marginalized division but which has nevertheless done excellent work promoting appliance labeling, high efficient lighting, etc.) needs to be able to talk with the planning division (a very powerful division within EGAT) in order to begin the process of integration. The incentives need to be restructured so that EGAT benefits from successes of DSM/EE implementation.

EGAT gave presentation about PDP process. Of note, the current PDP has become embarrassingly out of sync with reality. Load has grown much less than the forecast predicted. This led to a rushed process to amend it -- but with no public participation (“we don’t have time, don’t want to risk it being disrupted by politics”). EGAT also gave a presentation about their
DSM program. And Tom gave a presentation about the role of DSM and IRP in the Pacific Northwest.

Discussion became heated when Chom discussed the idea of EGAT capitalizing DSM investments, rather than expensing them in order for DSM investments to be on par with other supply options. Chom also proposed reducing current disincentives for EGAT to do DSM by by delinking EGAT’s revenues from electricity sale volume. EGAT Deputy Governor diverted the discussion by protested that EGAT is not interested in profit “we’re not a private company. We exist for the benefit of the Thai people”. Later in the discussion, the EGAT Deputy Director indicated support for DSM as long as it wasn’t using EGAT money. Taken together these points seem somewhat contradictory, but more importantly they indicate that there is considerable work remaining in finding openings to discuss with EGAT leaders how might work to change its incentive structures so that EGAT and the Thai people benefit from investments in DSM as so the upper-level decision-makers in EGAT embrace these changes.

On a positive note, the EGAT DSM staff and some of load forecasting staff were interested in the NWPPC power development plan process, which uses a Monte Carlo simulation to optimize over 750 load forecasts, and evaluates risk and cost for each – compared to the Thai process that evaluates a single base-case forecast and has no way of quantifying risk.

In the evening we met with Rosana Tositrakul, Bangkok’s most influential Senator. We discussed the role of EE in stimulating the economy, creating “green jobs” employment, and deferring the need for and impacts of additional expensive power plants. Rosana has roles in investigating the energy planning process that leads to unnecessary investments in expensive power projects. She also investigates governance issues associated with infrastructure decision-making. Chom was later invited to present Palang Thai’s analysis on issues related to power sector planning in Thailand to the entire Senate Standing Committee on Good Governance and Corruption Investigation.

Thursday 29 January 2009

The follow up activities culminated in an afternoon seminar at the Thammasart University Department of Economics. The purpose of the seminar was to share what we learned from the study tour (pacific-northwest nuclear fiasco, IRP, roles of EE, meeting new loads through RE and EE/DSM, integrating environmental concerns in operation of hydropower projects) with the broader public and media. About 60 people were present, including representatives from the EGAT DSM office, regulatory commissioners, professors, students, and NGOs. The event was also covered by Thai television.

The seminar started with a summary of study tour by Chom,
and presentations by Tom Eckman and regulatory commissioner Pallapa. A subsequent round-table discussion touched on a variety of issues:

- Discussion of desirable planning process and roles of EE/DSM by broader stakeholder groups, including Federation of Thai Industries (larger power users), academics, MoEN.
- Political (public) commitment by ERC, utilities and MoEN on moving forward towards IRP and integration of DSM/EE in planning process Regulatory Commissioner Dr. Palapa expressed enthusiasm from seeing how effective energy conservation has been in USA, and expressed strong interest in using regulator office – within their authority – to help Thailand accomplish similar results.
- Napaporn Phumaraphand, Director of EGAT DSM division expressed wish that EGAT change its planning process such that DSM is incorporated as a supply-side option in PDP and allowed to compete on an equal basis.
- Michael Karp discussed role of energy conservation in US as an economic stimulus: more jobs, lower risk.
- Tom Eckman discussed experience of NWPPC. How much energy has been saved per year (not up to 30,000 GWh/year); half of load growth deferred.
- Dr. Peter du Pont – DSM unit should be a national unit. One way would be to take the EGAT DSM unit out of EGAT. Eckman’s comment: least problematic is to have a separate entity that is not exposed to utility’s incentives to sell more units of power. Have the unit funded by the utility. Funding has a floor, and no upper limit. The amount of energy conservation to pursue is driven by the results of a credible IRP. Load Forecast should not have energy efficiency included. Rather, conservation should be on supply side.
- Considerable discussion on idea of establishing National DSM office.
- Discussed a Thai economic stimulus package, in particular creating a list of things to do that would create jobs, reduce consumer cost, and reduce carbon instead of current plans – which amount to spending money to create a power plants which will give fewer people jobs. The list might include: lighting retrofits, changing out inefficient heating systems and transformer replacement for industrial facilities.
Media Coverage

In Thailand there was considerable TV and print-media coverage from the trip. We have uploaded these to Youtube:

Thai PBS:
- **Part 1 (nuclear power) of Thai PBS documentary on electricity** explores the nuclear power option in Thailand in light of the experience of nuclear power in the USA. The unresolved nuclear waste issue features prominently. [http://www.youtube.com/watch?v=5ruPfYpvmwY](http://www.youtube.com/watch?v=5ruPfYpvmwY)
- **(Part 2) (hydropower) Thai Public Broadcasting Service (TPBS)** documentary explores hydropower power option in Thailand in light of the experience in the Columbia River Basin of the USA. Environmental impacts, particularly to fish, are highlighted. The documentary includes a discussion of the fish ladders at the Bonneville Dam in the USA and the controversies surrounding fish at the Pak Mun dam in northeast Thailand. [http://www.youtube.com/watch?v=_fbSVWl_EMc](http://www.youtube.com/watch?v=_fbSVWl_EMc)

The Nation Media:
- **Nuclear Power - Pacific Northwest lessons for Thailand - The Nation.** Reports on nuclear portion of study tour of Thai delegates to the Pacific Northwest in the USA. Includes visit to Columbia Generating Station, with focus on unresolved long-term storage problem. Discusses implosion of the Trojan Nuclear Power Plant by Portland Gas and Electric in the late 1980s, and the $24 billion nuclear fiasco of the Washington Public Power Supply (WPPS) that left four unfinished reactors and billions of dollars of debt. Footage of delegation's visit inside unfinished cooling tower and to the unfinished core of the Satsop nuclear power plant. Interview with Parliament Minister Alongkorn Ponlaboot discussing uncertainty about future nuclear power in Thai context. Ends with question of whether current Thai government will remove nuclear from the current power development plan. [http://www.youtube.com/watch?v=gAhLgmKbTpk](http://www.youtube.com/watch?v=gAhLgmKbTpk)
- **Power Development Planning Thailand – The Nation.** Discusses the tendency of official load forecasting to predict demand that fails to materialize, leading to over-construction and high economic burdens passed to consumers. Covers health and environmental impacts of EGAT coal power plants at Mae Mot, Lampang. Shows the destruction to fisheries and local subsistence lifestyles brought by the Pak Mun dam in Isaan. Exposes myth that new power plant construction is essential now to prevent power outages -- since currently installed capacity exceeds peak demand by about 30% -- enough extra that it is not necessary to build new power plants for another 10 years. Discusses process by which land is purchased in advance by power companies, hand-outs are given by power plant developers, but impacts and plans are not revealed and there is no meaningful public participation process. Interviews NGO leaders who bring villagers to visit other communities impacted by power plants. Discusses need to reform power planning process to change the upstream process so that unnecessary power plants are not built. Ends with audio of EGAT commercial "there won't be a day electricity stops" but with visuals of pollution and people with oxygen masks from respiratory illness brought on by pollution from coal power plants. 
  Part 1: [http://www.youtube.com/watch?v=RgZEqfNCysA](http://www.youtube.com/watch?v=RgZEqfNCysA)
  Part 2: [http://www.youtube.com/watch?v=1670wxCDwC](http://www.youtube.com/watch?v=1670wxCDwC)
• Wind Power Pacific Northwest Thai energy exchange tour Reports on wind power portion of study tour of Thai delegates to the Pacific Northwest in the USA. Focuses on visit to Wild Horse windfarm in Eastern Washington operated by Puget Sound Energy, discussing investment cost and environmental impact. Reporter comments on the role of wind in meeting Washington State target of 15% renewable energy by year 2020. [http://www.youtube.com/watch?v=J7nLCrMgng0](http://www.youtube.com/watch?v=J7nLCrMgng0)

• Consumer voice in electricity Pacific Northwest Thai energy Exchange Interview with Thai consumer advocate Sairung Thongplon: Because of historic cost overruns and the unsolved waste problem, nuclear power in the Pacific Northwest is unlikely. While the region has considerable hydropower, the environmental impacts are high and no new large scale dams are planned. The region has turned to wind power and energy conservation to meet new demand. In the past the Pacific Northwest once over-invested in power plants based on electricity load forecasts that tended to overestimate demand. Thailand now suffers from the same issues. The Pacific Northwest once pursued nuclear power's promise of cheap power -- and lost billions of dollars. Part 1: [http://www.youtube.com/watch?v=bY4TyAoppuo](http://www.youtube.com/watch?v=bY4TyAoppuo) Part 2: [http://www.youtube.com/watch?v=aN4iaKsjLW4](http://www.youtube.com/watch?v=aN4iaKsjLW4)

In addition, the Thai magazine Sarakee 3 has published a feature article on the energy exchange and its implications for Thailand [http://www.sarakadee.com/sarakadee.htm](http://www.sarakadee.com/sarakadee.htm).

Outcomes

The study tour was a strong success. We were blessed that participants included a number of high-level officials: the Chairman of the Thai Energy Regulatory Commission, as well as three Commissioners, a Member of Parliament, a utility Governor, utility Deputy Governor, two Assistant Governors from Thai utilities, and an executive Vice President from PTT. It was also diverse -including two professors from Thailand’s top university, NGOs and strong print and television media presence (the Nation Channel and Thai PBS). Our US colleague from the non-profit A W.I.S.H, Michael Karp had extensive contacts in the energy community in the Pacific Northwest that proved invaluable -- we were able to arrange meetings with American counterparts that were as high-level as the Thai participants: a Senator, utility directors, regulatory commissioners, and the directors of a number of key organizations. Though the trip was fast paced and there was little time to recover from jetlag, the Thai group was energetic and showed strong interest throughout. Participants raised probing questions - particularly on regulatory practices, power sector planning, and nuclear energy.

Particularly remarkable was the collective realization of the role of intervenors in the American rate case process; the fact that renewable energy (wind-power) is considered by many utilities in the region as a least-cost alternative (especially since a law in Washington State prohibits coal power), and the very strong role of energy conservation in the mix (the whole state of Oregon, for example, has met all new load growth with conservation and renewables for six years).

We were initially concerned that bringing NGOs and government people together on the trip could be a volatile mix. But, as we had hoped, having all on the same bus, in the same hotels and

restaurants, and talking with the same professional counterparts proved a good recipe for relationship building. Perhaps the strongest evidence of this was that at the end of the trip we had a spontaneous two-hour meeting with everyone talking about working together and using what we learned to reform the regulatory and policy framework towards sustainable energy.

By exposing the commissioners very early after the Energy Regulatory Commission (ERC) has been formed it appears the exchange had a substantial impact in encouraging the regulators to see true least-cost planning as a key part of their vision for the sector. In the words of Pallapa Ruangrong, “to the extent that we have the authority, we are interested in encouraging the sector to pursue integrated resource planning and integrating demand-side measures into our energy planning”.

Similarly, the Thai Load Forecast Subcommittee has expressed interest in a bottom-up load-forecasting approach rather than the top-down econometric techniques that dominate the forecast today.

**Further steps**

Possible further steps include:

- ERC is interested in commissioning a study involving Tom Eckman to identify ways to incorporate DSM into the planning process and incentivize utilities to do more DSM.
- Chom and Chris doing a small internship with Tom Eckman to better understand the planning process and power sector planning modeling software utilized by the Northwest Power Planning Council.
- Work with ERC to modify incentives so that utilities are more encouraged to implement DSM measures and incorporate DSM into long-range planning.
- Work with DSM organizations in Thailand to improve monitoring and verification so that utilities can count on the negawatts actually being there.

**About the organizers**

The blue moon fund (www.bluemoonfund.org) provided funding support to A World Institute for Sustainable Humanity (A W.I.S.H: www.awish.net) with collaboration from Palang Thai (www.palangthai.org), the World Resources Institute (WRI: www.wri.org), and Chiang Mai University’s Unit for Social and Environmental Research (USER) to organize and lead the study tour. The expenses associated with domestic travel, logistics, meals during meetings, and admission fees are provided for all the study tour participants. Contact persons for the trip organization were Palang Thai co-directors Chuenchom S. Greacen (chom@palangthai.org) and Chris Greacen (chris@palangthai.org). Contact for A W.I.S.H was Michael Karp, President and C.E.O.

---

4 Public seminar at Thamassart University on 29 January on energy planning.
A World for a Sustainable Humanity (A W.I.S.H.) is an international nonprofit organization whose mission is to provide models and support for life sustaining activities that integrate solutions to poverty and the environment while fostering self-reliance.

Palang Thai is a Thailand-based non-profit organization that works to ensure that the transformations that occur in the region’s energy sector are economically rational, and that they augment, rather than undermine, social and environmental justice and sustainability.

The World Resource Institute (WRI) has a mission to move human society to live in ways that protect Earth’s environment and its capacity to provide for the needs and aspirations of current and future generations. Their work includes a strong component on power sector governance that works to empower people and support institutions to foster environmentally sound and socially equitable decision-making.

The Chiang Mai University Unit for Social and Environmental Research (USER) works to conduct and coordinate high quality inter-disciplinary research on the relationships between human society and the environment that will make a contribution to improving ecological sustainability, human well-being and social justice in the Southeast Asia region.