



## AESC Review Note 3

---

### Green Electricity Retailers in Japan

Glenn Hin-fan Lee <sup>1,2</sup>

Publication Date: 04-2020

<sup>1</sup> Department of Geography, Hong Kong Baptist University

<sup>2</sup> Asian Energy Studies Centre, Hong Kong Baptist University

---

*This review contains unpublished materials.  
No part of the publication can be cited or quoted without  
the permission of Asian Energy Studies Centre (AESC).  
Contact of AESC: [asec@hkbu.edu.hk](mailto:asec@hkbu.edu.hk)*

#### **Introduction:**

In Japan, the electricity market reforms enable the establishment of green electricity retailers. The literature discussed the operating principles, visions and targets adopted by the innovative retailers. Those small-size retailers purchase electricity from solar farms, deliver cheaper tariff for clients and assist in community engagement. They participate in the Area Carbon Management project which aims to reduce carbon emissions at the regional level.

## 1. Izumisano Electric Power 泉佐野電力

Izumisano Electric Power, a small and medium size electricity retailer located in Izumisano city (泉佐野) in Osaka Prefecture with a population of 100,715 people (Izumisano City, 2019). Izumisano Electric Power was set up in 2015 by the Izumisano City who shares about two thirds of its ownership (power-shift.org, 2017). Izumisano Electric Power aim to use renewable energy such as solar power to reduce electricity charges for Izumisano's citizens and reduce emission (Izumisano Electric Power, 2016).

Solar power is one of their major renewable energy source. Their solar electricity come from 3 solar farms (天空の丘発電所、天空の丘Ⅱ発電所、エコプラスティ三ヶ山太陽光発電所) and solar panels set up at the city hall and Izumisano Electric Power purchased electricity generated from these solar farms. The rest will be purchased from JPEX or others to fulfil the electricity demand in Izumisano City (Green Purchasing Network, 2016). In 2017, 3,332 MWh of electricity purchased (17.26%) comes from solar farms, 1,874 MWh of electricity generation (9.71%) comes from backup electricity, and 14,103 MWh (73.04) of electricity are purchased from JPEX and others, with a total of 19,311 MWh of electricity was generated and purchased (Izumisano Electric Power, 2018).

Izumisano Electric Power has started providing electricity to public facilities in neighbouring areas since 2015, and expand its service to local private business since 2016. They are actively planning to expand their service to local households in the near future (Izumisano Electric Power, 2016). In 2019, the Izumisano Electric Power sold 15,076 MWh of electricity (Energy Information Centre, 2020b). The electricity rate for Izumisano Electric Power is 5% cheaper than KEPCO (Green Purchasing Network, 2016). Other than electricity supply, Izumisano Electric Power also donate their income to the city government for setting up crime prevention LED lights in the city to enhance the safeness and security of the community as well as reducing CO2 emissions by using LED lights instead (Izumisano Electric Power, 2017).

## 2. Kameoka Furusato Energy 亀岡ふるさとエナジー

Kameoka Furusato Energy, a small and medium size electricity retailer located in Kameoka city (亀岡) in Kyoto Prefecture with a population of 88,182 people (Kameoka City, 2020). It was set up in 2018 by multiple companies, which 50% of investment came from Kameoka city, 28.7% from Pacific Power (Tokyo), 5% from Kameoka Chamber of Commerce and Industry (亀岡商工会議所), and the rest of the investment came from local financial institutions (Kameoka Furusato Energy, 2020a). Kameoka Furusato Energy is part of the Area Carbon Management project which aims to reduce carbon emissions in a regional level across Japan (ACM, 2020; Kameoka Furusato Energy, 2018). It is also the first electricity retailer set up by the city government in Kyoto Prefecture (Kameoka City, 2018).

Solar power is one of the electricity supply sources for Kameoka Furusato Energy. In 2019, they cooperated with two solar development firms (Kyocera TCL Solar LLC (京セラ TCL ソーラー合同会社) and Keihan Mega Solar Co. Ltd. (京阪メガソーラー株式会社)) and set up “Kyoto, Kameoka Mega Solar Power Plant” (京都・亀岡メガソーラー発電所) in Kameoka with a 3 MW installed capacity and Kameoka Furusato Energy purchase electricity generated from these solar farms (Kudo, 2019; SankeiBiz, 2019). Electricity are also purchased from JPEX to fulfil their customers’ electricity demand. About 20% of them are from solar generated in the local area, while the other 80% are purchased from JPEX and others (Kameoka Furusato Energy, 2020a).

The Kameoka Furusato Energy has started providing electricity mainly for public facilities in Kameoka city since 2019, and expand its service to local businesses and households since 2020 (Kameoka Furusato Energy, 2020b). The Kameoka Furusato Energy also accepts applications for electricity supply outside Kameoka City (Kameoka Furusato Energy, 2020c). In 2019, Kameoka Furusato Energy has sold 3732 MWh of electricity (Energy Information Centre, 2020c). For a 3-person household, the electricity charges per month will be 1% less than the KEPCO’s electricity plan after switching to Kameoka Furusato Energy (Kameoka Furusato Energy, 2020c). Other than electricity supply, Kameoka Furstao Energy also helped the Kameoka Health Centre to install battery storage system to reduce their electricity charge during night time and to maintain their electricity supply during power outage. The storage battery system installed will also serve as part of the Virtual Power Plant demonstration project which is organised by Ministry of Economy, Trade and Industry (Kameoka Furusato Energy, 2019).

### 3. Konan Ultra Power Co. Ltd こなんウルトラパワー

Konan Ultra Power Co. Ltd (Konan Ultra Power), a small and medium size electricity retailer located in Konan City (湖南) in Shiga Prefecture with a population of 55,105 people (Konan City, 2020). Konan Ultra Power was set up in 2016 by multiple companies, which 50.86% of investment came from Konan City, 27.59% from Pacific Power, and the rest of the investment came from local businesses within the prefecture. The Konan Ultra Power aims to realise the basic policy in the Konan City Regional Natural Energy and Regional Revitalisation Strategic Plan (湖南市地域自然エネルギー地域活性化戦略プラン) through generating solar electricity locally (Konan Ultra Power, 2016a). The Strategic Plan was published by Konan City in 2015 and it contains 3 basic policies, which are: 1) Promoting regional circulation of profits and communications between citizens and businesses through utilizing natural energy resources; 2) Promotes the introduction of independent distributed energy resources and 3) Prevention of global warming (Civic Environment Department, 2015). Similar to the Kameoka Furusato Energy, Konan Ultra Power is also part of the Area Carbon Management project which aim to reduce carbon emission in a regional level (ACM, 2020; Konan Ultra Power, 2016b).

Solar power is one of the major electricity source for Konan Ultra Power. The citizens in Konan city has set up a community project to install solar panels on the rooftop of a social enterprise and they distribute the revenue generated from selling electricity prior to the establishment of the Konan Ultra Power (Morotomi, 2020). After the Konan Ultra Power has been set up, it starts to purchase solar electricity from them and other privately owned solar farms from within the city. It also purchases electricity from JPEX and KEPCO to fulfill their customers' electricity demand. About 29% of their electricity are from solar generated in the local area, while the other 71% are purchased from JPEX and others (Konan Ultra Power, 2016a).

The Konan Ultra Power has started providing electricity for public facilities in Konan city since 2016, and expand its service to local businesses and households since 2020 ((Konan Ultra Power, 2020a). The Kona Ultra Power also accepts applications for electricity supply outside Konan City (Konan Ultra Power, 2020b). In 2019, Konan Ultra Power has sold 4,387 MWh of electricity (Energy Information Centre, 2020d). The rate plan for Konan Ultra Power is as same as Kameoka Furusato Energy, the electricity charges per month will be 1% less than the KEPCO's electricity rate for a 3-person household (Konan Ultra Power, 2020b). Other than electricity supply, the Konan Ultra Power also released green bond in 2019 to support the development of RE and energy efficiency in Konan City. With the revenue received from the green bond, Konan Ultra Power has set up two rooftop solar power plants with a total installed capacity of 539 kW and help switching four local schools' lighting facilities to LED to reduce electricity consumption and carbon emission (Konan Ultra Power, 2019a, 2019b).

#### 4. Miyama Smart Energy みやまスマートエネルギー

The Miyama Smart Energy is another small size electricity retailer established after the *retail* market liberalisation. It located in Miyama City (みやま) in Fukuoka Prefecture with a population of 36,930 people (Miyama City Office, 2020; Miyama Smart Energy, 2020e). The Miyama Smart Energy is operating in a regional area, mainly the Miyama city, but also providing electricity to neighbouring regions, such as public facilities in Oki town (Miyama City, 2017).

The Miyama Smart Energy was established by the Miyamashi city (55%) with Chikuho Bank (筑邦銀行) (5%) and Kyushu Smart Community (九州スマートコミュニティ) (40%) in 2015 (Miyama City, 2017). The Miyama Smart Energy provides an alternative choices to local solar generators, including solar farm owners and citizens who have installed solar panels to sell solar electricity. Solar generators can sell electricity to Miyama Smart Energy instead of selling solar electricity to Kyuden and receive FiT with a price of JPY 1 higher than the national FiT rates (for residential solar panel owners) (Miyama Smart Energy, 2020b). In 2017, about 23% of its electricity mix are from regional solar, while the others are purchased from Kyuden and others (Miyama Smart Energy, 2020a). The Miyama Smart Energy resells these electricity to local businesses, Miyama citizens and public facilities such as school and city halls in both Miyama and its neighbouring region, promoting a model of local generation and consumption of electricity in Miyama (Miyama City, 2017).

As of 2018, Miyama Smart Energy has signed electricity purchase agreement with solar generators with a total installed capacity of 58 MW. About 80% of the electricity sales are for corporations, with about 520 out of 1000 companies have signed agreement with Miyama Smart Energy for electricity supply as of 2018 (Kato, 2019). For residential sales, Miyama Smart Energy provided electricity to about 2,700 houses in Miyama as of 2017 (Miyama City, 2017). In 2019, the electricity rate for Miyama Smart Energy would be about 3% cheaper than the rate plan offered by Kyushu Electric (Miyama Smart Energy, 2020c). In 2019, Miyama Smart Energy has sold 73,007 MWh of electricity (Energy Information Centre, 2020e) Other than electricity business, Miyama Smart Energy also provide HEMS services to monitor the electricity use at home along with its electricity service (Kato, 2019). In addition, Miyama Smart Energy also contributed back to the community by developing an online platform which can sell local produced food and groceries for elder people who come across difficulties to go shopping alone. The platform can also notice the citizens on the events in the community and weather warnings (Miyama Smart Energy, 2020d).

## 5. Ikoma Civic Power いこま市民パワー

Ikoma Civic Power, a small and medium size electricity retailer located in Ikoma City (生駒市) in Nara Prefecture with a population of 119,281 people (Ikoma City, 2020). Ikoma Civic Power was set up in 2017 by multiple companies, which 51% of investment come from Ikoma City, 34% from Osaka Gas, 4% from Shimin Energy Ikoma (市民エネルギー生駒) (a local enterprise organised by citizens in Ikoma), the rest of the investment were from local bank and businesses (Ikoma Civic Power, 2017). Through engaging in the electricity supply business, the Ikoma Civic Power aims to use the profit received to improve the attractiveness of the cities and provide civic services to the citizens in Ikoma City (Regional Revitalization Department, 2019). The Ikoma Civic Power is also the first electricity retail company funded by a local government in Nara Prefecture, and also the first case in Japan where there is citizens' group participated (Ikoma City, 2019).

Solar power is one of the major electricity source for Ikoma Civic Power. Prior to its establishment, one of the investor, Shimin Energy Ikoma has organised crowdfunded solar projects to gather investment from local residents and install solar panels power plants on the rooftop of the public facilities in Ikoma City (Ikoma Shimin Energy, 2019). They have built 4 solar panel power plants in the city as of 2017 with a 252 kW installed capacity (Kusunoki, 2020). These power plants provides part of the solar sources for the Ikoma Civic Power, and it also purchased renewable source from city owned renewable facilities, which includes 6 solar power facilities and one hydro power facilities, with a 616 kW installed capacity of renewable energy sources (Ikoma Civic Power, 2020a), the rest of the electricity needed will be supplied by Osaka Gas, a gas company which has expanded its business to electricity services since the electricity market liberation in 2016 in Kansai District (Ikoma Civic Power, 2017; Osaka Gas, 2020).

Ikoma Civic Power started to provide electricity to 53 public facilities in the city in 2017 (Ikoma City, 2019), and expanded its service to private business such as local banks and health centres in the city in 2018 (Environmental Model City Promotion Division, 2018). In 2019, it has sold 28,986 MWh of electricity (Energy Information Centre, 2020a). Other than electricity businesses, Ikoma Civic Power uses the profit from electricity sales to contribute back to the city. For instance, they developed a chip for primary school students in the city whose parent will be notified when they pass through the school's gate to ensure that students have arrived school safely (Ikoma City Office, 2019). In addition, the Ikoma Civic Power also organises workshops for citizens to introduce self-care techniques and raise their awareness on natural disasters (Ikoma Civic Power, 2020b).

Under a national context, Ikoma Civic Power raised the question of the competitiveness between new electricity companies (e.g. Ikoma Civiv Power) and traditional utilities (e.g. KEPCO). In 2018, Ikoma Civic Power has signed an electricity provision contract with the Ikoma City for its public facilities. Meanwhile, KEPCO restarted one nuclear power plants in 2018, which has lowered the cost of electricity generation, and offered a lower rates to Ikoma's neighbouring cities, resulting Ikoma City was spending more on electricity than others. It makes the Ikoma Civic Power involved in a lawsuit as they

refused to lower the electricity rate to match KEPCO's rate. The CEO of Miyama Smart Energy added that their company was also facing a high level of competition as Kyuden has lower the electricity rates specifically for public facilities (Kitamura, 2019; Nikkei News, 2019).

## **6. Higashi-Omi City 東近江**

Higashi-Omi City is located in Shiga Prefecture with a population with a population of 114,005 people (Higashi-Omi City, 2020). The local electricity supply business is still under development. However one of its district, Yokaichi City (八日) has started to engage with solar development since 2009 (Higashi-Omi City, 2009).

The Yokaichi Chamber of Commerce and Industry has organised a “Higashi-Omi Solar Project” (東近江市 Sun 讚プロジェクト). It is a crowdfunding project to gather investments from local citizens to install rooftop solar panels in Yokaichi City, and the profit from this project will be contributed back to the local economies. The project firstly invited citizens to invest on installing rooftop solar panels, and the electricity generated from these panels will be sold to electric companies to receive FiT. The citizens will be repaid by local stores' coupon for them to consume within the local economy. The shop owner can then claim money back from the project. This project has carried out 3 solar power plant with a total 50.79 kW (Yokaichi Chamber of Commerce & Industry, 2015, 2019).

Other than the “Higashi-Omi Solar Project”, Higashi-Omi City also built the Aito Eco Place Nanohanakan (あいとうエコプラザ菜の花館) in Yokaichi City, a facility to recycle cooking oil to diesel fuel and allow the general public to visit and learn the biomass' production process. The Aito Eco Place Nanohahnakan has also installed solar panels to generate electricity (Agency for Natural Resources and Energy, 2020).

## References:

- ACM. (2020). What is ACM (ACM とは) (Text in Japanese). Retrieved from <https://acm.de-power.co.jp/> (Last accessed on 2020, Apr 30)
- Agency for Natural Resources and Energy. (2020). *Next Generation Energy Park guidebook: Have fun learning about renewable energy! (次世代エネルギーパークガイドブック 再生可能エネルギーを楽しく学ぼう!)* (Text in Japanese). Retrieved from [https://www.enecho.meti.go.jp/category/saving\\_and\\_new/saiene/park/enepa2020.pdf](https://www.enecho.meti.go.jp/category/saving_and_new/saiene/park/enepa2020.pdf).
- Civic Environment Department, Konan City. (2015). *Konan City regional natural energy and regional revitalisation strategic plan (湖南市地域自然エネルギー地域活性化戦略プラン)* (Text in Japanese). Konan City Retrieved from <https://www.city.shiga-konan.lg.jp/material/files/group/4/plan.pdf>.
- Energy Information Centre. (2020a). Ikoma Civic Power (いこま市民パワー) (Text in Japanese). Retrieved from <https://pps-net.org/ppscompany/44014>
- Energy Information Centre. (2020b). Izumisano Electric Power (一般財団法人泉佐野電力) (Text in Japanese). Retrieved from <https://pps-net.org/ppscompany/9400>
- Energy Information Centre. (2020c). Kameoka Furusato Energy (亀岡ふるさとエナジー) (Text in Japanese). Retrieved from <https://pps-net.org/ppscompany/60945> (Last accessed on 2020, Apr 30)
- Energy Information Centre. (2020d). Konan Ultra Power (こなんウルトラパワー) (Text in Japanese). Retrieved from <https://pps-net.org/ppscompany/22960> (Last accessed on 2020, Apr 30)
- Energy Information Centre. (2020e). Miyama Smart Energy (みやまスマートエネルギー) (Text in Japanese). Retrieved from <https://pps-net.org/ppscompany/12101>
- Environmental Model City Promotion Division, Ikoma City. (2018). First new electric power company in Nara Prefecture, "Ikoma Civic Power" starts supplying electricity to private businesses (奈良県初の自治体新電力「いこま市民パワー」が民間事業者への電力供給を開始) (Text in Japanese). Ikoma City.
- Green Purchasing Network. (2016). Izumisano Electric Power Detailed Information (一般財団法人泉佐野電力 詳細情報) (Text in Japanese). Retrieved from [https://www.gpn.jp/database/info\\_izumisano.html](https://www.gpn.jp/database/info_izumisano.html) (Last accessed on 2020, Apr 30)
- Higashi-Omi City. (2009). Next Generation Energy Park Proposal (次世代エネルギーパーク計画書) (Text in Japanese). Retrieved from [https://www.enecho.meti.go.jp/category/saving\\_and\\_new/saiene/park/pdf/33\\_higashiomi.pdf](https://www.enecho.meti.go.jp/category/saving_and_new/saiene/park/pdf/33_higashiomi.pdf) (Last accessed on 2020, Apr 30)
- Higashi-Omi City. (2020). City Population (市の人口) (Text in Japanese). Retrieved from <http://www.city.higashiomi.shiga.jp/0000010705.html> (Last accessed on 2020, Apr 30)
- Ikoma City. (2019). Ikoma Civic Power (いこま市民パワー株式会社のページ) (Text in Japanese). Retrieved from <https://www.city.ikoma.lg.jp/0000012335.html> (Last accessed on 2020, Apr 30)



- Ikoma City. (2020). Populations (人口) (Text in Japanese). Retrieved from <https://www.city.ikoma.lg.jp/0000002095.html>
- Ikoma City Office. (2019). *New electric power company excites the region: Ikoma Civic Power (地域を盛り上げる新電力会社 いこま市民パワー)* (Text in Japanese). Ikoma City Retrieved from [https://www.city.ikoma.lg.jp/cmsfiles/contents/0000020/20183/190315\\_all.pdf](https://www.city.ikoma.lg.jp/cmsfiles/contents/0000020/20183/190315_all.pdf)
- Ikoma Civic Power. (2017). *Ikoma City Regoiaol Energy Company Business Plan (生駒市地域エネルギー会社事業計画)* (Text in Japanese). Ikoma City Retrieved from <https://www.ikomacivicpower.co.jp/wp/wp-content/uploads/2019/10/418471ce479ef5231f5154f483268b06.pdf>.
- Ikoma Civic Power. (2020a). Company Information (企業情報) (Text in Japanese). Retrieved from <https://www.ikomacivicpower.co.jp/company/> (Last accessed on 2020, Apr 30)
- Ikoma Civic Power. (2020b). Ikoma Civic Power (いこま市民パワー) (Text in Japanese). Retrieved from <https://www.ikomacivicpower.co.jp/> (Last accessed on 2020, Apr 30)
- Ikoma Shimin Energy. (2019). News (Decending Order) (お知らせ等 (降順)) (Text in Japanese). Retrieved from <http://shimin-energy.seesaa.net/> (Last accessed on 2020, Apr 30)
- Izumisano City. (2019). All about Izumisano. Retrieved from <https://welcometoizumisano.com/en/feature> (Last accessed on 2020, Apr 30)
- Izumisano Electric Power. (2016). Greetings from the CEO (理事長からのご挨拶) (Text in Japanese). Retrieved from <https://izumisano-pps.or.jp/message/>
- Izumisano Electric Power. (2017). Donation prospectus for crime prevention LED lights owned by the city council(町会所有の防犯灯 LED 化に対する寄付趣意書) (Text in Japanese).
- Izumisano Electric Power. (2018). Electricity mix in FY 2017 (2017年度電源構成比率) (Text in Japanese). Retrieved from [https://izumisano-pps.or.jp/wp-content/uploads/2018/06/ps-conf\\_2017nennkan.pdf](https://izumisano-pps.or.jp/wp-content/uploads/2018/06/ps-conf_2017nennkan.pdf) (Last accessed on 2020, Apr 30)
- Kameoka City. (2018). First in Kyoto Prefecture! Establishment of regional new electric company "Kameoka Furusato Energy" (京都府内初！地域新電力会社「亀岡ふるさとエナジー株式会社」の設立) (Text in Japanese). Retrieved from <https://www.city.kameoka.kyoto.jp/kankyousoumu/furusatoenergy.html> (Last accessed on 2020, Apr 30)
- Kameoka City. (2020). Kameoka City population as of 1 April 2020 (亀岡市の人口令和2年4月1日現在) (Text in Japanese). Retrieved from <http://www.city.kameoka.kyoto.jp/uketsuke/shise/toke/jinko/r020401.html> (Last accessed on 2020, Apr 30)
- Kameoka Furusato Energy. (2018). To companies(企業様へ) (Text in Japanese). Retrieved from <https://kameoka.de-power.co.jp/business/> (Last accessed on 2020, Apr 30)
- Kameoka Furusato Energy. (2019). Installed a storage battery in the Kameoka Health Centre that can be used in both normal and emergency situations (亀岡市保健センターに平常時・非常時どちらも使える蓄電池を設置) (Text in

- Japanese). Retrieved from [https://kameoka.de-power.co.jp/topics/190227\\_battery.pdf](https://kameoka.de-power.co.jp/topics/190227_battery.pdf) (Last accessed on 2020, Apr 30)
- Kameoka Furusato Energy. (2020a). Company Information (会社概要) (Text in Japanese). Retrieved from <https://kameoka.de-power.co.jp/company/> (Last accessed on 2020, Apr 30)
- Kameoka Furusato Energy. (2020b). Kameoka Furusato Energy (亀岡ふるさとエナジー) (Text in Japanese). Retrieved from <https://kameoka.de-power.co.jp/> (Last accessed on 2020, Apr 30)
- Kameoka Furusato Energy. (2020c). Price Menu (料金メニュー) (Text in Japanese). Retrieved from <https://kameoka.de-power.co.jp/low-voltage/>
- Kato, S. (2019, March 8). Miyama, Fukuoka, challenging the new energy “Ideal and Reality” (福岡県みやま市、挑戦的な地域新電力に見る「理想と現実」) (Text in Japanese). *Nikkei News*. Retrieved from <https://project.nikkeibp.co.jp/atclppp/PPP/434167/022800096/?ST=ppp-print> (Last accessed on 2020, Apr 30)
- Kitamura, K. (2019). Should the electricity bill really be cheap? (電気料金は本当に安ければいいのか?) (Text in Japanese). Retrieved from <https://www.energy-democracy.jp/2760#more-2760> (Last accessed on 2020, Apr 30)
- Konan City. (2020). Konan City demographic chart by age (total population) (湖南市年齢別人口統計表 (総人口)) (Text in Japanese). Retrieved from <https://www.city.shiga-konan.lg.jp/material/files/group/4/200401nenrei.pdf> (Last accessed on 2020, Apr 30)
- Konan Ultra Power. (2016a). Company profile (会社概要) (Text in Japanese). Retrieved from <https://konan-ultra.de-power.co.jp/company/> (Last accessed on 2020, Apr 30)
- Konan Ultra Power. (2016b). To Companies (企業様へ) (Text in Japanese). Retrieved from <https://konan-ultra.de-power.co.jp/business/> (Last accessed on 2020, Apr 30)
- Konan Ultra Power. (2019a). Issuing Green Bond to implement renewable energy introduction and energy conservation projects (再生可能エネルギー導入事業や省エネルギー事業を実施するにあたり、グリーンボンドを発行しました) (Text in Japanese).
- Konan Ultra Power. (2019b). Two solar power stations has started operation (太陽光発電所2か所で運転を開始しました) (Text in Japanese). Konan City.
- Konan Ultra Power. (2020a). Konan Ultra Power (こなんウルトラパワー) (Text in Japanese). Retrieved from <https://konan-ultra.de-power.co.jp/>
- Konan Ultra Power. (2020b). Price Menu (料金メニュー) (Text in Japanese). Retrieved from <https://konan-ultra.de-power.co.jp/low-voltage/> (Last accessed on 2020, Apr 30)
- Kudo, S. (2019, January 22). Kameoka Furusato Energy procures electricity from mega solar in the city (亀岡ふるさとエナジー、市内のメガソーラーから電力を調達) (Text in Japanese). *Nikkei News*. Retrieved from <https://xtech.nikkei.com/dm/atcl/news/16/012211897/> (Last accessed on 2020, Apr 30)
- Kusunoki, T. (2020). *Think from energy: Town development by citizens (エネルギーから考える 市民によるまちづくり)* (Text in Japanese). Ikoma City

- Retrieved from <https://cger.nies.go.jp/documents/events/cger-seminar-ikoma-2020/05-kusunoki.pdf>.
- Miyama City. (2017). *Japan's first local energy consumption city (日本初・エネルギーの地産地消都市)* (Text in Japanese). Miyama.
- Miyama City Office. (2020). Population Trends and Demographics (人口の推移および人口動態) (Text in Japanese). Retrieved from [https://www.city.miyama.lg.jp/info/prev.asp?fol\\_id=1768](https://www.city.miyama.lg.jp/info/prev.asp?fol_id=1768) (Last accessed on 2020, Apr 30)
- Miyama Smart Energy. (2020a). Company Profile (会社概要) (Text in Japanese). Retrieved from <http://miyama-se.com/company>
- Miyama Smart Energy. (2020b). Frequently Asked Question (よくあるご質問) (Text in Japanese). Retrieved from <http://miyama-se.com/faq> (Last accessed on 2020, Apr 30)
- Miyama Smart Energy. (2020c). Miyama Denki (みやまんでんき) (Text in Japanese). Retrieved from <http://miyama-se.com/electrical> (Last accessed on 2020, Apr 30)
- Miyama Smart Energy. (2020d). Miyama Service (みやまサービス) (text in Japanese). Retrieved from <http://miyama-se.com/service> (Last accessed on 2020, Apr 30)
- Miyama Smart Energy. (2020e). Miyama Smart Energy (みやまスマートエネルギー) (Text in Japanese). Retrieved from <http://miyama-se.com/> (Last accessed on 2020, Apr 30)
- Morotomi, T. (2020). *Regional revitalisation through utilising local renewable energy: Industry creation through regional economic circulation (地域の再エネを活用した地域活性化・地域内経済循環による産業創出)* (Text in Japanese). Retrieved from [https://www.pref.kyoto.jp/energy/documents/04\\_plan3.pdf](https://www.pref.kyoto.jp/energy/documents/04_plan3.pdf) (Last accessed on 2020, Apr 30)
- Nikkei News. (2019, February 4). New Electric Power Company suffers in Kansai (自治体新電力が関西で苦境 関電値下げで) (Text in Japanese). Retrieved from <https://www.nikkei.com/article/DGXMZO40787410R00C19A2LKA000/> (Last accessed on 2020, Apr 30)
- Osaka Gas. (2020). Osaka Gas Denki (大阪ガスの電気) (Text in Japanese). Retrieved from [https://home.osakagas.co.jp/electricity/index.html?\\_ga=2.111415105.45491572.1587976588-1149392141.1587551179](https://home.osakagas.co.jp/electricity/index.html?_ga=2.111415105.45491572.1587976588-1149392141.1587551179) (Last accessed on 2020, Apr 30)
- power-shift.org. (2017). Izumisano Electric Power (一般財団法人 泉佐野電力) (Text in Japanese). Retrieved from <http://power-shift.org/choice-2/izumisano-pps/>
- Regional Revitality Department, Ikoma City. (2019). *Ikoma Civic Power: Introduction (いこま市民パワー株式会社の取組)* (Text in Japanese). Ikoma City Retrieved from <https://www.city.ikoma.lg.jp/cmsfiles/contents/0000017/17464/aboutICP.pdf>.
- SankeiBiz. (2019). Kameoka Furusato Energy begins purchasing power from city's mega solar (亀岡ふるさとエナジー株式会社が市内メガソーラーより電力の買取開始) (Text in Japanese). Retrieved from

<https://www.sankeibiz.jp/business/news/190121/prl1901211132047-n1.htm>

(Last accessed on 2020, Apr 30)

Yokaichi Chamber of Commerce & Industry. (2015). Higashi-Omi City Sun Project (東近江市 Sun 讚プロジェクト) (Text in Japanese). Retrieved from

[https://www.city.higashiomi.shiga.jp/cmsfiles/contents/0000008/8715/eliflife\\_p12.pdf](https://www.city.higashiomi.shiga.jp/cmsfiles/contents/0000008/8715/eliflife_p12.pdf) (Last accessed on 2020, Apr 30)

Yokaichi Chamber of Commerce & Industry. (2019). Higashi-Omi City Sun Project: Higashi-Omi Citizens' joint power station (東近江市 Sun 讚プロジェクト

ひがしおうみ市民共同発電所) (Text in Japanese). Retrieved from

<https://www.odakocci.jp/sunsun.html> (Last accessed on 2020, Apr 30)