



Senate of the Philippines
Office of Senator Win Gatchalian

SPONSORSHIP SPEECH

Senate Bill No. 1789 / Committee Report No. 106

*AN ACT ESTABLISHING A NATIONAL ENERGY POLICY AND
REGULATORY FRAMEWORK FOR FACILITIES UTILIZING WASTE-TO-
ENERGY TECHNOLOGIES*

Monday, 21 September 2020

Session Hall, Senate of the Philippines

Delivered by THE HONORABLE WIN GATCHALIAN, Senator of the 18th Congress:

Mr. President, esteemed peers,

As Chair of the Senate Committee on Energy, my legislative agenda has consistently focused on achieving energy security, sustainability, and savings - I call this the 3S of energy. This includes studying the evolving technologies in the energy industry, and crafting legislation that lays down the framework for these technologies to be harnessed in the country while ensuring strict safeguards for public health and the environment and unnecessary rate increases for consumers.

One of the technologies with great potential that we have yet to fully tap is the use of waste as a feedstock for energy generation through waste-to-energy facilities. From my travels and research, I have seen how waste-to-energy facilities have helped countries around the world — especially developed countries — minimize the volume of garbage for final disposal in landfills, while at the same time diversifying their respective energy mixes. This anecdotal evidence is back up by global data. Allow me to expound.



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Currently, there are about 2,070 waste-to-energy plants in over 53 countries worldwide. 36 of these plants opened sometime during the past two years in China, the United Kingdom, Japan, and Belgium. As of April 2020 there are 1,601 waste-to-energy plants in 14 developed countries throughout Europe and the Asia-Pacific region.

This means there are more than three-fourths of waste-to-energy plants situated in developed or high-income countries. Among developed countries, Japan has the highest share of total waste-to-energy plants in operation with 849. After Japan is France, with 132 WTE plants in operation, followed by the United States with 88 plants, South Korea with 65, and the United Kingdom with 57.

Overall, the two-thousand-plus waste-to-energy plants currently in operation process close to 400 million metric tons of waste per year, generating over 15.5 million megawatt hours of electricity. That is enough electricity to power almost one million homes worldwide based on average global per capita electricity consumption figures. In addition, these plants also produce over 31.4 million megawatt thermal of heat every year.¹

¹ Coenrady (2020)



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For a striking waste-to-energy success story, we can look to our ASEAN ally, Singapore. This world-class city-state has four WTE plants, with one located less than 23 kilometers away from the famous Orchard Road tourist area. For comparison, this is the distance between Valenzuela and Makati in Metro Manila. These plants processed 8,044 tons per day in waste-to-energy plants last 2018. That is 38% of the total waste generated in the country. From this, 2,437 MWh per day or an annual total of 889,505 MWh was produced, and 269 tons of metal per day or a total of 98,185 tons in that year were recovered. This reduced the residue that ended up in the landfill to only 1,463 tons per day. All in all, waste-to-energy technology empowered Singapore reduce the volume of waste that ended up in its landfills by 80% while also generating enough electricity to serve over 20,000 Singaporean homes in 2018.²

Another waste-to-energy success story is the Ruhleben plant in Berlin, which processes over 500,000 tons of waste per year. The Ruhleben plant converts a portion of this waste into 190 gigawatt hours of electricity, which is enough to power 5,402 German homes throughout the entire year. Meanwhile, waste processed by the plants is also converted into 650 gigawatt hours of district heating, and 110,000 tons of slag used as building materials.

² Singapore National Environment Agency (2019)



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The Ruhleben plant is also a shining example of the environmental sustainability of waste-to-energy plants, when they are developed correctly. The sulfur oxide, nitrogen oxide, and mercury emissions produced by the plant's waste-to-energy systems are well below the emissions caps provided under the Philippine Clean Air Act.³ As a matter of fact, the Ruhleben plant is located less than 14 kilometers away from the city center of Berlin — roughly the distance between Manila City Hall and Quezon City Hall. Despite its proximity, however, the Ruhleben plant has not caused environmental or public health issues in the heart of one of Europe's most beautiful capital cities. The Berlin and Singapore examples drive home the point that despite popular misconception, waste-to-energy plants can operate efficiently and cleanly in urban areas without having an adverse impact on the ecology and health within their host communities.

Based on the foregoing discussion, it is clear that countries all over the world have greatly benefitted from integrating waste-to-energy plants in their respective energy generation and solid waste management policies. But what about the Philippines?

³ BSR (2017, 2020): Philippine Clean Air Act and IRR (1999)



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A review of our existing laws, Mr. President, shows us that waste-to-energy is a concept recognized under Republic Act No. 9003 or the Ecological Solid Waste Management Act of 2000, and Republic Act No. 9513 or the Renewable Energy Act of 2008. Yet, ten to twenty years since their passage, there are only 12 waste-to-energy plants utilizing municipal solid waste in the country, with only 51.41 megawatts of installed capacity and 700 metric tons of fuel. On top of this, there is an additional total potential capacity of 304.34 megawatts from 5,554,205 metric tons of biodegradable and residual waste per year equivalent to 7,776 Olympic-sized pools or 33 Philippine arenas.⁴ The additional potential capacity is enough energy to satisfy the power requirements of all 315,086 consumers serviced under the Batangas II Electric Cooperative franchise.⁵

This is exactly what I was referring to in my earlier speech on the garbage crisis when I highlighted the need to diversify the solid waste management treatment facilities utilized by our local government units. As I said before, waste-to-energy facilities can significantly contribute in solving the garbage crisis by answering the question of what to do with the 18% of municipal solid waste leftover as residuals.

⁴ DOE (2020)

⁵ NEA (2018)



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Based on all available data and research, the answer to this question is clear. We can use waste-to-energy technology to practice the 5th R, Recovery. The construction of more waste-to-energy plants in the Philippines would minimize the alarming volume of residual waste piling up in landfills and illegal dumps across the country while at the same time contribute to Philippine energy security by connecting more waste-to-energy plants to the grid.

Despite the great potential of waste-to-energy plants as hybrid solid waste management treatment and energy generation facilities, there are several hurdles in the way of these facilities in the Philippines. Principal among these hurdles are (1) insufficient safeguards against potential environmental and health concerns surrounding waste-to-energy; (2) ambiguities in the roles of government agencies and inefficiencies in carrying out these roles; and (3) a lack of investor confidence in funding these capital-intensive energy infrastructure projects.

Thanks to the hard work of our esteemed committee members, as well as the many experts and stakeholders, who shared their knowledge with us, I am now ready to sponsor Senate Bill No. 1789 under Committee Report No. 106 — the Waste-to-Energy Act. The Waste-to-Energy Act seeks to remove these challenges, empower a greater number of LGUs to include waste-to-energy facilities in their solid waste management regimes, and



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establish a national waste-to-energy framework that will be truly effective in harnessing the technology's vast untapped potential for energy generation and solid waste recovery. Allow me to briefly discuss some of the salient points of the measure.

To address the first and second identified challenges, the bill enumerates the powers and responsibilities of key government agencies in the whole-of-government waste-to-energy framework. Foremost among the agencies is the Department of Energy, which is now made a member of the National Solid Waste Management Commission or NSWMC. DOE determines the criteria and requirements for each type of WTE facility based on the energy output. It is also mandated to include a WTE strategy in the Philippine Energy Plan, taking into consideration the National Solid Waste Management Framework.

Next to DOE we have the NSWMC, which will serve as the government's primary standard setter for all matters related to WTE. The bill provides that along with standards for operational concerns such as composition of the feedstock as well as quality control and operational controls, the NSWMC will also set standards for pollution abatement, emissions monitoring, environmental monitoring, and public health and safety monitoring in relation to WTE facilities.



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The Department of Environment and Natural Resources and the Department of Health will monitor and enforce the environmental and public health standards set by the NSWMC. Specifically, DENR is mandated to exercise visitorial and enforcement powers under this Act and existing laws such as the Philippine Clean Air Act of 1999, Toxic Substances and Hazardous and Nuclear Waste Act, and Philippine Clean Water Act of 1994 to ensure compliance with strict environmental standards. Heeding the feedback from the University of the Philippines College of Public Health and No Burn Pilipinas on safeguarding against possible effects on the public's health, the Committee Report introduces additional responsibilities for DOH. These include a Health Impact Assessment of each proposed WTE facility to gauge the project's potential impact on the health of the surrounding community, and regular analysis of the effects of WTE facilities and disposal sites on public health.

Moving on to the third challenge, Mr. President, this measure includes a few key provisions to boost investor interest and confidence in developing WTE facilities here in the Philippines. *First*, this bill empowers local government units to enter into clustering agreements with nearby LGUs, long-term contracts, and even public-private partnerships for the construction and operation of common WTE facilities. Allowing these arrangements will produce economies of scale for interested developers but will also lead to lower processing fees for the LGUs. *Second*, the bill



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mandates NSWMC to determine the standards for a fair, equitable, and reasonable processing fee for the use of a waste-to-energy facility. The determination of the processing fee shall be made in consultation with relevant government agencies, experts, and stakeholders, taking into account the cost of construction, operation, and maintenance of the facility as well as the potential revenue from the sale of energy output. This is crucial to ensure a fair and reasonable return for WTE developers, and a fair and reasonable processing fee for LGUs.

Mr. President, I would like to point out that these provisions geared towards certainty of investment are extremely advantageous to government from a financial standpoint. As things stand now, it is usually the government that shoulders the financial burden of constructing solid waste management facilities such as MRFs and landfills. However, the new framework established by the bill would transfer the financial burden for constructing solid waste management treatment facilities in the form of WTE plants to the private sector. This would be a game-changer for LGUs that lack solid waste management infrastructure because they could not afford to build them in the past.

But just to be clear, Mr. President, this bill does not mandate LGUs to establish waste-to-energy plants against their will. No one will stop LGUs from continuing on with MRFs and sanitary landfills



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as their solid waste management treatment facilities of choice. The Waste-to-Energy Act merely empowers LGUs to adopt WTE, if and only if it is feasible, as one of several solid waste management treatment options, as long as they comply with strict environmental and public health standards to ensure the well-being of host communities.

Before I close Mr. President, I would like to take this opportunity to thank the DOE, NSWMC, DENR, DOH, DILG, UP College of Public Health, UP College of Engineering, No Burn Pilipinas and all our other stakeholders for actively participating in the 2 hearings and 5 technical working groups of the Committee on this legislation. It is through their hard work and comments that we were able to craft this Committee Report. I would also like to thank the other authors of this measure, Senator Francis "Tol" Tolentino and Senator Nancy Binay, for the significant contributions they have made in crafting this legislation.

In closing, Mr. President, I would like to remind the body how high the stakes are with the garbage crisis. If we do not act now, the Philippine garbage crisis is poised to do irreparable damage to the environment and to the health of current and future generations of Filipinos to come. We need to attack this crisis from all sides, using all 5 Rs. As such, I join my co-authors and co-sponsors in soliciting your support for the swift passage of this legislation.