EIGHTEENTH CONGRESS OF THE)
REPUBLIC OF THE PHILIPPINES)
First Regular Session)

Senate
Office of the Secretary

20 FEB 19 P2 :20

RECEIVED BY:

S E N A T E

P.S. RES. No. 331

Introduced by Senator WIN GATCHALIAN

A RESOLUTION DIRECTING THE SENATE COMMITTEE ON ENERGY TO CONDUCT AN INQUIRY IN AID OF LEGISLATION ON THE STRATEGY OF THE DEPARTMENT OF ENERGY TO MAXIMIZE THE COUNTRY'S REMAINING POTENTIAL GEOTHERMAL SOURCES TOWARDS ENERGY SECURITY AND SUSTAINABILITY

WHEREAS, Presidential Decree No. 1442[1] (PD 1442), entitled as, An Act to Promote the Exploration and Development of Geothermal Resources, requires the development of the Philippines' geothermal resources for the country's economic and industrial development, while Republic Act No. 9513[2], otherwise known as the Renewable Energy Act (RE Act), mandates the exploration of the country's renewable energy sources including geothermal energy in order to achieve energy self-reliance and reduce the Philippines' dependence on fossil fuels;

WHEREAS, geothermal energy is a clean energy source as it does not emit sodium oxide and nitrogen oxide, and produces about 99% less carbon dioxide than fossil fuel power plants of comparable size.[3] Also, geothermal does not suffer from intermittency and is able to provide constant and reliable baseload power compared to other renewable energy sources such as solar and wind; [4]

WHEREAS, the expansion of the country's installed capacity for geothermal power has plateaued since the early 2000s[5] and has suffered an average decline of

[1] Signed 11 June 1978.
[2] Entitled "An Act promoting the development, utilization, and commercialization of renewable energy resources and for other purposes". 16 December 2018.
[3] Geothermal explained. Available at: https://www.eia.gov/energyexplained/geothermal/geothermal-energy-and-the-environment.php.
[4] Department of Energy (DOE) presentation entitled, Philippine Energy Plan 2017-2040 and Executive Order (EO) No. 30. 19 December 2017.
[5] Slide 19. National Geothermal Association of the Philippines presentation. 28 September 206.

3.7 MW per year or 0.19% annually.[6] Notably, only three (3) geothermal projects came online since the enactment of the RE Act in 2008: the 30 MW Nasulo geothermal power plant (GPP), the 10 MW BacMan GPP, and the 20 MW Maibarara GPP and its subsequent 12 MW expansion[7];

WHEREAS, the lack of new capacity has resulted in a drop in the Philippines' rank among countries with the largest geothermal energy production in the world, from second in 2015[8] to third in 2018, being overtaken by Indonesia with 1,948 MW compared to the country's 1,868 MW[9];

WHEREAS, the DOE's Philippine Energy Plan 2017-2040 indicates that the country still has 1,371 MW of potential capacity from geothermal resources[10];

WHEREAS, developing the Philippines' remaining geothermal capacity is faced with the following challenges: *First,* high capital expenditure costs amounting to Php 225 million per 1 MW;[11] *Second,* a success rate of only 59% for drilling wells during the exploration stage;[12] *Third,* high technical and economic costs required to develop the remaining small, deep, and acidic wells;[13] *Fourth,* lack of available transmission lines in the potential geothermal sites;[14] *Fifth,* significant amount of time it takes to develop a project from the conduct of geological survey to the start of production which can span up to 9 years;[15] *Sixth,* lack of support from local government units and indigenous peoples where geothermal prospects are located in protected areas and ancestral lands;[16] and *Seventh and last*, the exclusion of capacity expansion projects in the Renewable Portfolio Standards (RPS) Eligible Facilities in the Implementing Rules and Regulations of the RE Act;[17]

WHEREAS, while the Philippines' geothermal sector has been plagued with these difficulties, other countries have introduced various measures to further

---

[6] DOE communication. 17 September 2019.
[7] National Geothermal Association of the Philippines communication. 16 September 2019.
[8] Ranking by International Geothermal Association is as follows: United States is first with 3,450 MW, the Philippines is second with 1,870 MW, Indonesia is third with 1,340 MW, Mexico is fourth with 1,017 MW. Data is as of 2015. Available at: https://www.geothermal-energy.org/explore/our-databases/geothermal-power-database/#electricity-generation-by-country.
[9] Ranking by Think Geoenergy is as follows: United States is first with 3,639 MW, Indonesia is second with 1,948 MW, the Philippines is third with 1,868 MW, Turkey is fourth with 1,347 MW. Data is as of 2019. Available at: http://www.thinkgeoenergy.com/the-top-10-geothermal-countries-2018-based-on-installed-generation-capacity-mwe/.
[10] DOE through Ariel D. Fronda, Division Chief of Geothermal Energy Management Division, Renewable Energy Management Bureau. 3 September 2019.
[11] DOE communication. 17 September 2019.
[12] National Geothermal Association of the Philippines communication. 16 September 2019.
[13] Ibid.
[14] Ibid.
[15] Ibid.
[16] DOE communication. 17 September 2019.
[17] Slide 20. National Geothermal Association of the Philippines presentation entitled, Geothermal Operations in the Philippines. 28 September 2016.

encourage development of geothermal power: in South America, a USD 1 billion (Php 50 billion) grant facility has been made available to geothermal developers for the conduct of surface studies and exploratory drilling[18]; and in Indonesia, a series of reforms have been put in place by the government which include granting regional governments the authority to issue licenses for geothermal working areas[19] and creating a USD 145 million (Php 7.25 billion) geothermal fund available to developers under public private partnership schemes[20];

WHEREAS, there is thus a need for the DOE to apprise Congress and the public of the challenges present in harnessing the country's remaining geothermal resources, as well as its strategy in addressing the same;

RESOLVED BY THE SENATE, as it is hereby resolved, to direct the Senate Committee on Energy to conduct an inquiry on the strategy of the Department of Energy to maximize the country's remaining potential geothermal sources towards energy security and sustainability.

Adopted,

WIN GATCHALIAN

[18] Slide 41. Energy Development Corporation presentation entitled, Briefing for the Honorable Senator Sherwin Gatchalian. December 201.
[19] Page 2. Mobilizing Climate Investment Annex 4 – Geothermal Power in Indonesia. World Resources Institute. 2013.
[20] Page 3. Ibid.