

SUMITOMO CORPORATION'S DIRTY ENERGY TRADE

Biomass, Coal and Japan's Energy Future

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Any errors or inaccuracies remain the responsibility of Mighty Earth.





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INTRODUCTION

SUMITOMO CORPORATION'S DIRTY ENERGY TRADE—AND ITS OPPORTUNITY TO CHANGE

While the rest of the developed world accelerates its deployment of clean, renewable energy, Japan is running backwards. It is putting in place policies which double down on its reliance on coal, and indiscriminately subsidize biomass power technologies that accelerate climate change.

Government policy is not the only driver of Japan's dirty energy expansion — the private sector also plays a pivotal role in growing the country's energy carbon footprint.

Global trading company Sumitomo Corporation, headquartered in Tokyo, is a company at the center of global coal and biomass networks that mine, chop, finance, ship and burn the most destructive fuels on earth.

The 2011 Great East Japan Earthquake and meltdowns at the Fukushima Daiichi nuclear power plant changed the nation's energy landscape. The government



launched a feed-in-tariff renewable energy incentive program in 2012, opened up the electricity sector to new producers leading to a surge in power plant projects, and also set out energy mix targets which encouraged the construction of a new wave of coal plants. While the renewable energy incentives made Japan the second largest market for solar in the world, it also led to a boom in biomass power plants whose feedstocks – palm oil, wood chips, wood pellets and palm kernel shells (PKS)– contribute directly to the loss and degradation of forests in Southeast Asia, Canada, the United States and beyond, and worsen climate change.

Sumitomo Corporation stands at the center of these two damaging trends. The massive trading company is involved in coal mining, importing coal into Japan and building coal-fired power plants. It also is the largest importer of wood into Japan for biomass energy and a leading builder of wood-burning power plants. Other members of the Sumitomo Group are also implicated in related environmentally-destructive practices, including Sumitomo Forestry which is active in the wood pellet import business, and Sumitomo Mitsui Banking Corporation, a leading financier of coal power plant projects.

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Sumitomo Corporation is also the majority owner of a number of companies overseas, including the Midas and National Tire & Battery auto care stores where millions of North Americans shop every day. In an environment of rapidly increasing consumer awareness of the threats to climate posed by coal and deforestation, the risk to the reputations of Sumitomo Corporation’s subsidiaries created by their parent company’s actions is clear.

In August 2019, Sumitomo Corporation communicated an updated climate policy that it will reduce the share of coal in its portfolio; will not develop new coal-fired plants; and will cap thermal coal production at current levels. This was a positive development, but it fell short of what it should do. Loopholes allow for continued coal plant construction, and the policy does not ensure real reductions in coal mining or coal generation.¹

It doesn’t have to be this way, of course. Given its size and breadth of business ventures, Sumitomo Corporation can have a profoundly positive impact on the climate. Sumitomo needs to choose a clean energy path. If Sumitomo steps up and strengthens its commitment to no longer develop coal power plants, announces it will exit coal mining, and invest in clean renewable energy instead of destructive large-scale biomass, it can stand out from its peers. Sumitomo Corporation can further show leadership by supporting smart, effective reforms to Japan’s domestic and international energy policies.

The choice is clear.

1 See the section starting on page 27 for a more detailed discussion of this climate policy.





JAPAN'S EMBRACE OF DIRTY ENERGY

COAL VS THE CLIMATE

Despite convening the landmark Kyoto Protocol agreement on global warming, over the past two decades Japan has steadily increased its reliance on coal. Between 1990 and 2017, coal consumption from Japan's coal plants more than tripled, climbing from 26 million tons in 1990 to 83 million tons in 2015.² Correspondingly, from 1990 to 2016, carbon dioxide emissions from coal plants in Japan soared 169%, resulting in coal accounting for more than half the electricity generation-related emissions in Japan.³

JAPAN'S SURGE IN DOMESTIC COAL PLANT CONSTRUCTION

Following the 2011 Great East Japan Earthquake and meltdowns at the Fukushima Daiichi nuclear power plant, Japan embarked upon a coal-building boom, with some 50 plants (23 GW) planned domestically at the peak. At the

- 2 Renewable Energy Institute. *Proposal for Energy Strategy Toward a Decarbonized Society—Achieving a Carbon-Neutral Japan by 2050*. (Executive Summary), Apr. 16, 2019. p. 4.
- 3 Climate Analytics. *Science Based Coal Phase-Out Timeline for Japan, Implications for Policymakers and Investors* May 2018. pp. 5, 6.
<https://climateanalytics.org/publications/2018/science-based-coal-phase-out-timeline-for-japan/>

time, Japan's average age of coal units was 25 years. As the world average for coal plant retirement is 40 years, there was a relatively near-term sunset date for Japan's dirtiest energy.⁴ However, the recent boom in coal plant construction threatens to re-orient a coal fleet headed for retirement into one that could continue for decades to come. Fierce public opposition has helped spur the cancellation of 13 units,⁵ but Japan still remains the only G7 nation adding to its domestic coal generation capacity.⁶

Japan's trading companies, including Sumitomo Corporation, are actively leading the development of coal plants domestically. For example, Sumitomo had planned to build a 112 MW coal plant in Sendai, before opposition derailed it. See the section beginning on page 22 for a full discussion of Sumitomo Corporation's coal businesses.

For Japan to live up to its climate leadership and achieve its national commitments under the Paris Agreement (reduce greenhouse gases by 26% below 2013 levels by 2030),⁷ it must end its coal dependency. Building new coal plants makes reducing emissions much harder.⁸ Technological solutions to reduce emissions from power plants remain a fantasy, with no country successfully deploying carbon capture and storage technologies. This technology is expensive, uncommercialized, and geological restrictions on underground storage of carbon dioxide make it infeasible as a retrofit for many coal plants. Alternatively, to meet emissions limits, coal power plants may have to be retired before the ends of their useful lives, creating risks of stranded assets for coal operators and utilities.

Japan still remains the only G7 nation adding to its domestic coal generation capacity.

4 Science Based Coal Phase-Out Timeline for Japan, Implications for Policymakers and Investors. p. 10.

5 Japan Coal Plant Tracker. Accessed Sep. 12, 2019. <https://sekitan.jp/plant-map/en>

6 Influence Map. "Japan's Energy Choices to 2020." Nov. 2017.

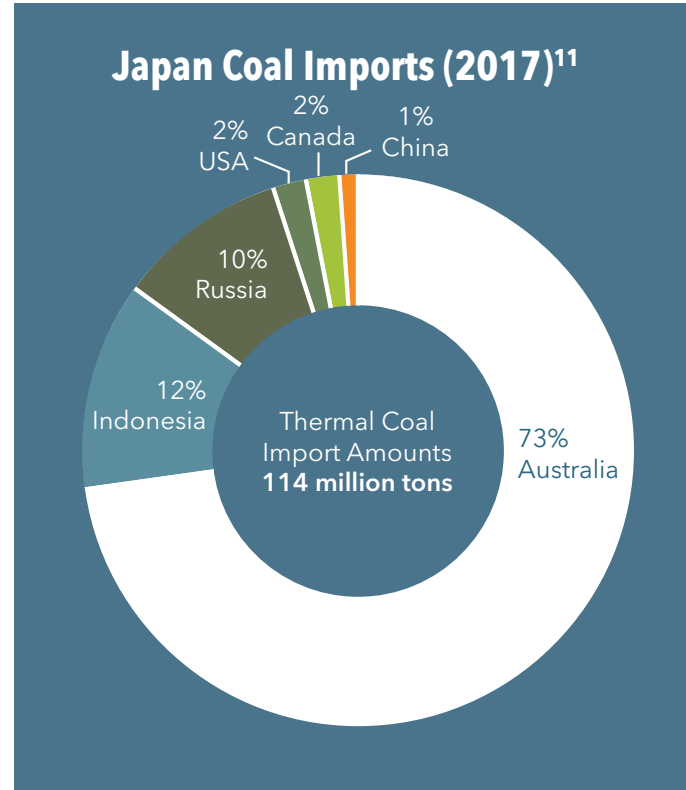
<https://influencemap.org/report/Solving-Climate-Change-Can-Japan-Show-Leadership-ac0c71365ca3e2cf3c6cbbd5ecd1a914>

7 Climate Action Tracker. "Japan." Accessed Sep. 15, 2019. <https://climateactiontracker.org/countries/japan/>

8 Trencher, Gregory, Noah Healey, Koichi Hasegawa and Jusen Asuka. "Discursive resistance to phasing out coal-fired electricity: Narratives in Japan's coal regime." *Energy Policy*. p. 1.

MINING AND IMPORTS SUPPORT JAPAN'S COAL BOOM

Almost all of Japan's coal is imported, with trading companies like Sumitomo Corporation playing a central role in imports. As of 2017, Japan imported coal primarily from Australia (73%), Indonesia (12%), Russia (10%), the United States (2%), Canada (2%) and China (1%).⁹ Sumitomo has a comprehensive coal business from coal mining and related infrastructure to coal processing and transporting, and supplies Japan with a claimed 6 million tons per year.¹⁰ More on Sumitomo's coal mining business is available on page 22 of this report.



EXPORTING DIRTY POWER

With backing from the Japanese government (the Japan Bank for International Cooperation or JBIC) and major Japanese commercial banks, Japanese companies, including Sumitomo Corporation, are building coal-fired power plants across the world. Research found that Mizuho Financial, Mitsubishi UFJ Financial, and Sumitomo Mitsui Financial Group were the first-, second-, and fourth-largest lenders, respectively, to the world's top coal developers between 2016 and September 2018.¹²

This lending has gone to companies including Marubeni, Sumitomo Corporation, Mitsubishi and J-Power for coal plant development. Sumitomo Corporation itself has large-scale plants recently completed or in planning or construction in Bangladesh, Vietnam, Taiwan, Malaysia, and Indonesia. See the section beginning on page 23 for a full discussion of Sumitomo Corporation's coal power plant business.

9 Ministry of Economy, Trade, and Industry. "Reappraising the Role of Coal in Japan" Jun. 19, 2018. (Japanese) Accessed Aug. 1, 2019. <https://www.enecho.meti.go.jp/about/special/johoteikyo/sekitanayakuwari.html>

10 Sumitomo Corporation. "Sumitomo Corporation's coal business pursuing responsible and stable supply of energy." Webpage. Accessed Sep. 2, 2019. <https://www.sumitomocorp.com/en/africa/business/case/group/242>

11 Chart adapted from METI, "Reappraising the Role of Coal in Japan" Jun. 19, 2018. (Japanese). English captions added.

12 Urgewald. "COP24: New Research Reveals the Banks and Investors Financing the Expansion of the Global Coal Plant Fleet." Media Briefing. Dec. 5, 2018. p. 5 https://coalexit.org/sites/default/files/download_public/Media%20Briefing%20BankTrack_Urgewald%20-%20COP24_final%20web.pdf

In addition to creating more climate-warming carbon pollution, power plant construction has been linked to human rights violations in local communities, and increased fine particle pollution which causes respiratory illness and even premature death. A recent study estimated that the coal expansion in southeast Asia would increase air pollution deaths from approximately 20,000 annually at present to 70,000 by 2030.¹³ Japanese companies are also building plants in countries with much weaker air pollution standards than would be allowed domestically,¹⁴ with a proposed Sumitomo plant in Vietnam projected to pollute up to nine times more than a new modern coal plant built in Japan.¹⁵ Sumitomo Corporation explicitly exempted this plant from its August 2019 announcement to stop building new coal plants.¹⁶

13 Koplitz, Shannon, Daniel Jacob et. al. "Burden of Disease from Rising Coal-Fired Power Plant Emissions in Southeast Asia." *Environmental Science Technology* Jan. 12, 2017. <https://pubs.acs.org/doi/abs/10.1021/acs.est.6b03731>

14 Greenpeace Southeast Asia and Greenpeace Japan. *A Deadly Double Standard – How Japan's Financing of Highly Polluting Overseas Coal Plants Endangers Public Health*. Aug. 20, 2019. <https://www.greenpeace.org/southeastasia/publication/2887/double-standard-how-japans-financing-of-highly-polluting-overseas-coal-plants-endangers-public-health/>

15 Market Forces. "Sumitomo-sponsored coal plant in Vietnam would cause 1,900 premature deaths." Jun. 6, 2019. <http://www.nocoaljapan.org/sumitomo-sponsored-coal-plant-in-vietnam-would-cause-1900-premature-deaths/>

16 Sumitomo Corporation. "Construction Commences on Van Phong 1 Coal-fired Power Project in Vietnam." News Release. Aug. 26, 2019. <https://www.sumitomocorp.com/en/jp/news/release/2019/group/12310>





BIOMASS BURNING: MISSING THE FOREST FOR THE TREES

CLIMATE DISASTER: FOREST BIOMASS AND CARBON DIOXIDE

Biomass fuel is derived from contemporary vegetation, as contrasted with fossil fuels made from ancient organic material, and is therefore considered to be “renewable.” Emissions of heat-trapping carbon dioxide (CO₂) from biomass combustion has not been counted at power plants under the Kyoto Protocol and successor agreements.

This means that while biomass is officially credited as reducing CO₂ from power plants, the reality is that biomass increases atmospheric levels of carbon dioxide for some period of time. In the case of forest biomass, the lengthy period required for trees to grow to maturity and reabsorb carbon from the atmosphere results in an extended period of carbon debt. During this period, the carbon dioxide from biomass is adding to the problem of climate change.¹⁷ This “debt” of increased

17 Norton, Michael, Andras Baldi, Vicas Bruna et. al. “Serious mismatches continue between science and policy in forest bioenergy.” *Global Change Biology Bioenergy*. Aug. 9, 2019. pp. 1-3. <https://onlinelibrary.wiley.com/doi/full/10.1111/gcbb.12643>

The debt of increased atmospheric CO₂ from burning wood biomass requires decades or centuries to repay, and even then, only if trees are allowed to regrow.



atmospheric CO₂ requires decades or centuries to repay, and even then, only if trees are allowed to regrow.¹⁸

As the August 2019 Intergovernmental Panel on Climate Change (IPCC) special report on land noted: “Where wood carbon is transferred to harvested wood products, these can store carbon over the long-term and can substitute for emissions-intensive materials reducing emissions in other sectors (high confidence). Where biomass is used for energy, e.g., as a mitigation strategy, the carbon is released back into the atmosphere more quickly (high confidence).”¹⁹

A 2018 dynamic lifecycle analysis by researchers at MIT and UMass Lowell concluded that the use of biomass from forests in the eastern United States in United Kingdom power plants increases atmospheric carbon dioxide for *44-104 years* as new trees grow and slowly remove it from the atmosphere. They also analyzed conversion of natural hardwood forests to faster-growing pine plantations, and found worse impacts from the managed plantations as they stored less carbon.²⁰

Furthermore, to meet the goals of the Paris Agreement and achieve no more than a 1.5-degree Celsius global temperature increase, a greater role is needed for forests to serve as sinks and long-term stores of carbon today. Achieving this means existing forests must be protected, the conversion of older forests to intensively managed short-rotation forests must be stopped, and deforested and degraded areas must be ecologically restored.²¹

Fundamentally, the problem is one of scale. As demand for biomass fuel soars, forest-derived fuels like wood pellets and wood chips are preferred over other biomass fuels for their ability to be stored and transported, their energy density, and relative consistency of quality. The scale of global demand for biomass means that rather than utilizing waste from existing mills involved in timber or paper production, there is increasing pressure to log natural forests more intensively, convert natural forests to tree plantations, and even to deforest land.

18 European Academy of Sciences Advisory Committee. *Forest Sustainability and Multifunctionality*. Apr. 2017. p. 21. https://easac.eu/fileadmin/PDF_s/reports_statements/Forests/EASAC_Forests_web_complete.pdf

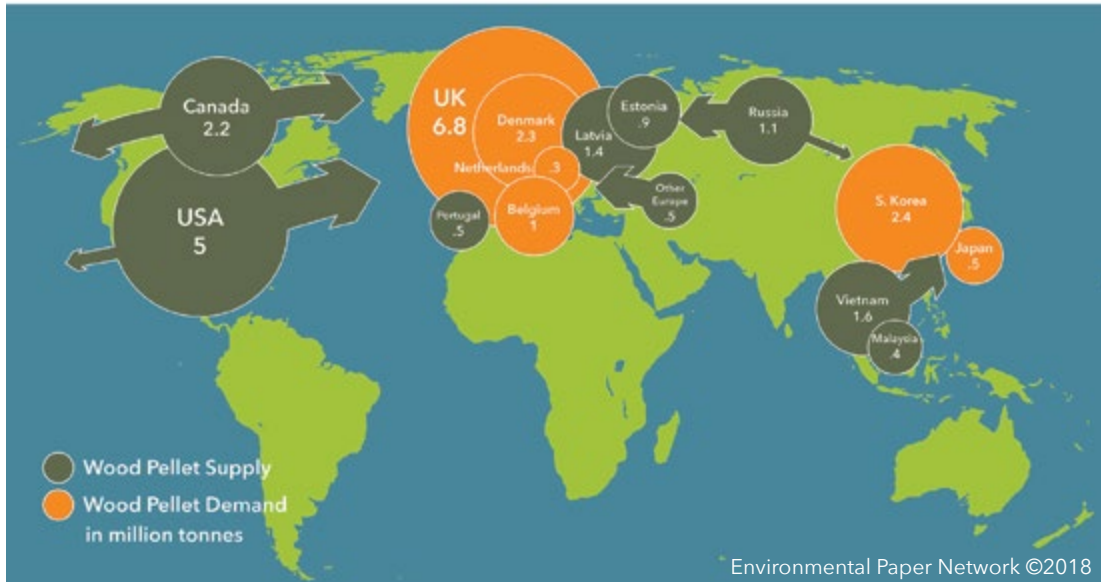
19 Intergovernmental Panel on Climate Change. *Climate Change and Land: an IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems*. Summary for Policymakers. Aug. 7, 2019. p. 25 <https://www.ipcc.ch/report/srcc/>

20 Sterman, John, Lori Siegel and Juliette Rooney-Varga. “Does replacing coal with wood lower CO₂ emissions? Dynamic lifecycle analysis of wood bioenergy.” *Environmental Research Letters*. Jan. 18, 2018. p. 1. <https://iopscience.iop.org/article/10.1088/1748-9326/aaa512/pdf>

21 Moomaw, William, Susan Masino and Edward Faison. “Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good.” *Frontiers for Global Change*. Jun. 11, 2019. <https://www.frontiersin.org/articles/10.3389/ffgc.2019.00027/full>

In 2017, the global trade in industrial wood pellets exceeded 14 million tons and is projected to rise to more than 36 million tons by 2027, with Japan, South Korea, and Europe responsible for the bulk of the increase.²²

Demand and supply of industrial wood pellets in 2017



Demand and supply of industrial wood pellets in 2027



22 Wolfgang Kuhlmann, Peg Putt. "Are Forests the New Coal? A Global Threat Map of Biomass Energy Development." *Environmental Paper Network*. Nov. 2018.

23 "Are Forests the New Coal?" Note this illustration only shows transnational flows of wood pellets from supplier to consumer countries. It excludes wood chips, or pellets produced and consumed in a single country. Projected amounts in 2027 are based on government policies, such as Japan's feed-in-tariff.

Wood chips and pellets are made from tree limbs, tree-tops, logs and stumps, and increasingly whole trees.²⁴ The IPCC's August 2019 Special Report noted that, "The use of residues and organic waste as bioenergy feedstock can mitigate land use change pressures associated with bioenergy deployment, but residues are limited and the removal of residues that would otherwise be left on the soil could lead to soil degradation."²⁵

Wood pellets and wood chips provide a low-value, but high-volume, use for lower-grade trees unfit for use as lumber. This is how biomass drives the logging of forests that would otherwise be non-economical to cut.²⁶ This transformation of forest carbon, stored in trees, into biomass fuel that is burned and quickly enters the atmosphere, means that wood biomass has negative climate implications today.²⁷

It goes without saying that in addition to climate impacts, forest ecosystems are critical to protect biodiversity; play an important role in limiting erosion and protecting soil from rainfall; are essential to freshwater management; and support a range of livelihoods for people, including indigenous people, living in or near forested areas. Japan's biomass power policies imperil all of this.

EXPLOITING JAPAN'S BIOMASS CO₂ LOOPHOLE

Following the 2011 Great East Japan Earthquake and nuclear disaster, the Japanese parliament approved a new feed-in-tariff incentive (FiT) for renewable energy. The Ministry of Economy, Technology and Industry (METI) quickly moved to draft the rules and launched the incentive program in 2012.

The eligibility rules for the "general wood" category of biomass allowed for the use of forest wood (in the form of wood chips or mechanically compressed wood pellets), palm oil, and palm kernel shells. Whereas Japan's biofuel standard for liquid fuels (ethanol) required greater than 50% reductions in lifecycle greenhouse gases compared to gasoline (recently strengthened to 55%),²⁸ with biomass for electricity generation, the drafters of the feed-in-tariff omitted greenhouse gas reduction criteria.²⁹ In addition to carbon present in the wood itself, cutting

24 "Are Forests the New Coal?" p. 4.

25 *IPCC Special Report*. Aug. 2019. p. 22

26 See section starting on pg 30, regarding the Southeastern United States, for an in-depth example of how biomass drives logging by providing an income stream for lower-value forest products.

27 Serman, John, Lori Siegel and Juliette Rooney-Varga. "Does replacing coal with wood lower CO₂ emissions? Dynamic lifecycle analysis of wood bioenergy." *Environmental Research Letters*. Jan. 18, 2018, p. 1. <https://iopscience.iop.org/article/10.1088/1748-9326/aaa512/pdf>

28 Ministry of Economy, Trade, and Industry. "Provisions related to the Sophisticated Methods of Energy Supply Structure Act." (Japanese) Nov. 2010. p.49 https://www.enecho.meti.go.jp/notice/topics/017/pdf/topics_017_002.pdf

29 The April 2018 revisions to the Agency for Natural Resources and Energy's "Business Plan Development Guidelines- Biomass" added a requirement to submit legality/ resource sustainability certifications for imported biomass, but lacks a system of verifications or third-party inspections. Source: Biomass Industrial Society Network, *Biomass White Paper 2018*. pp. 6, 17.

trees, transporting wood to mills, drying and converting wood to chips or pellets, transporting fuel across oceans to Japan, and then moving the fuel within Japan all require significant amounts of carbon dioxide-emitting fossil fuels.

The Japanese government periodically publishes ideal energy mixes (“Long-term Energy Supply and Demand Projection”) based upon the goals and policies of the most recent national Strategic Energy Plan. The most recent projection targets 3.7% to 4.6% of total electricity to be met by biomass generation by 2030.³⁰ If this were met entirely by wood pellets, it would be equivalent to an estimated 20 million metric tons per year.³¹ For comparison, industry analysts estimate total *global production* of just 22 million metric tons of pellets in 2019.³²

Many power producers entered Japan’s new biomass power market, lured by incentives which began at 24 yen/kilowatt-hour (~\$.22USD/kWh) for the “general wood” category of biomass, paid out over a 20-year period. At its peak in 2017, more than 13 GW of biomass projects were certified under the feed-in-tariff. 92% of them were in the “general wood” category, which included wood pellets, wood chips, palm kernel shells and palm oil.³³

However, many projects were unable to secure stable long-term supplies of biomass fuel and were unable to proceed. By March 2019, 48 facilities with a combined capacity of 1 GW had begun operation.³⁴ Trading companies’ ability to procure fuel made them essential to the success of biomass plants, especially the market-leader Sumitomo Corporation, which aims to control 40% of all imported biomass fuel by 2021.³⁵

A modest biomass heat and power industry existed in Japan prior to the reorientation in energy policy. It primarily was supplied by tree thinnings, other local forest management activities, and agricultural wastes. This could have developed into a boon for rural areas struggling to retain employment opportunities. Domestic wood pellet production remained flat at 120,000 tons per year as demand under the feed-in-tariff incentive created a boom which quickly outstripped the domestic supply.³⁶

30 Original in Japanese: Ministry of Economy, Trade, and Industry, “Long-term Energy Supply and Demand Projection” Jul. 2015. https://www.enecho.meti.go.jp/committee/council/basic_policy_subcommittee/mitoshi/pdf/report_01.pdf For English summaries, see Ministry of Economy, Trade, and Industry, Japan’s Energy Plan 2015 https://www.enecho.meti.go.jp/en/category/brochures/pdf/energy_plan_2015.pdf and METI, “Japan’s Energy 2018.” Jun. 2019. https://www.enecho.meti.go.jp/en/category/brochures/pdf/japan_energy_2018.pdf

31 “Pinnacle adds new off-take agreements in Japan and South Korea.” *Canadian Biomass Magazine*. Jul. 15, 2019. <https://www.canadianbiomassmagazine.ca/pinnacle-adds-new-off-take-agreements-in-japan-and-south-korea/>

32 Hawkins Wright. “The Outlook for Wood Pellets, No. 17 Q3 2018.” as cited by Pinnacle Renewable Energy: <https://pinnaclepellet.com/wp-content/uploads/2019/04/Pinnacle-April-2019.pdf>

33 *Biomass White Paper 2018*. p. 4.

34 Biomass Industrial Society Network. *Biomass White Paper 2019*. http://www.npobin.net/hakusho/2019/topix_01.html

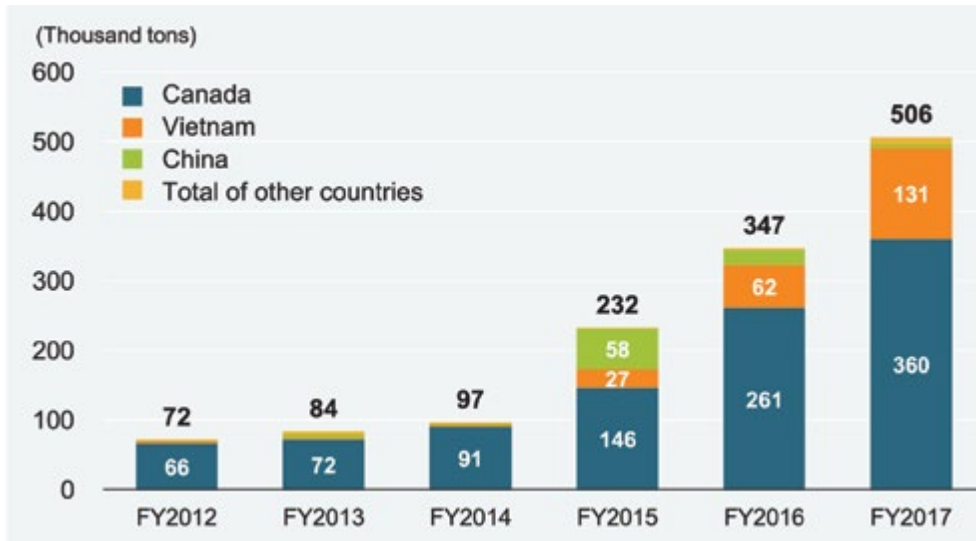
35 Sumitomo Corporation. “Providing Stable Supplies of Biomass Fuel for a Low-Carbon Society.” Case study. Accessed Sep. 11, 2019. <https://www.sumitomocorp.com/en/jp/business/case/group/biomass>

36 Nakano, Satoshi, Akito Murano and Ayu Washizu. “Economic and Environmental Effects of Utilizing Unused Woody Biomass.” *Journal of the Japan Institute of Energy* Vol. 94, No. 6. 2015. p. 530 https://www.jstage.jst.go.jp/article/jie/94/6/94_522/_pdf



The amount of wood pellets imported into Japan increased five-fold between 2014 and 2017, with Canada and Vietnam as the key suppliers of overall biomass imports.³⁷ Currently the United States, particularly the southeastern region, is emerging as a major supplier. The United States is the world’s largest supplier of wood pellets, producing them almost exclusively for export.³⁸

Japanese wood pellet imports ³⁹



37 Japan Woody Bioenergy Association. *Wood Biomass Data Book 2018*, p. 20. <https://www.jwba.or.jp/app/download/13159696992/Data+book+2018+%28English+version%29.pdf?t=1523342683>

38 "Over 22M tons of wood pellets shipped in 2018." *Canadian Biomass Magazine*. May 1, 2019. <https://www.canadianbiomassmagazine.ca/over-22m-tons-of-wood-pellets-shipped-in-2018-7364/>

39 *Wood Biomass Data Book 2018*, p. 20.

The amount of wood pellets imported into Japan increased five-fold between 2014 and 2017.



JUST ADD WOOD: COFIRING AS A LIFELINE FOR INEFFICIENT COAL PLANTS

Japan's energy policies are resulting in the development of new coal plants, and also allow existing inefficient plants to keep running by burning biomass together with coal, a practice known as "cofiring." Prolonging the life of coal plants itself is negative for the climate. Japan's greenhouse gas accounting for power plants excludes the carbon dioxide released when biomass fuel is burned and ignores the carbon used to produce and transport the biomass.

Based upon the *Act on the Rational Use of Energy* (2013 revisions), METI set voluntary efficiency standards for coal power plants. It targets utilities to achieve the efficiency levels of ultra-supercritical (USC) coal technology (42%) for all new plants, and a combined average efficiency of 41% for new and old coal plants together.⁴⁰ The *Fifth Strategic Energy Plan*, approved by the cabinet in 2018, suggested possible future enforcement measures: "including the consideration of a mechanism to encourage fadeout for inefficient coal-fired power plants (with the power generation efficiency below supercritical),⁴¹ including an imposition

40 Trencher, et. al., "Discursive resistance to phasing out coal-fired electricity: Narratives in Japan's coal regime." p. 8.

41 The government's English translation incorrectly cites ultra-supercritical, whereas the Japanese original states below supercritical. Ultra-supercritical coal refers to a technology which is marginally more efficient (~42%) compared to supercritical (~40%), which in turn is more efficient than subcritical coal plants (~38%). Power plant efficiency refers to the ratio of electricity produced to the quantity of fuel input.

Japan's energy policies are resulting in the development of new coal plants, and allowing existing inefficient plants to keep running by burning biomass together with coal.

of restriction on new construction of such inefficient coal thermal power plants, and the establishment of criteria for interim assessment to encourage the [sic] steady progress toward the FY 2030.”⁴²

However, the government also threw existing dirty coal plants a lifeline, offering a biomass alternative. If a coal plant burns biomass along with coal (“cofiring”), the energy created by burning biomass is credited towards the plant’s efficiency. However, the biomass fuel is subtracted from the total fuel input, making the plant appear to generate more power from the same amount of coal, and thus be meeting a higher efficiency standard.⁴³ A biomass industry analyst estimated if they did nothing, two-thirds of existing plants would not meet this standard. If they all met it by cofiring with wood, Japan would need to burn another 2 million tons of biomass per year.⁴⁴ Furthermore, METI has engaged the Japan Coal Energy Center to study the feasibility of increasing cofiring with wood pellets from 2% to 20%, a potential increase to 30 million tons per year.⁴⁵

The feed-in-tariff, intended as a renewable energy incentive, instead subsidized the burning of wood biomass at coal plants. By making their fuel cheaper it functioned as a subsidy to the coal plants themselves (at least until the FY 2019 feed-in-tariff procurement).⁴⁶ Outside the feed-in-tariff, not only are there no greenhouse gas standards, but there are not even any basic legality or traceability standards for cofired biomass fuel.⁴⁷ The potential climate and sustainability implications for such a massive increase in demand for forest biomass are severe.

42 *Fifth Strategic Energy Plan* (Provisional Translation), July 2018. p. 70.

43 Electrical energy output/ (energy input - biomass energy input)
Source: Ministry of Economy, Trade, and Industry. “Fossil Fuel Generation Efficiency Guideline A.” (Japanese) p. 4
https://www.enecho.meti.go.jp/category/saving_and_new/saving/procedure/pdf/karyoku.pdf

44 Strauss, William. “Policies will drive Japanese demand for industrial wood pellets” *Canadian Biomass Magazine*. Nov. 1 2017.

<https://www.canadianbiomassmagazine.ca/policies-will-drive-japanese-demand-for-industrial-wood-pellets-6569/>

45 Murray, Gordon. “Japan looks to increase wood pellet imports from Canada.” *Canadian Biomass Magazine*. Feb. 4. 2019.

<https://www.canadianbiomassmagazine.ca/japan-looks-to-increase-wood-pellet-imports-from-canada-7234/>

46 Agency for Natural Resources and Energy. “Business Plan Development Guidelines- Biomass.” Revised April 2019. (Japanese) p. 9.

47 Unlike the feed-in tariff, which requires documentation demonstrating legality (which forest sustainability certifications can fulfill), the only requirements for cofiring are to report the country of origin and general type of fuel used. Source: Ministry of Economy, Trade and Industry. Advisory Committee for Natural Resources and Energy, Committee on Energy Efficiency and Renewable Energy, New and Renewable Energy Subcommittee. “Working Group Report on Criteria for Thermal Power Generation.” Mar. 30, 2018. p. 26. https://www.meti.go.jp/shingikai/enecho/shoene_shinene/sho_energy/karyoku_hatsuden/pdf/20180330005_01.pdf

The feed-in-tariff, intended as a renewable energy incentive, instead subsidized the burning of wood biomass at coal plants.

The problem with palm oil

Food and personal care products already drive significant deforestation for palm oil. Using palm oil for bioenergy creates an additional, unsustainable burden through deforestation and indirect land use change. In key producing countries such as Indonesia and Malaysia, this has led to human rights violations including forced labor and conflicts over land.¹⁶⁴ Severe environmental damage has resulted from the destruction of wildlife habitat and the burning of forests and peatland results in regular periods of high air pollution.¹⁶⁵ Regarding climate change, an analysis done by Mitsubishi UFJ Research for the Ministry of Economy, Trade and Industry showed that even without counting emissions from changes in land use, palm oil had the highest greenhouse emissions of every biofuel they compared it to, making it worse than some fossil fuels.¹⁶⁶

When used for power generation, immense quantities of palm oil are required. Japan currently imports only 750,000 tons of palm oil for use in products and food annually. If all the power plants which received certification to use palm oil under the feed-in-tariff were to be constructed, Japan would have to *import 3.4 million tons of palm oil per year*.¹⁶⁷ A single 10 MW plant is estimated to consume 20,000 tons of oil per year, the annual amount used by all detergent producers in Japan.¹⁶⁸

High-profile palm oil plants, including the Maizuru plant in Kyoto Prefecture and H.I.S. Super Energy plant in Miyagi, have faced strong public opposition. Globally, nearly 150,000 people have called upon H.I.S. to drop its plans to build this plant.¹⁶⁹

Japan's inclusion of palm oil as renewable under the feed-in-tariff is an environmental disaster. Sumitomo Corporation can be a leader by publicly refusing to take part in the procurement of palm oil for power and the construction of palm oil power plants, and calling for an end to public subsidies for burning palm oil.

164 Whoriskey, Peter. "Mars, Nestle, other food companies face complaints of forced labor at palm oil supplier." *Washington Post*. Aug. 19, 2019. <https://www.washingtonpost.com/business/2019/08/15/mars-nestle-others-were-supplied-by-malaysian-company-using-forced-labor-such-imports-should-stop-groups-say/>

165 "Indonesia blames planters for raging wildfires and horrible air quality." *The Straits Times*, Sep. 20, 2019. <https://www.straitstimes.com/asia/se-asia/indonesia-blames-planters-for-raging-wildfires-and-horrible-air-quality>

166 Mitsubishi UFJ Research and Consulting. *Survey Report Regarding the Procurement of Stable Supplies of Biomass Fuel and Sustainability*. Feb. 2019. p. 112 (Japanese)

167 *Friends of the Earth Japan*. "Joint Recommendations Regarding Biomass Power Generation." Jul. 16, 2019. <http://www.foejapan.org/en/forest/190716.html>

168 Aikawa, Takanobu. "Great Risks Involved in Palm Oil Power Generation: Sustainability Standards are Urgently Needed." *Renewable Energy Institute*. Sep. 4, 2017. https://www.renewable-ei.org/en/column/column_20170912.php

169 *Friends of the Earth Japan*. "Submitted 148,000 signatures to H.I.S. - Please do not destroy tropical forests with your palm oil power plant!" News Release. Jul. 30, 2019. <http://www.foejapan.org/en/forest/190730.html>

REDUCED ENERGY SECURITY AND NEGLECTED LOCAL RESOURCES

Sumitomo Corporation is exploiting design flaws in Japan's energy policies through the large-scale importation of wood biomass. While two-thirds of the island nation is covered by forests, about 40% are planted monocultures of conifers, especially cedar trees, with potential to be replanted to support biodiversity.⁴⁸ Researchers note that while Japan has the world's fifth largest biomass production potential, its forests are poorly managed, residues from the domestic timber industry are underutilized, and more effort has gone into securing supplies of imported wood than improving supply chains within Japan.⁴⁹

In 2002, the government created the *Biomass Japan General Strategy*, which looked to biomass as not just a global warming measure but a way for various types of biomass, including agricultural waste, to create value for farmers and foresters, provide affordable heating and power for remote communities, and revitalize rural communities.⁵⁰ The government's expectation was for plants 5 megawatts in size to be built, sourcing 100,000 m³ of material from a range of 50 km from each plant. The program was to accomplish three aims: provide environmental benefit, support the economy and stabilize rural populations.⁵¹

The Japanese government's *Fifth Strategic Energy Plan (2018)* continues to reference these goals: "Biomass power generation, including woody biomass using unutilized materials, can be used as a stable power source which may also contribute to local revitalization. Particularly, regarding woody biomass power generation and heat utilization, it plays the role of a regionally-distributed and local production for local consumption-type energy source as well as keeping up Japan's precious forest and revitalizing the forestry industry."⁵²

48 Bird, Winifred. "For Japan's Eagles, Hope Lies in 'Rewilding' Long-Tamed Forests." *Yale Environment* 360, Jun. 12, 2017. <https://e360.yale.edu/features/for-japans-eagles-hope-lies-in-rewilding-long-tamed-forests>

49 Amanda Ahl, Eklunda Johanna, etc. al. "Balancing formal and informal success factors perceived by supplychain stakeholders: A study of woody biomass energy systems in Japan." *Journal of Cleaner Production*, Issue 175, Nov. 2017.

50 Ministry of Agriculture, Forestry and Fisheries, Forestry Agency. "Biomass Generation Business Overview." Chapter 2. 2014. p. 26. http://www.rinya.maff.go.jp/j/sanson/kassei/pdf/shishin_s2-2_1~2.pdf

51 *Biomass White Paper 2018*. p. 10.

52 *Fifth Strategic Energy Plan*. p. 22.

Sumitomo Corporation is exploiting design flaws in Japan's energy policies through the large-scale importation of wood biomass.

Of course, biomass from domestic forests has the same carbon debt implications as that sourced from abroad, making a reliance on true residues, agricultural wastes, and other local resources with fast carbon paybacks essential. The Renewable Energy Institute also cautions that the Japanese Forestry Act alone may be inadequate to ensure sustainable harvesting and prevent deterioration of domestic forests.⁵³ As intensive harvesting for purposes including biomass drives clearcutting in national forests, reports have already emerged of “bald mountains.”⁵⁴

With that said, Sumitomo and the other trading companies are turning their backs on Japan by overwhelmingly focusing on imported fuel. This forgoes rural economic development, deprives local farming communities of an affordable source for both heating and power, and misses opportunities to reinvigorate Japan’s monoculture forests to better support biodiversity. This increasing reliance on imported foreign fuels runs counter to Japan’s energy security goals. Trading companies continue to enrich themselves at expense of Japanese energy consumers and the residents of rural Japan.

53 Aikawa, Takanobu. *Restructuring Japan’s Bioenergy Strategy*. Renewable Energy Institute. Jun. 2018. p. 29 https://www.renewable-ei.org/en/activities/reports/img/pdf/20180628_01/REI_BioenergStrategy_EN_180628.pdf
54 “National forests stripped bare. ‘No data’ on replanting says Forestry Agency.” *Mainichi Shimbun*. Tokyo Morning Edition, May 25, 2019. (Japanese) <https://mainichi.jp/articles/20190525/ddm/003/010/127000c>

Sumitomo and the other trading companies are turning their backs on Japan by overwhelmingly focusing on imported fuel.





SUMITOMO CORPORATION'S COAL BUSINESS: UNREPENTANT POLLUTER

FEEDING JAPAN'S COAL RELIANCE

Coal will maintain its significance as a global energy source for the time being, particularly in emerging regions. By expanding its coal business, Sumitomo Corporation will strive to ensure a stable supply of coal worldwide in order to contribute to the steady development of the global economy.

–Sumitomo Corporation website⁵⁵

Sumitomo Corporation plays a major role in Japan's return to coal as a major importer of coal. In spite of Sumitomo's announcement in August 2019 that it would not expand coal mining, as this report goes to print, the website continues to state that Sumitomo Corporation's strategic priorities are to ensure steady production at operating mines and to examine and carry out development plans for undeveloped mines.

⁵⁵ Sumitomo Corporation. "Sumitomo Corporation's coal business pursuing responsible and stable supply of energy." Website. Accessed Nov. 26, 2019. <https://www.sumitomocorp.com/en/africa/business/case/group/242>

As a direct investor, Sumitomo Corporation Group supplies 6 million tons of thermal and metallurgical coal annually (including through joint ventures) from mines which include Oaky Creek, Hail Creek, Rolleston and Clermont in Australia. Sumitomo is also active as a coal trader: they cite a long history importing Russian coal to Japan, reporting an annual trading volume of four million tons. Sumitomo named Russia, Mongolia and Indonesia as important sites for their coal development projects, stating that “they offer many promising coal mines yet to be developed,” and “we are endeavoring to foster our coal mining business in these countries into one of our future core businesses based on a long-range perspective.”⁵⁶

BUILDING DIRTY POWER PLANTS ABROAD AND AT HOME

Sumitomo Corporation is at the forefront of the construction of dirty coal plants abroad. In the case of several plants it is a project sponsor, but primarily serves in the role of engineering, procurement and construction (EPC), working to manage these complex projects in partnership with Japanese equipment suppliers.

Currently, Sumitomo Corporation is involved in the construction of three new power plants including the high-profile, controversial Van Phong 1 project. This under-construction 1,320 MW coal plant in Vietnam uses lower-efficiency “supercritical” coal technology. An analysis of the Environmental and Social Impact Assessment (ESIA) by the Greenpeace Global Air Pollution Unit estimated that the Van Phong plant’s release of health-harming air pollutants would be much higher than that of a new plant built in Japan, emitting up to five times the particulate matter and sulfur dioxide and up to nine times the unhealthy nitrogen oxide pollution. Over the plant’s lifetime, an estimated 1,900 people would die prematurely due to exposure to these pollutants.⁵⁷

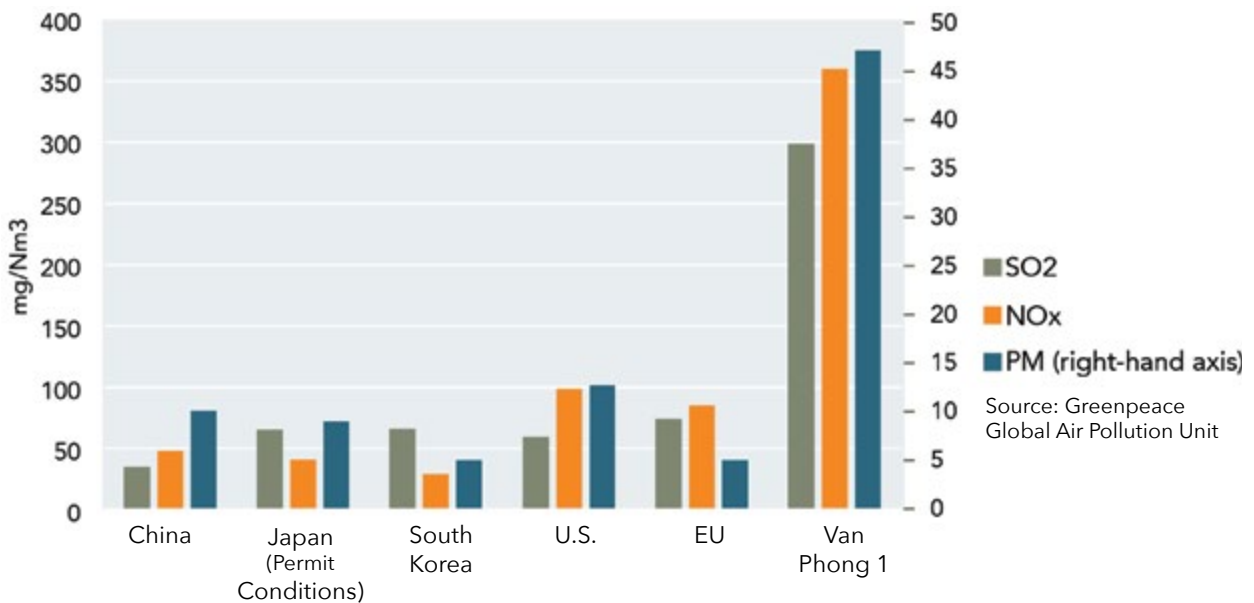
Furthermore, the ESIA does not indicate that local community members were consulted as part of project development, and local community members have expressed concerns about handling of coal ash and impacts of discharge water on fish in the local bay.⁵⁸ From a human rights perspective, the project is connected

56 Sumitomo Corporation. “Sumitomo Corporation’s coal business pursuing responsible and stable supply of energy.”

57 Market Forces. “Japan-funded coal power project would cause 1,900 premature deaths in Vietnam.” <https://www.marketforces.org.au/japan-funded-coal-power-project-would-cause-1900-premature-deaths/>

58 Market Forces. “Van Phong 1 Project Brief for Investors.” Apr. 8, 2019. pp. 1, 2.

Van Phong 1 emissions compared to new coal plants in other countries⁵⁹



to troubling examples of forced relocation, with several hundred villagers required to leave. One of their stories has been told in the international media: a 99-year old woman, known as “Grandma Ca” (Pham Thi Ca), refused to leave her house even after it was bulldozed to make way for the Sumitomo power plant. Her son said the area they were directed to relocate to was not suitable for farming: “We cannot work there, there is no land for cultivation.”⁶⁰

⁵⁹ Market Forces. “Japan-funded coal power project would cause 1,900 premature deaths in Vietnam.”

⁶⁰ Tran Thi Minh Ha, Jenny Vaughan. “Grandma Ca: the 99-year-old standing up to Vietnam’s coal rush.” AFP. May 22, 2019. <https://news.yahoo.com/grandma-ca-99-old-standing-vietnams-coal-rush-040702651.html>

The area they were directed to relocate to was not suitable for farming: “We cannot work there, there is no land for cultivation.”

Sumitomo has similar projects in the works in the region, including the Tanjung Jati B coal-fired power plant Units 5 & 6 Expansion Project in Indonesia, which began construction in March, 2017.⁶¹ Indonesia is already beset with high levels of pollution. Air pollution from the existing four Tanjung Jati B units, also developed by Sumitomo Corporation, have been estimated to cause more than 1000 premature deaths per year, prompting complaints by local residents about issues from breathing problems to declining fish catch. These complaints have developed into protests against the expanded plant. Residents demand an overall reduction in pollution and treatment for their health problems.⁶²

As of this report’s publication, Sumitomo has announced no plans to discontinue its investment in any of these projects, in spite of their August 2019 announcement which stated: “We will not have new development in the coal-fired power generation business.”⁶³

Sumitomo Corporation International Coal Power Plant Portfolio

Plant Name	Place, Country	Capacity	Type	Completion Date	Role
Matarbari Units 1 & 2 ⁶⁴	Matarbari Island, Bangladesh	1200 MW	Ultra-supercritical	Under construction (projected 2024)	EPC
Van Phong 1	Khanh Hoa Province, Vietnam	1320 MW	Supercritical	Delayed until 2023-24 ^{65 66}	BOT
Tanjung Jati B Expansion Units 5-6 ⁶⁷	Central Java, Indonesia	2000 MW	Ultra-supercritical	September 2021	Sponsor
Duyen Hai 3 Extension ⁶⁸	Duyen Hai district, Vietnam	688 MW	Supercritical	Delayed until 2019	EPC
Lontar Coal Fired Steam Power Plant Unit 4 ⁶⁹	Banten Province, Java, Indonesia	315 MW	Ultra-supercritical	2019	EPC

61 Sumitomo Corporation. “Construction of Tanjung Jati B coal-fired power plant Units 5 & 6 Expansion Project (2,000MW) commences in Indonesia.” News Release. Mar. 31, 2017. https://www.sumitomocorp.com/en/jp/news/release/2017/group/20170331_2 Accessed Jun 13., 2019.

62 Hakko, Hana and Marina Lou. *Uncertain and Harmful: Japanese Coal Investments in Indonesia*. Greenpeace report. Dec. 2018. p. 16. <https://www.greenpeace.org/japan/sustainable/publication/2018/12/06/6544/>

63 Sumitomo Corporation “Construction Commences on Van Phong 1 Coal-fired Power Project in Vietnam.” News Release. Aug. 26, 2019. <https://www.sumitomocorp.com/en/jp/news/release/2019/group/12310>

64 https://www.sourcewatch.org/index.php/Matarbari_power_station

65 http://vepg.vn/wp-content/uploads/2019/06/MOIT_Report_58_BC_BCT.pdf

66 <https://www.sumitomocorp.com/en/jp/news/release/2019/group/12310>

67 https://www.sumitomocorp.com/en/jp/news/release/2017/group/20170331_2

68 <https://www.sumitomocorp.com/en/jp/news/release/2014/group/20141126>

69 https://www.sumitomocorp.com/en/jp/news/release/2015/group/20150924_1

Talin Thermal Power Plant Units 1 & 2 ⁷⁰	Kaohsiung, Taiwan	1600 MW	Ultra-supercritical	2018	EPC
3A Coal Fired Power Plant ⁷¹	Manjung, Perak, Malaysia	1000 MW	Ultra-supercritical	Sept. 2017 ⁷²	EPC
Tanjung Jati B Units 3-4 ⁷³	Central Java, Indonesia	1320 MW	Subcritical	2011; 2012	Sponsor
Bluewaters Coal-fired Power station 1 and 2 ⁷⁴	Collie, Western Australia, Australia	458 MW	Subcritical	2009	Sponsor
Jimah Units 1 & 2 ⁷⁵	Negeri Sembilan, Malaysia	1400 MW		2009	EPC
Tanjung Jati B Units 1-2	Central Java, Indonesia	1320 MW		Oct. 2006; Nov. 2006	Sponsor
Pha Lai 2 Power Station ⁷⁶	Pha Lai, Vietnam	600 MW		2002	EPC

EPC = engineering, procurement and construction
 BOT = build, operate, transfer

Domestically, as of February 2018, Japan had 45 gigawatts (GW) of operating coal plants at more than 100 facilities, with another 13 GW planned or in construction.⁷⁷

Sumitomo had plans to build a 112 MW coal and biomass power plant in the City of Sendai (Miyagi Prefecture), but opposition from the city and local residents led to its cancellation and resurrection as a 100% biomass plant.⁷⁸

Wholly-owned subsidiary Summit Energy is a power generator and electricity retailer. It is joint-owner of the Onahama Power Station (Iwaki, Fukushima), a 50MW subcritical coal plant completed in 2004.⁷⁹

70 https://www.sumitomocorp.com/en/jp/news/release/2012/group/20120521_1 and https://www.toshiba.co.jp/about/press/2012_05/pr2101.htm

71 <https://www.sumitomocorp.com/en/jp/news/release/2013/group/20130822>

72 http://www.daelim.co.kr/eng/daelim/pr/NewsView.do?keyword=&searchword=¤tPage=1&cd_mnu=&idx=18045

73 <https://www.sumitomocorp.com/en/jp/news/release/2012/group/20120207>

74 <https://www.aurecongroup.com/projects/energy/bluewaters-power-station> and <https://www.epa.wa.gov.au/proposals/bluewaters-power-station-phase-i>

75 https://www.ihico.jp/ihiap/project-highlights/jimah_power_station/index.html

76 <https://www.hadek.com/industrial-chimney/pha-lai-power-station/>

77 Climate Analytics. *Science Based Coal Phase-Out Timeline for Japan*. May 2018, p. 9.

78 Kiko Network. "Small Scale Power Plant in Sendai Switched from Coal to Biomass." News Release. Jun 1. 2018. <https://www.kikonet.org/eng/press-release-en/2018-06-01/small-scale-power-plant-in-sendai-switched-from-coal-to-biomass>

79 <http://www.summit-onahama-power.ecnet.jp/>

SUMITOMO CORPORATION, CLIMATE LAGGARD

Sumitomo Corporation is very much a laggard among trading houses when it comes to coal – even after its August 2019 announcement. In 2018, Japanese trading company Itochu took a leadership position when it announced it would not build any more coal plants in Japan. This was the strongest commitment by a trading company to date. Marubeni announced it would cut its 3 GW coal portfolio in half by 2030.⁸⁰ Mitsui divested from thermal coal mining in 2018, and Japan’s largest trading company, Mitsubishi did the same in December 2018. In February 2019, Itochu announced it would no longer invest in new coal power plants or thermal coal mines and began to sell of its stake in several coal mines.⁸¹ Sojitz sold off its thermal mines in March 2019.⁸² In contrast, when competitor Mitsubishi Corporation sold its 31% stake in Australia’s Clermont coal mine as part of their effort to exit the upstream thermal coal business, Sumitomo Corporation and Glencore purchased it.⁸³

In the *2019 Integrated Report*, Sumitomo Corporation unveiled its policy on coal.⁸⁴ It reiterated a modest existing target to reduce the relative share of coal capacity in its generation portfolio from 50% to 30%, and to raise renewable energy from 20-30% by 2035.⁸⁵ ⁸⁶ Unlike Marubeni’s commitment, which was stated in terms of capacity (gigawatts), Sumitomo expressed a coal reduction in percentages. If Sumitomo’s gas and renewable generation expands from current levels, this could mean no actual reduction in coal generation and pollution.

Sumitomo added they will not develop new coal-fired power plants but included a loophole rendering the commitment no better than business as usual: “[W]e make a decision individually about new development in cases where the project is essential to the economic and industrial development of the local community and

80 Marubeni Corporation. “Notification Regarding Business Policies Pertaining to Sustainability.” News Release. Sep. 18, 2018. <https://www.marubeni.com/en/news/2018/release/00028.html>

81 Itochu. “Coal-related business policy.” Sustainability News. Feb. 14, 2019. <https://www.itochu.co.jp/en/csr/news/2019/190214.html>

82 Institute for Energy Economics and Financial Analysis. “Marubeni’s coal exit announcement a good first step but increased commitment needed.” March 12, 2019. <http://ieefa.org/marubenis-coal-exit-announcement-a-good-first-step-but-increased-commitment-needed/>

83 Obayashi, Yuka. “Mitsubishi exits thermal coal sector, sells stakes in Australia mines.” *Reuters*. Dec. 18, 2018. <https://www.reuters.com/article/us-mitsubishi-coal-glencore-idUSKBN1OH0QK> and also Sumitomo’s website: <https://www.sumitomocorp.com/en/jp/news/release/2018/group/11130>

84 Sumitomo Corporation. *Integrated Report 2019*. (Japanese). Aug. 2019. <https://www.sumitomocorp.com/ja/jp/ir/financial/investors-guide/2019>

85 “Decarbonization Survey Responses.” *Toyo Keizai Shimbun*. (Japanese) May 10, 2019. <https://toyokeizai.net/sp/visual/tkp/decarbonization-survey/> and *Sumitomo Corporation Integrated Report 2018*. p. 113.

86 Sumitomo Corporation. “Construction Commences on Van Phong 1 Coal-fired Power Project in Vietnam.” News Release. Aug. 26, 2019. <https://www.sumitomocorp.com/en/jp/news/release/2019/group/12310>

where the project is complying with the policies of the Japanese and host country governments based on the international initiatives to mitigate climate change issues.” There was no specificity given as to what criteria make a project “essential,” and the Van Phong project in Vietnam moved forward under this loophole.

In addition, Sumitomo Corporation also pledged to continue thermal coal production at current levels and not to develop new mine projects.⁸⁷ On the other hand, Sumitomo Corporation’s website states they have a continued commitment to developing infrastructure that brings coal to market. “Coal is expected to enjoy steady growth in demand mainly in emerging countries in the years to come, and to maintain its significance in the world’s energy mix.” Furthermore, Sumitomo boasts of the breadth of its coal-related services, from mining and developing rail and port infrastructure for coal exports, to its role in distributing coal within Japan. “Going forward, we will aim to contribute to Japan’s industry by launching a full value chain business for the supply of coal. At the same time, we also pursue our basic strategy of contributing to stable supplies of coal in Asia, where demand is expected to increase along with ongoing and future economic growth.”⁸⁸

Coal mining is now beset with global risks. As the United States and European Union countries slashed their reliance on coal generation, it contributed to volatility and price drops in international coal markets.⁸⁹ A collapse of coal prices between 2013 and 2016 led to large losses for Sumitomo Corporation, Mitsubishi Corporation and Mitsui Bussan.⁹⁰ Sumitomo has borne the brunt of this risk in the past, with a market downturn prompting them to close the Isaac Plains mine in Australia in 2015.⁹¹ Sumitomo Corporation should reduce its exposure to financial risks and environmental damage from coal by exiting the thermal coal market entirely.

87 Sumitomo Corporation. “Construction Commences on Van Phong 1 Coal-fired Power Project in Vietnam.”

88 “Sumitomo Corporation’s coal business pursuing responsible and stable supply of energy.” Accessed Nov. 26, 2019. <https://www.sumitomocorp.com/en/jp/business/case/group/242>

89 IEA “Coal.” Accessed Aug. 7 2019. <https://www.iea.org/topics/coal/>

90 Trencher, et. al. “Discursive resistance to phasing out coal-fired electricity: Narratives in Japan’s coal regime.” p. 13.

91 Sumitomo Corporation. “Isaac Plains Coal Mine to cease production.” News Release. Sep. 29, 2014. https://www.sumitomocorp.com/en/jp/news/release/2014/group/20140929_3

“Going forward, we will aim to contribute to Japan’s industry by launching a full value chain business for the supply of coal”



SUMITOMO CORPORATION'S BIOMASS BUSINESS: TRASHING FORESTS FOR FUEL

GLOBAL FORESTS AT RISK

At its peak in 2017, Japan had approved a tremendous 13 GW of biomass power under the feed-in-tariff incentive program, with some additional quantities to be co-fired with coal outside this program. In comparison, the current global biomass capacity is estimated at 130 GW, with the largest biomass power producer, the United States, at 16.7 GW in 2018.⁹² As of March 2019, 48 Japanese biomass power plants in the “general wood” category totaling more than 1 GW of capacity are operational.⁹³

Sumitomo Corporation has a long history of importing biomass fuel for power generation, dating back to 2008. Currently the company boasts it has a 55% market share for imported wood pellets, and intends to control 40% (1.6 million tons) of all imported biomass fuel by 2021.⁹⁴

92 Statista. “Capacity of biomass power plants in selected countries and worldwide in 2018 (in gigawatts)” <https://www.statista.com/statistics/264637/world-biomass-energy-capacity/>

93 Biomass Industrial Society Network. *Biomass White Paper 2019*. http://www.npobin.net/hakusho/2019/topix_01.html.

94 Sumitomo Corporation. “Providing Stable Supplies of Biomass Fuel for a Low-Carbon Society.” Case study Accessed Sep. 11, 2019. <https://www.sumitomocorp.com/en/jp/business/case/group/biomass>

While significant policy attention is paid to degradation and deforestation of *tropical* forests (REDD+, etc.), degradation, conversion to plantations, and intensive industrial use of forests is also a problem for temperate and boreal forests, including in North America. Harm to all of these types of forests threatens species biodiversity and increases carbon dioxide levels in the atmosphere.⁹⁵

SOUTHEASTERN UNITED STATES: DEGRADED FORESTS FROM INTENSIVE LOGGING

The US south has emerged as the largest wood producing region in the globe. Intensive logging is estimated to be four times the rate of rainforests in South America.⁹⁶ Over the past 60 years, 30 million acres of natural forests have been lost, overtaken by 40 million acres of new pine plantations.⁹⁷ Young forests are able to store less carbon than mature ones and also contribute less to water management and flood control.⁹⁸ These features of natural forests are increasingly important as climate change contributes to more powerful storms and hurricanes.

This increase in logging for biomass is not for domestic consumption. In October 2019, the state of North Carolina (NC), a key location for wood pellet production, released its clean energy plan to reduce greenhouse gas pollution. The state's plan was openly critical about biomass: "Currently, the wood pellet industry does not contribute to NC's energy generation portfolio and does not advance NC's clean energy economy. There are currently no known plans for the industry to become a contributor to NC's energy sector in the coming years. If this trend reverses, NC should not support activities that would increase emissions from its electricity generation sector for the reasons cited below."⁹⁹

Specifically, the state clean energy plan criticized the export-oriented wood

95 Moomaw, Bill and Janice Smith. *The Great American Stand*. Dogwood Alliance. p. 12-14.

96 *The Great American Stand*. p. 26.

97 *The Great American Stand*. p. 28.

98 *The Great American Stand*. p. 27.

99 North Carolina Department of Environmental Quality. *North Carolina Clean Energy Plan*. Oct. 2019. p. 25.

Sumitomo boasts it has a 55% market share for imported wood pellets, and intends to control 40% (1.6 million tons) of all imported biomass fuel by 2021.



pellet industry from a carbon perspective. “The wood pellets harvested from NC increase the state’s carbon output during logging, processing and transportation and are burned for fuel elsewhere, mostly Europe... [L]arge scale use of NC’s natural resources to meet foreign markets’ carbon reduction goals by taking advantage of current accounting of methodology (sic) should be challenged at the national and international level.”¹⁰⁰

In North Carolina and other southeastern states, foreign demand for wood pellets has placed additional pressure on an already highly degraded landscape. Equally as important as deforestation, but often overlooked, is the ongoing degradation of forests from logging. Degradation compromises critical ecological functions, such as water storage and natural flood control, which buffer vulnerable communities against the worst effects of natural disasters. In fact, a recent report found that in tropical forests, degradation could be as severe a problem as deforestation when it comes to carbon emissions.¹⁰¹ No similar analysis has been conducted relative to the degradation of forests in the United States, though logging rates in the U.S. are the highest in the world.¹⁰² The new market demand for wood pellets is driving increased logging of ecologically important forests.

100 *North Carolina Clean Energy Plan*. Oct. 2019. p. 26.

101 Yeo, S. “Forest degradation as bad for climate as deforestation, says report” Carbon Brief (2015). <https://www.carbonbrief.org/forest-degradation-as-bad-for-climate-as-deforestation-says-report>.

102 Moomaw, Bill and Janice Smith. *The Great American Stand*. Dogwood Alliance. p. 12



Clearcut North Carolina wetland forest tied to Enviva’s facilities. Dogwood Alliance



The United States has its share of governance challenges regarding sustainable forestry. In the Southeastern United States, forested land is largely in the hands of private owners. There are no state laws specifically regulating privately owned forests in the southern states, and while there are some forest management guidelines and state foresters involved in forest management, clearcutting, logging of old-growth forests, clearing wetland forests, the destruction of species' habitats, and conversions of forests to tree plantations are mostly unregulated by government.¹⁰³

In addition to weak or nonexistent government regulation, the various forest and timber industry certification programs, including weak guidelines under the Sustainable Forestry Initiative and American Tree Farm System, allow natural forests rich with species diversity and carbon to be converted into industrial forests. Even the strongest of these programs, the Forest Stewardship Council (FSC), lacks a standard for protecting the carbon storage ability of forests. Additionally, FSC has only certified a small percentage of southeastern forests. For example, in North Carolina, out of 18.6 million total acres of forest, 15.5 million acres are in private hands, and only 47,000 acres are FSC certified. In Virginia, 13 million of 15.7 million acres are in private hands and 2% (264,000 acres) are FSC certified.¹⁰⁴

Foreign demand for pellets is putting additional pressure on already stressed forests. European demand has led to the creation of biomass pellet facilities capable of producing 10.6 million tons in 2019, and is projected to increase to 15 million tons by 2030. 9 million acres (3.6 million ha) needed to supply this biomass today is expected to increase to 10.5 million acres (4.2 million ha) in managed forests by 2030.¹⁰⁵

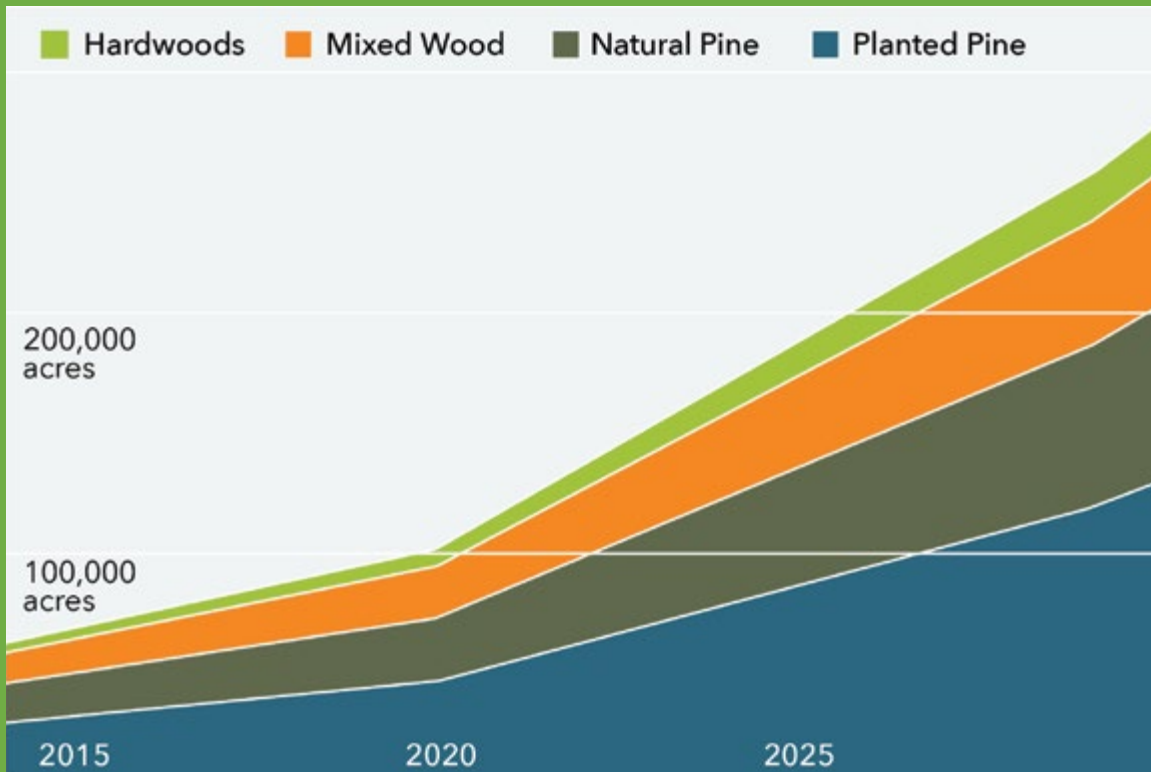
103 Natural Resources Defense Council. "The Truth About the Biomass Industry: How Wood Pellet Exports Pollute Our Climate and Damage Our Forests." Aug. 2014. p. 1-3. <https://www.nrdc.org/resources/truth-about-biomass-industry-how-wood-pellet-exports-pollute-our-climate-and-damage-our>

104 "The Truth About the Biomass Industry: How Wood Pellet Exports Pollute Our Climate and Damage Our Forests." p. 5.

105 Dogwood Alliance. "Destroying Southern Forests for International Export." 2017. <https://www.dogwoodalliance.org/wp-content/uploads/2017/08/Acres-of-Pellets-Fact-Sheet.pdf>

Clearcutting, logging of old-growth forests, clearing wetland forests, the destruction of species' habitats, and conversions of forests to tree plantations are mostly unregulated by government.

By 2030, 280,000 acres of southeastern forests will be cut annually¹⁰⁶



While the main market for southeastern forest biomass has been the EU, especially the Drax power station in the U.K., in August 2018 the United Kingdom's Contract for Difference incentive program put strict restrictions on lifecycle greenhouse gas emissions (it uses the EU RED LCA methodology and does not include power plant smokestack emissions). It reduced allowable emissions from the biomass supply chain from 200 kg CO₂/MWh to 29 kg/MWh.¹⁰⁷ This change effectively ends additional biomass imports into the UK market under this incentive program, as fuel transport emissions are likely too great to meet the standard. This makes Japanese demand a significant driver of future forest losses from increased biomass production. Japanese trading companies, including Sumitomo Corporation, form the key link between US pellets and Japanese power plants.

¹⁰⁶ "Destroying Southern Forests for International Export." p. 1.

¹⁰⁷ United Kingdom, Department for Business, Energy & Industrial Strategy. "Contracts for Difference Scheme for Renewable Electricity Generation." Aug. 2018. p. 35, 37. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/736640/Consultation_document.pdf

SUMITOMO AND SOUTHEASTERN FORESTS

In the US southeast, Sumitomo Corporation contracts for large quantities of wood biomass from third-party suppliers. The resulting lack of control over sourcing, and absence of a Sumitomo corporate policy of “no deforestation” covering the entire supply chain, results in even greater environmental risks.

OVERVIEW OF ENVIVA PARTNERS, LP



Enviva Partners, LP is the largest exporter of wood pellets in the southeastern US, operating eight wood pellet plants with plans to build another thirteen. All of its North Carolina mills are in disadvantaged environmental justice communities.¹⁰⁸ Wood supplies in this region are dominated by small private landowners – Enviva estimates more than 65,000.¹⁰⁹ As of summer 2019, Enviva is developing a controversial new mill in Mississippi, which would become the world’s largest, and also a nearby port to export pellets to foreign markets, especially Asia.¹¹⁰

Numerous investigations have tied Enviva pellet manufacturing to the use of whole trees and logging of natural forests. Enviva’s “Track & Trace” monitoring program reports that 83% of their wood is sourced from hard or softwood forests, and only 17% is from sawdust or other residuals from wood manufacturing.¹¹¹

Enviva facilities are located by Southeastern Mixed Forests and Middle Atlantic Coastal Forests, both designated by the World Wildlife Fund as Critical/Endangered, because of their biodiversity and numerous threats including fragmentation and conversion.¹¹² The Critical Ecosystem Partnership Fund, of which the Government of Japan is a donor partner, labeled the North America Coastal Plain a biodiversity hotspot because of the variety of plant and animal life, and its significant habitat loss from causes including deforestation.¹¹³

108 Hitt, Mary Anne and Danna Smith. “Chopping down and burning our forests for electricity is not a climate solution.” *The Hill*. Aug. 10, 2019. <https://thehill.com/blogs/congress-blog/energy-environment/456977-chopping-down-and-burning-our-forests-for-electricity>

109 Enviva Presentation to Shareholders, Jun. 18, 2019. J.P. Morgan Energy Conference. p. 9. https://ir.envivapartners.com/sites/envivabiomass.investorhq.businesswire.com/files/doc_library/file/EVA_Investor_Presentation_JPM_Energy_June_2019_vFinal.pdf

110 Perez, Mary. “One of the world’s largest pellet plants planned in Lucedale. Residents, environmental activists at odds.” *SunHerald*. May 16, 2019. <https://www.sunherald.com/news/local/counties/george-county/article230375599.html>

111 Enviva. “Track & Trace®” <http://www.envivabiomass.com/%20sustainability/track-and-trace/>

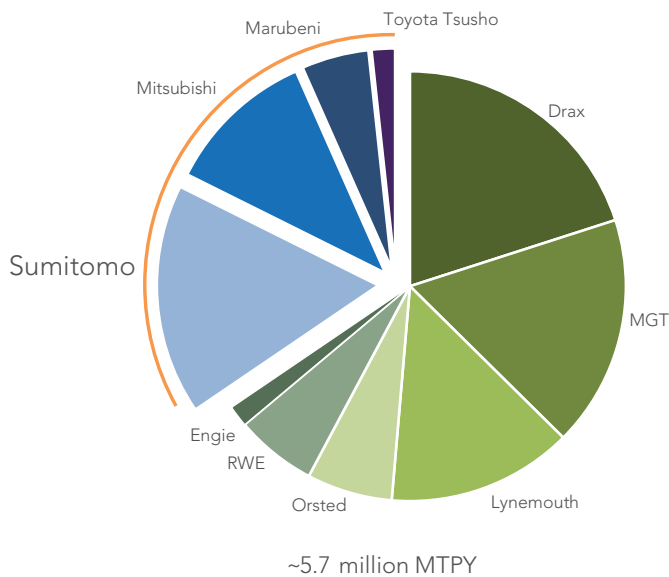
112 Dogwood Alliance, NRDC, “Enviva’s Wood Pellet Mill in Ahoskie, North Carolina Threatens Endangered Ecosystems and Wildlife.” Sept. 2014. <https://www.dogwoodalliance.org/wp-content/uploads/2013/05/Enviva-Mill-in-Ahoskie-Dogwood-Report.pdf>

113 Critical Ecosystem Partnership Fund. “North American Coastal Plain.” Accessed Sep. 15, 2019. <https://www.cepf.net/our-work/biodiversity-hotspots/north-american-coastal-plain>

ENVIVA AND SUMITOMO CORPORATION

These southern forests were stressed already from European demand for biomass. Now there is additional pressure from Japan. Enviva has already signed contracts with major Japanese corporations, including Sumitomo Corporation, Marubeni,¹¹⁴ and Mitsubishi.¹¹⁵

Enviva: Wood Pellet Contract Mix (2023)



Sumitomo Corporation signed an 18-year contract for wood pellets beginning in 2022 to supply 440,000 metric tons per year for a new power plant in Fukushima prefecture,¹¹⁶ and a 15-year contract beginning in 2021 for 250,000 metric tons per year of wood pellets.¹¹⁷ Enviva's June 2019 presentation for investors showed that of Japan's trading houses, Sumitomo Corporation has the largest share of contracts. The combined Japanese demand is expected to account for 35% of total demand for Enviva products by 2023.¹¹⁸

114 "Enviva enters contract to supply wood pellets to Japanese plant." *Biomass Magazine*. <http://www.biomassmagazine.com/articles/15097/enviva-enters-contract-to-supply-wood-pellets-to-japanese-plant> Accessed Jun. 14, 2019.

115 "Enviva Announces Off-Take Contracts with Mitsubishi Corporation are Firm." News Release. Oct. 31, 2018. <https://ir.envivapartners.com/press-release/enviva-announces-take-contracts-mitsubishi-corporation-are-firm> Accessed 16 June 2019.

116 "Enviva Partners, LP Reports Financial Results for First Quarter 2019 and Announces Fifteenth Consecutive Distribution Increase." *Business Wire*. 5/8/19. <https://www.businesswire.com/news/home/20190508005950/en/Enviva-Partners-LP-Reports-Financial-Results-Quarter>

117 Enviva. "Enviva Holdings, LP's Off-Take Contract with Sumitomo Becomes Firm." News Release. Sep. 13, 2018. <http://www.envivabiomass.com/media-center/enviva-holdings-lps-off-take-contract-with-sumitomo-becomes-firm/> Accessed 16 June 2019.

118 Enviva Presentation to Shareholders, Jun. 18, 2019. J.P. Morgan Energy Conference https://ir.envivapartners.com/sites/envivabiomass.investorhq.businesswire.com/files/doc_library/file/EVA_Investor_Presentation_JPM_Energy_June_2019_vFinal.pdf

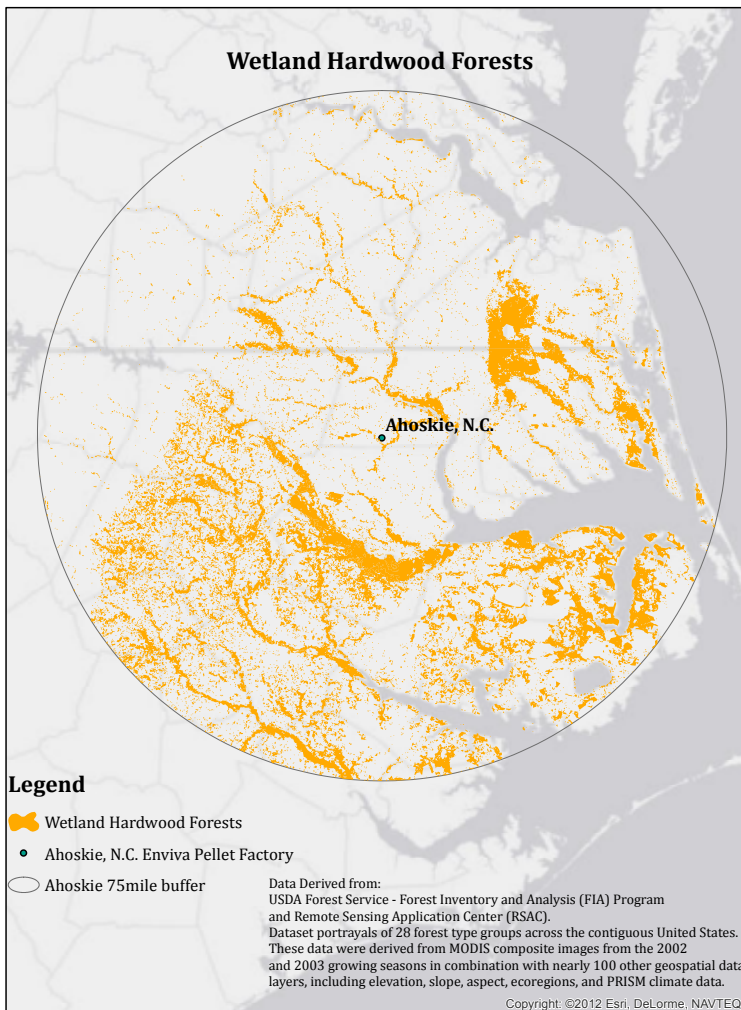
Sumitomo signed an 18-year contract with Enviva to supply a new power plant in Fukushima with 440,000 metric tons of wood pellets per year.

AHOSKIE (NORTH CAROLINA) MILL

Enviva’s Ahoskie, North Carolina pellet facility is surrounded by pine plantations, natural pine hardwoods and forested wetlands. The Wall Street Journal has documented Enviva sourcing wood for this plant by clearcutting wetland forests in the Mid-Atlantic. These are forests that were already in serious decline, which harms wildlife and nearby communities which rely upon the forests to maintain water quality and offer flood protection.¹¹⁹

In March 2016, investigators from regional conservation organization Dogwood Alliance further identified and linked clear-cuts in North Carolina coastal wetland forests in the Roanoke River Basin directly to Enviva’s Ahoskie wood pellet facility. Enviva had cut down whole hardwood trees and other large diameter wood leaving a wetland area devoid of trees. These trees are critical for biodiversity but had been considered less commercially desirable until the pellet industry created a demand for them.¹²⁰

The surviving forested wetlands are anchors for biodiversity, and are at risk from increased industrial logging. Once cut, restoring bottomland hardwood wetlands is difficult because these forests take many decades to mature. Once flood patterns are altered, the diversity of trees and plants changes when the forest regenerates.¹²¹



122

119 “Europe’s Green-Fuel Search Turns to America’s Forests.” *The Wall Street Journal*. May 27, 2013. <https://www.wsj.com/articles/SB10001424127887324082604578485491298208114> Accessed Jun. 16, 2019.

120 Natural Resources Defense Council, Dogwood Alliance, “Enviva’s Wood Pellet Mill in Ahoskie, North Carolina Threatens Endangered Ecosystems and Wildlife.” Aug. 2013. p. 2. <https://www.nrdc.org/resources/envivas-wood-pellet-mill-ahoskie-north-carolina-threatens-endangered-ecosystems-and>

121 Natural Resources Defense Council, Dogwood Alliance, “Enviva’s Wood Pellet Mill in Ahoskie, North Carolina Threatens Endangered Ecosystems and Wildlife.” Aug. 2013. p. 13.

121 “Enviva’s Wood Pellet Mill in Ahoskie.” p. 5.



Reporters documented the clearing of whole hardwood trees from a mature wetland forest and 100 acres of surrounding natural hardwood forests.



Forested wetlands are anchors for biodiversity.
Above: Clearcut tied to Enviva Ahoskie, NC, plant. Dogwood Alliance
Below: Cypress Bog in Southern U.S. Winnie Helton Harmon



ENVIVA SOUTHAMPTON (VIRGINIA) MILL

In January 2018, reporters from the UK Channel 4 news program *Dispatches* documented the clearing of whole hardwood trees from a mature wetland forest and 100 acres of surrounding natural hardwood forests.¹²³

GREATER SCALE, GREATER RISK

Enviva's long-term contracts with Japanese trading companies are propelling their expansion. To facilitate this growth, Enviva is investing in capacity. In 2019 there has been extensive local opposition to an Enviva wood pellet plant proposed for Lucedale, Mississippi. In addition to the threat of deforestation, air modeling showed air pollution from the plant would put the area in violation of federal air quality standards. Enviva Partners LP is also investing in a ship-loading facility in Pascagoula, Mississippi to support pellet exports.¹²⁴

123 Natural Resources Defense Council, Dogwood Alliance. "Global Markets for Biomass Energy are Devastating U.S. Forests." Jun. 2019. p.6

<https://www.nrdc.org/resources/global-markets-biomass-energy-are-devastating-us-forests>

124 Amy, Jeff. "Board Approves Air Permit for Wood Pellet Plant." *Associated Press*. Jul. 10, 2019. Accessed Aug. 1, 2019. <https://news.yahoo.com/board-approves-air-pollution-permit-232407372.html>

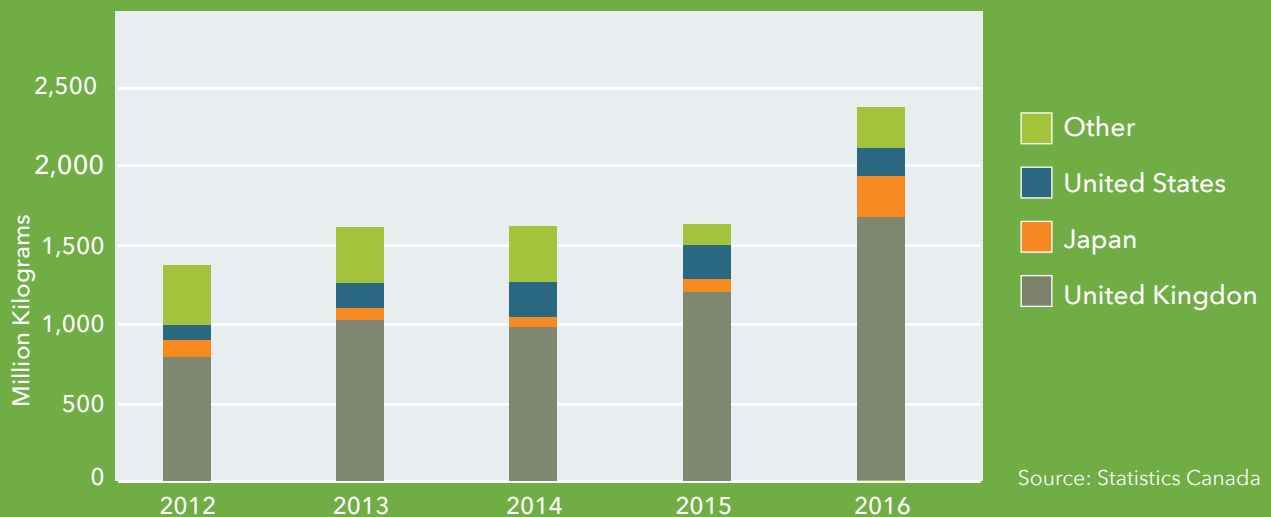


Wetland clearcut near Meherrin River tied to Enviva's Southampton facility. Dogwood Alliance

CANADIAN WOOD PELLET PRODUCTION

Canada is a major wood producer and is the largest supplier of biomass wood to Japan.¹²⁵ Since 2000, Canada has experienced a loss of 9.2% in tree cover (38.6 million hectares), releasing 1.5 billion tons of CO₂ into the atmosphere.¹²⁶ Its forest cover is under pressure from pulp production and now also biomass. Much of its forests are high-latitude boreal forests that are sensitive to environmental disturbances, and take more than a century to replace themselves, leading to a century-long carbon debt.

Annual Canadian Wood Pellet Exports by Destination ¹²⁷



The large North American boreal forest is home to wildlife including grizzly bears, wolves and boreal woodland caribou.¹²⁸ These caribou are designated by the Canadian government as “threatened,” with 81% in decline primarily due to predation and habitat loss.¹²⁹ Woodland caribou depend on arboreal lichen as a food source, which grows on mature coniferous trees. The survival of this species depends on maintaining the health of primary forests.¹³⁰

125 Biomass Industrial Society Network, *Biomass White Paper 2019*. (Japanese) http://www.npobin.net/hakusho/2019/topix_02.html

126 STAND. “Stand.earth joins worldwide movement calling biomass energy a ‘dangerous delusion.’” Oct. 24, 2018. <https://www.stand.earth/latest/forest-conservation/primary-forests/standearth-joins-worldwide-movement-calling-biomass>

127 Canada Energy Regulator. “Market Snapshot: Canadian wood pellet exports grew 46% between 2015 and 2016.” <https://www.cer-rec.gc.ca/nrg/ntgrtd/mrkt/snpst/2017/11-03cndnwdplltxprts-eng.html>

128 STAND. “Protecting North America’s Boreal Forest.” Web page. Accessed Aug. 8, 2019. <https://www.stand.earth/about/achievements/protecting-north-americas-boreal-forest>

129 https://wildlife-species.canada.ca/species-risk-registry/species/speciesDetails_e.cfm?sid=636

130 STAND. “Is Charmin toilet paper endangering the caribou?” Blog article. May 6, 2019. <https://www.stand.earth/blog/forest-conservation/charmin-toilet-paper/charmin-toilet-paper-endangering-caribou>

BRITISH COLUMBIA

Within Canada, the province of British Columbia has emerged as a leader in biomass wood production, accounting for approximately half of production.¹³¹ The United Kingdom, followed by Japan, are British Columbia's primary export markets, with 1.5 million and 622,000 metric tons of wood pellets shipped respectively in 2018.¹³² Canadian pellet exports more than doubled between 2012 and 2014 and are expected to double again by 2023.¹³³ It is an open question as to the extent which pellet facilities in British Columbia can continue to increase output before having to harvest additional trees from nearby forests.

Sumitomo as both pellet buyer and producer

Sumitomo Corporation sources wood pellets from British Columbia through suppliers. It has three contracts with Pinnacle Renewable Energy, Inc.¹³⁴ Pinnacle operates eight wood pellet factories in western Canada, with seven in British Columbia.¹³⁵ The company states that in 2022, 48% of its contracted sales will be to customers in Asia. Pinnacle's most recent contract with

131 The non-profit, STAND, made calculations based on the "Canadian Biomass 2018 Pellet Map." www.canadianbiomassmagazine.ca/images/cbm_pelletmap2018.pdf

132 Statistics Canada. Domestic Exports of wood pellets, agglomerated (440131) from British Columbia. <https://www5.statcan.gc.ca/>

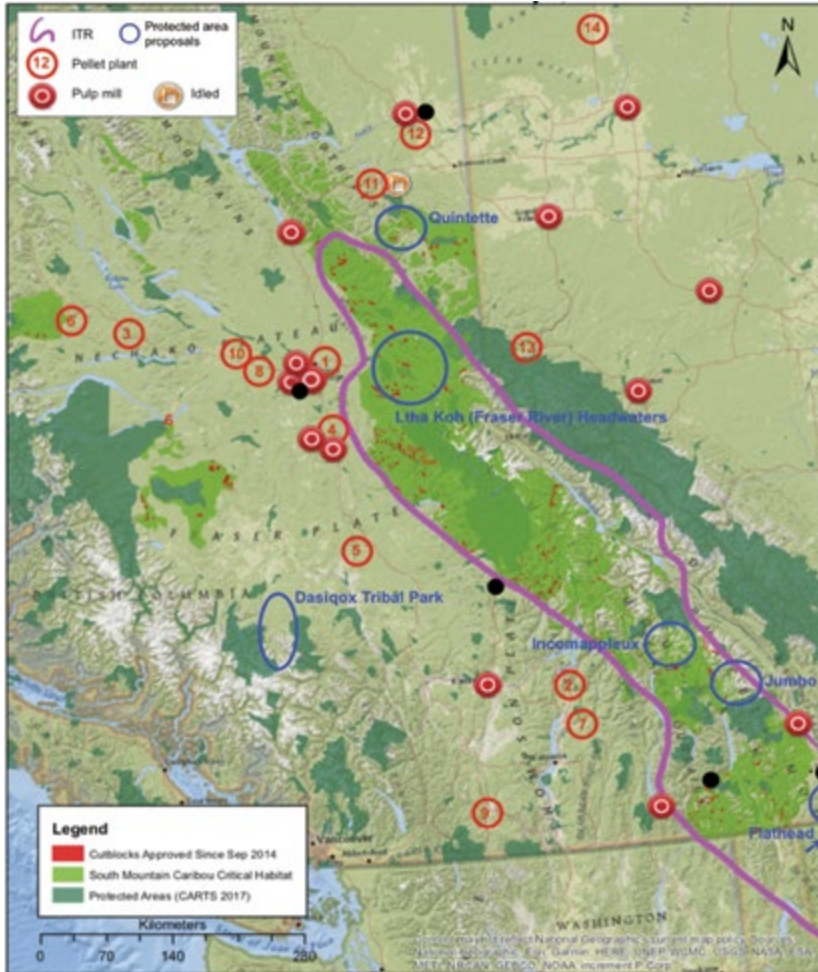
133 Walker, Seth and William Strauss. "2019 global wood pellet markets outlook" *Canadian Biomass Online*. Jan 7, 2019. www.canadianbiomassmagazine.ca/pellets/2019-wood-pellet-markets-outlook-7190

134 Pinnacle Renewable Energy. "Investor Presentation April 2019." p. 5 <https://pinnaclepellet.com/wp-content/uploads/2019/04/Pinnacle-April-2019.pdf>

135 Pinnacle Renewable Energy. "Our Locations." Accessed Sep. 9, 2019. <https://pinnaclepellet.com/about-us/>



British Columbia Inland Temperate Rainforest (ITR) and Pellet and Pulp Mills



Sumitomo was concluded in March 2019 to supply 200,000 metric tons per year beginning in 2022.¹³⁶

In 2017, Sumitomo Corporation entered the wood pellet production business directly with its purchase of a 48% share of Pacific BioEnergy. This Canadian-based biomass producer has long supplied markets in Europe, and increasingly Japan, through Sumitomo. Its plants have the capacity to produce 550,000 tons of pellets per year.¹³⁷

In 2019, industry press reported contracts totaling 170,000 tons per year of pellets from Pacific BioEnergy intended for two undisclosed new biomass power plants in Japan.¹³⁸

The harvest areas for Pinnacle's Strathnaver facility and Pacific BioEnergy's facilities in Prince George and Chetwynd (#4, #1 and #11 on the map) may include caribou habitat as well as proposed Indigenous Protected and Conserved Areas.¹³⁹

136 Pinnacle Renewable Energy. "Pinnacle Renewable Energy Resumes Production at Entwistle Facility and Announces New Off-Take Contract in Japan." News Release. Mar. 31, 2019. <https://pinnaclepellet.com/cision/?nrid=122514>

137 Sumitomo Corporation. "Sumitomo Corporation Acquires Stake in Canadian Wood Pellet Manufacturer." News Release. Jul. 21, 2017. https://www.sumitomocorp.com/en/jp/news/release/2017/group/20170721_1

138 "Pacific BioEnergy announces two new long-term supply contracts to Japan," Jan. 22, 2019. Accessed Jul. 24, 2019. <https://bioenergyinternational.com/pellets-solid-fuels/pacific-bioenergy-announces-two-new-long-term-supply-contracts-to-japan>

139 Map provided by STAND, Aug. 2019.

VIETNAM

Japan is the second largest market after South Korea for Vietnamese wood pellets, consuming 25% of exported wood pellets in 2019.¹⁴⁰ Conversely, Vietnam is also the second largest supplier of woody biomass to Japan, behind only Canada for quantity shipped in 2018.¹⁴¹

Quality control is an ongoing problem, however. While Vietnam imposed a logging ban from natural forests in 2016, it has emerged as a major processor for imported wood, but is also accused of laundering illegally-logged timber from SE Asia and Africa and then exporting it to the United States, European Union and Japan.¹⁴²

South Korea has imported the majority of their wood pellets from Vietnam. When South Korea required chain-of-custody certificates to improve traceability of Vietnamese pellet producers, they were found to present fraudulent credentials.¹⁴³ South Korea even had to specify that the pellets be composed of wood, due to the inclusion of non-wood waste products and other inappropriate materials.¹⁴⁴ In June 2018, Korean program changes increased REC incentives for domestically-sourced pellets to encourage the development of domestic biomass resources, yet another country to belatedly change policies to limit the role of biomass imports.¹⁴⁵

In summer 2019, Japanese environmental NGOs began investigating allegations of Vietnamese pellet suppliers abusing Forest Stewardship Council “Chain of Custody” forestry certifications. They allegedly claim to ship FSC-certified materials

140 Vietnam Customs data, compiled by VIFORES, HAWA, FPA Binh Dinh and Forest Trends.

141 Biomass Industrial Society Network. *Biomass White Paper 2019*. http://www.npobin.net/hakusho/2019/topix_02.html

142 ScoutAsia Research. “Vietnam Under Pressure to Clear Out Illegal Wood.” *Financial Times*. Jun. 25, 2019. <https://app.ft.com/content/ee27cc88-941f-11e9-aea1-2b1d33ac3271>

143 IEA Bioenergy. “Global Wood Pellet Industry and Trade Study 2017.” Jun. 2017. pp. 192, 206. http://task40.ieabioenergy.com/wp-content/uploads/2013/09/IEA-Wood-Pellet-Study_final-2017-06.pdf

144 Portz, Tim. “Southeast Asia’s Low-Cost Pellet Player” *Biomass Magazine*. Nov. 17, 2015. <http://biomassmagazine.com/articles/12542/southeast-asiaundefineds-low-cost-pellet-player>

145 Strauss, William. “Recent Developments in the South Korean Industrial Wood Pellet Markets,” FutureMetrics LLC White Paper. Jul. 29, 2019. pp. 1, 9.

Vietnam has emerged as a major processor for imported wood, but is also accused of laundering illegally-logged timber from SE Asia and Africa and then exporting it to the United States, European Union and Japan.

while lacking the accompanying “Forest Management” certifications which are necessary to demonstrate the material is wood sustainably sourced from forests. If suppliers and Japanese trading companies are fraudulently claiming biomass made from ineligible waste is “general wood,” they would receive a much higher incentive under Japan’s feed-in-tariff. In addition, Vietnamese pellets are alleged to contain highly toxic substances, and a lack of adequate testing by trading companies could expose the public to these potent pollutants.¹⁴⁶

SUMITOMO CORPORATION AND VIETNAM

Sumitomo has long-since contracted with Vietnamese suppliers, though contract details are sparse. Nikkei Asian Review cited that as of 2017, Sumitomo Corporation imported a total of 200,000 tons of wood chips and pellets annual from Canada and Vietnam.¹⁴⁷ In recent correspondence, Sumitomo stated that at present they have one short-term contract with a Vietnamese supplier.¹⁴⁸

146 Correspondence with Japanese environmental organizations, July 2019.

147 “Japan trading houses, power companies raise biomass imports.” *Nikkei Asian Review*. Feb. 24, 2017. <https://asia.nikkei.com/Business/Japan-trading-houses-power-companies-raise-biomass-imports>

148 Corporate Sustainability Dept., Sumitomo Corporation. “Written correspondence with Mighty Earth.” Nov.18, 2019.

Vietnamese pellets are alleged to contain highly toxic substances, and a lack of adequate testing by trading companies could expose the public to these potent pollutants.



Sumitomo Corporation and Japanese Biomass Power Plants

Sumitomo Corporation is an owner and investor in biomass power plants in Japan, including through its 100% owned subsidiary, Summit Energy.

Facility Information					Environmental Risk Factors		
Plant Name	Fuel	Size	In service	Location (City, Prefecture)	Long supply chains	Plant efficiency	Long-distance fuel transport
Sendai Takamatsu Power Station	Wood pellets from N. America (primary fuel), pellets from Oceania, PKS	112MW	2023 (projected)	Sendai, Miyagi	?	X ¹⁴⁹	X
Sakata Biomass Power Plant	40% wood chips (local) and 60% wood pellets (imported, Canada) ¹⁵⁰	50MW	2018	Sakata, Yamagata	!	X	!
Summit Handa Biomass Power Plant ¹⁵¹	Wood chips (primarily imported) & PKS ¹⁵²	75MW	2017	Handa, Aichi	?	X	X
Summit Myojo Power Itoigawa Biomass Plant ¹⁵³	Construction waste, ¹⁵⁴ wood chips, 30% coal ¹⁵⁵	50MW	2005	Itoigawa, Niigata	~	X ¹⁵⁶	~

- Low-risk
- High-risk
- Medium-risk
- Unknown

149 Estimated plant efficiency 40%. Sendai Takamatsu Biomass Plant Q&A with Sumitomo Corporation. Aug. 3, 2019.
 150 <https://www.sumitomocorp.com/ja/jp/news/release/2018/group/10640> and <https://www.sumitomocorp.com/ja/jp/business/case/group/cc-181101>
 151 <https://www.sumitomocorp.com/en/jp/business/case/group/cc-30482> and <https://www.sumitomocorp.com/en/jp/business/case/group/retail-electricity>
 152 <https://www.sumitomocorp.com/-/media/Files/hq/ir/explain/business/20190405-Handa.pdf>
 153 Sonoyama, Kaoru. "Utilization of Biomass Energy." *Japan Trade Association, Monthly Newsletter*. No. 632. Dec. 2005. (Japanese) <http://www.jftc.jp/monthly/archives/001/201802/5ded35d689aad6698050fd513444bc81.pdf>
 154 The biomass plant is co-located with the Myojo cement plant that turns construction wood waste from the region and other wood from central Japan into fuel on site. One potential problem is that formwork wood used for paneling on concrete buildings has been sourced from vulnerable forests in southeast Asia.
 155 http://www.maff.go.jp/hokuriku/environment/bio/pdf/jirei_h19_16.pdf
 156 Plant efficiency is 35%. <http://www.summit-myoyojo-power.co.jp/power.html>

Long supply chains and risk

When Sumitomo Corporation imports fuel from third parties, it does not have direct control over how the fuel is sourced. For example, Sumitomo contracts with US wood pellet supplier Enviva, which in turn purchases wood from individual landowners on private lands. Vietnamese pellet producers may source wood and other materials from various countries. This lack of control, traceability, and accountability increases the risk of deforestation, degradation, and conversion of natural forests to plantations. Voluntary industry certification programs are not adequate to ensure forest protection, as some schemes such as the Sustainable Biomass Program used by Enviva are riddled with loopholes,¹⁵⁷ and even more stringent protocols such as the Forest Stewardship Council (FSC) were never intended for use with biomass fuel, and can be abused by suppliers.¹⁵⁸ Environmental organizations criticized FSC for a lack of carbon standards, and weakness in preserving intact forest landscapes, which led to the withdrawal of Greenpeace International as a member.¹⁵⁹ While Sumitomo Corporation cites transparency as a core principle,¹⁶⁰ there is little information publicly available about the sources of its biomass fuel for any given power plant.

Plant efficiency

Biomass power plants are notoriously inefficient, with smaller units capturing roughly 20-30% of the energy value of the fuel and even larger coal-like power plants (50MW+) capturing less than 40%. The best practice is to capture and use the waste heat from combustion, leading to plants with efficiencies approaching 80%. While efficiency data is not available for several of the biomass plants, their sizes and locations preclude the use of significant quantities of waste heat.

Long-distance fuel transport

The full carbon dioxide emissions associated with biomass power plants includes both the loss of stored forest carbon, but also the fuel used for processing wood into chips or pellets and transportation from the source to the power plant. Locally-sourced biomass has far less carbon emissions than fuel transported thousands of kilometers.

157 Natural Resources Defense Council. *The Sustainable Biomass Program: A Smokescreen for Forest Destruction and Corporate Non-accountability*. 2017. <https://www.nrdc.org/resources/sustainable-biomass-program-smokescreen-forest-destruction-and-corporate-non>

158 See FSC July 2019 findings of violations by major wood supplier to Japan, Korindo: <http://www.mightyearth.org/two-year-investigation-finds-major-palm-oil-producer-korindo-guilty-of-rainforest-destruction-and-human-rights-abuse/>

159 Markets for Change & JATAN. *Walking on the Devastation of Tropical Forests*. May 2018. p. 21.

160 Sumitomo Corporation Group's Corporate Mission Statement <https://www.sumitomocorp.com/en/jp/about/policy/principles>

Sendai Takamatsu Power Station: Too Large to be Sustainable

Sumitomo Corporation has developed some of the largest-scale biomass facilities in Japan. Its latest massive plant, the Sendai Takamatsu Power Station, began as a 112 MW coal plant, sized just below the trigger for mandatory national Environmental Impact Assessment requirements. Opposition from local citizens, and eventually new environmental guidance from the city government in December 2017, resulted in Sumitomo announcing the facility would be built as a 100% biomass plant of the same capacity. Sumitomo stated it would become one of the largest dedicated biomass plants in the country.¹⁶¹

Sendai area residents and professors at nearby Tohoku University sued a separate proposed coal plant for the city. They vigorously opposed Sendai Takamatsu as a combined coal and biomass plant, holding a series of workshops and local events about sustainability, and continued to oppose it in its reincarnation as a biomass-only plant.¹⁶²

As a converted coal plant, Sendai Takamatsu's size is large for a biomass plant. This means higher greenhouse gas emissions, as the utilization of heat from combustion is infeasible with such great quantities of heat produced. Furthermore, Sumitomo stated that the primary fuel would be imported pellets, as the project size made it unrealistic to procure stable supplies of fuel locally. The pellets would primarily be sourced from North America, with associated use of fossil fuel for production and transportation over great distances. No information was provided as to the supplier of the pellets, or the specific region from which the wood would be procured from.¹⁶³

The reliance on pellets shipped across the world, and low efficiencies from losing more than half the energy value of the pellets as heat, and unknown impacts on North American forests, are the results of inappropriate scale for this coal-turned-biomass plant.

Sumitomo intends to start full operations at the Takamatsu plant in 2023.

161 Sumitomo Corporation. "Sendai Takamatsu Power Plant Construction Plan Briefing Document." Environmental Assessment Preparatory Document. Jul. 2019. (Japanese) pp. 1, 2. <https://www.city.sendai.jp/kankyochose/kurashi/machi/kankyohozen/kurashi/kankyo/ekyo/jore/takamatu/junbisyo.html>

162 Association to Consider the Problems with Coal Plant Construction at Sendai Port. "Citizen's Voices Stopped Sumitomo Corporation Coal Plant" News Release. Jun. 4, 2018. (Japanese) <https://sendaisekitan.wordpress.com/2018/06/05/180604seimei-sumitomo/>

163 In person Q&A with Sumitomo Corporation at "Information Session re: Environmental Impact Assessment Preparatory Document for Sendai Takamatsu Power Plant." Sendai, Japan. Aug. 3, 2019



SUMITOMO CORPORATION AND YOU

Sumitomo’s pursuit of biomass and coal energy makes them a leading climate offender—and one of the least responsive of all the major Japanese trading companies.

And while Sumitomo Corporation may not be a household name in North America, many Americans and Canadians consume their products. Car owners across the US and Canada are likely to be doing business with Sumitomo without knowing it.

TBC CORPORATION

In 2005, Sumitomo Corporation of America (SCOA, a wholly-owned subsidiary of the Tokyo-based Sumitomo Corporation) purchased TBC Corporation,¹⁷⁰ a vertically-integrated tire marketing company headquartered in Palm Beach Gardens, Florida.¹⁷¹

170 “Sumitomo Corporation of America Announces Agreement to Acquire TBC Corporation” *PR Newswire*. Sep. 19, 2005. p 1.

171 “TBC Corporation: Company Profile and SWOT Analysis.” *Timetric*. Apr. 26, 2018.

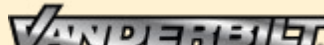
TBC owns several well-known automotive brands, including **National Tire and Battery (NTB)**, **Big O Tires**, **Tire Kingdom**, and **Midas**, with over 3,200 franchised and company-operated locations in all,^{172 173} as well as online retailer **TireAmerica.com**.¹⁷⁴



BIG O TIRES



Additionally, TBC Brands is largest marketer of private brand tires in North America. TBC distributes their tires to independent retailers and wholesalers in the US, Canada, and Mexico under the brands **Advance**, **Eldorado**, **Sailun**, **Towstar**, **CrossWind**, **Harvest King**, **Sierra**, **Trailer King**, **Delta**, **Multi-Mile**, **Sumitomo**, **Vanderbilt**, **Deluxe Tubes**, **Power King**, and **Towmax**.¹⁷⁵



172 <https://www.sumitomocorpofamericas.com/Key-industrial-Areas/Infrastructure/Transportation-Construction-Systems-Group/Tire-Business>

173 <https://www.sumitomocorp.com/en/jp/news/release/2012/group/20120501>

174 <http://www.tbccorp.com/retail-brands#tire-america>

175 <http://www.tbcbrands.com/> Accessed Jun. 15, 2019.

NATIONAL TIRE WHOLESale

Another TBC company, **National Tire Wholesale (NTW)**, is joint venture between **SCOA** and **Michelin** that merged the two companies' tire wholesale units to create the second-largest wholesale tire supplier in the United States, according to the companies' press release.¹⁷⁶

In 2016, Michelin announced its own commitment to zero-deforestation rubber sources and to working with plantations that protect and preserve forests with high conservation value and high carbon stock.¹⁷⁷

To live up to this commitment, it is incumbent upon Michelin to pressure its partner Sumitomo to engage in business practices that keep carbon safely stored in the forest and the ground—not in burning forests and coal for fuel.



¹⁷⁶ <https://www.moderntiredealer.com/news/727937/a-jumbo-joint-venture-michelin-and-sumitomo-s-tbc>

¹⁷⁷ <https://michelinmedia.com/zero-deforestation/>

To live up to its environmental commitments,
Michelin should pressure its partner Sumitomo not
to burn forests and coal for fuel.



SUMITOMO CORPORATION: NEEDED POLICY CHANGES

Mighty Earth calls upon Sumitomo Corporation to implement substantial new policies regarding its coal and biomass programs and close the loopholes in its August 2019 coal policy immediately.

Adopt a responsible energy policy that includes the following key provisions:

COAL

1 COMMIT TO A COAL EXIT

Make a public commitment to end involvement in all coal generation and mining of thermal coal globally by 2030. The commitment should include the cancellation of coal projects currently in planning or under construction (including Matabari, Van Phong and Tanjung Jati B.); no investment in or construction of new coal plants or coal mines; and a phase-out of existing plants and coal mines. Publicly release an implementation plan by the 152nd Ordinary General Meeting in June 2020.

2 END COAL FINANCING

Work within the Sumitomo family of companies, including Sumitomo Mitsui Banking Corporation, to end project financing for coal and corporate financing for coal developers; and to shift all Sumitomo Group companies' energy project financing to be in line with the Paris Agreement goals.

3 SUPPORT AN END TO PRO-COAL POLICIES

Advocate for an end to Japanese public policies which support coal domestically and abroad. Ensure no new coal is built in Japan and phase out all coal by 2030. Support policies to expand renewable electricity generation across Japan.

4 HUMAN RIGHTS

Avoid violations of local communities' human rights and conduct appropriate dialogue with residents. Promptly address concerns raised by stakeholders, including residents and non-profit organizations.

Sumitomo should make a public commitment to end involvement in all coal generation and mining of thermal coal globally by 2030.



BIOMASS

1 NO DEFORESTATION, NO PEAT, NO EXPLOITATION

Immediately adopt and implement a responsible forest products policy which applies to all of Sumitomo Corporation's global operations, subsidiaries, joint venture and supply chain partners. Work within the Sumitomo Group to ensure each company adopts the same standards. The policy should prohibit the degradation of natural forests or their conversion to plantations; prohibit forestry operations in primary forest, peatland forests, or high carbon stock landscapes; and ensure no loss of forest cover. Ensure no labor abuses or human rights violations in the development of or investment in any biomass feedstock, whether for Sumitomo Corporation's own biomass facilities, or for sale to other power plants. Stop the importation of forest biomass from North America and Vietnam which are linked to forest degradation and deforestation. Only use biomass which regenerates quickly and has climate benefits over the critical next 10 year period.

2 NO PALM OIL

No involvement or investment in current or future biomass plants that use palm oil as a feedstock. No involvement or investment in the development of palm oil as a fuel source for power plants. Food and personal care products already drive significant deforestation for palm oil. Using palm oil for bioenergy creates an additional, unsustainable burden through deforestation and indirect land use change.

3 TRANSPARENCY AND TRACEABILITY

Publicly disclose and regularly update the sources and types of biomass fuel used in all Sumitomo Corporation power plants which burn biomass.

4 GRIEVANCE PROCEDURE

Adopt a grievance procedure and public grievance mechanism.

5 VERIFICATION

Commit to independent verification of compliance with the forest protection policy.

6 SUPPORT BIOMASS POLICY REFORMS

Advocate publicly for reform of Japan’s renewable energy policies in line with the “Joint Recommendations on Biomass Generation” (July 2019) to refocus the industry on local use of local organic wastes.¹⁷⁸ The recommendations call for policies to ensure that biomass power generation in Japan results in real greenhouse gas reductions (at least 50% over its lifecycle compared to natural gas); does not contribute to deforestation; degradation or loss of biodiversity; does not use palm or other plant oils; does not violate human rights; does not compete with food supplies; avoids emissions of hazardous or radioactive materials with adequate monitoring; ensures transparency and traceability; and ensures projects are subject to environmental impact assessments and community consent.

7 CLEAN ENERGY POLICY REFORMS

Join other leading corporations in calling for reforms to Japan’s energy system to enable Japan to achieve 50% renewable electricity by 2030.¹⁷⁹

178 Friends of the Earth Japan. “Joint Recommendations Regarding Biomass Power Generation.” Jul. 16, 2019. <http://www.foejapan.org/en/forest/190716.html>

179 Japan Climate Leaders’ Partnership. “Proposal from Corporate Consumers Aiming to Sourcing 100% Power from Renewable Electricity.” Jun. 17, 2019. Accessed Oct. 8, 2019. <https://japan-clp.jp/archives/3453>





ABOUT **MIGHTY EARTH**

Mighty Earth is a global campaign organization that works to protect lands, oceans, and the climate. We aspire to be the most effective environmental organization in the world. We have played a leading role in persuading the world's largest food and agriculture companies to adopt policies to eliminate deforestation and human rights abuse from their supply chains, and driven adoption of multi-billion dollar shifts to clean energy. Whether we're rallying for change internationally or locally, Mighty Earth is building a movement to protect our environment.

Mighty Earth is a fiscally sponsored project of the Center for International Policy, a 501(c)3 non-profit organization. Our Chairman, former United States Congressman Henry Waxman, is responsible for some of the most important environmental legislation of the last 50 years, notably the 1990 re-authorization of the Clean Air Act and the Safe Drinking Water Act.

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Old growth bottomland hardwood forest, S. Carolina. Dogwood Alliance