

Provision



provision

&



CarbonBetter



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Provision is a retail natural gas and electricity supplier serving customers in deregulated energy markets in Ohio (OH), Michigan (MI), and Pennsylvania (PA). In the early days, Provision supplied natural gas to homes and businesses in Ohio, later adding electricity and then expanding into MI and PA. Provision has now served more than 360,000 residential, commercial, and industrial customers across 22 utilities.

In deregulated energy markets, which the 1992 Energy Policy Act expanded, transmission costs are decoupled from energy costs, which allows consumers to have the option to choose their energy supplier. In this model, utilities set transmission rates and retail suppliers set the pricing for the energy commodity. Because suppliers work to acquire customers, this helps create competition, which can incentivize suppliers to offer competitive pricing and differentiated plans and services, including clean energy plans.¹



Ohio

Michigan

Pennsylvania

In regulated markets, the local utility has a monopoly on both transmission and supply, and consumers have no opportunity to choose from a variety of plan types or cleaner energy options. The competitive forces of deregulated energy are more likely to drive long-term changes when compared to a regulated energy market structure. Provision leverages these conditions to provide opportunities for customers to reduce their environmental impact of home energy use.

Consumers Benefit From Energy Choice

Deregulated Market:
 Suppliers Offer Options



“Who can offer me a better energy plan?”

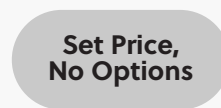


Supplier A

Supplier B

Supplier C

Regulated Market:
 Utility Supply is Only Option



Utility

→ **United Nations (UN)
Sustainable Development
Goals (SDGs)**

In Provision's effort to supply customers with carbon neutral natural gas and 100% renewable electricity, they are aligning with and directly supporting two of the UN's seventeen SDGs which were published as calls to action to meet the UN's 2030 Agenda for Sustainable Development.² Provision's initiatives directly support SDG 7 to "Ensure Access to Affordable, Reliable, Sustainable and Modern Energy for All"³ and SDG 13 to "Take urgent action to combat climate change and its impacts"⁴ through their servicing of customers at competitive rates while simultaneously offsetting the energy they sell.



Evolving to "Energy for Good"

Provision is at the forefront of an evolving energy world, leading the shift by proactively providing clean energy as a way to do better for their customers and the environment. Operating in deregulated energy markets allows Provision to provide the highest value energy options at competitive prices for their customers.

To accelerate this shift, Provision worked with their parent company, CarbonBetter, LLC, to develop certified CarbonBetter™ energy plans, which include 100% clean energy and tree planting. CarbonBetter plans allow customers to use their everyday energy consumption to automatically generate a positive impact.

In October 2020, Provision launched CarbonBetter energy, catalyzing their commitment to providing 100% clean energy. These plans include offsetting their customer's natural gas consumption through carbon offsets, investing in clean energy through renewable energy credits (RECs), and planting trees. Provision aims to be inclusive with their clean energy offerings; they do not want customers to pay extra or choose whether to offset their carbon - they felt access to clean energy was essential for all customers.

As part of their CarbonBetter plans, Provision expects to plant at least 100,000 trees. They have committed to transparency in every step of the process by highlighting their partners and sharing projects on their blog.

Provision's Physical Footprint

Provision does not have their own generating fleet nor does it own or maintain transmission, distribution, or pipeline infrastructure for the delivery of the natural gas and electricity they sell. As such, Provision's business is not human capital intensive. Provision does not have their own office space, instead they operate out of their parent company's headquarters. In evaluating their environmental impacts, Provision has focused on their natural gas and electric distribution and corresponding offsetting measures. They have excluded their shared office space from their impact assessment, but additional details on their office building have been documented by CarbonBetter, LLC.



Carbon Better, LLC's headquarters in Austin, Texas

Natural Gas

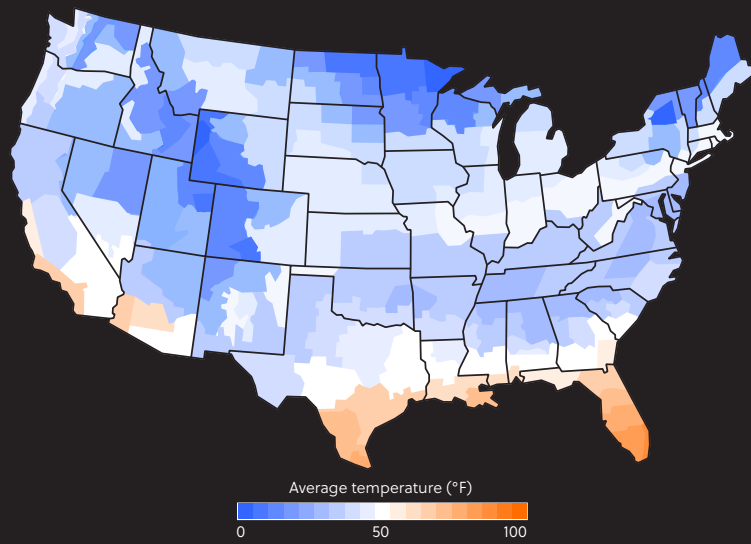
Distribution Area

Provision works with utility providers in Ohio, Pennsylvania, and Michigan to supply customers with natural gas. Provision began supplying natural gas to customers in Pennsylvania in December 2020. As they seek to expand their customer base, additional natural gas utility partners continue to be identified.

Sourcing

Provision sources natural gas from the regional hubs within their service areas to meet their customers' load requirements at the city gate. The map in Figure 1 below highlights the average monthly temperature in December 2020. Because Provision operates in colder northern climates, a higher percentage of households utilize natural gas for heating during the winter season.

Figure 1: Map of Average Temperatures in the U.S., December 2020



Source: <https://www.climate.gov/maps-data/data-snapshots/averagetemp-monthly-cmb-2020-12-00?theme=Temperature>

Based on 2018 data from the U.S. Energy Information Agency (EIA), Table 1 below highlights the states that Provision serves, illustrating the statewide totals of consumed and produced natural gas, in trillions of British thermal units (Btus). Nationally, 47.8% of households heat their homes with natural gas.⁵ All three states in Provision's operating area have a higher than average percentage of households heated by natural gas. As is the case in most of the country, the region is subject to an increase in severe weather events, including but not limited to polar vortices, further exacerbating the potential for additional natural gas consumption in colder months.

Table 1: EIA Natural Gas Data for Provision's Footprint

State	Natural Gas Consumed Statewide (trillion Btus)	Natural Gas Production Rate Statewide (trillion Btus)	% of Households that heat with Natural Gas
OH	1,236.7	2,658.4	65%
MI	1,010.9	95.8	76.4%
PA	1,515.9	6,576.4	51.5%

High regional production and storage rates by operators in Provision's service area help with their regional sourcing approach. Ohio has drastically increased production of natural gas, with yields in 2019 being 30 times the rate of production in 2012, through enhanced exploration and production activities in the Utica Shale.⁶ While Michigan has comparatively low production rates, their underground natural gas storage capacity is higher than any other state.⁸ Pennsylvania is the second-highest producing state after Texas, primarily from production in the Marcellus Shale.⁸

Provision's natural gas utility partners in each of their operating areas are shown below:

Natural Gas Utility Partners



Electricity

Distribution Area

As of Summer 2021, Provision's electricity offerings only exist in Ohio. Provision's electricity utility partners are summarized below:

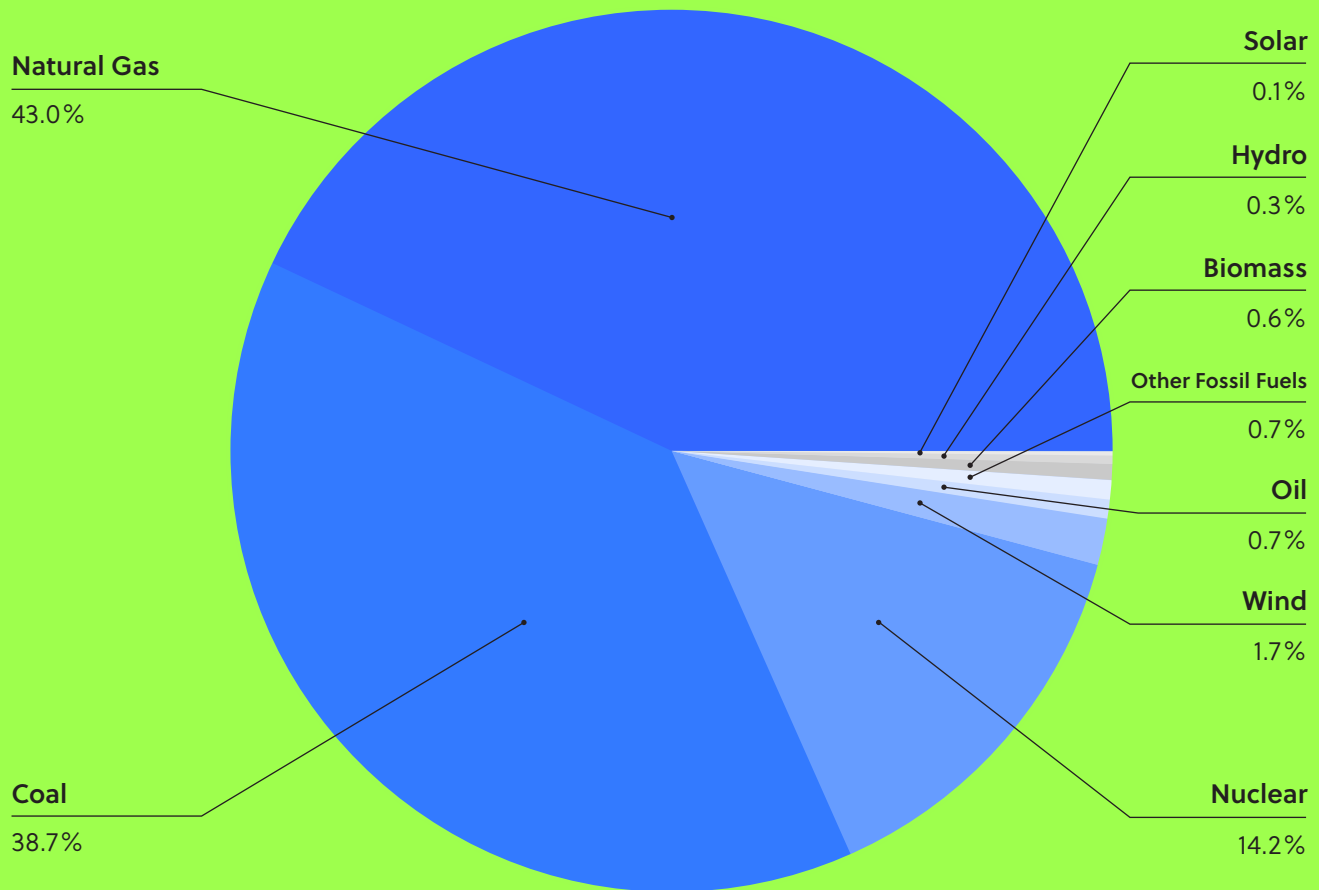
Electric Utility Partners



Generating Fleet

Provision is a retail supplier of electricity and does not own a generating fleet. They work with utility suppliers that rely on two separate entities for grid reliability and regional transmission. Provision operates within the ReliabilityFirst Corporation (RFC) West region of the interconnected grid. RFC is one of eight Federal Regulatory Energy Commission (FERC) regional entities responsible for grid reliability in the North American Bulk-Power system.¹¹ For transmission purposes, Provision's utility partners operate within the Pennsylvania, New Jersey, and Maryland (PJM) Regional Transmission Organization's boundaries. PJM coordinates the movement of wholesale electricity within thirteen states and the District of Columbia, including Ohio.¹² The chart in Figure 2 below summarizes the mix of generation for the state of Ohio shown as percentages by fuel resource. While Provision cannot control the grid mix supplied by their utility partners, they are able to offset the impacts of the electricity consumed through their CarbonBetter energy plans.

Figure 2: Breakdown of Fuel Resources in Ohio



The grid mix for the state of Ohio was determined from EPA's eGRID database. The 2019 data was issued on 2/23/2021.

The mix of generation resources above encompasses the entire state of Ohio and may not be the exact percentage breakdown that Provision sells on a given basis.

Consumption and Environmental Impact Assessment

Consumption

Across their services footprint, Provision sold a total of 5,573,666 thousand cubic feet (Mcf) of natural gas in 2020 to customers in MI, OH, and PA through partnerships with local utilities. In the same timeframe and service areas, Provision sold a total of 100,299 megawatt hours (MWh) of electricity. Provision uses the total energy consumed by their customers to determine their carbon emissions and assess how many carbon offsets and RECs to purchase.

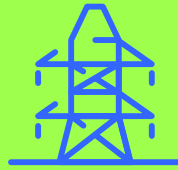
Offset and REC Selection

Organizations and individuals utilize offsets and RECs to reduce the impacts of their emissions. Emissions are classified by scopes that indicate the source of emissions and whether emissions are directly generated on-site or generated somewhere in a company's supply chain. The below figure summarizes Scope 1, 2, and 3 emissions. Due to the nature of their business, Provision focuses exclusively on Scope 2 and Scope 3 emissions.



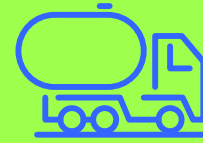
Scope 1
(Direct)

Emissions from onsite generation, direct combustion, and fleet fuel consumption.



Scope 2
(Indirect)

Emissions from power plants that provide purchased electricity; based on electricity consumption.



Scope 3
(Indirect)

Emissions from indirect sources such as corporate travel and supply chain logistics.

Offsets and RECs are sometimes used interchangeably; however, they are different instruments and are used and applied differently. The use of offsets and RECs are tied to the type or scope of emissions. The differences between offsets and RECs are summarized below.

Offsets

Offsets can be purchased to offset Scope 1, 2, and 3 emissions. Offsets are meant to "reduce greenhouse gas (GHG) emissions, increase the storage of carbon, or enhance greenhouse gas removal from the atmosphere."¹³ They can address both direct and indirect emissions through global emission reductions at external projects and are generally part of an organization's long-term plan to reduce emissions. Offsets are required to be real and verified by a third-party. It is important to note that offsets do not directly negate the original emissions source.

RECs

RECs are certificates or credits used in renewable energy markets to account for projects installed by an organization or purchased by an organization. These are used as claims associated with a specific renewable energy project that generates the REC and are purchased to match users' load profile. RECs can be used to meet clean energy goals, and are seen as a way to reduce an organization's existing emissions. While a REC may not be a direct purchase of clean energy, RECs aid in the continued development of renewable energy projects and in new innovative technologies being added to the grid.

So What's the Difference?

When purchasing offsets and RECs, it is important to remember that offsets are a reduction of GHG emissions, while a REC is the equivalent of purchased renewable electricity. Provision purchases both offsets and RECs to reduce their environmental impact. Offsets were purchased in the form of a land management project where no-till agricultural practices were used to reduce





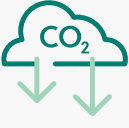



→ Carbon Dioxide Equivalent (CO₂e)

A measure used to compare the emissions from greenhouse gases based on their global warming potentials by converting amounts of emissions from other gases to the equivalent amount of CO₂.

soil erosion, increase nutrient cycling, and store carbon. Various types of RECs were purchased based on location and overall value with an emphasis on U.S.-based renewable energy projects.

In many U.S. markets, the purchase of RECs and offsets is voluntary. Table 2 below summarizes the key properties of offsets and RECs. Provision voluntarily purchases both to meet their goals outlined by their CarbonBetter energy plans to provide 100% carbon offset natural gas and 100% renewable electricity to their customers. Provision currently determines the number of offsets and RECs based on total customer consumption of electricity and natural gas. In specific markets, Provision is also required to purchase RECs due to regulatory requirements.

Table 2: Comparison of Offsets and RECs¹⁴

OFFSETS	RENEWABLE ENERGY CREDITS (RECs)
 <p>Provision purchases offsets to reduce their greenhouse gas emissions</p>	 <p>Provision purchases RECs to invest in clean energy as they seek to reduce their environmental impacts</p>
 <p>1 offset = 1 less metric ton of CO₂ or CO₂ equivalent in the atmosphere</p>	 <p>1 certificate or credit = 1 megawatt hour (MWh) of purchased renewable electricity</p>
 <p>Offsets are an actual reduction of greenhouse gas emissions</p>	 <p>Certificates account for projects that generate the renewable energy</p>
 <p>Offsets can be derived from projects anywhere in the world</p>	 <p>RECs reduce Scope 2 emissions by claiming use of renewable energy, not actual generation or consumption</p>

Voluntary

To date, Provision has voluntarily purchased RECs and offsets to ensure 100% clean energy as part of their CarbonBetter energy plans. RECs are carefully selected based on location as well as the type of project. Provision focuses on purchasing RECs for U.S.-based projects as close to the region that Provision operates in. No-till agricultural offsets were also purchased to reduce their carbon footprint. In addition to offsets, Provision plants trees on behalf of their customers with the initial goal of planting 100,000 trees.

Regulatory

Ohio codified the Alternative Energy Portfolio Standard into state law, also known as the Renewable Portfolio Standard (RPS), in the Ohio Administrative Code, Chapter 4901:1-40¹⁵, as a mechanism for meeting Title 49 Section 4928.64 of the Ohio Revised Code which requires 8.5% of electricity to be generated from renewable sources by 2026 through increased benchmarks which started at 0.29% in 2009.¹⁶ The RPS enables Ohio utility and electric service companies to meet the renewable energy standard through purchase of RECs from Ohio-based renewable energy projects that have been certified by the Public Utilities Commission of Ohio (PUCO). Annual reporting to PUCO demonstrating compliance with the RPS is also required.¹⁷

Carbon Footprint

Provision has utilized the total volumes of natural gas and electricity sold to determine their carbon emissions rates for 2020. See Appendix A for full calculation details, including assumptions and equations.

Natural Gas Calculation Methods

To determine the quantity of offsets needed based on the volume of natural gas supplied to customers, Provision has calculated a natural gas volume equivalent, in thousands of cubic feet (Mcf), per ton of carbon. The U.S. Environmental Protection Agency (EPA) has derived an emission factor of 0.0548 metric tons of carbon dioxide (CO₂) per Mcf of natural gas utilizing the ratio of the molecular weight of CO₂ to the molecular weight of carbon, the average coefficient of carbon in pipeline natural gas combusted in 2018 (14.43 kilograms of carbon per million British thermal units (kg/MMBtu)), the EIA's conversion factor from MMBtu to therms, and the 2018 national average heat content of natural gas published by EIA in 2019 (10.36 therms/ Mcf).¹⁸ Utilizing the EPA factor of 0.0548 metric tons of CO₂ per Mcf, Provision has determined a value of 18.25 Mcf per ton of carbon.

To offset carbon associated with their customers' natural gas usage, offsets were purchased in the form of no-till agriculture, which reduces soil erosion, increases nutrient cycling, and stores carbon. To further their impact, Provision funds the planting of trees, which sequester an estimated 0.82 metric tons of CO₂ per acre per year in one acre of average forest in the U.S.¹⁹

Electricity Calculation Methods

Provision has calculated an estimated tons of CO₂ per MWh of electricity consumed. The U.S. EPA has derived a national average carbon dioxide output rate for electricity of 998.4 pounds of CO₂ per MWh, which is about 1072.4 pounds of CO₂ per MWh of consumed electricity. Pounds of CO₂ per MWh were converted to metric tons by dividing 1072.4 by 2204.6, equating to 0.49 tons of generated CO₂ per consumed MWh.

RECs are purchased to match Provision's CarbonBetter customers' total electricity usage. Total usage for 2020 equates to 100,299 MWh or 361,076 gigajoules (GJ). These purchased RECs do not account for carbon-free electricity within the grid mix that Provision purchases from, which includes nuclear and renewable energy resources. A full list of purchased RECs and offsets can be found in Appendix B.



Wind energy



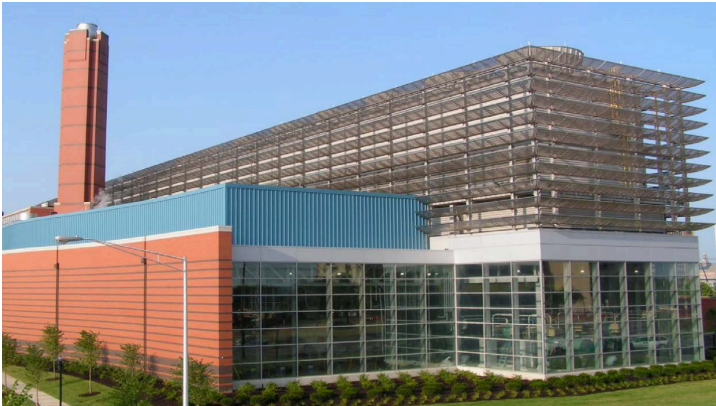
OKO Team Tending to Seedlings

Impacts of Purchased Offsets and RECs

From Fall 2020 to date, Provision has purchased a wide variety of RECs. A few notable examples are highlighted in the RECs and Offsets sections below. The purchase of RECs aids in the long-term sustainability of clean energy projects and Provision is firmly committed to doing so for the foreseeable future. Additionally, Provision has purchased a wide variety of carbon offsets but has primarily focused on land management projects. Provision currently purchases carbon offsets and RECs to negate the impacts for their customers enrolled specifically in the CarbonBetter plans. Appendix A-3 includes a summary illustrating the total natural gas sold to CarbonBetter plan customers and the corresponding carbon offsets retired on their behalf in 2020. Appendix A-4 includes a summary of the total electricity sold to CarbonBetter plan customers and the corresponding RECs retired on their behalf in 2020. In addition to RECs and offsets, they have partnered with organizations like the National Forest Foundation domestically and OKO Forests internationally to plant trees. A full list of retired offsets and RECs can be found in Appendix B, with a reforestation summary found in Appendix C.

RECs

As part of Provision's focus on providing CarbonBetter energy to their customers, they are actively reducing their carbon footprint and investing in clean energy solutions. Provision's decision to pursue voluntary RECs, in addition to regulatory REC requirements, as a way to match customer's total electricity consumption rather than just a portion of the consumption, highlights their commitment to understanding and addressing their impact. The RECs aid in funding clean and renewable energy projects, aiding in the future development of clean energy projects over time. Some examples of RECs that Provision has purchased to improve their impacts locally include:



University of Cincinnati (UC) Power Plant:

Provision has purchased RECs from the UC power plant, which powers the UC main campus and six hospitals with efficient and reduced greenhouse gas power from their natural gas-fired turbines and waste heat steam generators.²⁰



Greenup Hydro Project:

Provision has purchased RECs from the 70.2 MW hydroelectric dam located on the Ohio River at the Greenup Locks and Dam near Portsmouth, Ohio.



City of Akron Water Pollution Control Station:

Provision purchases RECs from City of Akron, whose anaerobic digesters produce biogas for combined heat and power units, which supply 100% of the power needs for the biogas facility and roughly 40% of the power needs for the Water Reclamation Facility.²¹

Provision remains committed to continuing to purchase RECs that make impacts as local as possible for their customers.

Offsets

Offset purchases act as investments in the development of carbon reduction, storage of carbon, or enhanced GHG emissions removal from the atmosphere. In 2020, Provision purchased offsets in the form of a land management project where no-till agricultural practices were used to reduce soil erosion, increase nutrient cycling, and store carbon. Provision has previously invested in reforestation and landfill gas carbon credits. Moving forward, Provision is focused on identifying and purchasing carbon credits based in the United States or credits with secondary impacts that align well with their mission and values.

Trees

To further their impact, Provision is working towards their goal of planting 100,000 trees. The tree planting effort is separate from and in addition to their purchase of offsets and RECs to sell carbon neutral natural gas and 100% renewable electricity to their customers. Investing in tree planting is another mechanism for Provision to do good and invest in reforestation on behalf of their customers. By purchasing trees, Provision acknowledges the importance of carbon removal alongside the need for clean energy resources. Provision has purchased trees from the National Forest Foundation and Provision is making ongoing investments in a reforestation project in Ghana.



National Forest Foundation (NFF): The NFF was created by the U.S. Congress to restore and enhance U.S. National Forests and Grasslands.²² Provision has chosen to plant trees in U.S. forests to make an impact close to home to supplement their tree planting efforts in Ghana.



OKO Forests (OKO): Provision has invested directly in OKO, a reforestation carbon offset project in the Ashanti Region of Ghana. The project is still in its initial stages and has recently completed two planting phases, a pilot phase and phase 1a. Provision has made direct investments in OKO through the purchase of tree seedlings.

Future Opportunities

Refinement of selection for RECs and carbon offsets

As Provision continues to deliver their CarbonBetter plans, they will continue to refine their process for REC selection and carbon offset investments. Provision seeks to invest in certificates and offsets that can make an impact close to the communities they serve by investing in current and relevant renewable energy and carbon offsets.

Refinement of quantification of carbon intensity for natural gas consumption

While preparing this case study, Provision identified additional opportunities to improve their carbon intensity calculations for natural gas, which ultimately drives the amount of carbon offsets they purchase. In future reporting years, Provision may evaluate incorporating the CO₂e from methane and nitrous oxide.

Refinement of quantification of carbon intensity for electric consumption

While preparing this case study, Provision identified additional opportunities to improve their carbon intensity calculations for electricity. These calculations should take into account existing carbon-free electricity within the mix to adjust the total number of RECs and amount of carbon offsets to be purchased.

Consideration of distributed energy resources

Looking to the future, Provision sees value in working with their utility partners to identify opportunities for their customers to reduce their energy consumption. One such way to do so would be through consumer demand response and incentive programs, and a prime example includes the encouragement of smart thermostats with the option of allowing utilities to adjust the temperature during high-demand periods. Reducing load during these periods enables the utility to conserve resources and maintain reliability. While Provision currently has flat-rate plans, utilizing any combination of demand response resources would allow Provision's utility partners to work with consumers to reduce or improve the efficiency of their energy consumption. While customers have been hesitant to participate in demand-response programs in the past, Provision would like to learn more about opportunities customers would be willing to participate in, including potential incentivization of said technologies to encourage use.

OKO Forests

OKO is working to plant 25,000 seedlings in 2021 and is currently working on becoming certified as a carbon offset project with Plan Vivo. Provision will continue to support OKO's tree planting efforts through direct investments. Moving forward, Provision is considering additional opportunities to invest directly in carbon offset projects.

→ Footnotes

- 1 <https://energywatch-inc.com/regulated-vs-deregulated-electricity-markets/>
- 2 <https://sdgs.un.org/goals>
- 3 <https://sdgs.un.org/goals/goal7>
- 4 <https://sdgs.un.org/goals/goal13>
- 5 <https://www.eia.gov/state/>
- 6 <https://www.eia.gov/state/?sid=OH#tabs-3>
- 7 <https://www.eia.gov/state/?sid=MI#tabs-3>
- 8 <https://www.eia.gov/state/?sid=PA#tabs-3>
- 9 <https://www.prnewswire.com/news-releases/centerpoint-energy-and-vectren-complete-merger-300788450.html>

- 10 <https://www.daytondailynews.com/local/just-in-after-110-years-dayton-power-light-to-become-aes-ohio/YZX6BZZ2LRGZDKAFVUJABZMLAY/>
- 11 <https://rfirst.org/about>
- 12 <https://www.pjm.com/about-pjm>
- 13 <http://www.ghgprotocol.org/standards/project-protocol%20Pg%2011>
- 14 https://www.epa.gov/sites/production/files/2018-03/documents/gpp_guide_recs_offsets.pdf
- 15 <https://codes.ohio.gov/ohio-administrative-code/chapter-4901:1-40>
- 16 <https://codes.ohio.gov/ohio-revised-code/section-4928.64>

- 17 <https://puco.ohio.gov/wps/portal/gov/puco/utilities/electricity/resources/ohio-renewable-energy-portfolio-standard>
- 18 <https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>
- 19 <https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>
- 20 <https://www.uc.edu/news/articles/n20924695/uc-earns-national-recognition-for-decade-of-reducing-carbon-footprint.html>
- 21 https://www.akronohio.gov/cms/sewer/wrf_renewable_energy/index.html
- 22 <https://www.nationalforests.org/who-we-are>

Appendices

A. Supplemental Calculations

1. Natural Gas Calculations

	Value	Unit of Measure
2020 Natural Gas Sold	5,573,666	Mcf
Volume of Gas in a metric ton of carbon	18.25	Mcf/ metric tons of CO ₂
Total CO ₂ Emissions	305,437	metric tons of CO ₂

¹ For the unit conversion between, therms and Mcf (2019 EIA data): [10.36 therms / Mcf](#)

² For converting between therms and MMBtu, a conversion of: [0.1 MMBtu / therm](#)

³ Per EPA, the emission factor for CO₂ in metric tons per therm is: [0.0053 metric tons CO₂ / therm](#)

⁴ EPA's emission factor for CO₂ in metric tons per Mcf is: [0.0548 metric tons CO₂ / Mcf](#)

⁵ EPA reference data can be found here: <https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>

2. Electricity Calculations

2020	Total Usage MWh	Total Usage GJ	kg of CO ₂	kg of CH ₄	kg N ₂ O	kg of CO ₂ e	Metric Tons of CO ₂ e
January	11,286	40629.60	6324426.11	541.73	79.00	6360507.45	6360.50745
February	10,527	37897.20	5899099.21	505.30	73.69	5932754.025	5932.754025
March	8,722	31399.20	4887616.92	418.66	61.05	4915501.15	4915.50115
April	7,177	25837.20	4021832.91	344.50	50.24	4044777.775	4044.77775
May	7,003	25210.80	3924327.13	336.14	49.02	3946715.725	3946.715725
June	8,311	29919.60	4657301.56	398.93	58.18	4683871.825	4683.871825
July	10,586	38109.60	5932161.51	508.13	74.10	5966004.95	5966.00495
August	8,464	30470.40	4743039.39	406.27	59.25	4770098.8	4770.0988
September	5,878	21160.80	3293901.88	282.14	41.15	3312693.85	3312.69385
October	5,848	21052.80	3277090.54	280.70	40.94	3295786.6	3295.7866
November	6,842	24631.20	3834106.28	328.42	47.89	3855980.15	3855.98015
December	9,655	34758.00	5410449.59	463.44	67.59	5441316.625	5441.316625
Total	100,299	361,076.40	56,205,353.02	4,814.35	702.09	56,526,008.93	56,526.01

¹ e-GRID 2019 State Emissions Factors - Ohio

CO ₂ (lb/MWh) 1235.4	CH ₄ (lb/MWh) 0.105	N ₂ O (lb/MWh) 0.015	CO ₂ e (lb/MWh) 1,242.5
CO ₂ (kg/MWh) 560.378	CH ₄ (kg/MWh) 0.048	N ₂ O (kg/MWh) 0.007	CO ₂ e (kg/MWh) 563.575

² Unit Conversion between lbs and kg: [0.454 kg / lb](#)

³ Unit Conversion between kWh and GJ: [0.0036 GJ / kWh](#)

⁴ There are 1,000 kWh in a MWh.

⁵ There are 1,000 kg in a metric ton.

⁶ Net Generation Grid Mix: [119,407,794 MWh](#)

3. CarbonBetter Natural Gas and Offsets

	Value	Unit of Measure
2020 Natural Gas Sold through CarbonBetter plans	79,693	Mcf
Volume of Gas in a metric ton of carbon	18.25	Mcf / metric tons of CO ₂
Total CO ₂ Emissions from CarbonBetter plans (Total Credits Needed in 2020)	4,367	metric tons of CO ₂
Total Offsets Retired in 2020	6,000	metric tons of CO ₂
Surplus of Credits Retired in 2020 to be applied to 2021 CarbonBetter plans	1,633	metric tons of CO ₂

- The natural gas volume and emissions associated with CarbonBetter plans also includes gas sold through legacy green energy plans established prior to the implementation of the CarbonBetter energy program.
- Provision retired 6,000 credits total in 2020. The difference between the total 2020 emissions and retired credits of 1,633 will be carried forward and applied to 2021 emissions. Additional details can be found in Appendix B
- For the unit conversion between, therms and Mcf (2019 EIA data): [10.36 therms / Mcf](#)
- For converting between therms and MMBtu, a conversion of: [0.1 MMBtu / therm](#)
- Per EPA, the emission factor for CO₂ in metric tons per therm is: [0.0053 metric tons CO₂ / therm](#)
- EPA's emission factor for CO₂ in metric tons per Mcf is: [0.0548 metric tons CO₂ / Mcf](#)
- EPA reference data can be found here: <https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>

4. CarbonBetter Electricity and RECs

	Value	Unit of Measure
Total Load in 2020	100,299	Mwh
2020 Ohio RPS Requirement	5.50%	
RPS RECs Required for 2020	5,516	Mwh
2020 Electricity Sold through CarbonBetter plans (Voluntary RECs Needed)	5,240	Mwh
Total RPS and Voluntary RECs to be Retired for 2020	10,756	Mwh
Total RECs Retired for 2020	10,756	Mwh

- The amount of electricity sold through CarbonBetter plans also includes electricity sold through legacy green energy plans established prior to the implementation of the CarbonBetter energy program.
- RPS electricity sold is the portion of electricity required to be offset through Ohio's Renewable Portfolio Standard.
- The total RECs retired for 2020 includes voluntary and mandatory (RPS) RECs. Additional details can be found in Appendix B.

B. RECs and Offset Retirement Summary

Retirement Date	Type	Project Technology	Project Name	Project ID	Vintage	Registry	Quantity	Certificate Number
7/31/2020	Carbon Credit	Land Management	Rise-Maksymko No-Till Agriculture	UA1000513	2008 - 2012	UN CDM	6,000	468708383 - 468714382
4/14/2021	REC - RPS	Biomass	City of Akron Water Pollution Control Station - Akron Biosolids to Energy Project Phase 1	NON40474	2020	PJM GATS	77	8527281 - 593 to 669
4/14/2021	REC - RPS	Biomass	City of Akron Water Pollution Control Station - Akron Biosolids to Energy Project Phase 1	NON40474	2020	PJM GATS	728	8705046 - 1 to 728
4/14/2021	REC - RPS	Waste Heat	University of Cincinnati - Central Utility Plant - CTG1	NON41033	2020	PJM GATS	600	8782086 - 1 to 600
4/14/2021	REC - RPS	Wind	Cooper Farms' Wind VW - WTG 3	NON70552	2020	PJM GATS	195	8568011 - 1 to 195
4/14/2021	REC - RPS	Wind	Benton County Wind Farm LLC - Benton County Wind Farm	NON79132	2020	PJM GATS	1,270	7015514 - 17664 to 18933
4/14/2021	REC - RPS	Biomass	Verso Quinnesec LLC - Verso Quinnesec TG2	NON140688	2020	PJM GATS	234	7583878 - 1 to 234
4/14/2021	REC - RPS	Biomass	Verso Quinnesec LLC - Verso Quinnesec TG2	NON140688	2020	PJM GATS	1,671	7935026 - 1 to 1766
4/14/2021	REC - RPS	Hydro	Smithland Hydroelectric Plant	NON188485	2020	PJM GATS	100	8749717 - 34442 to 34541
4/14/2021	REC - RPS	Solar	IKEA #536 - Fishers, IN - IKEA #536 - Fishers, IN	NON216736	2019	PJM GATS	35	6179700 - 161 to 195
4/14/2021	REC - RPS	Waste Heat	North Lake Energy, LLC - 17	NON233515	2019	PJM GATS	606	6686697 - 2770 to 3375
4/15/2021	REC - Voluntary	Hydro	J.F. Carr Powerplant - J.F. Carr Unit 1	W1163	2019	WREGIS	1,150	1163-CA-328076-1 to 1150
4/15/2021	REC - Voluntary	Hydro	Cabinet Gorge HED - Cabinet Gorge Unit 1	W1557	2019	WREGIS	1,500	1557-ID-376413-33942 to 35441
Est. 11/2021	REC - Voluntary	Hydro	TBA	TBA	2019	M-RETS	2,590	TBA

C. Reforestation Summary

Benefactor	Donor	Date of Contribution	# of Trees	Location	Type
OKO Forests	Provision Power & Gas, LLC	9/21/2020	5,000	Kogyae Strict Nature Reserve	Planting
National Forest Foundation	Provision Power & Gas, LLC	12/3/2020	100	U.S. - Pooled	Planting

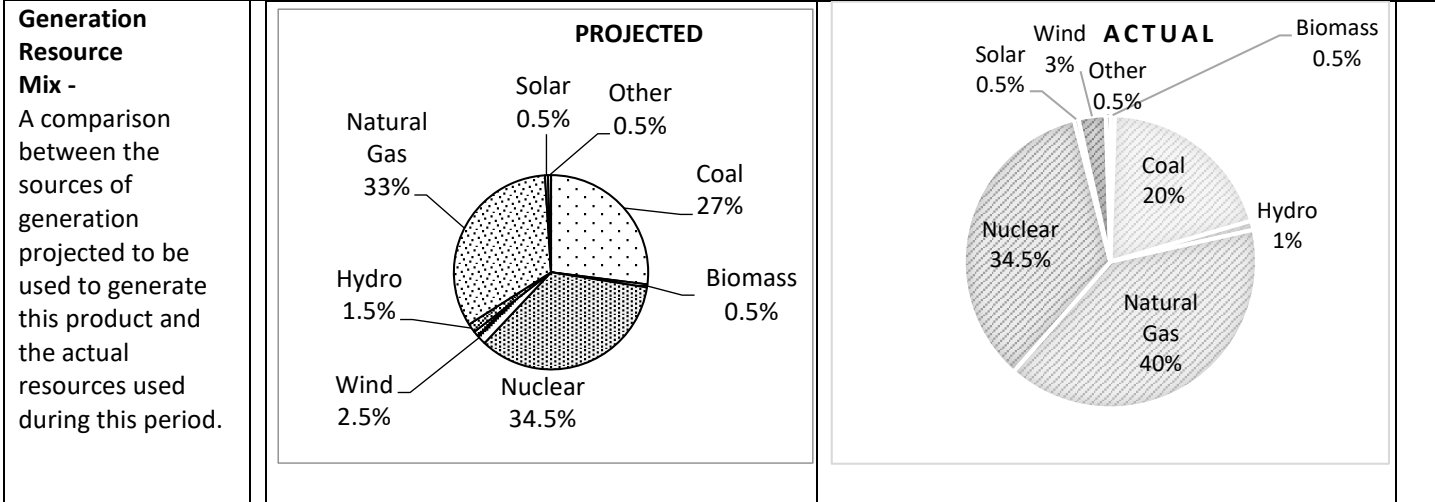
D. 2020 Environmental Disclosures (Attached)

Environmental Disclosure Information – Quarterly Comparisons

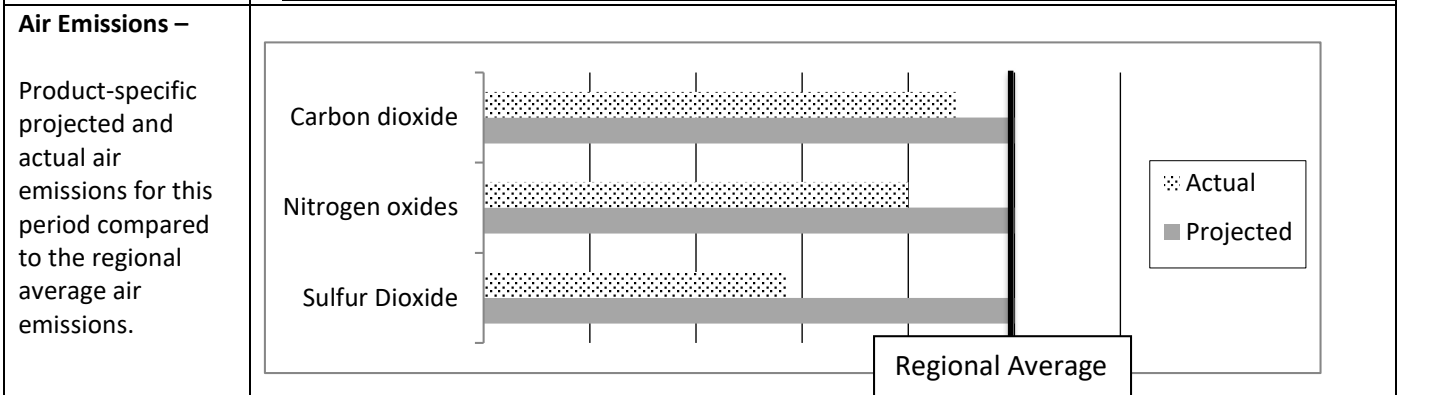
Provision Power and Gas, LLC d/b/a Quake Energy

Projected Data for the 2020 Calendar Year

Actual Data for the Period 01/01/20 to 12/31/20



<p>Environmental Characteristics– A description of the characteristics associated with each possible generation resource.</p>	Biomass Power	Air Emissions and Solid Waste
	Coal Power	Air Emissions and Solid Waste
	Hydro Power	Wildlife Impacts
	Natural Gas Power	Air Emissions and Solid Waste
	Nuclear Power	Radioactive Waste
	Oil Power	Air Emissions and Solid Waste
	Other Sources	Unknown Impacts
	Solar Power	No Significant Impacts
	Unknown Purchased Resources	Unknown Impacts
	Wind Power	Wildlife Impacts



<p>Radioactive Waste – Radioactive waste associated with the product.</p>	Type:	Quantity:	
	High-Level Radioactive Waste	Unknown	Lbs./1,000 kWh
	Low-Level Radioactive Waste	Unknown	Ft ³ /1,000 kWh

With in-depth analysis, the environmental characteristics of any form of electric generation will reveal benefits as well as costs. For further information, contact Provision Power & Gas d/b/a Quake Energy, LLC at [www.http://provisionpg.com](http://www.provisionpg.com) or by phone at (800) 279-9023.