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QUARTERLY

Building a Sustainable Future in Asia:
**WHAT CAN ASIA LEARN
FROM GERMANY'S
ENERGIEWENDE**



Building a Sustainable Future in Asia: **WHAT CAN ASIA LEARN FROM GERMANY'S ENERGIEWENDE**

Richard Javad Heydarian
Editor-in-Chief

As the world confronts the ever-destructive impact of climate change, which has generated a higher frequency of extreme weather conditions in recent years, the world has increasingly shifted its attention to varying mechanisms to reduce the concentration of greenhouse gasses -- predominantly from the consumption of hydrocarbon energy resources -- in the atmosphere.

Ongoing efforts over establishing robust climate mitigation and adaptation regimes, however, have been undermined by the reluctance of the world's largest economies, both in the Industrialized West as well as among the biggest emerging markets in Asia, to subject their existing development paradigm to any form of external scrutiny and legally-binding constraints. Nonetheless, the European Union (EU) has vociferously pushed

for a new global climate consensus to expedite the transition of the world economy towards a renewable future -- precipitating the retrenchment of hydrocarbon-intensive models of growth, which have become increasingly unsustainable and climate-disruptive.

For decades, neo-liberal capitalism has been anchored by a dangerous myth: Any transition to a Renewable Energy-based (RE) economic model will be too costly, disruptive, and unaffordable. And despite the growing alarm over the reliability and affordability of conventional sources of energy (think of continued geopolitical crisis in the Middle East), it is precisely this myth that has encouraged many rapidly-developing economies to resist any decisive reform and transformation of their hydrocarbon-driven economic expansion in recent decades. But thanks

to the experience of countries such as Germany -- among the world's leading industrial powers -- this myth is rapidly falling apart. In the past four decades, growing safety, environmental, and fiscal concerns over nuclear technology -- coupled with lingering anxieties over excessive reliance on hydrocarbon resources, mostly imported from unstable regions -- has encouraged the European powerhouse to gradually shift towards RE to feed its industrial expansion, ensure the safety of its citizens, and protect its environment.

Far from suffering an economic reversal as a result of its *Energiewende* (energy transformation) policy, Germany has emerged as a major producer and innovator in the realm of green technology. This has not only ensured greater energy security for the country, but also it has created large-scale employment and business

opportunities in the cutting-edge RE sector. And for this reason, Germany has emerged as a leading model for countries around the world, both developed and developing, which have realized the urgent necessity to decouple from conventional energy resources and decisively push for a sustainable energy paradigm.

Fortunately, the success of Germany has encouraged countries around the world to revisit their current energy paradigm, and contemplate a post-hydrocarbon-based economy, inspiring even the oil-rich monarchies in the Persian Gulf to collectively launch multi-billion-dollar solar-power energy plants and other forms of RE projects -- hoping this could diversify their domestic economies, reduce their reliance on (declining) hydrocarbon resources, and pave the way for a sustainable energy paradigm.

This *Quarterly* builds on the previous issue, entitled "Towards a Green Economy in Asia: The Perils of Nuclear Technology and the Future of Renewable Energy", by taking a deeper look into Germany's famed Energiewende policy, which holds the promise of leading the world towards a sustainable economic paradigm amid growing concerns over climate change and affordability of conventional energy resources.

An Evolving Energy Landscape

Recently, the Philippines inaugurated the Phase I of San Carlos Solar Energy Inc. (SaCaSol), the country's biggest solar plant located in San Carlos Economic Zone (SCEZ), Negros Occidental. The project, a PV solar facility perched on a 350,000 square-meter area, is a joint venture between ThomasLloyd, an international investment management group, and Bronzeoak Philippines, a local clean energy developer. Conergy, a leading German solar company, played a key role in the development of the SaCaSol, with Phase I and Phase II of the project having 13 MW and 9 MW power generation capacities, respectively.

Under the project, power will be supplied at a pre-determined feed-in-tariff (Fit) rate, set by the Energy Regulatory Commission (ERC), of PHP 9.68/kWh. Expected to finish by mid-

2014, the SaCaSol plant is set to produce around 35,000 MW hours per year, providing power to about 13,000 households in the country, and expected to reduce CO₂ emissions by 18,820 tons per year. The project represents a milestone in the Philippines' efforts to become more energy self-sufficient, optimizing latest technology advancements in the Renewable Energy (RE) industry.

But the energy picture is more complicated than it seems.

'[Philippine] President Aquino...has aggressively championed coal energy,' argues Risa Hontiveros in the *Quarterly*, underlying the continued preference for conventional energy resources among leading Filipino policy-makers. 'So far the President has resisted [efforts at reviving the] Bataan nuclear power plant, but he has said, though openly yet non-committally to renewable energy advocacies, "Show me how it works".'

In fact, the Philippines, which has among the most diversified energy mix structures in Asia, is by no means unique in terms of its relatively low appreciation for RE development.

"Except for Singapore, most Southeast Asian countries have been slow to cut back emissions mainly because of costs and lack of technology," argues Malaysian energy expert Gurmit Singh K. S. in the *Quarterly*, mapping the relatively weak policy responses to the challenge of climate change in the region. "Most of the Energy Policies examined seem to lack comprehensive and hardly address the issue of sustainability."

Amid growing volatilities in global energy markets, thanks to intermittent geopolitical disruptions in hydrocarbon exporting regions of Eurasia and the Middle East, more Asian countries have come to appreciate the necessity to diversify their energy mix, with countries such as China emerging as a green technology leader in the world. Given the tremendous potentials of RE in Asia, leading RE companies from around the world, especially Germany, have come to play a key role in building a sustainable energy landscape in rapidly-developing countries such as the Philippines.

The increasing intensity of climate change, which has led to more extreme weather events across the world, especially in archipelagic countries such as the Philippines, has also raised the urgency for mitigating the negative impact of CO₂ emissions from conventional hydrocarbon resources such as coal, oil, and gas. And this has encouraged the established of climate-resilient, RE-based energy policies. As a result, RE-development has become both an economic and existential imperative.

"[In recent decades] Germany has also been in the process of decommissioning its nuclear power plants [But] there has been no shortage of electricity as a result of the latter," explains Maitet Diokno in the *Quarterly*, a leading energy policy expert in the Philippines. "In fact, comparative data shows that electricity generated by nuclear power plants is the most expensive option today."¹

Crucially, as Diokno notes in her article, Germany has enjoyed tremendous economic dividends from transitioning towards an RE-based economy: "New jobs in the RE sector as of this year have numbered 300,000—ten times more than the jobs lost as a result of decommissioning nuclear power plants." No wonder, the private sector, especially financial institutions, have shown growing interest in investing in Germany's booming RE sector.

The nuclear technology, long touted as the ultimate source of clean energy, has become ever more controversial, with governments and concerned citizens across the world realizing the exorbitant risks and costs associated with building, maintaining, and decommissioning nuclear power plants.

Shrouded in bureaucratic mystery, countries such as Japan and South Korea have anxiously discovered glaring safety issues inherent to the nuclear industry -- prompting industrial powers such as Germany to move towards a post-nuclear, RE-based energy paradigm in recent years.

'The Japanese anti-nuclear movement completely changed before and after [2011 Fukushima nuclear disaster],' argues Japan's Member of House of Councillors (the upper-house of Japan's parliament) Mizuho Fukushima in an

¹The costs of decommissioning and comprehensively dismantling nuclear power plants are often underestimated. For instance, Germany began decommissioning the Rheinsburg nuclear power plant in the mid-1990s, with the aim of finalizing the decommissioning operation by 2012. After more than two decades, the process is yet to finish, while conservative estimates on the costs of fully decommissioning a single nuclear reactor block has reached as high as €560 euros.



Image: commons.wikimedia.org/Richard Doolin

exclusive interview with *Socdem Asia Quarterly*. '[Before], many people were a part of the myth of nuclear "safety": most in the large cities didn't know that their power was being sent in from [places out in the periphery such as] Niigata or Fukushima, and few were aware of the dangers of nuclear power plants in the event of an earthquake.'

One must note, ongoing and/or proposed nuclear projects across Asia, from Malaysia to Turkey and Vietnam, are largely a reflection of the influence of the global "nuclear lobby" -- private and state-led -- and the top-down nature of decision-making in these countries. There has been minimal consultation with the citizenry, and the economics of proposed nuclear projects, as many experts note, are highly dubious, to say the least. Nonetheless, the push towards RE-based has been undermined by the lingering obsession with nuclear technology.

"The Malaysia Nuclear Power Corporation (MNPC) and Tenaga Nasional Berhad (TNB) revealed that the Nuclear Power Plant (NPP) project has tiptoed to an advanced stage of development, and expected to be given the green light this year," explains Malaysian assemblyman Chan Foong Hin in the *Quarterly*, reflecting the stubborn preference among some Southeast Asian countries for the outdated, nuclear option. "Our steps toward transition to RE is slow. [It was

only] in 2011 [that the] Sustainable Energy Development Authority (SEDA) [was] set up as the government agency in charge of RE development."

In Japan, a nation-wide consensus on building a post-nuclear energy policy, under the auspices of the center-left government under the Democratic Party of Japan (DPJ), has been undermined by the re-emergence of a right-wing government in 2013.

"However, unfortunately, the Liberal Democratic Party (LDP), which for many years after the war pursued pro-nuclear policies, returned to power in December 2012," explains Japanese Member of Parliament (Diet) Abe Tomoko in another exclusive interview with the *Quarterly*, describing the worrying implications of recent political developments on the nuclear industry in Japan. "This has led to a situation which absolutely does not align with Japanese citizens' ideas, particularly if we consider the LDP's push to restart the [currently idled] 50 nuclear power plants, as well as export Japan's nuclear power plant [technology abroad]."

But among citizens and a growing number of experts and policy-makers, nuclear technology has become an untenable solution to the looming energy crisis in Asia, as booming economies across the world chase a shrinking and volatile supply of conventional energy resources,

notwithstanding the recent discovery and development of "dirty oil" and other forms of unconventional hydrocarbon resources in North America, Latin America, and Africa.

"As we look ahead further into this Asian Century, perhaps the greatest challenge facing Asia is accessing clean, safe, affordable and secure sources of energy," argues Roberto Verzola in the *Quarterly*, a leading environmental advocate in the Philippines. "But Asia's very rich renewable energy resources like solar, wind and geothermal have the potential to help the region meet this challenge."

After all, experts from around the world have emphasized how the current prices of conventional energy resources dangerously and mistakenly omit their social (health) and environmental costs. As countries around the world tighten their environmental policies, and reduce their subsidies for oil and gas consumption, the real price of hydrocarbon resources is set to encourage a greater interest in RE technologies. Also, the cycles of "creative destruction", combined with strategic state support, in the RE sector has also dramatically reduced the cost of, among other things, solar panels and other forms of RE technology.

The German Experience

But how do we actually transition to an RE-based economy? Is there a viable model for Asia to anchor a new energy policy vision?

Recently, a group of 10 progressive energy experts and Members of the Parliament, selected from four different countries which included Japan, South Korea, Malaysia and The Philippines, participated in the tour, organized by the Friedrich-Ebert-Stiftung Philippine Office (FES). The seven-day study tour focused on the transformation of energy supply in Germany (Energiewende) for politicians, experts, advocates, and academics from Southeast and East Asia titled "Energiewende – The Transition to Renewable Energy Supply in Germany".

The rationale behind the study tour was to provide Asian participants with concrete ideas on how one of the most highly-industrialized countries like Germany has managed to maintain

energy security and economic dynamism alongside a large-scale transition to renewable energy. As part of the tour, the participants visited, among others, a to-be-decommissioned nuclear power plant in Rheinsberg and the lignite mining and lignite-fired power plant complex in Jänschwalde, and an exhibition that portrays the history of the uranium mining and the gigantic remediation costs in Saxony and Thuringia. They also got to explore the waste-to-energy plant for the whole city of Berlin, and learned about energy production out of waste recycling.

Above all, the participants visited Feldheim, a renewable energy-based village in Germany -- a path-breaking "green community" -- that has become a model for renewable energy production and consumption as it was able to, among other things, establish more than 40 large-scale wind turbines, create its own biogas production facility, and control its own local heating and electricity grid in recent decades. The participants were also able to meet representatives and leading experts on green technology and climate change in Germany, specifically from the Federal Ministry for Economic Affairs and Energy, the German Parliament Committee on Economic Cooperation and Development, the German Parliament Committee on Economic Affairs and Energy, the German Energy Agency, the Agora EnergieWende, and the Institute for Ecological Economic Research.

This edition of *Quarterly* contains views from the participants of the recent FES-organized trip to Germany, analysis from leading energy experts vis-à-vis the existing energy paradigm in Asia and RE potential in the region, as well as exclusive interviews with leading RE advocates in Japan's legislature. The aim of the *Quarterly* is to shed light on the unsustainability of the existing energy policies in Asia, and the viability and urgent necessity of pushing for an RE-based energy paradigm in the coming years and decades.

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Risa Hontiveros in Vattenfall Janschwalde lignite opencast pit

Learning from Germany's Experience: **TOWARDS A 21ST CENTURY ENERGY POLICY IN THE PHILIPPINES**

by Risa Hontiveros

“Papunta pa
lang Kami,
Pabalik na Sila,”
a Filipino expression
loosely meaning,
We're still only on
our way there,
they're already on
their way back.

I became an activist as a teenager the summer after sophomore year high school when Mommy brought me to a symposium of the Nuclear-Free Philippines Coalition in St. Scholastica's College Manila. I was so inspired by them, especially the “tres Marias” of Sr. Mary John Mananzan, Nini Quezon Avancena and the late Mary Concepcion Bautista that, when classes resumed, I no longer joined the Glee Club, shelved my plans of auditioning with Repertory Philippines for a second musical and invited several junior and senior girls to join me in forming the Nuclear Disarmament Group. We organized several symposia to which we invited the grand old man of the Philippine opposition, the late Sen. Lorenzo Tanada, to speak on the US military bases, the nuclear-powered ships and planes which docked and

hangared there and the Bataan nuclear powered plant. As he was climbing the stairs with his cane to the third floor little theater, I apologized to him for the difficulty. He said, Hija, as long as there are young people like you who care about these issues, I will climb up stairs to speak to you.

This was the first step on a path that led me first to the peace movement, then a social democratic political bloc and finally to Akbayan Party.

When, during the late 2000s in the House, Pangasinan Rep. Mark Cojuangco was trying to convince me to support him in his magnificent obsession of operating the mothballed Bataan nuclear power plant, I told him, Mark, that's the issue over which I became an activist, so let's just agree to disagree on this one.

A major pitfall of nuclear technology based on the German experience could singularly forever doom Rep.

Cojuangco's nuclear obsession in the Philippines: the incapacity to safely store and dispose the radioactive waste from the nuclear energy generation process. If not feasible for an economic powerhouse like Germany, how much more for a developing country like the Philippines?

But when Pampanga Rep. Mikey Arroyo, President Macapagal Arroyo's son, unexpectedly sponsored a Renewable Energy bill, Akbayan was too preoccupied being in the opposition and disdainful of anything emanating from their camp to even explore the bill, let alone support it, so that it passed into law without much intervention from the party.

In her introduction to the *Energiewende* in Germany, Nina Netzer of FES said that in general, there is no overarching strategy. That is probably even truer in the Philippines, with Government's cozy relationship with a private energy sector unregulated by any antitrust legislation, a traditional dependence on fossil fuels, a short-sighted reliance on "cheap" coal and willful delusion about "clean" coal, a fringe advocacy about nuclear energy and a community of renewable energy advocates and providers fragmented across civil society, the private sector and local governments.

Ms. Netzer also observed that some federal states have launched legally binding climate change acts. This is a potential path for local governments in the Philippines, including in Typhoon Haiyan/Yolanda-affected areas where AkBayanihan is building disaster resilience in the rehabilitation stage, also for new politico-administrative entities such as the Bangsamoro and even local government units in the parliamentary and federal form of government envisioned in the Akbayan platform of governance. But still, the establishment of a national policy framework on climate and energy, and integrated programs within our own overarching strategy, would more decisively determine the fate of our

archipelago across its internal ecosystem – and, more broadly, in our part of the ocean and planet.

Stefan Rebmann of the German Bundestag spoke about the red-green regional government in his region. This was especially evocative for me as a leader of Akbayan which is for the first time in our party's history in coalition with a ruling party, a party to the right of us, composed of Liberals. Our basis of unity is the political agenda of non-accommodation with corruption and minimum reforms, but we part ways on economic paradigms. Even on energy, there is no joining of issues yet: President Aquino has approved an investigation into possible Government-private sector collusion on electricity price setting, but his administration has aggressively championed coal energy; so far the President has resisted the importunings of Rep. Cojuangco, his cousin, about the Bataan nuclear power plant, but he has said, though openly yet non-committally to renewable energy advocacies, Show me how it works. I look forward to the day when an actual political party system and more real parties will make possible, even require, more clearly engaged coalition governments, and allow even more progressive governing coalitions to be forged at the local levels.

Mr. Rebmann also shared the discussion about plate and tank in Germany. That competition between food and energy finds expression in debates in the Philippines such as: shall we plant food crops or plants that can be processed into biofuels? Food security or energy security? And this in the context of long-standing withdrawal of governmental support from the agricultural sector, traditional soil preparation methods such as kaingin (slash and burn) to clear land for planting and a climate policy the urgency of which was only belatedly realized after Yolanda slammed into us. A major difference between Germany and the Philippines is that in the former, both the plate and the tank are large and have different institutionalized sources to load or fill them up, whereas in the latter, the opposite is true.

Mr. Rebmann inspiringly said that the permanent political task is to stand up for one's convictions. That is especially true in what Nathan Quimpo calls the contested democracy of the Philippines, where a similar shift in policy and programs towards renewable energies would constitute a credible challenge to the current economic and technocratic elites. But while fulfilling that task, you must also put your money where your mouth is and back up one's convictions with resources and effective management of the energy sector to be transformed. And after committing resources and organizing management, one must continuously organize the constituency to similarly buy in to the energy transition, protecting and expanding the initial investment.

Mayor Michael Knappe of Treuenbrietzen narrated, in guiding us on the field visit to Feldheim, the first energy self-sufficient community in Germany, that pioneers start with small projects, then go bigger overtime. Aurora Provincial Board Member Nano Tangson's mini-hydro plant, Los Banos Mayor Cesar Perez's solid waste management program and Poch Ambrosio's windmills are possible building blocks in a new energy mix infrastructure for the country.

Mayor Knappe also reflected that it takes a lot of patience to break up old structures and introduce new ideas. It took a lot of patience to eventually mothball the Bataan nuclear power plant and to defeat the proposed RP-US bases treaty in the Senate in 1991; it's taking at least the same amount of patience to interrogate the unjustly high prices of electricity in the country, to oppose the construction of coal fired power plants, as well as the RP-US Enhanced Defense Cooperation Agreement. Stretching our patience allows us to push the ideas of an independent and progressive foreign policy, as well as a majority, if not completely, renewable energy powered Philippines. May Germany's *Energiewende* inspire us to plot and reach our own energy transition.

Risa Hontiveros is a long-time environmental advocate, a former legislator, and currently the chairman of the Akbayan Citizens' Action Party.

ASEAN's Climate Approach

NATIONAL ENERGY

POLICIES

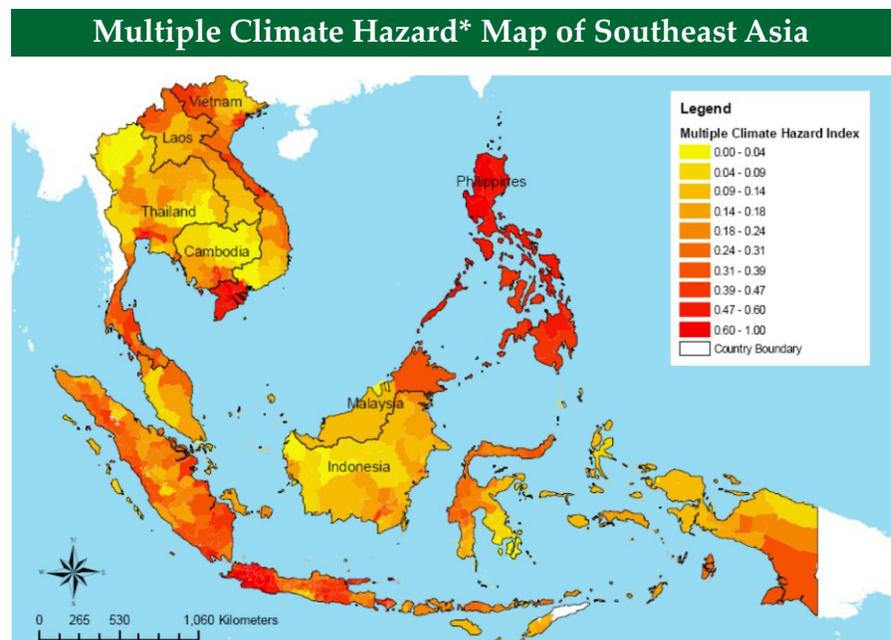
by Gurmit Singh K. S.

Before we can examine any role & commitment of SEA countries on climate change, we need to understand the problem of Climate Change caused by Global Warming. The main driver is energy usage, The threats posed as a result of climate change, especially in Southeast Asia, are best summarized by the slide.

Where does S.E.A. stand?

In terms of AWARENESS, it is pretty limited among the general electorate. Among NGOs, it varies from nation to nation. Among bureaucrats, awareness ranges from low to medium. Among politicians, it can at best be rated as medium.

As for ACTIONS, there have been general reactions only to weather extremes.



Source: Economy and Environment Program for Southeast Asia (EEPSEA), 2009: Climate Change Vulnerability Mapping for Southeast Asia <http://www.eepsea.org>

But there has been an unwillingness to curb fossil fuel use –increasing trend instead. Even Adaptation has not been systemic- adhoc most of the time.

Regional & National Positions

ASEAN has developed little consensus on this global issue. Only the Summit in Singapore took a vague general position but Singapore failed to even present it at the Bali COP soon after. While other regional groups are articulate at UNFCCC negotiations, ASEAN has remained silent. Even on HAZE, Indonesia has yet to ratify the Treaty that has been accepted by other ASEAN nations.

Reducing Emissions/ Mitigating

Except for Singapore, most S.E.A. countries have been slow to cut back emissions mainly because of costs and lack of technology. Some like Indonesia and Malaysia have been trying to increase their forest sinks. But even in the agricultural and waste sector, not much has been done to reduce methane emissions. Certainly there is weak mitigation through Improvements in public transport and energy efficiency. Greater use of renewable energy like solar PV and bio gas is urgently needed. Very little focus has been given to mini and micro-hydros, although some NGOs have worked with local communities to have these implemented. Deforestation remains a major source of emissions, especially among the poorer ones.

Climate change has low priority even when national policies [including on energy] exist.

Assessing Asean Energy Policies

Most of the Energy Policies examined seem to lack comprehensiveness and hardly address the issue of sustainability. The Malaysian policy drafted in 1976 is basically one dealing with electricity while oil and gas fall under the Prime Minister. Brunei on the other hand has almost no policy, relying exclusively on its fossil fuel resources.

Cambodia's energy policy that was being drafted in 2001 does not seem to be clearly enunciated except for focusing on electricity and petroleum. Indonesia's Energy Policy of 2006, although short in length, seems to cover all sources of energy. The Laotian Energy Policy seems to focus on electricity, especially from Hydro sources. The Myanmar Energy policy seems to be very general, based on 4 general principles. The 2009-2030 Philippine Energy Plan seems to cover a wide area ranging from security, reforms to social mobilization. The Singapore National Energy policy framework contains 6 main strategies. The Thailand Energy Policy, approved in 2008, under 5 main strategies, details policy directives, relevant strategies and outcomes. The Vietnamese Energy Policy covers all forms of energy, paying a bit more attention to coal.

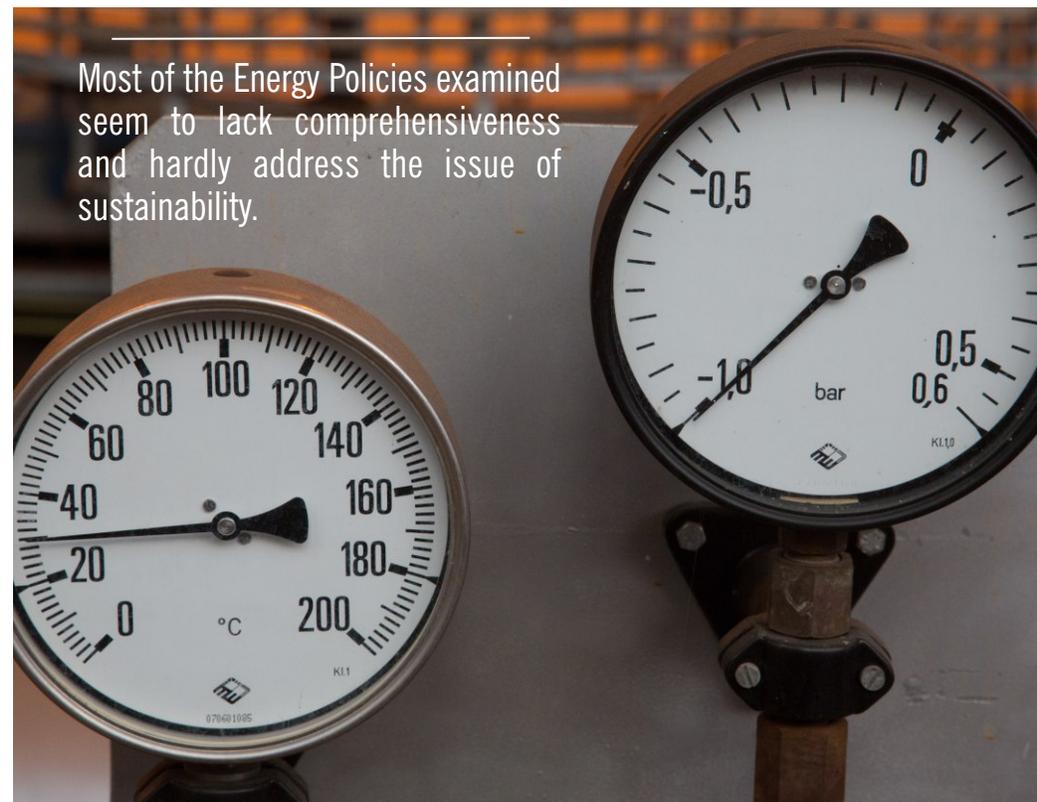
Problems in Making Comparisons

Because of the disparity in approaches and contents, the following problems arise in making useful comparisons:

1. Focus on intermediate form of energy [electricity] While the Malaysian Policy is explicit that it

deals with electricity, the Laotian Policy pays special attention to hydroelectricity. Even in the case of other policies, electricity remains a main area of energy delivery.

2. Energy security is not clearly defined in many policies, especially in terms of primary energy sources. Singapore pays special attention to foreign sources in view of its peculiar situation.
3. Fossil fuel exports is only a norm for Brunei and Malaysia but with the latter likely to become a net importer in a decade or so. The rest have to import such fuels to different extents.
4. Per capita income levels and industrialization vary tremendously from Singapore at one end to Laos at the other.
5. End-use energy needs also are quite divergent with rural populations locked into non-commercial energy sources and large island nations like Indonesia and Philippines struggling to supply decentralized forms of energy.



6. Emphasis on energy conservation and environmental protection are absent in some policies while others have developed specific regulations or supporting legislation.

7. A comprehensive sustainable approach is not common, even in some of the more detailed policies.

Climate Friendliness

For this aspect, it is necessary that either the policy itself addresses climate change issues or there are supplementary legislation / regulations addressing renewable energy, energy efficiency or mitigation/adaptation. Having provisions for clean development mechanism project regulations cannot be considered good enough for the climate as it is only a means to sell Carbon Emission Rights [CERs] to Annex I countries.

Brunei has no legislation that can be considered climate friendly – this is not surprising as it charges the least for petrol and electricity within ASEAN. Although it is a signatory to the UNFCCC, it makes little attempts to reduce its per capita GHG emissions, which are second only to Singapore in the region.

In the case of Cambodia, there is a Rural Electrification by Renewable Energy Policy and a Renewable Energy Action Plan 2002-2012. Despite these, biomass from forests continues as the major source in the rural areas and inefficient fossil fuel plants continue to operate.

The Indonesian Policy itself sets a target of 5% of total energy supply coming from renewable sources and incentives for energy conservation by 2020. Although the country is active in both the UNFCCC and Kyoto Protocol, it seems to be almost obsessed with REDD, believing that it can both gain financial assistance for and reduce its large emissions from the forestry sector.

For Laos, their Sustainable Energy Policy ignores almost all climate change issues and instead plans to have sustainable electricity supply, whatever

that means! Their large hydros are geared towards exporting electricity to neighboring countries.

In the case of Malaysia, a Renewable Energy Act has just been approved and a Sustainable Energy Development Authority [SEDA] established. An Energy Efficiency Act proposal has now been dropped. Unfortunately both these Acts apply to only the electricity sector. There is now a Green Technology and Climate Change Council that is trying to address climate change issues beyond electricity.

For Myanmar, the largest GHG emissions come from the agriculture sector while the 2nd distant emitter is the energy sector [mainly from the burning of fuel wood]. Its response to climate change is almost exclusively in afforestation and reforestation.

Philippines has a Renewable Energy Act 2008 and in 2009 drafted regulations under which incentives are provided for RE with the establishment of a RE Trust Fund which will be partly funded from emission charges from all generating facilities as well as 1.5% of govt. share of development and use of indigenous non-renewable energy sources.. The earlier plan talks more of climate change adaptation without spelling out specific details.

Strategy Six of Singapore's Energy Policy on improving energy efficiency justifies this on the need to reduce CO2 emissions while climate change is acknowledged in the Policy introduction as one of the major factors in the changing energy landscape. This is perhaps fitting as Singapore is the largest per capita emitter in ASEAN.

Thailand Energy Policy's Strategy 5 on environmental protection specifically talks of a target to reduce GHG emissions from the energy sector as well as a million tons of CERs under the CDM annually. It also has Strategy 2 on Alternative Energy and Strategy 4 on Energy Conservation and Efficiency.

Vietnam issued a Decree on Renewable Energy Development in 2007 with the broad aim to diversify energy supplies, safeguard energy security, protect the

environment, and realize sustainable development. But there is no specific mention of climate change.

Overall Assessment

It is obvious that Energy Policies within ASEAN countries range from the general to comprehensive, both in terms of scope and content. Even Renewable Energy Acts sometimes cover only electricity like in the case of Malaysia. Perhaps the great diversity is related to the development levels of each country as well as their access to indigenous energy sources. In some countries, non-commercial energy is significant but unaccounted for within the national energy policy.

Although much efforts are being spent on an ASEAN Electricity and Gas Grid, almost no attention seems to have been paid for improving national energy policies. Of course, not all energy policies are rigorously implemented.

But it seems that the Thailand Energy Policy is the most comprehensive in energy scope as well as in addressing climate change issues. How well it is implemented is yet to be seen!

The Future?

Great uncertainty exists on whether communities in the region are resilient enough to drastic climate changes that are likely to occur in the future. There is not much evidence that ASEAN governments have developed concrete mitigation & adaptation plans, despite a number of general policies. With our planners still fumbling about CC impacts, can they avert these?

Are NGOs able to help local communities to adapt or lobby for proactive action by both public & private sectors? This seems to be a serious doubt. Are ENGO representatives too caught up CC negotiations as to sideline adaptation measures at the ground? Witness what happened in Warsaw - between fasting and walking out on the last 2 days of the COP !

Gurmit Singh K. S. is an environmentalist, social activist and engineer. He is the Chairman of the Centre for Environment, technology and Development, Malaysia.

The Energiewende Paradigm: **CHALLENGES AND OPPORTUNITIES**

by Maitet Diokno

If Germany succeeds—and we who participated in this study tour fervently wish it does—the implications for the world are tremendous..

“The answer, my friend,
is blowing in the wind . . .”

— Bob Dylan

For one week in March of this year I was fortunate to be part of a group invited by the Friedrich Ebert Stiftung (FES) to study *Energiewende* in Germany. We went around Berlin and the nearby towns of Rheinsberg, Thuringia, Dresden, Cottbus, Leipzig, and Treuenbrietzen. We spoke with members of parliament, officials of the Social Democratic Party of Germany (SPD), energy ministry representatives, company representatives, an independent non-partisan think tank, and city/town mayors and officials. The schedule was hectic but our time was well managed and therefore well spent.

In the process, the group—five Filipinos, two Malaysians, a Korean and a Japanese—formed a bond built on Germany’s transition toward renewable energy.

The transition is unparalleled; no other country or people in the world have attempted this. The plan is clearly ambitious, and it will transform existing norms and standards about how electricity should be generated and distributed — and, perhaps above all, by whom. If Germany succeeds—and we who participated in this study tour fervently wish it does—the implications for the world are tremendous, not only in the fields of electricity and technology, but also in the areas of ecology, society, economy and politics. We could say that the sustainable future of our children and their children rests on the success of Energiewende.

Energiewende from a Filipina's view

My understanding of Energiewende is that it is a national policy that was developed and adopted over the past decades, to move away from nuclear energy and fossil fuels towards renewable energy, in the power, transport and heating/cooling sectors. The goals as presented to our group are as follows:

- Full nuclear phase out by 2022;
- Reduction of greenhouse gas emissions by 40 percent by 2020, and by 80 percent to 95 percent by 2050 (both compared with 1990);
- Expansion of renewable energy to a share in generation of 40 percent to 45 percent by 2025, and a share of 80 percent in 2050;
- Energy efficiency and reduction in electricity demand by 10 percent by 2020, and by 25 percent by 2050 (both compared with 2008).

Based on the rich discussions and visits we had during our six-day study tour, what follows are a few general and major observations.

For one, this policy has been crafted by, for and in consultation with the people of Germany. It seems everyone is on board here. Government at all levels, corporations, banks, communities, independent research units, individuals both in the farms and in the towns and cities—all agree on and accept Energiewende as the path Germany is to take. Crucially, the ongoing policy debates, arguments and criticisms tend to focus on how government is undertaking Energiewende, not on whether Energiewende is a good policy or not. Everyone agrees that it is, so there is a national consensus on this issue.

The policy is by the people because of the strong popular sentiment against nuclear energy and for RE. Furthermore, over a million households and farms are now generating electricity and contributing to Germany's power grid, in contrast to the previous regime when four big companies dominated the power sector.



Image: commons.wikimedia.org/IqRS

Furthermore, over a million households and farms are now generating electricity and contributing to Germany's power grid, in contrast to the previous regime when four big companies dominated the power sector.

It is for the people because the environmental sustainability of Germany is at stake. Furthermore, job creation has become a welcome effect of the shift towards renewable energy and green technologies. It is with the people because much consultation has taken place when a community or town goes renewable. Energiewende clearly cannot succeed without the active participation of German citizens.

Another observation about Energiewende is that it has a long history and adopts a long-term view with clear time-bound targets. The first document on Energiewende was published in 1980, before Chernobyl, the Kyoto Protocol and Fukushima. The targets are not tied to the current political leadership in Germany, who also has had to respond to popular sentiment against nuclear power and for renewable energy. The time frame adopted provides ample time for everyone to adjust: consumers, industries, builders, transport groups, and the power sector itself.

What a contrast to the Philippines. Towards the end of April this year the Department of Energy (whose Secretary had just come from a visit to Germany) held a focus group discussion with

non-government organizations to help craft an energy strategy for the remaining two years of President Aquino's term. Two years for an energy strategy in a context where electricity rates are among the highest in the world and where as much as 40 percent of the poor do not have electricity at home. How I wish the winds of Energiewende were strong enough to reach the Philippines.

Another major observation is that Energiewende is making everyone rethink not only the electricity supply grid, but also how they live, and how and what goods to produce. These are factors that would have an impact on demand for electricity and the utilization of power in Germany. A power supply grid dominated by renewable energy largely from wind and the sun will require a lot of flexibility not only from the suppliers but also from consumers. The change is multi-faceted, which may be bad news for those entrenched in the fossil fuel/nuclear power regime controlled by a few. But if there is anything we can expect from Germany and its people, it is that they will be thinking through each and every aspect of change needed in order for Energiewende to succeed.

How much progress has taken place

Since 1990, Germany has been able to reduce its greenhouse gas emissions by 25 percent. Experts say that it remains uncertain whether the goal of 40 percent reduction by 2020 will be met. Germany has also been in the process of decommissioning its nuclear power plants, without any projected significant disruption in the availability of electricity. In fact, comparative data shows that electricity generated by nuclear power plants is the most expensive option today.

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As part of our study tour we visited a small nuclear power plant that was decommissioned in 1990. Its engineers told us that up to this day, there is no permanent site for the storage of spent fuel. Putting an end to electricity from nuclear power does not fully resolve what to do with spent fuel.

As part of *Energiewende*, Germany has adopted feed-in-tariffs for renewable energy, following the implementation of the Electricity Feed-In Act in 1991, which was complemented by the Renewable Energy Sources Act (EEG) that came into force in the year 2000. Investors in RE installations also were to be given priority dispatch in the power grid. This policy made it attractive for individuals to invest in solar, wind and other RE plants. Banks also found it lucrative—virtually risk-free, we were told—to provide credit for RE. Today, renewable energy contributes a fourth of electricity in Germany, from a share of only three percent in 1990.

There have been positive consequences of going renewable. For one, the “Big Four” (comparable to our very own “Voltage V” in the Philippines) are now outnumbered by over a million small generators or renewable energy. On our last day, we visited the town of Feldheim, whose mayor, Michael Knappe, had the great foresight to transform the town into an RE producer. We asked him how the “Big Four” responded to his vision and plan. The mayor recounted that the electric utility that held the distribution lines in

Feldheim did not support their plan and also did not allow them to use the distribution lines that it owned in the town. Years later, after the wind farms emerged one after the other (and after the town laid out its own distribution lines), the mayor smilingly recalls being told by the company representative, “You know we could have worked out something”, or words to that effect.

Another positive impact has been in the area of job creation. New jobs in the RE sector as of this year have numbered 300,000—ten times more than the jobs lost as a result of decommissioning nuclear power plants. The new jobs are mainly in Germany’s traditional industries: electrical engineering, steel, mechanical engineering, synthetic materials and chemicals.

Emerging challenges

So far, Germany’s achievements with *Energiewende* are admirable, deserving our recognition and praise. Yet the country is, admittedly, still far from its goal of 80 percent RE generating share by 2050. And new concerns are emerging as the country goes through *Energiewende*. As a result, these are exciting times in Germany. Policy makers, parliamentarians, industry players, think tanks and researchers, environmentalists, citizens groups and organized communities are going back to the drawing board to see what else needs to be done and what may need to be modified, in order to meet the targets set under *Energiewende*.

Vattenfall Janschwalde Lignite fired power plant.

One exciting prospect is how the nature of the grid will be completely altered by a system that relies on wind and solar energy for most of its electricity. In the Philippines, the power grid relies on electricity from hydropower, geothermal, coal and natural gas plants for its base load. Plants using oil generally provide electricity during the hours when demand is high or is at its peak. A graph from Greenpeace Philippines depicts the grid today. (See Graph 1)

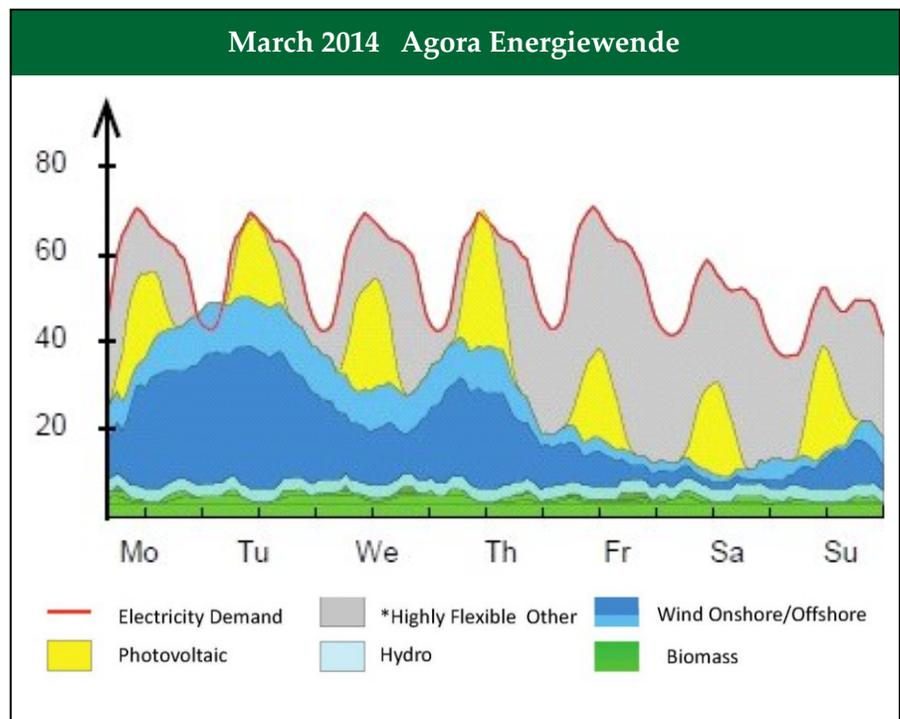
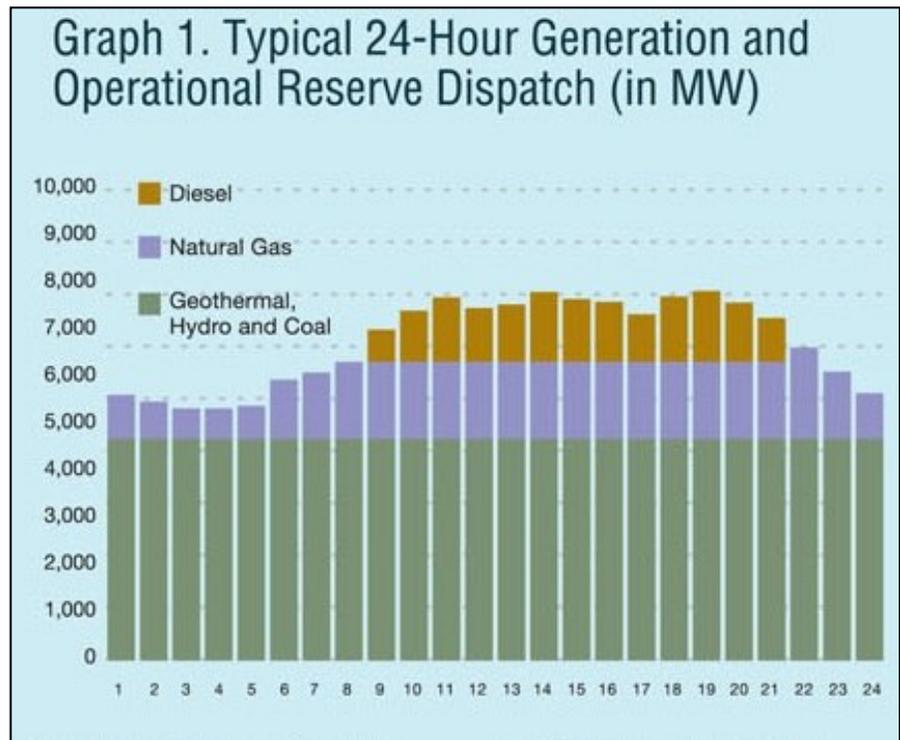
Base load plants such as coal, geothermal and hydro plants are dispatched first, followed by the natural gas plants and finally oil.

In Germany today, coal and lignite still constitute 45.5 percent of electricity generation. But because renewable energy generation gets priority dispatch, the nature of the power grid is changing. As the share of RE generation increases (the target is for it to grow by 1.5 percent per year), the grid will tend to look like the graph below (obtained from Agora, an independent think tank in Berlin).

Biomass, hydropower, wind and PV solar will form the base load of the grid, while fossil power will have to come in during the times that weather conditions are not favorable for RE generation. Because RE generation relies on resources that vary and cannot be completely predicted or controlled, the key to a power grid centered on renewable energy is flexibility. Fossil power will have to become flexible and come in to fill the gaps arising from variable weather conditions.

One of our visits was to a lignite or brown coal plant. We were told that they are learning to bring their power generation up or down by several megawatts per minute, responding to the variable power supply from wind and PV solar plants. But being a coal plant they still need a whole day to start up the plant. It seems flexibility has its limits when it comes to coal.

Another concern is that electricity is becoming expensive for ordinary Germans. The establishment of feed-in



tariffs (FIT) made possible the expansion of RE to its present share of 25 percent of power generation. Since then, the cost of solar installations has fallen significantly in Germany: 66 percent cost reduction in 2014 compared with 2006. However, because the more costly older systems were financed largely with bank credit (20-

year loans), it seems that the feed-in-tariffs could not be correspondingly lowered in accordance with the fall in the cost of solar systems. This combined with the priority given to RE in the dispatch of electricity has made electricity more costly in Germany: from 0.2 cents per kilowatt hour (kWh) to 6.24 cents per kWh.

The challenge for the government is to introduce changes in the pricing of electricity in order to bring down electricity rates. In our discussion with the Federal Ministry for Economic Affairs and Energy, one modification being considered is to gradually require RE investors to market their electricity in order to get dispatched, through bilateral contracts or through the spot market. The feed in tariff will also be gradually replaced by a negotiated tariff plus a Feed in Premium. (My impression is that this is an incentive or “reward” for RE investors who are able to market their generated electricity.) But all RE investors will continue to enjoy a minimum dispatch so that they and their creditors are not unduly exposed to market risks.

One technological challenge that Germany is facing is how to store electricity from renewable energies so as to mitigate the variability of weather conditions. We learned that research is ongoing for a cost-effective battery that could store energy and thus stabilize the supply of RE-generated electricity.

But Energiewende is not waiting for a new battery to be developed. The transition towards renewable energy in Germany is already creating shifts in industrial technological processes as well as the lifestyle of ordinary citizens. Electric cars made of lightweight but sturdy carbon fiber, passive homes and buildings (structures that use little energy to heat the living spaces), towns running totally on renewable energy — these were among the places we visited in our short but intensive study tour. As we walked through the windy streets of Feldheim, Mayor Knape commented that the residents gradually developed the habit of synchronizing their lifestyles in accordance to energy cycles, which are partly affected by weather conditions.

Energiewende is not only a shift in the supply of electricity; it is also a shift in how people use electricity in the factory, in the office and at home.

Lessons for the Philippines

The Philippines is rich in RE resources, and has relatively less oil, coal and natural gas resources. As such a transition to renewable energy is not only a strategic and smart move. It is plain common sense. Because it is costly and almost impossible to connect all our islands with a national grid, devolved renewable energy systems would be a practical and doable option for us. In this sense, we have much to learn from Germany’s experience with Energiewende.

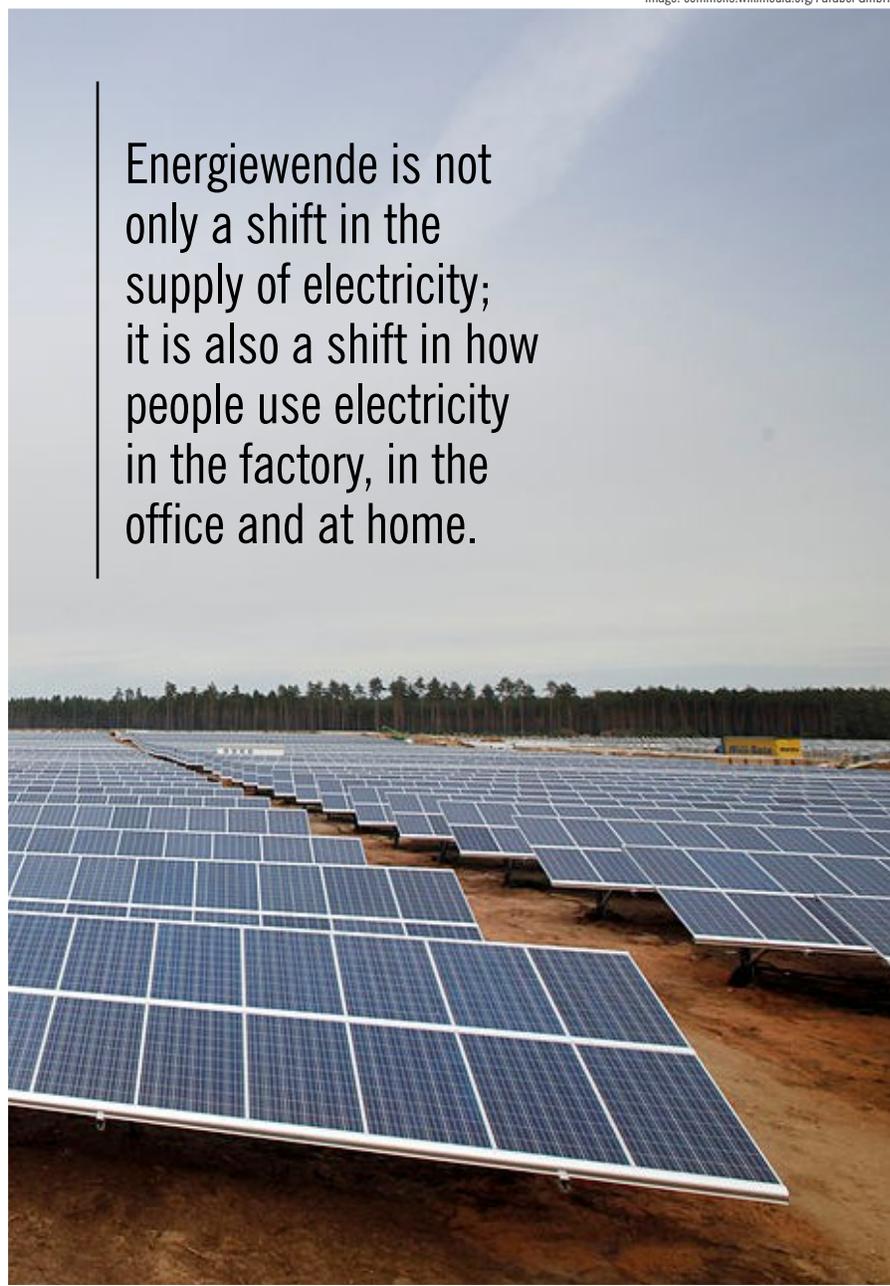
Unlike Germany, where electricity is enjoyed by everyone, in the Philippines, access to electricity especially among the poor is a serious development concern.

Energiewende in the Philippines should target universal access to electricity. What better way of bringing power to the people (in more ways than one) than through renewable energy that we have in abundance.

As we walked through the town of Feldheim, with the strong winds blowing our hair in a million and one directions (all at the same time), we could literally and figuratively feel the strong currents of Energiewende. We certainly could do with a program like this in the Philippines.

Maitet Diokno has written extensively on the Philippine power sector. She currently heads a medium-scale social enterprise producing processed coir.

Image: commons.wikimedia.org/Parabel GmbH



Exclusive Interview with Japan's Member of House of Councilors **MIZUHO FUKUSHIMA**

Heydarian: For decades, you have been at the forefront of calls for reforms within Japan's nuclear industry, especially how utilities have operated the nuclear power plants. After the 2011 disaster in Fukushima Daiichi nuclear power plant, you have emerged as a major figure in the anti-nuclear movement, which is consistent with the platform of your party. Do you think that we have arrived at a critical juncture in Japanese history, whereby we could expect a radical shift in the management of the nuclear industry and a decisive shift towards safe and sustainable source of energy? Is there sustained popular and political pressure to push for such reforms, and have the anti-nuclear movements signaled a new era of participatory democracy in Japan? How do you assess the momentum and strength of the anti-nuclear movement since the Fukushima incident? What role has the Social Democratic Party of Japan played in pushing for regulatory and legislative changes with regards to the nuclear industry?

Councilor Fukushima: The Japanese anti-nuclear movement completely changed before and after 3.11. [Before], many people were a part of the myth of nuclear "safety": most in the large cities didn't know that their power was being sent in from [places out in the periphery such as] Niigata or Fukushima, and few were aware of the dangers of nuclear power plants in the event of an earthquake. However, 3.11 was a wake-up call for many people regarding the nature of nuclear disasters, and the extent of the damage they cause and of the necessary evacuation. Especially conscious of these issues are young people, women, and mothers. The anti-nuclear movement marked the beginning of the age of participatory democracy in Japan. Yet despite its advances and how strong it has become, the anti-nuclear movement is not an organized body that can apply political pressure. That being said, even this is looking set to change; many average Japanese consumers, young women, and mothers, for instance, continue to now demonstrate anti-nuclear sentiment.



So I think the power of [all these new forces joining the anti-nuclear movement] is going to lead to decisive change in Japan's energy [policies], and the SDP wants to mobilize this.

At the same time, as the cozy relationship between politics and industry indicates, the "nuclear empire" in Japan is incredibly strong. While it is going to take time, this is also something that must be changed. [To this end, there's a lot that needs to be done] in the short term: solving the problems of how to dispose of contaminated water, for instance, preventing reactors from being restarted and operating in Japan, and moreover, not allowing nuclear reactors to be exported abroad. In cooperation with other parties, the SDP submitted a bill which proposed abandoning nuclear power generation; however, it was dropped in the House of Councilor's election. Although it's not going to be easy, we would like to once again work with other parties to re-submit this bill and get it passed. In addition, the SDP would like to work toward submitting bills to, amongst other things, a bill to decommission nuclear reactors, a bill to separate electrical production and supply, and a bill revise the subsidies for power source siting laws. Meanwhile, active local initiatives are taking place around the country. 1/4 of the energy in Oita Prefecture, for example, comes from geothermal power generation. This is a great example of what needs to be done: move away from the current situation based on nuclear power toward one that emphasizes an increased use of renewable energies, and it's toward this end that the SDP is striving.

Heydarian: As a veteran stateswoman, who has closely observed and participated in the ebbs and flows of Japanese politics, what is your assessment of the return of the Liberal Democratic Party (LDP), specifically the Shinzo Abe administration, to power? What do you think does LDP's consistently strong performance since late-2012 suggest? Is Abe's tough position on China and push for structural reforms under the so-called "Abenomics" resonating with the electorate?

Councilor Fukushima: Prime Minister Shinzo Abe has learned certain lessons during his first term in office, (2006 – 2007), and has returned to captivate voters with his economic and business recovery policies. He also has personal aims to change peoples' understanding of history and revise the Japanese constitution. Because the economy has taken such a downturn, and employment is floundering, many people want to have hope for the future, and thus have welcomed such economic recovery. In that sense, people are showing their passive affirmation for the "security" of the Abe Cabinet. However, this is a mistake; in fact, the Abe Cabinet's policies of deregulating employment and raising consumption tax are simply widening the economic gap and impoverishing peoples' lives even more. What really stands out is that Abe is simply touting improvements for the wealthy class and the rise of stock market prices to pass his policies off as a success.

The Abe administration's main aim does not truly lie in economic recovery, but in revising and reinterpreting the constitution. On this point, the SDP is fighting hard to make sure that Japan doesn't become a country capable of waging war. Deputy Prime Minister Taro Aso in a recent speech suggested that Japan should "learn" from the Nazi's

"techniques" of "Constitutional revision" and referred to the Weimar Constitution being changed almost before people realized it. As most Germans probably know, this is not accurate (as a matter of fact, the Weimar Constitution was suspended, but never replaced by anything like a "Nazi Constitution"). But there are some similarities in the cases of Germany at that time and Japan now. For instance, at that time, Germany was facing economic depression and, as people became more and more concerned, they also became more jingoistic. Eventually, this led to the rise of the Nazi Party and the suspension of the Weimar Constitution. Similarly, in Japan today the situation is extremely dangerous – many people are worried about the dire state of the economy and are becoming more jingoistic. In all respects, I think that this is a critical juncture for the Japanese peace movement.

Heydarian: As the former coalition partner of the Democratic Party of Japan (DPJ), what do you think were the reasons behind their loss of political momentum, which allowed the return of the LDP after five decades of almost uninterrupted electoral dominance? How have progressive parties and actors such as you performed in recent elections, and how do you assess the dynamics in the balance of forces between reactionary parties and more progressive ones? Do you think the return of LDP suggest a blunting of efforts to dismantle Japan's nuclear industry?

Councilor Fukushima: The DPJ wasn't able to live up to the promises it had pledged and had a number of other problems which undermined the legitimacy of their administration. For instance, they unexpectedly supported raising the consumption tax. Also, the cabinet under Yukio Hatoyama (2009-10) claimed that no U.S. military base would be built on Henoko (Okinawa prefecture), but eventually he backtracked and ended up agreeing with the U.S. on this issue. Finally, the DPJ backed out of the SDP's coalition government. In other words, the DPJ administration really strayed off course. At the same time, the DPJ shouldn't bear all the blame for failing to achieve these things. Of course, the unpopularity with the Japanese population of raising consumption taxes greatly affected the DPJ's image. However, a certain portion of bureaucrats also bear responsibility on these issues, and their refusal to cooperate with the ruling party was one reason for the DPJ's failure. For example, regardless of Hatoyama's pledge to relocate the Futenma base outside of the Prefecture and the country, the Ministry of Foreign Affairs and the Ministry of Defense vehemently opposed this idea. Thus, a primary factor that the DPJ administration couldn't fully function was that, just like under the LDP administration, a certain number of bureaucrats either aimed to crush the DPJ or refused to cooperate with it.

It is extremely unfortunate that many progressive parties or Diet members were defeated in the most recent election. Now, there's a clear unbalance of influence between the conservative and progressive parties. And, due to the LDP's return to political power, the Japanese nuclear industry is making an even firmer comeback (becoming even more firmly entrenched). In response to this, the SDP is deepening its ties with people in Germany and around the world, and strengthening its efforts to dismantle the nuclear power industry.



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Malaysia's Energy Options: **LESSONS FROM GERMANY**

by Chan Foong Hin

Thanks to Friedrich Ebert Stiftung for inviting me to come all the way from Sabah for a trip to Germany, learning about "Energiewende": the Transition to Renewable Energy Supply in Germany.

Germany's experience in its energy transition has enlightened us on how energy policy in fact is more of a political decision instead of a scientific (or purely economic) one. It is all about political determination to set a clear consensual target (what to achieve) and after series of discussions as well as debates it is up to policy makers to create suitable policy framework to achieve the target (how to). Through its Energiewende, German is moving to a sustainable economy by means of Renewable Energy (RE), energy efficiency and sustainable development. Its ultimate goal is abolition of nuclear, coal and other non RE sources.

Malaysia Energy Status

Malaysia's total primary energy supply has increased by 2.99% from 74,582ktoe to 76,809ktoe in 2009 and 2010, respectively in line with the increasing demand in the corresponding period. Electricity gross production has increased by 2.3% from 105,706GWh to 108,175GWh in 2009 and 2010 respectively. In terms of electricity demand, it has increased by 8.53% from 96,302GWh to 104,519GWh.

In 2010, Malaysia's commercial primary energy mix is natural gas (46%), followed by crude oil and petroleum (33%), coal (19%), and hydropower (2%). Meanwhile, the contribution of RE is sadly negligible. Based on projections, Malaysia's electricity production will increase from 87,306GWh to 314,984GWh in 2005 and 2030 respectively with an annual

growth rate of 5.3%. But, this does not take into consideration nuclear technology, while RE's contribution is insignificant.

There are many challenges and issues with regard to energy policy that is guided by the National Energy Policy, which is in charge of supply and demand in Malaysia, and oversees energy security, fuel supply and pricing, especially gas pricing, renewable energy, energy efficiency and conservation, sensitivities of nuclear option and the restructuring of the electricity supply industry.

Malaysia replaced the 1979 National Energy Policy with a Five-Fuel Diversification Policy in 2001, signalling the government's intention to muster a determined effort for development of green energy by encouraging use of renewable sources of energy.

Under the current 10th Malaysia Plan (2011-2015), Feed-in Tariff (FiT) is designed and targeted to achieve 985MW and 2080MW by 2015 and 2020 respectively from various types of RE resources.

Energy security, Supply and Pricing

For Peninsular Malaysia, where the national capital is located, its installed capacity has reached about 24,242 MW by end of 2011 and in 2012 it has a 33% installed capacity margin, above its peak demand of about 15,000MW. More than half of this installed capacity in Peninsular Malaysia comprises natural gas plants, which is somewhat positive, although fossil fuel is regarded as "clean" energy due to lower emissions and a relatively high efficiency.

The next largest source of electricity comes from coal, which has a 33% global average efficiency and 45% for state-of-the-art, ultra-supercritical heating coal plants, which can be cheaper than natural gas. The remainder is taken up by hydropower and other fuel sources. Future plans up to 2020 include the expansion of another 10,882MW of conventional capacity: 5,067MW of gas; 5,010MW of coal; and 805MW of hydropower.

In the long-run, Peninsular Malaysia might have to rely on coal in the future as there is limitation in terms of infrastructure and supply, since LNG is better for exports than domestic use, TNB needs to rely on coal for future.

For the two states -- Sabah and Sarawak in East Malaysia (Borneo Island) -- the energy situation differs. Sabah has been facing electricity supply problem for quite some time despite being among Malaysia's top contributors in the oil and gas resources. Sarawak has enough power but in the bid to further bolster its power generation capacity -- such as building dam to draw hydro energy -- its state government has been facing many issues particularly pertaining to Native Customary Right (NCR) of indigenous communities, whose land is affected by the construction of the dam.

Nuclear and Coal

Malaysia has long been consider plans to build two nuclear plants partly due to growing shortages of domestic natural gas. However, the government's plan to build the nuclear power plants reached the ears of the public who instantly voiced out objections. At a forum in February 2012, statements by the Malaysia Nuclear Power Corporation (MNPC) and Tenaga Nasional Berhad (TNB) revealed that the Nuclear Power Plant (NPP) project has tiptoed to an advanced stage of development, and expected to be given the green light this year.

Tremendous objections from the people, however, caused the government to reconsider its plan, which Minister Datuk Dr Maximus Ongkili described it as being KIV (keep-in-view). Coal will continue to have a "future" in Malaysia as Tenaga Nasional Berhad (TNB) expects the country's fuel mix to move largely to coal by 2030. If natural gas and LNG continue to take a high price in the international markets (especially in Asia), it also makes financial sense for a cooperative TNB and Petronas to switch to coal as much as possible.

Despite the volatile nature of its world market price, there is little that planners can do domestically to insulate Malaysia from international price volatility, since the country it is completely reliant on coal imports.

Renewables

We are yet to make a decisive shift towards RE in Malaysia. In 2011, Sustainable Energy Development Authority (SEDA) has been set up as the government agency in charge of RE development. As at end of 2012, SEDA had approved 450MW of renewable capacity, while the actual electricity generated on line is only 121MW. The core of the renewables development is the Feed-in-Tariff (FiT) mechanism, which is modelled after the German FiT system, fixing at a higher premium for renewable energy producer to sell to the grid. The FiT is self-funded by collecting 1.6% (previously 1%) surcharge from consumers' electricity bills.

What Malaysia should emulate from the German experience is: with a strong political will there is no reason to doubt RE is the best alternative to replacing fossil fuel. In this respect, Sabah has great potential to become a leader in RE in Malaysia. Sabah's RE potential is projected to exceed 2,700 megawatt (MW) in total if fully exploited plus the fact that Sabah was already a leader in grid connected RE power plants such as from oil palm biomass, biogas, and small hydro.

In fact, Sabah is Malaysia's own little Energiewende model, when the province chose to reject a proposed coal-fired power plant in the state, particularly in experimental field, and encouraged our RE in Sabah. It is totally absurd for Sabah to have a non-clean energy source as the anchor power plant, when the state have tremendous potentials of RE, especially palm oil industry waste in the region.

Again, it is all about political determination to overcome the issues of logistics and biomass feedstock supply, fully utilizing the waste generated from palm oil industry which can produce power. Government should build more transmissions unit and bring all palm oil waste into an RE-based component of the national grid.

With a 5% RE energy mix in Malaysia's target power generation, a more ambitious master plan should be developed to spur the development of RE. The government should set a higher target in terms of the share of RE generation, facilitating the reduction of carbon emissions and enhancing the country's energy self-sufficiency.

If Malaysia fails to develop RE, the country would continue to rely on fossil fuel, especially coal, to supply the bulk energy, while a cleaner gas option is volatile due to its international pricing and supply infrastructure logistics.

Chan Foong Hin is an Sri Tanjung Assemblyman from the Democratic Action Party (DAP) of Malaysia

Exclusive Interview with Japanese Member of Parliament (Diet) **ABE TOMOKO**

Heydarian: You have been a major figure within Japan's progressive political circles, and part of the group of legislators known as Energy Shift Japan. What are your core advocacies in this regard? What is the group striving for? And how do you think the society is responding to your calls for reforms?

MP Abe: Nuclear power played an important role in bringing about the Japanese economic miracle, i.e. of the era of high economic growth in the 1960s. However, the problems with nuclear power all became strikingly apparent following the March 11, 2011 Great East Japan Earthquake and the accompanying disaster at the Fukushima Daiichi nuclear power plant run by Tokyo Electric Power Co. (TEPCO). The nuclear meltdown in three reactors resulted in nearly 150,000 people being forced to take refuge inside and outside Fukushima Prefecture. Many of them are still unable to return to their homes, after a huge area stretching a 300 kilometer radius was contaminated with radiation. Many nuclear power plants have been built throughout Japan, mostly in peripheral rural areas, and the surrounding communities have received large sums of subsidies to host them. This has resulted in a strong reliance of the economies of those communities on the nuclear power plants.

The Energy Shift Study Group (Energy Shift Japan) was formed from a wide range of people including a group of nonpartisan Diet members, local citizens, experts, and business people. The group advocates a phase-out of nuclear energy and, to that end, proposes a new, decentralized energy system based on renewable energies, which will empower citizens to choose their own energy supplier. In addition, the group also worked to pass the Renewable Energies Promotion Law in July 2011 which eventually led to the introduction of a Feed-in Tariff (FIT) scheme for renewable energy. After that, the group has continued to be active as the *Genpatsu Zero no Kai* (Zero Nukes Association),





Fukushima Daiichi nuclear power plant

Association), a group of Diet members from across party lines, pushing for the decommissioning of particularly dangerous nuclear reactors.

Heydarian: After the 2011 Fukushima disaster, many talked about the emergence of a robust anti-nuclear movement, now joined by tens of thousands of people demanding for safer sources of energy by harnessing Japan's impeccable technological, natural, and human resources. Do you think that Japan is now at a historic juncture poised for radical reform in the energy industry? If yes, what are the indicators of such major shift? What are Japan's options for energy self-sufficiency? What are the challenges for reform?

MP Abe: Following the 2011 [Fukushima Daiichi] nuclear disaster, the then ruling Democratic Party of Japan (DPJ) organized a "national debate" (through town meetings and online discussions) in which the majority of citizens voted to phase out nuclear energy. This indicates that the will of the Japanese public is clearly in favor of getting rid of nuclear power plants. However, unfortunately, the Liberal Democratic Party (LDP), which for many years after the war pursued pro-nuclear policies, returned to power in December 2012. This has led to a situation which absolutely does not align with Japanese citizens' ideas, particularly if we consider the LDP's push to restart the [currently idled] 50 nuclear power plants, as well as export Japan's nuclear power plant [technology abroad].

At the same time, the spread of renewable energies to replace nuclear power and the active introduction of energy saving policies still remain incomplete and, instead, the Japanese public is now only being informed of the concern over the sharp rise in the cost of importing fossil fuels. Japan has the capacity to increase the usage of renewable energy sources including solar, wind, hydroelectric, biomass, and geothermal, so really the question is just how does the government intend to take control of these resources. But in

comparison to Germany, which decided to abolish all of its nuclear power plants by 2022, the reality is that the government's inability to make decisions is holding everything back!

Heydarian: How do you think the return of the LDP party to power under Prime Minister Shinzo Abe affect proposed reforms within the energy industry? Does their ascent suggest opposition to reforms? How robust is the pro-nuclear lobby in this regard?

MP Abe: Pro-nuclear advocates do not even need to engage in any particular lobby activities, since the so-called "nuclear village," consisting of big business and industry, academic associations, mainstream mass media, politicians, and bureaucracy is again tightly in control of energy policies. Particularly in the bureaucracy, which has advocated policies based on nuclear power for many years, the pro-nuclear group has regained control while more forward thinking bureaucrats were forced to leave [the ministries].

Further, because they no longer receive compensation, victims from the disaster regions are being "encouraged" to return to regions [their homes] which are highly contaminated with radioactivity. Currently, people are being allowed to return to areas with a yearly radiation exposure up to 20 millisieverts, an amount which exceeds the standards for evacuation based on the Chernobyl Law.

A system in which the central government provides no follow up for potential future health damage is being pushed on Fukushima Prefecture, and the radiation exposure of workers involved in cleanup work is being poorly managed, too. To make matters worse, the situation has recently become quite severe as contaminated water from the [Fukushima Daiichi] nuclear power plant disaster site has been [discovered to be] flowing out into the ocean.

¹ After the nuclear meltdown in Fukushima in 2011, the Japanese government, then under the center-left Democratic Party of Japan (DPJ), moved towards a radical overhaul of the country's nuclear landscape. But the subsequent election of the Liberal Democratic Party (LDP) in late-2012 under the conservative leadership of Prime Minister Shinzo Abe injected new uncertainties into the implementation of Japan's post-nuclear energy plans, which were negotiated under the DPJ, by resuscitating the age-old obsession with conventional and nuclear energy resources at the expense of RE development.



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Energy Program for the 21ST Century: **A GREEN PERSPECTIVE**

by Robert Verzola

The Green way of looking at energy issues takes into account Green values such as respect for the rights of other species to exist; protection and enhancement of natural cycles upon which all species depend for existence; social justice within our own species; and voluntary, decentralized, and non-violent approaches towards solving human problems. Such a perspective is concerned with much more than just the environment. It encompasses politics, economics, culture and our relationship with the natural world. In the past, the Green perspective would have been called an ideology, minus today's negative connotations of the term as a frozen set of old ideas. Today, it may be called a worldview, a mindset, or a value-system.

The differences between Green and non-Green energy perspectives are perfectly illustrated by the contrast between nuclear power plants and

photovoltaic (PV) cells. (A similar comparison can also be made, though with less dramatic contrast, between coal-based versus wind-driven generators.)

Trends in energy costs: nuclear vs. solar reactors

Every decade or two, a major disaster has triggered huge increases in nuclear reactor costs: Three-Mile Island in 1979, Chernobyl in 1986; and Fukushima in 2011. The 21st century faces even greater disaster risks due to anthropogenic global warming and the resulting extreme climate events. Thus, we can expect nuclear reactor costs being driven even higher, as the nuclear industry adopts more stringent safety standards.

The true costs of nuclear power are, in fact, much higher than published costs, not only because its social, health and

environmental costs are externalized by the industry, but also because research and development, fuel extraction and processing, and waste disposal costs are subsidized by governments intent on maintaining a nuclear arms capability.

PV costs show an opposite trend. These solar reactors are made of the same materials and with the same manufacturing processes as integrated circuits. Found in computers and all kinds of consumer gadgets, these miniature electronic components have been steadily going down in price over many decades now, with no end in sight.

Consider the LCD projector. Twenty years ago, they sold for as much as US\$6,000 per unit. Today (2013), you can buy one for less than \$500. Early this year, I bought a brand-new netbook computer for \$210. It had 16-bit CPU, two gigabytes memory, and 320

gigabytes storage. A similar computer would have cost several thousand dollars a decade ago, and ten times that two decades ago.

For a long time, PV prices did not follow this downward trend. Today, however, with the entry of the world's industrial powerhouse China into PV manufacturing, prices have started to drop significantly. In the Philippines, for instance, PV cells sell today for around 19 US cents per peak watt, down by 20% since a year ago, and by more than 90% since a decade ago. The virtuous cycle of dropping prices and expanding markets – a long-term feature of the computer and electronic sectors – is now happening in the PV sector.

If governments deployed PV units exclusively for street lighting, where they are already competitive today, the increase in demand will enable PV manufacturers to drop their prices further. As prices drop, we can expect the PV market to expand further, fuelling manufacturing expansion and innovations that should reduce prices even further.

Eventually, PV units will become cheap enough to replace current roofing materials, which will further trigger more rounds of innovations, market expansions, and price drops.

Deeper into the future, the PV revolution would usher the transition from the present carbon-based economy to a hydrogen-based economy. This would come about when solar reactors become cheap enough to be used in breaking down water into its components hydrogen and oxygen, which can then be conveniently stored and used in fuel cells to generate electricity or to power vehicles.

Large-scale, centralized vs. small-scale, decentralized systems

The contrast between nuclear reactors and solar reactors extends to the organizational requirements of these two technologies.

Nuclear reactors today come in gigawatt increments. Such large-scale systems require highly centralized



Image: commons.wikimedia.org/Arthur Grigoryan

When the nuclear reactor finally goes online a decade or more after it was conceived, after a few billion dollars have been spent, energy pricing would have changed further in favor of solar reactors. Society would now be unfortunately locked in, for decades to come, to an expensive nuclear technology whose fuel sources will eventually become depleted.

organizations, which match highly centralized economic and political systems perfectly. The nature of nuclear technology itself dictates highly-centralized operations from the time the nuclear fuel is mined and purified to the time the nuclear wastes are disposed, due to several reasons: 1) the long gestation periods and huge capital requirements associated with nuclear projects; 2) the complexity of nuclear power plants, 3) the potential for nuclear accidents to cause widespread and long-term damage, and 4) inseparability of nuclear power with issues involving nuclear proliferation and nuclear terrorism.

As Amory Lovins pointed out, a unified grid brings in new types of inefficiencies. Nuclear plants must be sited away from population centers, leading to higher transmission line losses. Larger power plants require larger “spinning reserves” (stand-by plants that can take over at a moment's notice if a large power plant goes down). By encouraging dependence on a highly complex system, it also increases the costs of catastrophic failure.

Gigawatt nuclear reactor decisions require one or more decades from inception to fruition. When the nuclear reactor finally goes online a decade or more after it was conceived, after a few billion dollars have been spent, energy pricing would have changed further in favor of solar reactors. Society would now be unfortunately locked in, for decades to come, to an expensive nuclear technology whose fuel sources will eventually become depleted.

PV solar reactors can be deployed in a decentralized way, making possible organizational approaches which are more consistent with the principles and practices of democracy. Every household can potentially extract energy from the sun and generate power for household use. Investments decisions can be made daily, with very little risk, as generation capacity is expanded 100 watt or a kilowatt at a time, and individual projects succeed – or fail – a few hundred dollars at a time.

Nature's scale is even smaller. Its miniature solar reactor is chlorophyll, which is present in the leaves of most

plants. Bare rocks and soil are gradually colonized by chlorophyll-bearing plants, from lichens to mosses, to grasses, to shrubs, to trees, to forests. This decentralized bottom-up process of tapping sunlight fuels the rest of the living world, including us.

Every species has a right to exist

Recognizing the right of species to exist probably draws a line between the Green worldview and miscellaneous "green" rhetoric. Others see nature from a utilitarian perspective: it exists for the benefit of humanity, either as a natural resource, as a raw material for industrial production, or as an object of human enjoyment. We see the rest of the living world as fellow inhabitants of this planet, with as much right to exist as we do – if not as individuals then certainly as a species.

To recognize this right, means to recognize their right to their own habitat, or "living space". This has far-ranging consequences, because of its implications to energy exploration, development and exploitation. It means there will be areas – officially designated and internationally-recognized, hopefully – that are taboo to human exploitation.

Herman Daly has pointed out that neither the economy nor its supply of energy can grow indefinitely. No sustainable energy program can succeed in a society that lives beyond its means, where the dominant mindset allows huge national deficits, ballooning national debts, the firesale of national assets, conspicuous consumption, and wasteful lifestyles.

A Green energy program requires a new mindset that extols "living within our means". If our leaders show the way, the public will follow their example.

A pipe dream?

Some may see the above as a wish list, a pipe dream. But our dreams will only become reality if we dare take the steps to make them come true.

Thousands of permaculture farms around the world already practice a species-friendly zoning system: Zone 0 for human habitation and its immediate surroundings, Zone 1 for areas that are visited daily for human requirements (food, for instance), Zone 2, 3 and 4 for areas that are visited progressively less often, and Zone 5 for "wild areas". This zoning system reflects the permaculture practitioners' commitment to reserve "living space" for other species.

No country had ever banned incinerators before. We in the Philippines dreamt that it was possible, and became the first country to do so.

To rely 100% on renewable energy has been the dream of many. The village leaders of Feldheim in Germany made it come true, at a cost lower than its non-renewable neighbors. Feldheim belies the claim that renewables cannot replace base-load plants and epitomizes the world's dream of Green energy.

So, a number of pioneering trails have, in fact, been made towards Green energy. In a few cases, the road has actually been paved by the pioneers. The rest of us just need to take the first step, and follow their lead.

Why Asia should give Renewable Energy a Chance: A Case for a Green Economy Revolution

As we look ahead further into this Asian Century, perhaps the greatest challenge facing Asia is accessing clean, safe, affordable and secure sources of energy. But Asia's very rich renewable energy resources like solar, wind and geothermal have the potential to help the region meet this challenge.

In the coming decades, Asia has the potential to continue its spectacular development by continuing on its catch-up path to the West. For example, the Asian Development Bank (ADB) estimates that Asia's share of global GDP could rise from 28% in 2010 to some 44% in 2035. And since Asia has around 60% of the world's population, the region's catch-up process is set to continue beyond this date.

But lots of energy will be necessary to fuel this "Asian Century", as energy demand tends to grow in tandem with the economy, even if improvements in energy efficiency can moderate that linkage. In this regard, some 700 million people in Asia still have no access to modern electricity, and will need to be serviced as their incomes grow and they are lifted out of poverty.

Already in 2010, Asia accounted for 34% of world energy consumption. But renewable energy accounted for less than one-sixth of this, almost half its share in 1990. Over this twenty year period, we saw large increases in the use of all other energy sources, namely hydroelectricity, nuclear, natural gas, oil and coal. By 2010, coal accounted for one-half of Asia's energy use, and oil for one-quarter. (While hydroelectricity is often considered a renewable energy, all too often it is an unsatisfactory form of energy, as it can destroy the natural environment, displaces local communities, and have adverse effects on downstream water users, including in neighboring countries.)



..some 700 million people in Asia still have no access to modern electricity, and will need to be serviced as their incomes grow and they are lifted out of poverty.

The ADB estimates that continued economic growth could lift Asia's share of energy consumption to around 50% of global consumption by 2035. But the ADB projects a further decline in the relative contribution of renewable energy, whose share could drop to one-tenth by 2035. Coal, oil, and natural gas would remain more important energy sources than renewables. And while nuclear would remain less important than renewables, it is set to grow much more quickly.

Let's examine in more detail Asia's renewable energy situation, in order to understand this pessimistic scenario for renewable energy. While renewable energy may account for about one-sixth of Asia's current sources of energy, almost all of this is in the form of biofuels, namely, wood, charcoal and agro-residues, which are used by poor people in rural areas.

A few country examples serve to highlight the point. In 2009, 12% of China's total energy supply came from renewables, 27% for India, 35% for Indonesia, 6% for Malaysia, 44% for the Philippines, less than 1% for Korea, and 3% for Japan. In none of these cases is the combined share of solar and wind above 1%. For most countries, biofuels dominate.

Geothermal energy is a particularly interesting case. In Indonesia and the Philippines, the shares of geothermal are 8% and 23%. But in Japan, the land of the famous "onsen", geothermal only accounts for 1% in Japan.

Overall, the share of Asian energy coming from solar, wind and geothermal is miniscule. And as urbanization proceeds and incomes grow, the use of traditional biofuels will decline.

However, the main reason that the ADB and many other analysts do not see a major role for renewable energy in the coming decades in Asia is its "uncompetitive costs". But this view is based on a narrow and incomplete assessment of the costs of fossil fuels and nuclear energy.

Fossil fuels, especially coal, have disastrous effects on the environment and human health. For example, the air in many Asian cities is severely polluted, with terrible consequences on the health of their citizens. Recent studies suggest that Beijing residents are losing 5 years of their life due to air pollution.

Global warming is another consequence of fossil fuels. And while this is a global problem, whose origin lies in two centuries of Western industrialization, Asian countries will suffer the adverse consequences of climate change more than other regions of the world. The vast majority of the world's cities exposed to rising sea levels are in Asia. Thus, Asian countries have a keen interest in reducing carbon emissions, especially China which is now the world's largest carbon emitter.

Another challenge for Asia's energy future is that of energy security. The only energy source that Asia has in abundant supply is coal. And its dependence on importing oil and gas from the politically unpredictable Middle East and Russia will only grow with time. And even if imported energy supplies were secure, they are costly, and will likely become even more costly over time.

Lastly, there are the manifold risks and costs of nuclear energy, like waste management, proliferation and, as highlighted by the case of Fukushima, safety. This has provoked great public opposition to nuclear by the Japanese public.

Most importantly, there are many emerging examples in Asia which demonstrate the immense potential of renewable energies.

China has made massive efforts in developing renewable energy, and now leads the world in installed capacity and is increasing its overseas investments in renewable energy. China now ranks first in the world in terms of installed wind power, and as of 2010, China has become the world's largest maker of wind turbines, surpassing Denmark, Germany, Spain, and the United States. Wind power has been rapidly expanding in India and Mongolia.

Six countries in Asia and the Pacific have over 100 MW of grid-connected photovoltaic solar systems: China with 7,000 MW, Japan 6,914 MW, Australia 2,200 MW, India 1,461 MW, Korea 963 MW, and Thailand 360 MW. China is also the world's leading manufacturer of solar photovoltaic cells with a 30% global market share.

China's development of renewable energy has been strongly supported by the government, demonstrating the importance of public leadership. And while the industry has been predictably experiencing growing pains, governmental support must increase as it tries to tackle the adverse environmental consequences of its dramatic growth path.

Following the Fukushima nuclear disaster, Japan has the opportunity to chart a new future, one based on renewable energy, and shift away from fossil fuels and nuclear energy which have been the country's principal energy sources. As an island country, Japan has numerous coastal regions where off-shore wind engines could be installed and supply factories as well as whole towns with energy. With its important solar radiation and large surface of (until now) uncovered rooftops, photovoltaic's (PV) could easily be installed and produce an important amount of energy for individual households. As Japan is very densely populated, its waste could be converted into biofuel/agrofuel and used to produce electricity.

Most importantly, Japan has immense geothermal potential which could be easily exploited and converted into electricity, once infrastructure is installed. Geothermal energy currently accounts for only 1% of total energy production, but has the capacity to meet 10% of Japan's electricity needs. The Philippines is another country with great geothermal potential. Its installed capacity is second only to the US, and plans to expand geothermal capacity by 75% by 2027.

With much of Japanese public opinion now firmly against nuclear energy, the Japanese government should make

more decisive steps to develop renewable energy. Unfortunately, the new Abe government seems to be more responsive to lobbying from Japan's nuclear industry. One reason is that industry fears that if Japan abandons nuclear energy, it will be difficult to export nuclear energy to Asia's emerging economies. Indeed, nuclear companies from Japan, Korea, Russia, and the US are pushing developing countries in Asia to develop nuclear energy, with financing from their foreign aid and/export credit agencies.

For its part, Korea has been path-breaking in adopting a "Green Growth Strategy" in 2009. But most regrettably, this Strategy is placing more emphasis on nuclear than renewable energy. Nuclear power plants produce one-third of Korea's electricity through 23 facilities, and there are plans to build nine more over the next decade, seemingly undeterred by Japan's Fukushima problems. Efforts to expand renewable energy, like the solar panels on the rooftop of Seoul's City Hall, seem like symbolic drops in the ocean.

The case of Korea, like Japan, highlights the governance challenges of nuclear energy. Over the past year, three reactors were reportedly taken off line after faked safety certificates were discovered. Some government officials were fired or jailed for accepting bribes from parts suppliers. Corruption, cover-ups and incompetence in the nuclear industry, especially in Japan, are the heart of citizen mistrust of this technology.

Overall, renewable energy is still very much on a learning curve. But the manifest problems of fossil fuels and nuclear energy mean that Asian countries and their governments must drive that learning curve as hard and fast as possible -- because over time, the potential of renewables will only grow.

Pushing up renewable usage accelerates the learning process, increases scale and starts to bring down costs. Greater R&D efforts will spur more innovation. Asia also has much to learn from countries like Germany and Denmark, which have been successfully exploiting renewable energy, as well as the accumulated

expertise of the United Nations, World Bank and Asian Development Bank. And as fossil fuel prices will rise in the future, the relative attractiveness of renewables will only improve.

Successfully navigating and managing Asia's energy future is critical for Asia's future, and especially critical to the future of the planet. And there is no doubt that renewable energy must play a leading role in providing Asia with clean, safe, affordable and secure sources of energy. Governments from developing Asia must resist the "easy option" of buying nuclear with soft financing Japanese, Korea and other governments.

"Give renewable energy a chance" must become the new mantra of the Asian Century!

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