



**Senate of the Philippines**  
**Office of Senator Win Gatchalian**

**Keynote Address**

*“Geothermal and Philippine Energy Independence”*

National Geothermal Association of the Philippines (NGAP)

NGAP Day, Geothermal Conference, and 14<sup>th</sup> Annual General Assembly

Meeting (GAM)

“Market Opportunities for Geothermal”

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Marco Polo Hotel, Ortigas Center, Pasig City

[Introductory greetings and acknowledgment of dignitaries – *AD LIB*]

Ladies and gentlemen, my tenure as the Chairman of the Senate Committee on Energy has been inspired by a simple vision for the future of the Philippine energy sector – the 3S vision of building a stable and sustainable energy supply which will provide greater savings for consumers on their monthly electricity bills. A key way to turn this vision into a reality is to foster the development of indigenous energy resources here in the Philippines. Now, although the precarious position of the Philippine archipelago astride the Pacific Ring of Fire has brought many perils upon our country, it has also blessed us with an important gift – large reserves of geothermal energy hidden beneath Philippine soil. As an indigenous renewable energy source, the exploration of geothermal energy can play a vital role in improving the stability and sustainability of our energy supply. Let me explain why.

One way to measure the stability of the Philippine energy supply is to observe how secure it is against external supply



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shocks. Unfortunately, the reliance of the Philippines on imported fossil fuels is hampering the stability of our energy supply. A clear example of this is the temporary stoppage of coal shipments from Indonesia last year due to concerns of piracy by the Abu Sayyaf along the shipping route in the Sulu Sea. For several long months, the 94 percent of our country's coal supply that is imported from Indonesia was put in peril. With coal contributing around 45 percent of the Philippines' energy mix, this means that roughly 42 percent of the Philippine energy supply was negatively impacted by the decision of a single foreign country.

The development of indigenous energy sources however, especially renewables such as wind, solar, hydro, and of course, geothermal, insulates the Philippines from supply shocks due to external events around the globe. This is because these energy sources are explored, developed, and exploited completely within the Philippine archipelago. Therefore, hawkish behavior by foreign fossil fuel suppliers will have a much smaller effect on the Philippine market.

With indigenous energy sources, we are in control of the stability and security of our own energy supply. Essentially, indigenous energy promotes Philippine energy independence. It also promotes, to a certain extent, independence in Philippine economic policy. When we import fossil fuel sources like coal, we pay in dollars. This negatively affects the balance of payments. However, by relying on indigenous energy sources for power



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plants, we are conserving our dollar reserves and bringing equilibrium to our balance of payments.

Regarding the sustainability of our energy supply, the development of indigenous renewable sources of energy is critical to reducing the carbon footprint of the Philippines. In this aspect, geothermal shines since it is one of the cleanest of the clean energy sources. According to a 2010 study by Sullivan, Clark, Han, and Wang, the average life-cycle greenhouse gas emissions from geothermal power plants, estimated at approximately 5.7 grams of carbon dioxide equivalent per kilowatt hour, is markedly lower than that of wind energy (at 8.0 grams of carbon dioxide equivalent per kilowatt hour) and solar power (at 62.3 grams of carbon dioxide equivalent per kilowatt hour). Through the integration of greater geothermal capacity in the energy mix, the Philippines will come that much closer to meeting its ambitious emissions reductions pledges in the COP21 agreement and other environmental conventions.

Despite its positive aspects, however, the development of geothermal plants also comes with considerable risks. While coal and natural gas power plants represent secure or guaranteed investments insofar as productivity is concerned, investing in geothermal projects can be like gambling at a casino. There is a significant upfront risk that the project might not become economically viable, due to issues regarding the insufficient size of the reservoir or intense acidity of the extracted steam.



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Unfortunately, these issues can't be resolved until hundreds of millions of pesos worth of exploration costs have already been invested in what is ultimately a worthless location.

Even if the geothermal project proves to be economically viable, it might not be cost-competitive. Due to the variability of exploration costs in ideal and not-so-ideal locations, the capacity of geothermal energy to compete with coal or even natural gas is hugely dependent on unpredictable variables. According to costing estimates by the National Renewable Energy Laboratory (NREL), the best-case scenario for a geothermal project – with exploration costs totaling PHP 280 million – would allow it to produce energy at an average of 3.9 pesos per kWh. This plant would be quite competitive, with cheaper rates than the average price of electricity generated by natural gas (4.41 pesos per kWh) and even coal (4.31 pesos per kWh). However, in the worse-case scenario, with issues such as well-depth, acidity, and remoteness contributing to exploration costs as high as PHP 680 million, that plant would produce energy at the significantly higher rate of 5 pesos per kWh. In the latter case, geothermal can easily be crowded out of the market.

However, despite the challenges facing your industry, I believe that geothermal energy can serve as one of the foundations of a 3S energy supply if your sector is given the attention it needs from government. In fact, the literature on this topic indicates that geothermal energy requires targeted support



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from the government to enhance the former's competitiveness in the market. This idea is also consistent with best-case practices of nations which have developed their geothermal resources. Here, I will outline two specific legislative proposals that will steer the Philippine government in the direction of enhancing the development prospects of the geothermal industry.

The first proposal, which I have already sponsored on the Senate floor, is Senate Bill No. 1439 – the Energy Virtual One Stop Shop or EVOSS Act. The EVOSS Act aims to curb a critical factor hampering the construction of new geothermal plants – the labyrinth of red tape surrounding the permitting process. As it stands, prospective geothermal investors must secure a whopping 140 permits from 30 different agencies before the plant becomes operational. This equates to a frustrating six year-wait from day one of the process until the commencement of actual geothermal reserve exploration. These delays, in turn, make it even more costly and risky to engage in geothermal energy development.

The passage of the EVOSS, therefore, would be a critical first step in institutionalizing the rapid and efficient processing of the permits necessary to develop indigenous resources. The EVOSS harmonizes the permitting process, eliminates unnecessary steps within the bureaucracy, and sets strict timetables on the processing of permits – across all relevant government agencies. The last point will be particularly helpful in hurdling what I know to be one of the foremost stumbling blocks in



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getting geothermal projects off the ground: engaging IPs on whose land these resources are often found. The National Commission on Indigenous Peoples is one of the agencies which will be compelled to follow a strict timetable, significantly lessening the current six-month average waiting period before securing approval from this body.

These reforms will help drive down the costs of development of critical resources such as geothermal energy. Cutting red tape will be a win-win for geothermal investors and the consumers who will end up using the power generated by these projects.

The second legislative proposal is one that we are currently in the process of drafting, and let me tell you, I am excited to file it when it's ready. Under the Indigenous Energy Resources Prioritization Act, power produced from indigenous resources will be given a priority in electricity procurement within small power utilities group (SPUG) areas. Thus, before distribution utilities or electric coops procure electricity from plants powered by Indonesian coal or Middle Eastern diesel, they will have to buy electricity produced by geothermal plants powered by Philippine steam. The prioritization of indigenous resources particularly geothermal will be especially beneficial to SPUG consumers since geothermal power can serve 24/7, 365 days per year. This bill is still in the works, so let me get back to you with more details the next time we have a chance to talk.



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Thank you for giving me the opportunity to share with you my insights on the energy sector, in particular the strong potential of the geothermal industry. I hope you will support my legislative agenda for energy, so that together, we may build a stable and sustainable energy supply which will drive down consumer power rates. Thank you, and more power to the National Geothermal Association of the Philippines!