

BEFORE THE NEBRASKA PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION OF)
BLACK HILLS NEBRASKA GAS, LLC d/b/a)
BLACK HILLS ENERGY FOR APPROVAL TO)
IMPLEMENT A VOLUNTARY RENEWABLE) Application No. NG-117
NATURAL GAS AND CARBON OFFSET)
PROGRAM)

DIRECT TESTIMONY AND EXHIBITS OF

KATIE N. FLEMING

ON BEHALF OF

**BLACK HILLS NEBRASKA GAS, LLC
D/B/A BLACK HILLS ENERGY**

August 12, 2022

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Exhibits

Direct Exhibit KNF-1 – Customer Surveys and Segmentation Analysis

Direct Exhibit KNF-2 - Statement of Qualifications

List of Acronyms

BHC	Black Hills Corporation
Black Hills Energy or Company	Black Hills Nebraska Gas, LLC, d/b/a Black Hills Energy
Block	A Block represents 20.5 therms of natural gas or approximately 33% of the average Nebraska residential customer's monthly usage.
CCP	Core Carbon Principles
CO ₂ e	Carbon Dioxide Equivalent
CO ₂	Carbon Dioxide
Commission or NPSC	Nebraska Public Service Commission
CRS	Center for Resource Solutions
EPA	U.S. Environmental Protection Agency
ESG	Environmental, Social and Governance
GHG	Greenhouse Gas
IFM	Improved Forestry Management
Integrity Council	Integrity Council for the Voluntary Carbon Market
mtCO ₂	Metric Tons of Carbon Dioxide
MMBtu	Million British thermal unit
Program	Voluntary Renewable Natural Gas and Carbon Offset Program
RNG	Renewable Natural Gas

1 **I. INTRODUCTION AND BACKGROUND**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Katie N. Fleming. My business address is 7001 Mount Rushmore Road, Rapid
4 City, South Dakota, 57702.

5 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

6 A. I am employed by Black Hills Service Company, LLC, a wholly-owned subsidiary of Black
7 Hills Corporation, as the Director of Corporate Planning, Sustainability and ESG.

8 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

9 A. I am testifying on behalf of Black Hills Nebraska Gas LLC, d/b/a Black Hills Energy.

10 **Q. WHAT ARE YOUR DUTIES AND RESPONSIBILITIES IN YOUR CURRENT
11 POSITION?**

12 A. I am responsible for building BHC's sustainability strategy, leading efforts related to
13 Environmental, Social and Governance reporting and stakeholder engagement and
14 directing the design and implementation of BHC's corporate planning process.

15 **Q. PLEASE OUTLINE YOUR EDUCATIONAL AND PROFESSIONAL
16 BACKGROUND.**

17 A. My employment history and experience is provided in Direct Exhibit KNF-2.

18 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

19 A. I have not previously provided testimony before the Nebraska Public Service Commission.

20 **II. PURPOSE OF TESTIMONY**

21 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

22 A. The purpose of my testimony is to support the proposed tariffs and implementation of a
23 new voluntary renewable natural gas environmental attribute and carbon offset pilot

1 program. The proposed Program will commence initially as a pilot Program from January
2 1, 2023, through the end of 2026. Then, after thorough evaluation by the Company and
3 modifications, as needed, the Program will continue for an indefinite period thereafter,
4 subject to Commission approval.

5 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

6 A. Yes. I am sponsoring the following exhibits:

- 7 • Direct Exhibit KNF-1 – Customer Surveys and Segmentation Analysis
- 8 • Direct Exhibit KNF-2 - Statement of Qualifications

9 **III. PROGRAM OVERVIEW AND BACKGROUND**

10 **Q. PLEASE PROVIDE AN OVERVIEW OF THE PROGRAM.**

11 A. The Company is requesting approval for tariffs allowing Black Hills Energy to offer
12 residential and commercial, Energy Options, and Choice Gas Program (Residential and
13 Commercial) rate schedule customers a voluntary Program to offset the carbon emissions
14 associated with their natural gas usage. As designed, the Program offers customers who
15 wish to participate in a combination of renewable natural gas (“RNG”) environmental
16 attributes and carbon offset credits. Only customers who wish to participate will bear the
17 costs associated with the Program. Black Hills Energy has partnered with an experienced
18 third-party for program design, marketing plans, and RNG environmental attribute and
19 carbon credit procurement. This Program was designed in response to direct Black Hills
20 Energy customer feedback and complements the Company’s commitment to providing
21 customers with cost-effective and sustainable energy options.

1 **Q. WHAT IS THE OBJECTIVE OF THE PROGRAM?**

2 A. The objective of the Program is to provide customers with a flexible, cost-effective option
3 to voluntarily offset emissions associated with their own residential or commercial natural
4 gas usage. Natural gas is critical to Nebraska homes and businesses and offering cost-
5 effective paths to reducing GHG emissions from customer usage, like the proposed
6 Program, demonstrates the Company's commitment to natural gas as a part of the solution
7 in a clean energy future.

8 While gas-utility offered voluntary programs are relatively new, past trends indicate
9 the market could grow exponentially in the coming years. Gas utility leaders follow a
10 legacy of electric utilities that began leveraging green pricing programs in the 2000s to
11 support investment in renewable electricity assets. According to the National Renewable
12 Energy Laboratory, in 2019, over 1 million electricity customers participated in utility-
13 offered green pricing programs across the U.S., and they procured over 11 million MWh
14 of renewable energy. The expansion of these programs into the natural gas sector should
15 be encouraged as this will allow Black Hills Energy to meet customer expectations for
16 options to support economy-wide decarbonization, improving customer satisfaction and
17 allowing us to learn more about potential future needs.

18 **Q. IS THE PROGRAM NEEDED?**

19 A. Yes. Black Hills Energy conducted customer surveys in July 2022 to determine whether
20 customers desired an RNG environmental attribute and carbon offset offering. The results
21 demonstrated that a significant portion of customers responding to the survey desire a cost-
22 effective program that can offset the emissions from their own natural gas usage.

1 Customers need options and solutions from their energy providers and creating the
2 Program meets the Company's customer needs.

3 **Q. ARE THERE OTHER REASONS FOR PURSUING THIS TYPE OF PROGRAM?**

4 A. Yes, the energy transition and customer fuel choice have become increasingly important to
5 the Company's stakeholders. A program that allows customers to choose to use natural gas
6 and reduce or eliminate the carbon footprint associated with that usage helps to meet the
7 Company's stakeholder needs. This Program supports BHC's ESG and sustainability
8 strategy of providing cleaner, cost-effective solutions and demonstrates continued
9 leadership in the utility industry. Additionally, this pilot will provide the Company with
10 valuable knowledge and insights into the interest customers have in reducing their natural
11 gas emissions.

12 **Q. DOES THE PROGRAM PROVIDE PARTICIPATING CUSTOMERS WITH**
13 **QUANTIFIABLE EMISSIONS REDUCTIONS?**

14 A. Yes, the RNG environmental attributes and carbon offsets procured for Program
15 participants will be transferred through and verified against, respectively, nationally
16 recognized tracking systems and operating standards. Black Hills Energy is committed to
17 ensuring the customer receives real and quantifiable emissions reduction relative to the
18 number of Blocks they purchase. The Company engaged an experienced third-party
19 consultant and supplier, 3Degrees, to track and retire the RNG attributes and carbon offsets
20 on the customers' behalf. 3Degrees will provide annual reporting to demonstrate the
21 attributes and reductions are not double counted.

1 **IV. RENEWABLE NATURAL GAS AND CARBON OFFSETS**

2 **Q. WHAT IS RENEWABLE NATURAL GAS?**

3 A. Renewable Natural Gas (“RNG”) is a natural gas alternative derived from renewable
4 sources. For the Program, RNG will be accounted as carbon neutral. There are tremendous
5 emissions reduction benefits from the use of RNG as it represents the recycling of carbon
6 and methane that would have been released into the environment, whereas combustion of
7 fossil natural gas represents the release of new carbon emissions into the atmosphere.

8 As organic waste breaks down without oxygen it emits methane gas (e.g., biogas) that
9 can be cleaned to meet natural gas pipeline quality specifications. Biogas is a mixture of
10 carbon dioxide and hydrocarbons, primarily methane gas, from the biological anaerobic
11 decomposition of organic materials. The feedstocks that can be used to create biogas are
12 abundant. For example, large amounts of biogas can be collected at local landfills,
13 wastewater treatment plants, and anaerobic digesters at commercial food waste facilities
14 and agricultural operations (dairies, etc.). Biomethane that is upgraded to natural gas
15 pipeline quality standards such that it may be blended with, or substituted for, geologic
16 natural gas is typically referred to as RNG.

17 RNG environmental attributes are a certification associated with the production of the
18 RNG commodity. RNG environmental attributes represent the “receipt” associated with
19 the production and injection into the common carrier pipeline network of a MMBtu of the
20 RNG commodity. The RNG energy commodity is sold separately as standard natural gas
21 unbundled from the environmental attributes, and the RNG environmental attributes can
22 be matched with gas consumption anywhere on the common carrier pipeline network for
23 that gas consumption to be considered renewable. This use of RNG attributes is well

1 established and common under all major markets for renewable natural gas, including
2 California Air Resource Board's Low Carbon Fuel Standard, Oregon Department of
3 Environmental Quality's Clean Fuels Program, Environmental Protection Agency's
4 Renewable Fuel Standard, and green gas procurement standards for utilities, like Oregon's
5 Senate Bill 98. Once RNG environmental attributes are retired on behalf of residential and
6 commercial customers they may not be used again. The RNG environmental attribute
7 market allows customers to procure RNG from the common carrier pipeline network.

8 **Q. WHAT IS A CARBON OFFSET?**

9 A. A carbon offset is a reduction in emissions of carbon dioxide or other greenhouse gases
10 made to compensate for emissions made elsewhere. Carbon offsets can be derived from
11 several sources and are grouped into categories, including, but not limited to, renewable
12 energy development, landfill methane avoidance and destruction, energy efficiency, and
13 improved forestry management. There are also two prevailing markets for carbon offsets,
14 one being compliance markets and the other being voluntary markets.

15 **Q. EXPLAIN HOW VOLUNTARY CARBON MARKETS WORK.**

16 A. Voluntary carbon markets enable businesses, governments, nonprofits and other
17 organizations, and individuals to purchase carbon offsets, to compensate for emissions
18 caused by something they did (e.g., personal air travel or home energy use), on a voluntary
19 basis. The participants can purchase offsets that were created for carbon markets. Trading
20 and demand in the voluntary market are created only by voluntary buyers.

21 Likewise, the Company's Program is a voluntary market that customers may participate
22 in and of their own accord. The Company is focusing on offering voluntary carbon offsets

1 to compensate for the combustion-related emissions associated with our customers' end
2 use of natural gas for their energy needs.

3 **Q. IS BLACK HILLS ENERGY PRODUCING RNG OR CARBON OFFSETS USED**
4 **IN THE PROGRAM?**

5 A. No, the Company will be obtaining the RNG environmental attributes and carbon offset
6 credits from a third party as described below. The Company may evaluate opportunities to
7 develop and produce projects that generate RNG attributes and/or carbon offsets in the
8 future. In addition, Black Hills Energy does currently purchase physical biomethane from
9 various Nebraska RNG production facilities that are unrelated to the Program.

10 **V. CUSTOMER SURVEYS AND MARKET RESEARCH**

11 **Q. HAS THE COMPANY GAUGED CUSTOMER APPETITE TO REDUCE THEIR**
12 **CARBON FOOTPRINT?**

13 A. Yes, Nebraska customers were surveyed in 2022. Summaries of these customer surveys
14 are included as Direct Exhibit KNF-1.

15 **Q. WHAT WAS THE GOAL OF THE SURVEY?**

16 A. In its 2022 direct customer survey, Black Hills endeavored to understand customer support
17 for a Company-offered voluntary RNG program. From this survey, approximately 56% of
18 customer respondents indicated they were "somewhat" or "very" likely to participate in a
19 voluntary RNG program. Of those that responded they were likely to participate in the
20 Program, over half were willing to pay at least \$10 per month, and over 40% were willing
21 to pay \$5 per month. The results of the 2022 direct customer survey delivered proof
22 customers would be willing to explore a program to offset their carbon footprint. Direct

1 customer survey results were the primary basis that informed the design of the proposed
2 pilot Program, as described below.

3 **Q. ASIDE FROM CUSTOMER SURVEY DATA FROM JULY 2022, DOES THE**
4 **COMPANY HAVE ANY OTHER MARKET RESEARCH THAT SUPPORTS THE**
5 **IMPLEMENTATION OF THIS PROGRAM?**

6 A. Yes, Black Hills Energy also partnered with 3Degrees in June 2021 and sought to
7 understand household-based consumer lifestyle segmentations throughout its service
8 territory and specific to each state, referred to as a mosaic profile. This analysis is based on
9 neighborhood level demographic data (zip-code + 4), not customer-specific data. This
10 technique used in market research assists in determining how people value different
11 attributes (e.g., price, features, functions, benefits) of an individual product or service. It
12 also assesses how many customers fit specific aspects of the demographic and
13 psychographic profile that have a higher propensity to adopt an individual product or
14 service. The output “mosaic” for this research effort includes those attributes, such as
15 annual household income, education level, green behavior, etc. that are most likely to adopt
16 the Program. Black Hills Energy discovered the following percentages of customers fit a
17 profile of the “average green participant” in Nebraska:

- 18 • an estimated 17% of the customer base fit an income profile;
- 19 • an estimated 29% of the customer base fit the education profile; and
- 20 • an estimated 38% of the customer base are more likely to display behaviors that are
21 “green” or environmentally conscious.

22 This analysis informed the Company of potential market opportunity and target market
23 estimates to model the appropriate program design and participation forecasts, as further

1 discussed in the Direct Testimony of Mr. Frost. This analysis also allows the Company to
2 cost-effectively target higher propensity customers at the neighborhood (zip-code +4) level
3 for marketing plans.

4 **VI. PROGRAM DESIGN AND STRUCTURE**

5 **Q. HOW WAS THE PROGRAM DESIGN APPROACHED?**

6 A. The customer research results concluded that while customers are price conscious, they
7 have a strong preference for the option to offset their carbon emissions arising from their
8 own personal natural gas usage through a flat rate (Block) product with flexible terms. The
9 research also found customers are most interested in a program that includes a mixture of
10 both RNG environmental attributes and carbon offsets within the fixed price range that the
11 Company is prepared to offer. Customer Surveys and Segmentation Analysis details are
12 provided as Direct Exhibit KNF-1.

13 **Q. DID THE COMPANY INDEPENDENTLY DEVELOP THE PROGRAM?**

14 A. Due to the Company's inexperience with voluntary RNG environmental attributes and
15 carbon offset programs, the Company engaged 3Degrees to help in the development and
16 rollout of the Program. 3Degrees was recommended to the Company by other utilities and
17 is an experienced designer and implementor who has helped utilities in other states to
18 design and implement similar successful programs.

19 **Q. HOW IS THE PROPOSED PROGRAM STRUCTURED?**

20 A. The primary characteristics of the Program are described below:

21 **1) Pilot Approach**

22 The Company is proposing to launch the Program under an initial pilot period of four
23 years. This timeframe provides the Company an opportunity to further gauge customer

1 interest and monitor Program finances. During the four years, the Company will
2 analyze the performance of the Program and determine whether modifications should
3 be presented to the Commission going forward to align with customer expectations and
4 achieve successful long-term results. The Company will be monitoring results such as
5 net enrollments, compliance, and financial performance including supply and
6 administration costs, and customer feedback.

7 **2) Block Design**

8 The Program will use pricing options or “Blocks.” The Blocks represent varying levels
9 of carbon emissions that customers may choose to offset. For reference, the average
10 monthly Nebraska residential usage is approximately 63 therms (based on annualized
11 2018-2020 Company data). Customers will be presented with the option to purchase
12 Blocks at the monthly rate of \$5.00 for 20.5 therms. An average Nebraska residential
13 customer could choose to offset approximately 33% of their emissions associated with
14 natural gas usage with one Block at a cost of \$5.00 per month. A breakdown of the
15 percentage of monthly carbon footprint impact for residential customers is included in
16 Table KNF-1 below. Customers will have the flexibility to enroll in as many Blocks as
17 they choose. If a customer chooses to purchase Blocks that exceed their individual
18 natural gas usage, that is considered a social benefit. The contracted supplier will still
19 provide RNG environmental attributes and carbon offsets to cover all customer
20 enrollments. For simplicity, the offering will not be specific to each customer’s actual
21 carbon emissions from their actual natural gas usage but will be based on the statewide
22 average residential or commercial carbon emissions.

Table KNF-1 – Blended Program Design: Nebraska Average Residential

Blocks / Month	Price / Month	Carbon Footprint Impact / Month
1 Block	\$5	20.5 Therms (33% of average natural gas usage)
2 Blocks	\$10	41 Therms (65% of average natural gas usage)
3 Blocks	\$15	61.5 Therms (98% of average natural gas usage)
4 Blocks	\$20	82 Therms (130% of average natural gas usage)

1 The proposed price of each Block is set at a price point considered attractive for the
2 average target participant to enroll in the Program, while balancing the revenues
3 required to cover Program expenses in order to make the Program financially feasible
4 as further discussed in the Direct Testimony of Mr. Frost. These expenses consist of
5 RNG environmental attributes and carbon offset credits, marketing efforts to attain
6 participation objectives, and general administrative and compliance related expenses.

7 **3) Eligible Customers**

8 All Black Hills Energy residential and commercial, Energy Options, and Choice Gas
9 Program (residential and commercial) rate schedule customers (including
10 governmental entities) are eligible to participate, provided their account is in good
11 standing. Once enrolled in the Program, if a customer falls into arrears greater than 60
12 days, they will be removed from the Program.

13 **4) Emissions from Natural Gas Customers**

14 The Program Blocks are based on average monthly residential or commercial usage.
15 Pricing options are offered to customers based on reducing the carbon emissions levels
16 associated with this average monthly usage. Emissions from the production and
17 distribution of natural gas are not associated with residential and commercial customers

1 and are excluded from the Program design. The U.S. EPA's default emission factor
 2 relating to the combustion of natural gas is 0.0544 metric tons CO2/Mcf.¹ Applying
 3 this factor to an average customer's gas usage means the average emissions (CO2 or
 4 carbon dioxide) for an average Black Hills Energy residential customer over a given
 5 year (756 therms = 63 therms per month x 12 months) is 4.113 metric tons/CO2. The
 6 Blocks are designed to offset anywhere from 33% or 1.325 metric tons/CO2 up to
 7 nearly 100% of the full 4.113 metric tons/CO2 of average annual residential usage.
 8 Three Blocks are designed to offset 4.015 metric tons/CO2 annually.

Table KNF-3 – Average Annual Residential Emissions and Usage Calculations

$$\frac{.0544 \text{ MT CO}_2}{1 \text{ Mcf}} \times \frac{1 \text{ Mcf}}{10 \text{ therms}} \times \frac{756 \text{ therms}}{\text{Avg Res Annual Usage}} = 4.11264 \text{ MT CO}_2 \text{ emissions annually}$$

$$\frac{.0544 \text{ MT CO}_2}{1 \text{ Mcf}} \times \frac{1 \text{ Mcf}}{10 \text{ therms}} \times \frac{20.5 \text{ therms}}{\text{One Block of Usage}} = 0.11152 \text{ MT CO}_2 \text{ emissions / Block}$$

$$\frac{0.11152 \text{ MT CO}_2}{\text{Block}} \times \frac{3 \text{ Blocks}}{\text{month}} \times \frac{12 \text{ months}}{\text{year}} = 4.01472 \text{ MT CO}_2 \text{ emissions}$$

Table KNF-4 – Average Monthly Residential Emissions Reduction

Blocks / Month	Price / Month	Carbon Footprint Impact / Month*
1 Block	\$5	0.11152 MT CO2
2 Blocks	\$10	0.22304 MT CO2
3 Blocks	\$15	0.33456 MT CO2

*MT CO2 emissions reduction per Block (20.5 therms)

¹ EPA emissions factor used under 40 CFR 98 Subpart NN - Suppliers of Natural Gas and Natural Gas Liquids to report customer burner tip emissions.

1 **5) Structure of Carbon Offsets and Renewable Natural Gas**

2 The Program is designed such that each Block used to offset carbon emissions includes
3 a combination of carbon offsets and RNG environmental attributes. Black Hills Energy
4 plans to use carbon offsets to comprise approximately 99% of the Program Block and
5 then use RNG environmental attributes to account for the remaining 1%. The Company
6 and its supply partner, 3Degrees, are committed to adjusting allocations toward a higher
7 percentage of RNG environmental attributes when prices are more cost-effective for
8 customers. This blended approach of combining carbon offsets and RNG
9 environmental attributes was selected based on customer research, benchmarking
10 similar programs, and the need to ensure Program cost effectiveness. Currently, the
11 Company is planning to contract with our supply partner on a per therm basis enrolled
12 in the Program for the duration of the pilot.

13 **6) RNG Attribute and Carbon Offset Sourcing**

14 BHC and 3Degrees will enter into a binding term sheet for the supply to cover the
15 duration of the pilot Program once this application is approved. 3Degrees will secure
16 and manage the supply of RNG environmental attributes and carbon offset credits to
17 supply the Program. There is no minimum purchase requirement stipulated. 3Degrees
18 will be responsible for:

- 19 • Procuring, managing, arranging offtake contracts, and taking title to the
20 environmental attributes; and
- 21 • Retirement of environmental attributes on behalf of the Program and annual
22 reporting of the retirements (including project description, the volume retired
23 in MT CO₂ or MMBtu, and the state of origin).

1 BHC will pay 3Degrees on a per therm basis enrolled in the Program that meets the
2 Product Content Label (“PCL”) quality requirements for RNG environmental attributes
3 and carbon offsets.

4 PCL – RNG Environmental Attributes:

- 5 • Will be no less than 1% of the total Program supply; and
- 6 • RNG will be delivered as the environmental attributes associated with RNG
7 injected into a contiguous pipeline in the United States. These attributes will
8 be unbundled from physical natural gas and the physical natural gas will be
9 sold separately. Attributes will be transferred through a nationally
10 recognized tracking system, either M-RETS Renewable Thermal Tracking
11 System or another mutually agreed to system.

12 PCL – Carbon Offsets:

- 13 • All offsets procured and delivered will be verified against the operating
14 standards of the American Carbon Registry, Climate Action Reserve, Gold
15 Standard or Verra as recommended by 3Degrees, or another standard agreed
16 upon by both parties. Offsets will be issued, tracked and retired through the
17 registry of the respective program; and
- 18 • 3Degrees will use best efforts to procure up to 20% of the total offsets
19 supplied from land use projects associated with forestry, grassland or
20 wetland projects; and/or, seek to source offsets from projects within
21 Nebraska and other areas that BHC serves.

1 **7) Specifics for RNG Supply/Projects**

2 The Company intends to acquire a supply of RNG environmental attributes that
3 correlates to projected enrollments over the pilot period. Initially, the Company intends
4 to collaborate with 3Degrees to include RNG supplied from local project sources (if
5 available). If this approach is not feasible, the Company will next focus on Midwest
6 based resources, or possible other sources within the United States. The Company will
7 enter into an agreement with 3Degrees that will provide enough supply to account for
8 projected growing enrollments over the pilot period. A long-term strategy providing
9 certainty for cost of RNG supply will be developed during the pilot Program. While a
10 market-based approach is also an option, this would require greater risk and less
11 certainty with respect to both cost and supply. The Company currently estimates the
12 cost to average approximately \$22 per MMBtu during the four-year term of the pilot.
13 The cost estimate for our RNG supply is dependent on the pricing within the current
14 markets where RNG is used for transportation fuel. RNG market prices within the
15 transportation sector have declined from highs of around \$40 per MMBtu in 2017 to
16 \$22 per MMBtu in 2022. The ability to obtain a certain price for RNG is predicated on
17 RNG suppliers not being able to secure more favorable pricing if they were to sell their
18 RNG for alternate means (e.g., transportation market). Our approach of securing a
19 multi-year contract for our supply should negate the potential market price risk from
20 the wide fluctuations experienced within the transportation sector.

21 **8) Compliance**

22 The Company will be contracting with 3Degrees as the supplier for the Program.

1 For carbon offsets, all credits procured and delivered to the Program will be verified
2 against the operating standards of the American Carbon Registry, Climate Action
3 Reserve, Gold Standard or Verra as recommended by 3Degrees, or another standard
4 agreed upon by both parties. Offsets will be issued, tracked, and retired through the
5 registry of the respective program.

6 Each of these standards lay out the rules and requirements which projects must
7 follow to be certified. This includes rules and requirements around key quality criteria
8 including, but not limited to, additionality, permanence, and leakage. All projects are
9 subject to independent audits by both qualified, independent third parties as well as the
10 standards bodies themselves to ensure that standards are met, and methodologies are
11 properly applied. Each project is assessed using a technically sound GHG emission
12 reduction quantification methodology specific to that project type. Each standards body
13 also maintains a registry system, which stores all data related to registered projects and
14 tracks the issuances and retirements of all carbon offsets.

15 For RNG, 3Degrees will source environmental attributes associated with RNG
16 injected into a contiguous pipeline in the United States, unbundled from the physical
17 natural gas. These attributes will be transferred through a nationally recognized
18 tracking system, either M-RETS Renewable Thermal Tracking System or another
19 mutually agreed system.

20 For RNG environmental attributes, 3Degrees is closely monitoring the recently
21 implemented Green-e[®] Renewable Fuel Standard from the non-profit Center for
22 Resource Solutions (“CRS”). They are on the workgroup that created the standard and
23 are supportive of its use. They will also make best efforts to ensure the RNG

1 environmental attributes for this Program meet the requirements for this standard. They
2 cannot guarantee that they can source the smaller volume of RNG environmental
3 attributes forecasted for the Program from a CRS listed project as there are currently
4 zero projects that are “CRS Listed.” If CRS Listed projects are available, 3Degrees will
5 prioritize procuring from them.

6 For carbon offsets, 3Degrees is also closely monitoring the Integrity Council
7 development of Core Carbon Principles (“CCP”) and will make best efforts to align
8 with their recommendations. Since those recommendations are still unclear, 3Degrees
9 and the Company cannot formally commit to supplying credits that will meet these
10 guidelines until they are released later this year.

11 **9) Marketing Plan**

12 The Company will leverage a combination of internal resources and 3Degrees support
13 to implement the marketing plan for the Program. Expenses associated with these
14 activities, including internal or external labor, will be allocated to the Program
15 participants and not recovered through base rates. 3Degrees will support launch
16 activities to prepare for Program implementation and activities during the first year of
17 the pilot for customer awareness and acquisition. The launch activities include
18 marketing strategy and annual calendar development and customer landing webpage
19 content and design. The Company and 3Degrees will partner to develop a Program
20 name and visual identity that incorporates 3Degrees’ experience with other successful
21 utility programs. The customer awareness and acquisition activities include the
22 following: scoring customer lists for cost-effective marketing campaigns, digital
23 awareness content for social, web, and all other “owned” channels, four acquisition

1 emails during the year, one direct mail campaign during the year, customer welcome
2 communication design and an annual participation report design.

3 **10) Program Management**

4 The Company is actively managing the Program design and implementation. Black
5 Hills Energy will continue to engage 3Degrees as a consultant to assist with the
6 Program. 3Degrees will undertake some of the marketing efforts, while Black Hills will
7 oversee marketing efforts and prepare for ongoing Program management. 3Degrees
8 will also perform the compliance and certification of Program supply as previously
9 mentioned as well as consult on strategy throughout the 4-year pilot to dynamically
10 shift the Program as we learn more about our customers through this process. A portion
11 of the expense associated with the staffing required to provide ongoing support for
12 customer participants, lead marketing efforts, be the primary point of contact with
13 3Degrees, monitor progress of the Program, and adapt as needed to achieve pilot
14 objectives will be allocated to the Black Hills Energy Program. Further details of the
15 Program financials are included in the Direct Testimony of Mr. Frost.

16 **11) Program Reporting**

17 Annually, the Company intends to issue a comprehensive report detailing the prior
18 year's results. The report will include customer enrollment levels and selected Block
19 levels, information about the source of carbon reduction supply, and the quantity of
20 total emissions reduced. This report will be available on a committed portion of the
21 Company's website for participants and the public to view. Customers will be able to
22 submit questions or comments relating to the Program.

1 **VII. CONCLUSION**

2 **Q. HOW DO CUSTOMERS BENEFIT FROM THIS PROGRAM?**

3 A. As indicated in the 2022 Survey data, a subset of customers want the option to fuel their
4 homes and businesses with natural gas and expect the Company to provide solutions for
5 decarbonizing their usage. The Program, as proposed, offers the ability for participants to
6 offset all or a portion of their carbon footprint. Only enrollees in the Program are financially
7 responsible.

8 **Q. WHAT ARE THE ENVIRONMENTAL BENEFITS OF THIS PROGRAM?**

9 A. RNG captures methane that would otherwise be released into the atmosphere and recycles
10 it for use in the natural gas supply, representing significant GHG emissions reduction.
11 Carbon offset projects reduce GHG emissions or increase carbon storage, benefiting the
12 environment. Additionally, communities where RNG environmental attributes and carbon
13 offsets are produced realize economic benefits from the development of these projects.

14 **Q. WHAT ARE YOU RECOMMENDING IN THIS PROCEEDING?**

15 A. I recommend that the Commission approve the Company's proposed tariffs and pilot
16 Program, including granting the approvals sought for a deferred accounting regulatory
17 treatment as discussed in the Direct Testimony of Mr. Frost.

18 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

19 A. Yes, it does.

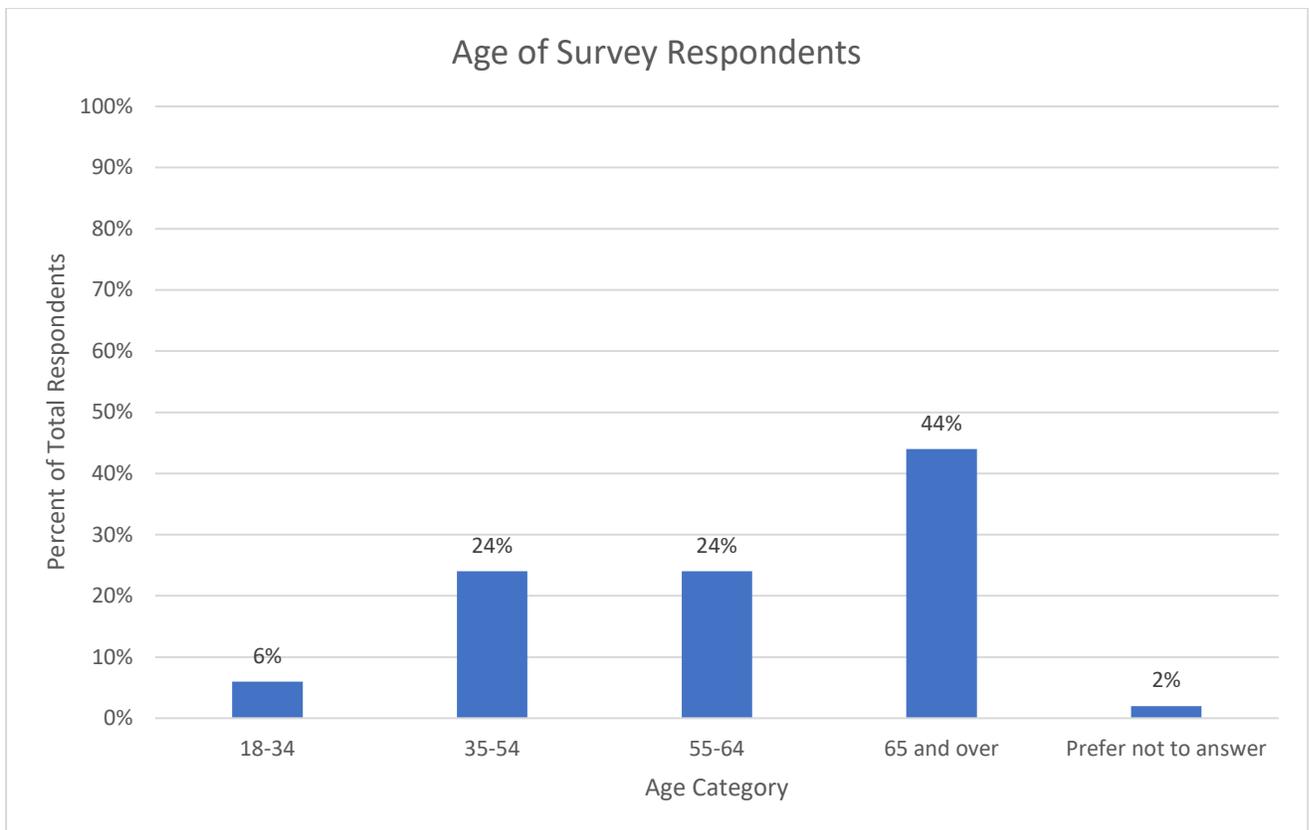
**2022 Black Hills Energy
Nebraska Renewable Natural Gas Survey**

Black Hills Energy conducted an online survey to evaluate the customer interest in renewable natural gas in the state of Nebraska. The survey invitation was sent via email to 153,970 Nebraska customers. Responses were collected between June 29, 2022, and July 22, 2022. During that time 4,625 customers submitted a response, yielding a response rate of approximately 3.0%. The following is a summary of the survey results.

Survey Responses:

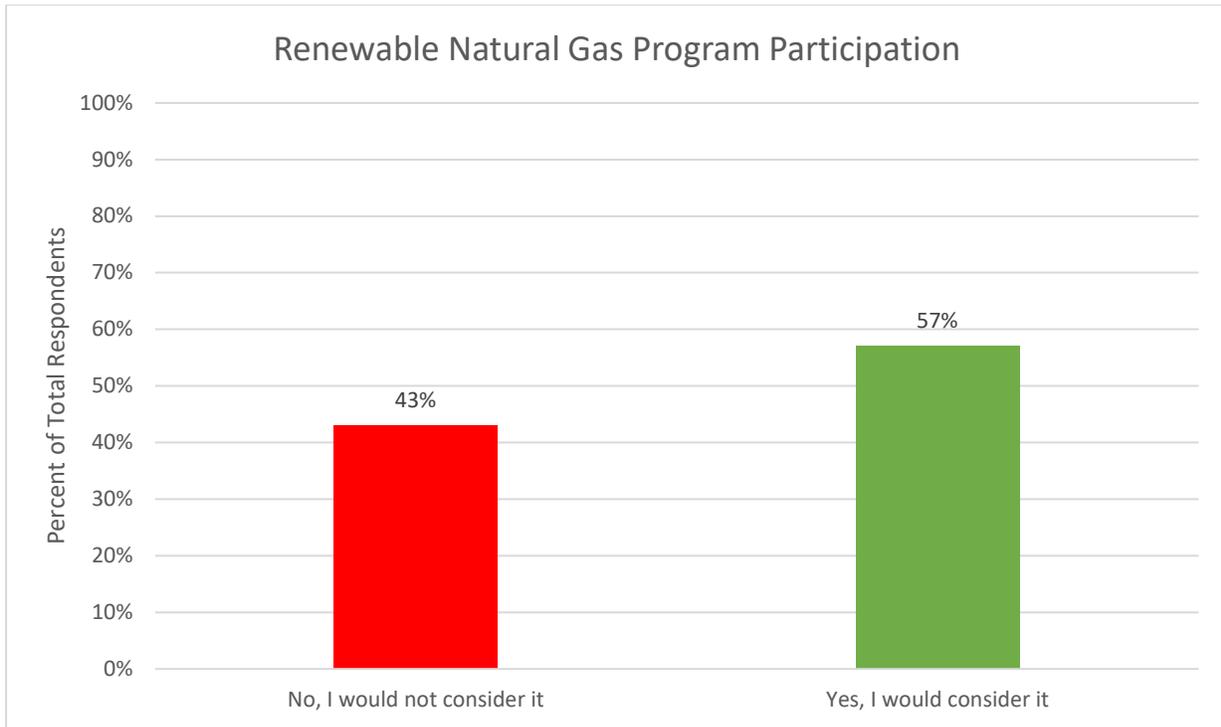
The collection of demographic data allows for a deeper investigation of the responses.

Figure 1



1. Over half (57%) of respondents would consider participating in a renewable natural gas program. Of those that responded they are not interested in participating in a renewable natural gas program, the most common reason was not knowing enough about the program.

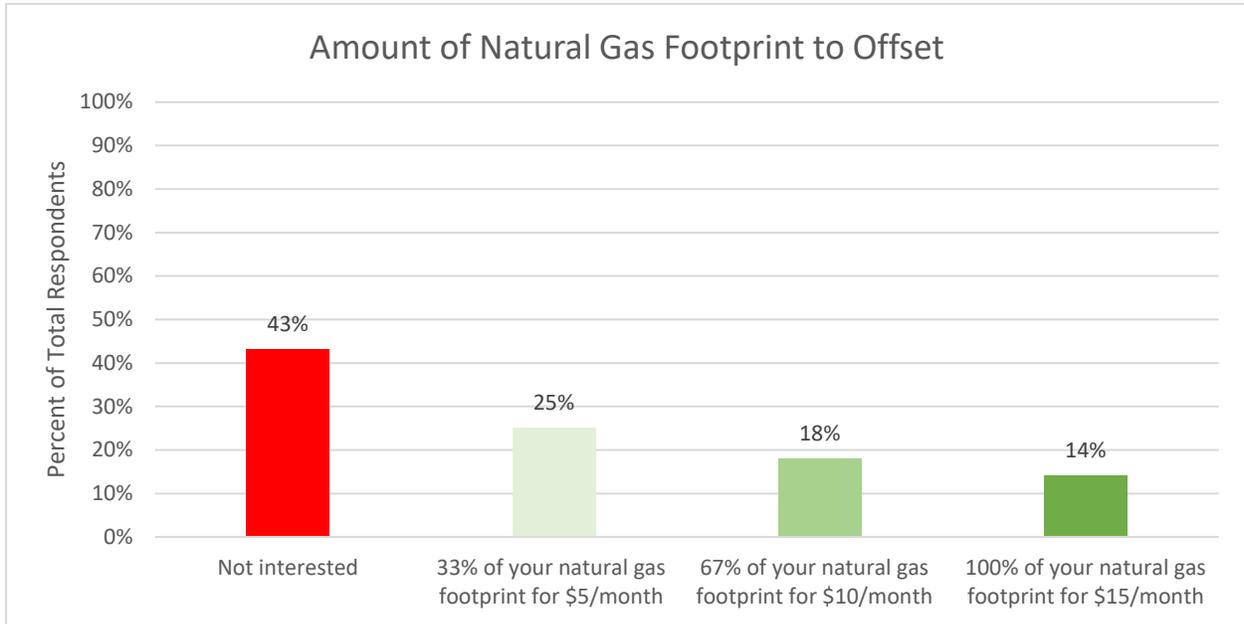
Figure 2



2. Only respondents who replied that they would not consider participating in a renewable natural gas program (43%) responded to this question and nearly all were unwilling to pay anything to reduce their natural gas carbon footprint.

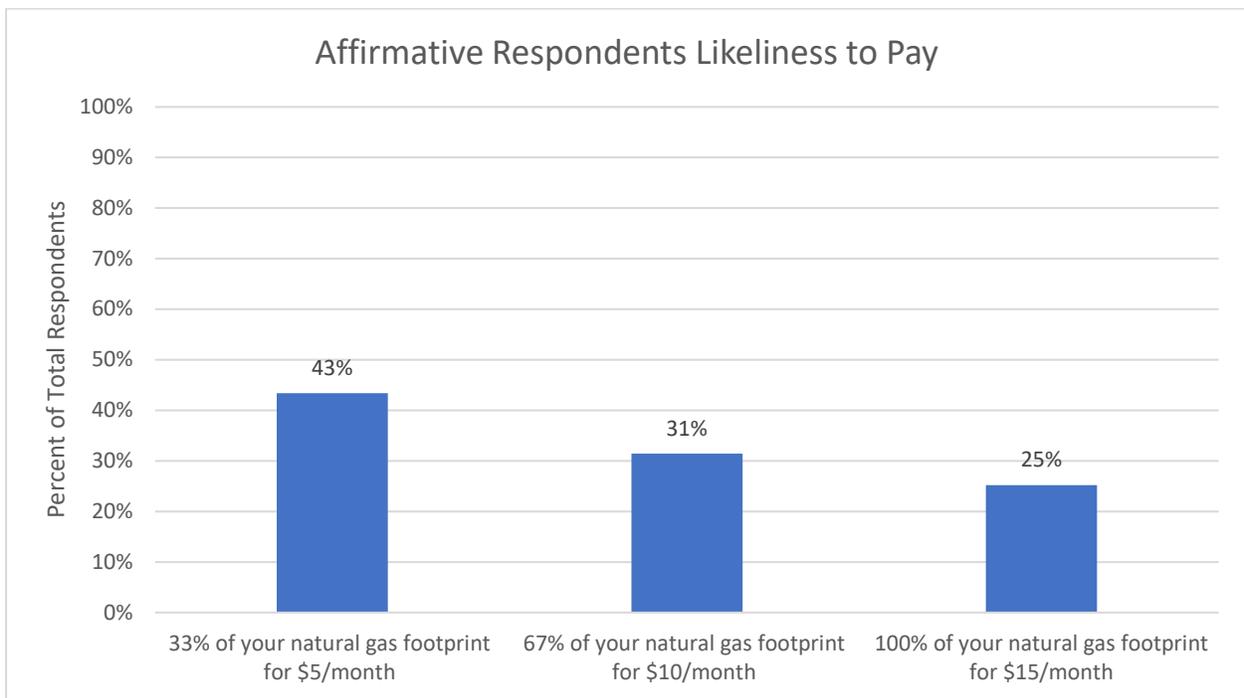
- Over half of respondents were willing to offset at least 33% of their natural gas footprint per month.

Figure 3



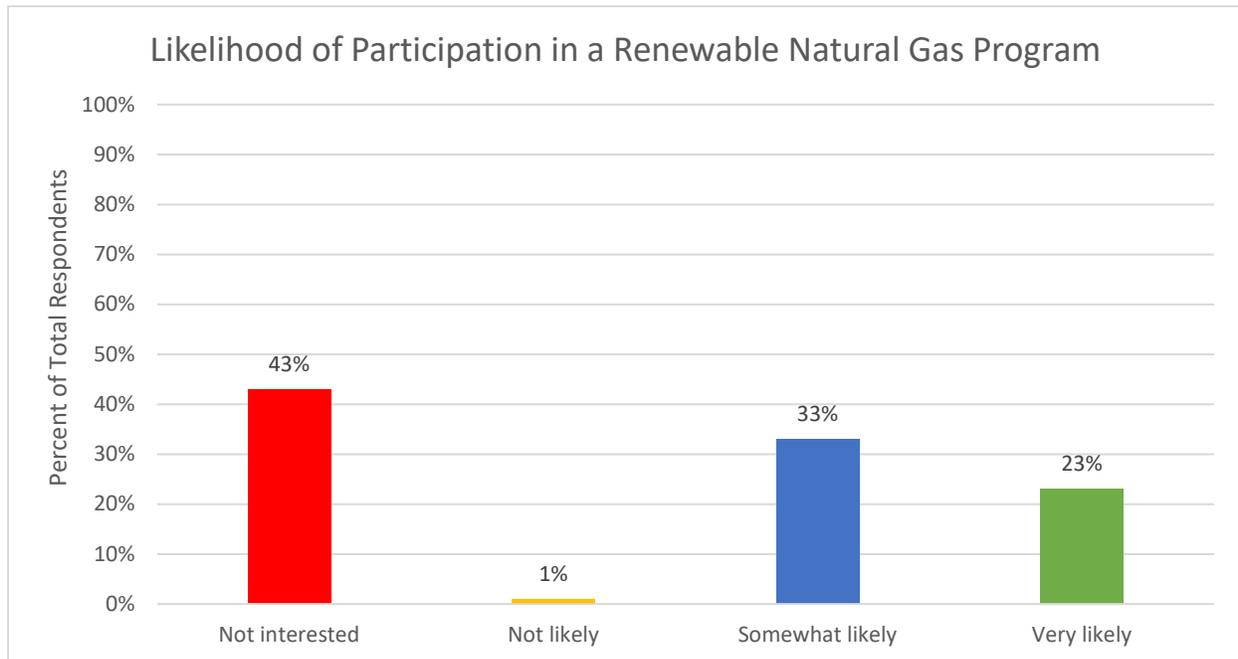
- Of those that responded that they were willing to participate in a renewable natural gas program, the majority (74%) are willing to pay \$5 or \$10 dollars per month to offset their natural gas footprint.

Figure 4



5. Of those that responded that they were willing to participate in a renewable natural gas program, almost everyone (56% of 57%) responded that they were at least ‘somewhat likely’ to participate in the program. The \$3, \$5, and \$7 price options yielded similar responses with ~19%-20% of respondents being more likely to choose one of these options and 25%-30% being unchanged.

Figure 5



Conclusion

Over half of survey respondents are both willing to consider a renewable natural gas program (Figure 2) and ‘somewhat likely’ or ‘very likely’ to participate (Figure 4). The main concerns among respondents who are unwilling to consider participation are not enough information about the program, a lack of interest in reducing carbon footprint and concerns about the cost of the program.

Most respondents willing to participate in a renewable natural gas program are willing to pay \$5 or \$10 per month (Figure 4), with the remaining willing to pay \$15 per month. The \$3, \$5, and \$7 per month options all yielded similar responses with approximately 19%-20% of willing participants being more likely to participate and 25%-30% of respondents having no change in opinion.

All sample surveys are subject to possible sampling error as well as non-sampling error. This means that the results may differ from those obtained by successfully surveying the entire population.

June 2021

DIRECT EXHIBIT KNF-1

CUSTOMER INTELLIGENCE Customer Segmentation Analysis

PRESENTED TO:

Black Hills Energy

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Objectives & Methodology

CUSTOMER INTELLIGENCE

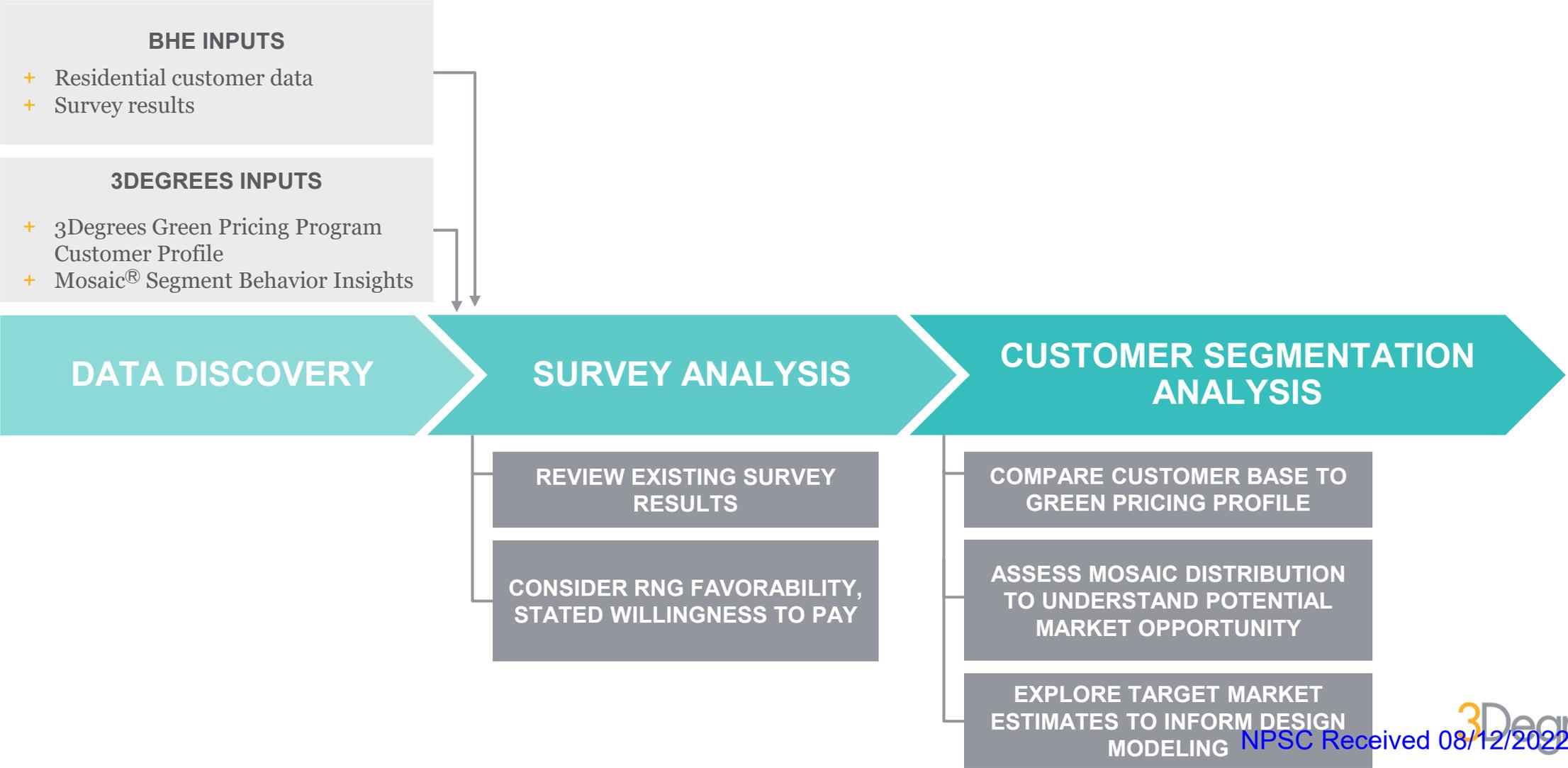
Key Objectives



- + Gain an understanding of the potential for residential customer demand - in each state served by Black Hills Energy
- + Learnings will inform program design and financial modeling process, and can guide BHE's strategy for offering program

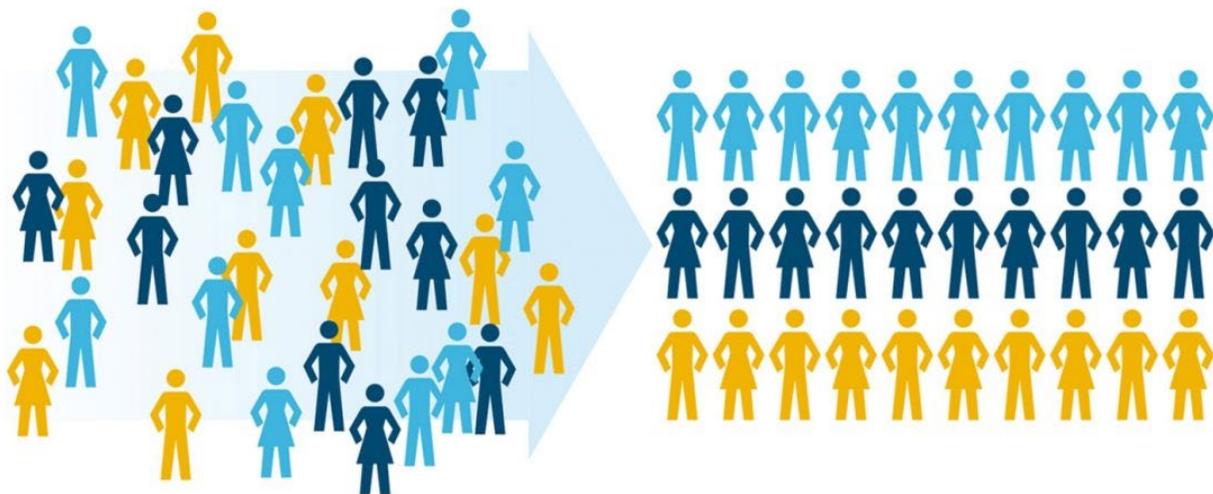
CUSTOMER INTELLIGENCE

Our Approach & Methodology



SEGMENTATION TOOL

Experian's Mosaic



- + Household-based consumer lifestyle segmentation system
- + Most powerful and reputable segmentation systems in the industry
- + 19 overarching groups/segments, each featuring a unique mix of core demographics, interests and behaviors
- + 3Degrees determined the average annual participation rate of each Mosaic segment by leveraging data from our existing utility partnerships

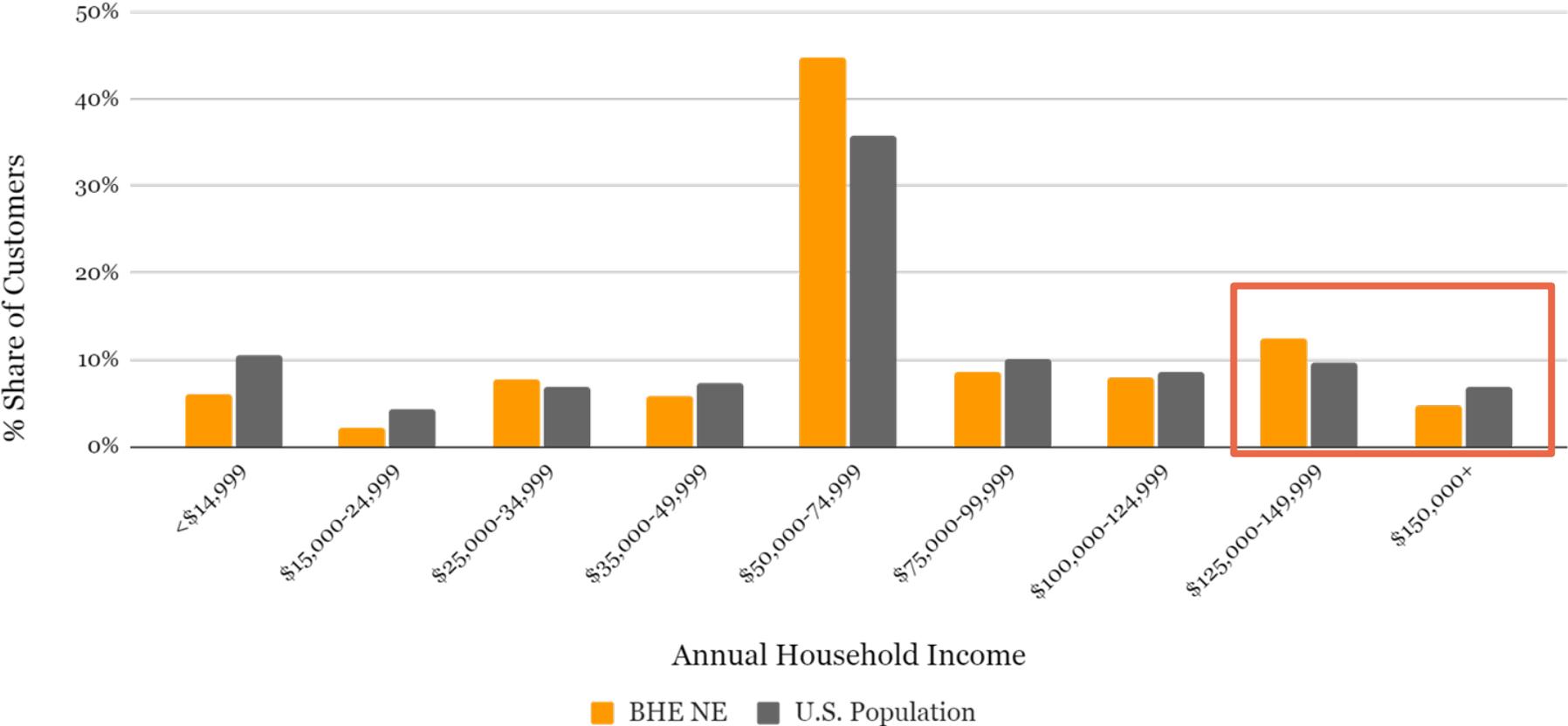
NEBRASKA

Customer Demographics & Green Propensity

DEMOGRAPHICS

17% of customers fit the income profile of the average green pricing program participant, perfectly in line with the national average (17%).

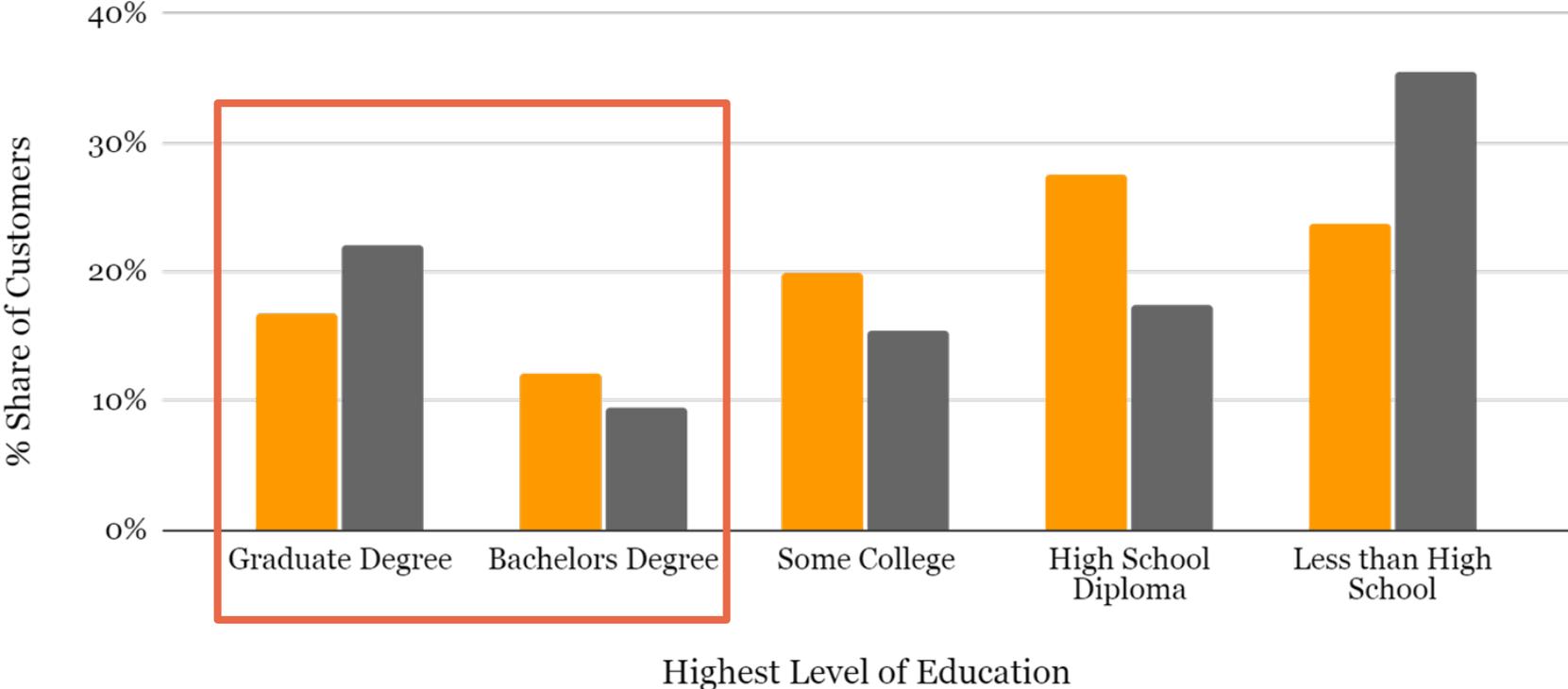
ANNUAL INCOME PROPENSITY DISTRIBUTION



DEMOGRAPHICS

Just under one third (29%) fit the education profile of the average green pricing program participant, slightly lower than the national average (32%).

EDUCATIONAL PROPENSITY DISTRIBUTION



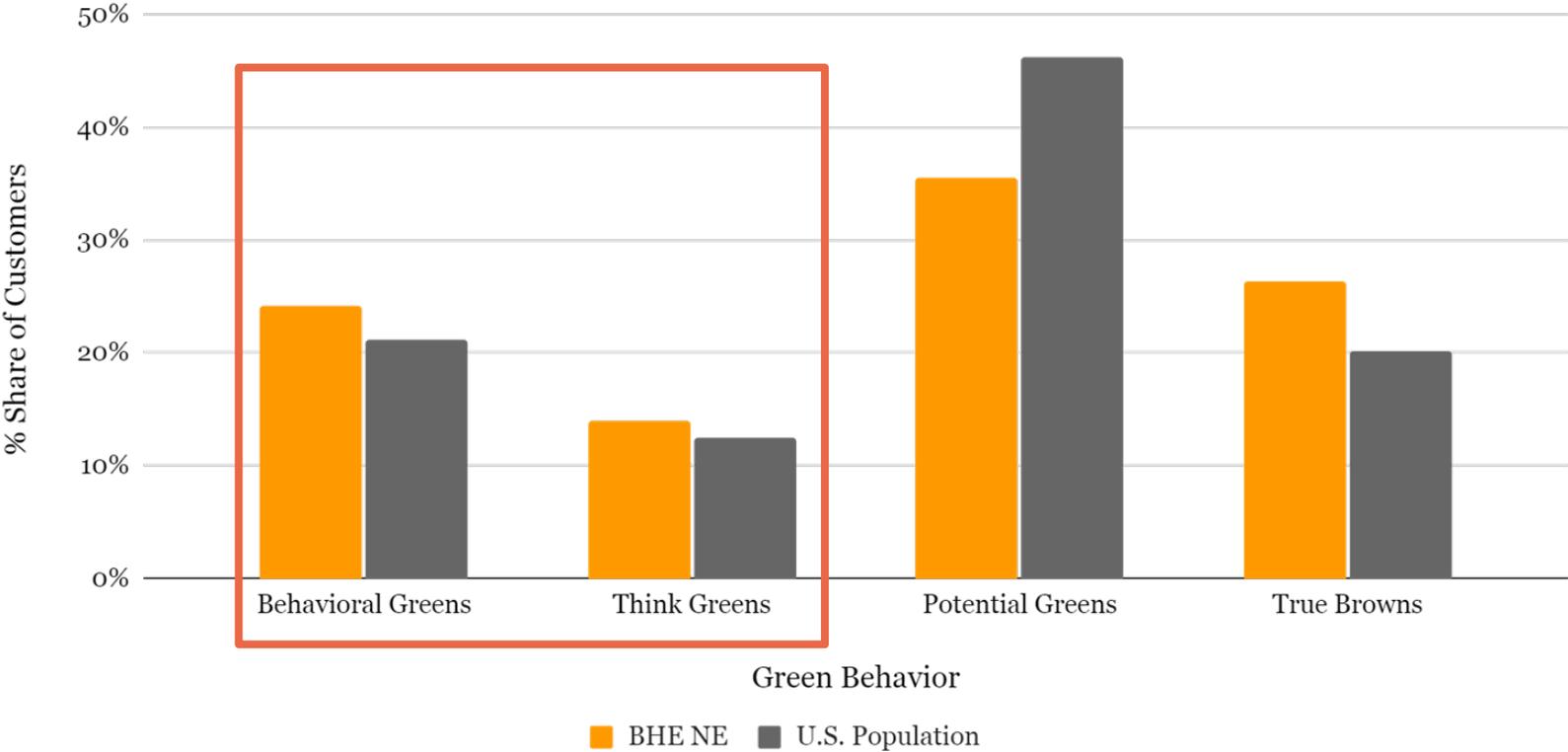
n = 236,273

■ BHE NE ■ U.S. Population

PSYCHOGRAPHICS

38% of customers are more likely to display behaviors that are considered “green” or environmentally conscious, slightly higher than the national average (34%).

GREEN BEHAVIOR PROPENSITY DISTRIBUTION



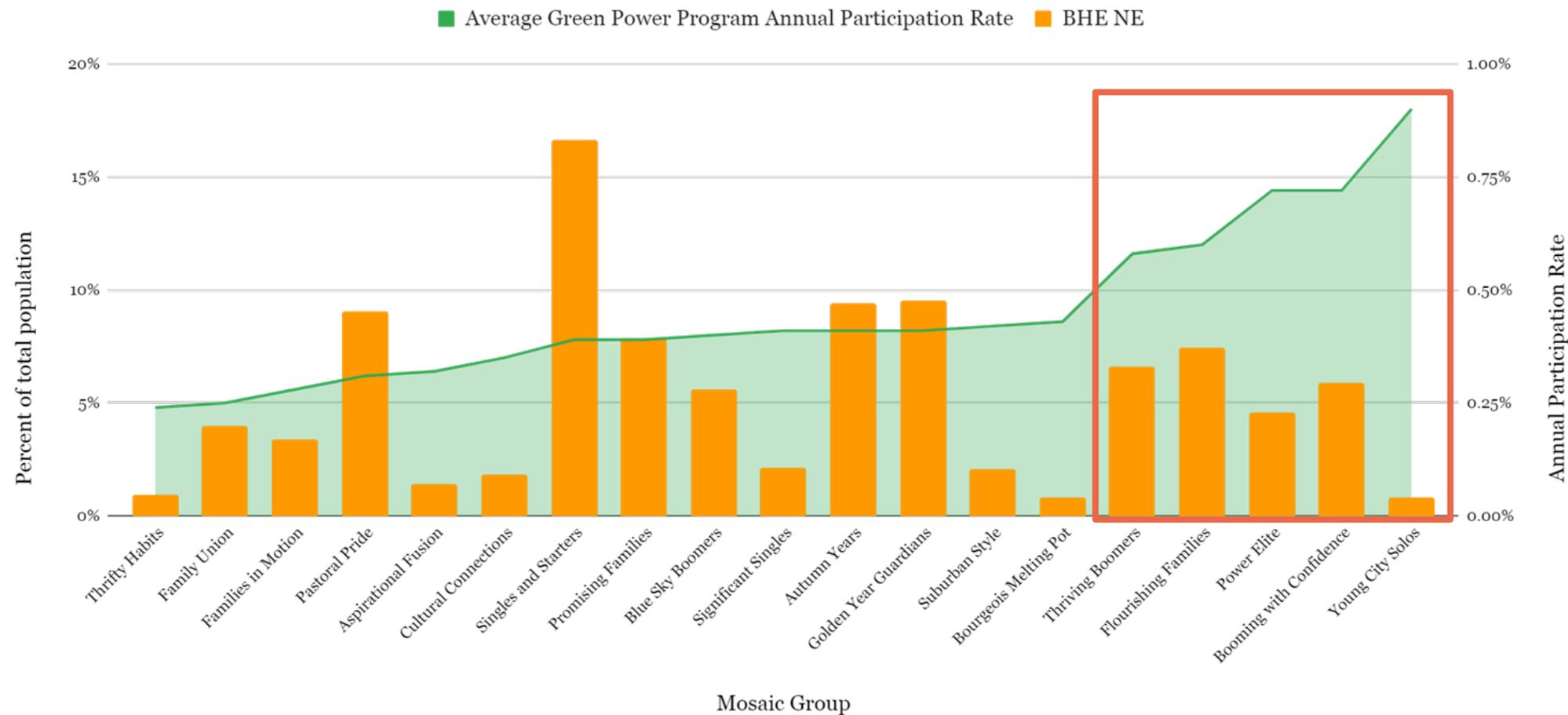
n = 236,273

NEBRASKA

Segmentation Distribution & Key Insights

MOSAIC SEGMENTATION - DISTRIBUTION & PARTICIPATION

One in four BHE NE customers are within Mosaic segments that we see participate at the highest rates (over 0.5% per year).



**Based on the average participation rate of each segment, derived from segment participation rates seen among green pricing programs in the U.S.*

← Lower Participation Rates* Higher Participation Rates* →

NOTABLE SEGMENTS

Flourishing Families

Affluent, middle-aged families and couples earning prosperous incomes and living very comfortable, active lifestyles

Age	36-45 yrs
Income	\$125,000-\$150,000
Residency Status	Homeowners in the suburbs
Education & Career	Bachelor or Graduate degree, in the tech field
Key Characteristics	Affluent, charitable contributors, athletic activities, saving for college
Technology Adoption	Journeymen
Channel Preferences	Email, Social media, SMS, TV, Direct Mail
Focus/Motivators	Family-oriented activities, moderate-to-conservative politically
Green Propensity	Think Greens



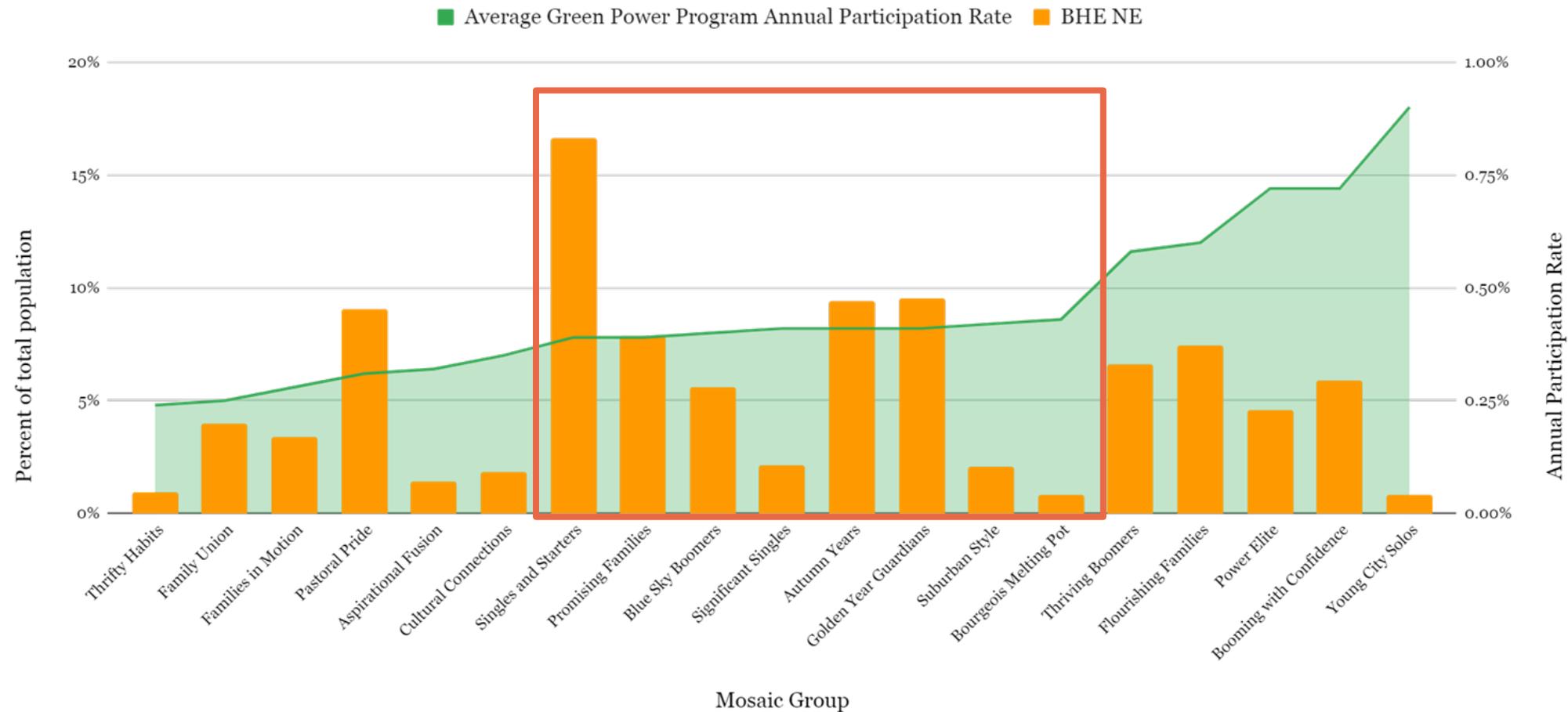
BY THE NUMBERS

7.5%
OF TOTAL

17,720
CUSTOMERS

MOSAIC SEGMENTATION - DISTRIBUTION & PARTICIPATION

Over half (54%) of BHE NE customers are within Mosaic segments that we see participate at moderate rates (between 0.39% - 0.49% per year).



**Based on the average participation rate of each segment, derived from segment participation rates seen among green pricing programs in the U.S.*

← Lower Participation Rates* Higher Participation Rates* →

NOTABLE SEGMENTS

Singles and Starters

Young singles starting out and some starter families living a city lifestyle

Age	25-30 yrs
Income	\$50,000-75,000
Residency Status	Renters living in mid-sized (20-49) apartment complexes in big cities
Education & Career	College or some college, entry-level young professionals
Key Characteristics	Single adults, politically disengaged, foodies
Technology Adoption	Journeymen
Channel Preferences	Mobile, TV, and Email
Focus/Motivators	Ambitious professionally and socially, seek novelty, plugged into latest trends
Green Propensity	Potential Greens



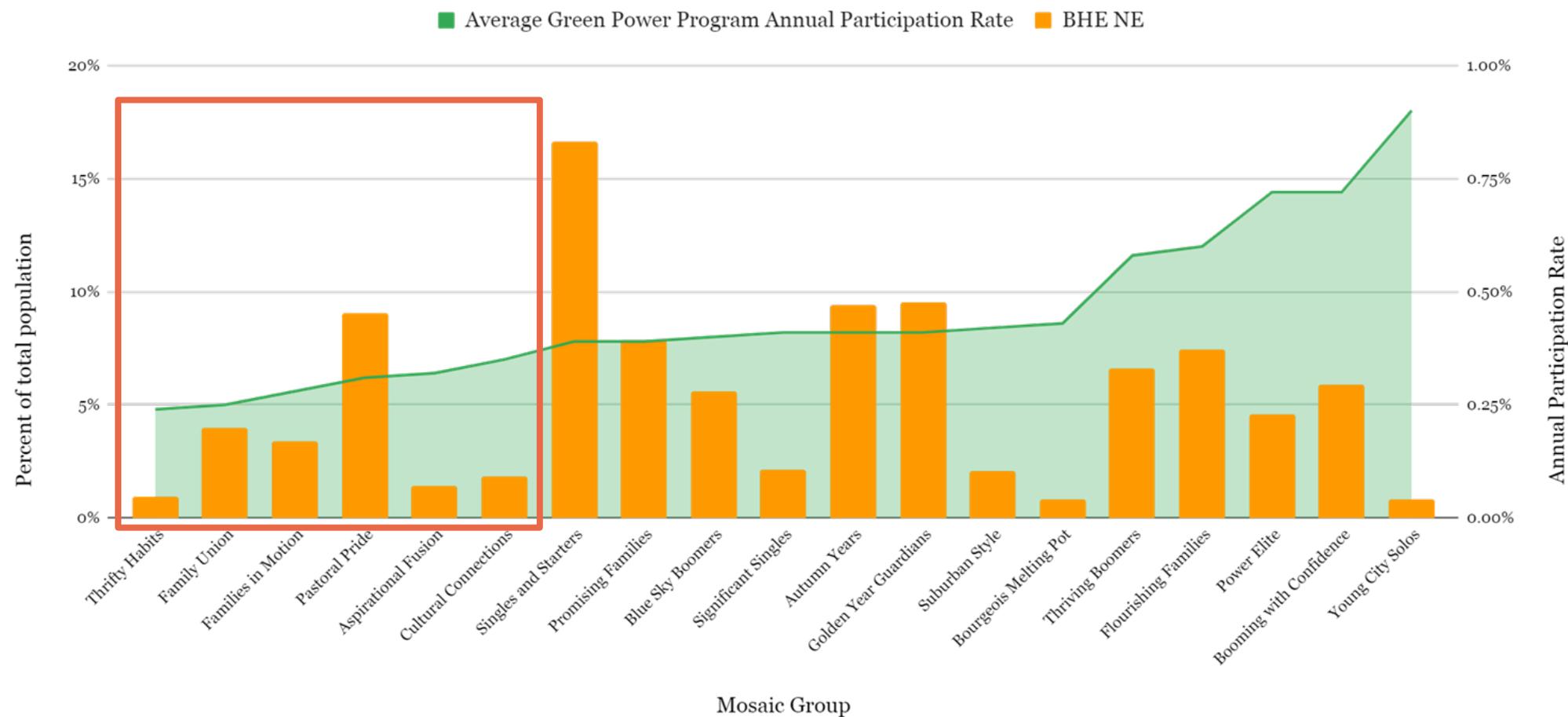
BY THE NUMBERS

16.6%
OF TOTAL

39,221
CUSTOMERS

MOSAIC SEGMENTATION - DISTRIBUTION & PARTICIPATION

21% of BHE BE customers are within Mosaic segments that we see participate at the lowest rates (under 0.35% per year).



**Based on the average participation rate of each segment, derived from segment participation rates seen among green pricing programs in the U.S.*

← Lower Participation Rates* Higher Participation Rates* →

Statement of Qualifications

Ms. Fleming studied at Drake University and the University of Edinburgh, Scotland, and holds a Bachelor of Arts in Rhetoric and Communications. She also holds a certificate in Corporate Social Responsibility from Duke University Sanford School of Public Policy. She began her professional career in 2007, holding roles in marketing, business development, and communications for companies in the telecommunications and technology sectors.

Ms. Fleming began her employment with Black Hills Corporation in March 2018 as a Corporate Communications Program Manager, supporting BHC's natural gas utilities. In March 2020, Ms. Fleming was promoted to Manager and began leading a cross-functional project team tasked with developing BHC's GHG emissions reduction goals. Following completion of the project in December 2020, Ms. Fleming was promoted to Director of ESG & Sustainability, and in July of 2021, was given additional responsibilities as the Director of Corporate Planning, Sustainability & ESG. In this capacity, she is responsible for directing BHC's sustainability strategy, ESG reporting, and strategic planning process.