PUBLIC

Part 2 of 4

INFORMATION SHEET

PRESIDING: Commissioner Duffley, Presiding; Chair Mitchell, and Commissioners Brown-Bland, Clodfelter, Hughes, McKissick, Jr., and Kemerait
PLACE: Raleigh, NC
DATE: Wednesday, August 30, 2023
TIME: 2:00 p.m. to 4:58 p.m.
DOCKET NO.: E-7, Sub 1134 and E-7 Sub 1276
COMPANY: Duke Energy Carolinas, LLC
DESCRIPTION: In the Matter of Duke Energy Carolinas, LLC Application for Approval to Construct a 402 MW Natural Gas-Fired CombustionTurbine Electric Generating Facility in Lincoln County, and for an Application for Adjustment of Rates and Charges Applicable toElectric Service in North Carolina and for Performance-BasedRegulation

VOLUME NUMBER: 11

APPEARANCES
See attached

WITNESSES
See attached

EXHIBITS

None attached

REPORTED BY: Joann Bunze
TRANSCRIBED BY: Joann Bunze
DATE FILED: September 7, 2023

TRANSCRIPT PAGES: 160
PREFILED PAGES 114
TOTAL PAGES 274

PLACE: Dobbs Building, Raleigh, North Carolina

DATE: Wednesday, August 30, 2023

TIME: 2:00 p.m. - 4:58 p.m.

DOCKET NO: E-7, Sub 1134 and E-7, Sub 1276

BEFORE: Commissioner Kimberly W. Duffley, Presiding
Chair Charlotte A. Mitchell
Commissioner ToNola D. Brown-Bland
Commissioner Daniel G. Clodfelter
Commissioner Jeffrey A. Hughes
Commissioner Floyd B. McKissick, Jr.
Commissioner Karen M. Kemerait

IN THE MATTER OF:

Duke Energy Carolinas, LLC

Application for Approval to Construct a 402 MW Natural Gas-Fired Combustion Turbine Electric Generating Facility in Lincoln County

and

Application For Adjustment of Rates and Charges Applicable to Electric Service in North Carolina and for Performance-Based Regulation

VOLUME 11

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Raleigh, North Carolina 27601

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FOR THE USING AND CONSUMING PUBLIC PURSUANT TO
N.C.G.S. § 62-20 AND ON BEHALF OF THE STATE AND ITS
CITIZENS PURSUANT TO N.C.G.S. § 114-2(8):
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Derrick C. Mertz, Esq.,
Special Deputy Attorney General
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FOR THE USING AND CONSUMING PUBLIC:
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Robert B. Josey, Esq.
Nadia L. Luhr, Esq.
Anne M. Keyworth, Esq.
William S.F. Freeman, Esq.
William E.H. Creech, Esq.
Thomas Felling, Esq.
Public Staff - North Carolina Utilities Commission
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TABLE OF CONTENTS

EXAMINATIONS

PANEL OF JONATHAN L. BYRD AND MORGAN BEVERIDGE	PAGE
Cross Examination By Mr. Quinn	14
Cross Examination By Mr. Felling	35
Redirect Examination By Ms. McIntosh JAGANNATHAN	50
Examination By Commissioner Duffley	58
PANEL OF Conitsha B. Barnes, Lesley G. Quick, and Bradley G. Harris	**PAGE**
Direct Examination By Mr. Combs	68
Prefiled Settlement Testimony of the Affordability Panel	71
Prefiled Summary of the Settlement Testimony of the Affordability Panel	79
Cross Examination By Ms. Cress	81
Cross Examination By Mr. Trathen	98
Examination By Commissioner McKissick	101
BRADLEY G. HARRIS	**PAGE**
Direct Examination By Mr. Combs	106
Prefiled Direct Testimony of Bradley G. Harris	109
Prefiled Summary of the Direct Testimony of Bradley G. Harris	125
Cross Examination By Ms. Cress	127

PANEL OF LAURA A. BATEMAN AND PHILLIP O. STILLMAN	PAGE
Direct Examination By Ms. McGrath.....	132
Prefiled Direct Testimony of the PBR Policy ... Panel	138
Prefiled Supplemental Testimony of the PBR .... Policy Panel	190
Prefiled Settlement Testimony of the PBR ..... Policy Panel	197
Prefiled Settlement Testimony Supporting ..... the TCA Stipulation of Laura A. Bateman	212
Prefiled Settlement Testimony Supporting ..... the Amended Revenue Requirement Stipulation of Laura A. Bateman	215
Prefiled Summary of the Direct and ..... Supplemental Testimony of the PBR Policy Panel	222
Prefiled Summary of the Settlement ..... Testimony of the PBR Policy Panel	224
Prefiled Summary of the Settlement ..... Testimony Supporting the TCA Stipulation of Laura A. Bateman	226
Prefiled Summary of the Settlement ..... Testimony Supporting the Amended Revenue Requirement Stipulation of Laura A. Bateman	227
Cross Examination By Ms. Cress.....	228
Cross Examination By Mr. Trathen.....	233
Cross Examination By Mr. Magarira.....	251

E X H I B I T S

	IDENTIFIED/ADMITTED
Public Staff Beveridge Byrd Direct, Settlement, and Rebuttal Cross Exhibit 1	49/67
Byrd Exhibits 1 through 7	-/66
Beveridge Direct Exhibits 1 through 10, with Revised Exhibit 4	-/66
Beveridge Supplemental Direct Exhibits 1 and 2	-/66
Beveridge Settlement Exhibit 4, 4-1, 4-2, and 4-3	-/66
Blue Ridge EMC, et al. Byrd Beveridge Direct, Rebuttal, and Settlement Cross Exhibit 1	-/66
CUCA Beveridge Byrd Direct, Rebuttal, and Settlement Cross Exhibits Number 1 and 2	-/67
CIGFUR III Affordability Panel Settlement Cross Exhibit 1	88/105
CIGFUR III Affordability Panel Settlement Cross Exhibit 2	91/105
CIGFUR III Affordability Panel Settlement Cross Exhibit 3	94/105
CIGFUR III Affordability Panel Settlement Cross Exhibit 4	97/105
Harris Exhibits 1 through 6	108/131
PBR Policy Panel Exhibits 1 through 4	137/-
PBR Policy Panel Supplemental Exhibit 3	137/-

PBR Policy Panel Settlement 137/-
Exhibits 1, 3, and 4

CIGFUR III PIMs Panel Direct and ... 229/-
Settlement Cross Exhibit 1

CIGFUR III PIMs Panel Direct and ... 229/-
Settlement Cross Exhibit 2

OFFICIAL COPY

May 26 2023

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8-28-23 DOCKET NO.: E-7 Sub 1276

ATTORNEY NAME and TITLE: JACK E. JIRAK, DEPUTY GENERAL COUNSEL

FIRM NAME: DUKE ENERGY

ADDRESS: 410 S. WILMINGTON ST.

CITY: RALEIGH STATE: NC ZIP CODE: 27602

APPEARANCE ON BEHALF OF: Duke Energy Carolinas, LLC

APPLICANT: X COMPLAINANT: ___ INTERVENOR: ___

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

Non-confidential transcripts are located on the Commission's website. To view and/or print transcripts, go to https://www.ncuc.net/, hover over the Dockets tab, select Docket Search, enter the docket number, and click search, select the highlighted docket number and select Documents for a list of all documents filed.

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_____ **Yes, I have signed the Confidentiality Agreement.**

Email: JACK.JIRAK@DUKE-ENERGY.COM

SIGNATURE: _____

(Signature Required for distribution of CONFIDENTIAL information)

OFFICIAL COPY

Jul 17 2023

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 6/21/2023 DOCKET NO.: E-7 Sub 1276

ATTORNEY NAME and TITLE: Jason Higginbotham

Associate General Counsel

FIRM NAME: Duke Energy

ADDRESS:

CITY: STATE: ZIP CODE:

APPEARANCE ON BEHALF OF: Duke Energy Carolinas LLC

APPLICANT: X COMPLAINANT: ___ INTERVENOR: ___

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

Non-confidential transcripts are located on the Commission's website. To view and/or print transcripts, go to https://www.ncuc.net/, hover over the Dockets tab, select Docket Search, enter the docket number, and click search, select the highlighted docket number and select Documents for a list of all documents filed.

ONLY fill out this portion if you have signed an NDA to receive **CONFIDENTIAL** transcripts and/or exhibits:

☑ **Yes, I have signed the Confidentiality Agreement.**

Email: jason.higginbotham@duke-energy.com

SIGNATURE:

(Signature Required for distribution of CONFIDENTIAL information)

OFFICIAL COPY

May 26 2023

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8-28-23 DOCKET NO.: E-7 Sub 1276

ATTORNEY NAME and TITLE: JAMES H. JEFFRIES IV, PARTNER

FIRM NAME: MCGUIREWOODS LLP

ADDRESS: 201 N. TRYON STREET, SUITE 3000

CITY: CHARLOTTE STATE: NC ZIP CODE: 28202

APPEARANCE ON BEHALF OF: Duke Energy Carolinas, LLC

APPLICANT: X COMPLAINANT: ___ INTERVENOR: ___

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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X **Yes, I have signed the Confidentiality Agreement.**

Email: JJEFFRIES@MCGUIREWOODS.COM

SIGNATURE: _____

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8/23/2023 DOCKET NO.: E-7 Sub 1276

ATTORNEY NAME and TITLE: Andrea R. Kells, Counsel

FIRM NAME: McGuireWoods, LLP

ADDRESS: 501 Fayetteville St. Suite 500

CITY: Raleigh STATE: NC ZIP CODE: 27601

APPEARANCE ON BEHALF OF: Duke Energy Carolinas, LLC

APPLICANT: X COMPLAINANT: ___ INTERVENOR: ___

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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X **Yes, I have signed the Confidentiality Agreement.**

Email: akells@mcguirewoods.com

SIGNATURE: Andrea R. Kells Digitally signed by Andrea R. Kells Date: 2023.08.23 09:43:52 -04'00'

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: August 28, 2023 **DOCKET NO.:** E-7 Sub 1276

ATTORNEY NAME and TITLE: Kristin M. Athens, Esquire

FIRM NAME: McGuireWoods LLP

ADDRESS: 501 Fayetteville St. Suite 500

CITY: Raleigh **STATE:** NC **ZIP CODE:** _____

APPEARANCE ON BEHALF OF: Duke Energy Carolinas, LLC

APPLICANT: x **COMPLAINANT:** ___ **INTERVENOR:** ___

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

Non-confidential transcripts are located on the Commission's website. To view and/or print transcripts, go to https://www.ncuc.net/, hover over the Dockets tab, select Docket Search, enter the docket number, and click search, select the highlighted docket number and select Documents for a list of all documents filed.

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x **Yes, I have signed the Confidentiality Agreement.**

Email: kathens@mcguirewoods.com

SIGNATURE: Kristin M. Athens Digitally signed by Kristin M. Athens Date: 2023.08.22 11:24:07 -04'00'

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: August 22, 2023 **DOCKET NO.:** E-7, Sub 1276

ATTORNEY NAME and TITLE: Brandon F. Marzo, Partner

FIRM NAME: Troutman Pepper Hamilton and Sanders LLP

ADDRESS: 600 Peachtree Street NE, Suite 3000

CITY: Atlanta **STATE:** GA **ZIP CODE:** 30308

APPEARANCE ON BEHALF OF: Duke Energy Carolinas, LLC

APPLICANT: X **COMPLAINANT:** ___ **INTERVENOR:** ___

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

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X **Yes, I have signed the Confidentiality Agreement.**

Email: brandon.marzo@troutman. com

SIGNATURE:

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8/22/23 DOCKET NO.: E-7, Sub 1276

ATTORNEY NAME and TITLE: Melissa Oellerich Butler, Associate

FIRM NAME: Troutman Pepper Hamilton Sanders LLP

ADDRESS: 600 Peachtreet St. NE Suite 3000

CITY: Atlanta STATE: GA ZIP CODE: 30308

APPEARANCE ON BEHALF OF: Duke Energy Carolinas, LLC

APPLICANT: X COMPLAINANT: ___ INTERVENOR: ___

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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X **Yes, I have signed the Confidentiality Agreement.**

Email: melissa.butler2@duke-energy.com

SIGNATURE: Melissa Oellerich Butler Digitally signed by Melissa Oellerich Butler Date: 2023.08.22 09:57:11 -04'00'

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8/22/23 DOCKET NO.: E-7, Sub 1276

ATTORNEY NAME and TITLE: Joshua Warren Combs, Associate Attorney

FIRM NAME: Troutman Pepper Hamilton Sanders LLP

ADDRESS: 600 Peachtree Street, NE, Suite 3000

CITY: Atlanta STATE: GA ZIP CODE: 30308

APPEARANCE ON BEHALF OF: Duke Energy Carolinas, LLC

APPLICANT: X COMPLAINANT: ___ INTERVENOR: ___

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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ONLY fill out this portion if you have signed an NDA to receive CONFIDENTIAL transcripts and/or exhibits:

X **Yes, I have signed the Confidentiality Agreement.**

Email: Josh.Combs@troutman.com

SIGNATURE: _____

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8/22/2023 **DOCKET NO.:** E-7, Sub 1276

ATTORNEY NAME and TITLE: Kiran H. Mehta, Partner

FIRM NAME: Troutman Pepper Hamilton Sanders LLP

ADDRESS: 301 S. College St., Suite 3400

CITY: Charlotte **STATE:** NC **ZIP CODE:** 28202

APPEARANCE ON BEHALF OF: Duke Energy Carolinas, LLC

APPLICANT: X **COMPLAINANT:** ___ **INTERVENOR:** ___

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

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ONLY fill out this portion if you have signed an NDA to receive CONFIDENTIAL transcripts and/or exhibits:

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: August 22, 2023 **DOCKET NO.:** Docket No. E-7, Sub 1276

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CITY: Charlotte **STATE:** NC **ZIP CODE:** 28202

APPEARANCE ON BEHALF OF: Duke Energy Carolinas, LLC

APPLICANT: X **COMPLAINANT:** ___ **INTERVENOR:** ___

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

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ONLY fill out this portion if you have signed an NDA to receive CONFIDENTIAL transcripts and/or exhibits:

X **Yes, I have signed the Confidentiality Agreement.**

Email: molly.jagannathan@troutman.com

SIGNATURE: Molly M. Jagannathan Digitally signed by Molly M. Jagannathan DN: CN = Molly M. Jagannathan, email = molly.jagannathan@troutman.com, C = US Date: 2023.08.22 10:14:33 -04'00'

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: August 23, 2023 **DOCKET NO.:** E-7, SUB 1276

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FIRM NAME: TROUTMAN PEPPER HAMILTON SANDERS LLP

ADDRESS: 301 S. COLLEGE STREET; 34TH FLOOR

CITY: CHARLOTTE **STATE:** NC **ZIP CODE:** 28202

APPEARANCE ON BEHALF OF: DUKE ENERGY CAROLINAS, LLC

APPLICANT: XX **COMPLAINANT:** ___ **INTERVENOR:** ___

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

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SIGNATURE: M McGrath

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8-28-23 **DOCKET NO.:** E-7, Sub 1276

ATTORNEY NAME and TITLE: Marcus W. Trathen

FIRM NAME: Brooks Pierce McLendon Humphrey & Leonard, LLP

ADDRESS: 1700 Wells Fargo Capitol Center, 150 Fayetteville St.

CITY: Raleigh **STATE:** NC **ZIP CODE:** 27601

APPEARANCE ON BEHALF OF: CUCA

APPLICANT: ___ **COMPLAINANT:** ___ **INTERVENOR:** X

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

Non-confidential transcripts are located on the Commission's website. To view and/or print transcripts, go to https://www.ncuc.net/, hover over the Dockets tab and select Docket Search, enter the docket number and click search, select the highlighted docket number and select Documents for a list of all documents filed.

To receive an electronic **CONFIDENTIAL** transcript, please complete the following:

☒ **Yes, I have signed the Confidentiality Agreement.**

Email: mtrathen@brookspierce.com

SIGNATURE: /s/ Marcus Trathen

(Required for distribution of CONFIDENTIAL transcript)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8/23/2023 **DOCKET NO.:** E-7 Sub 1276

ATTORNEY NAME and TITLE: Matthew B. Tynan

FIRM NAME: Brooks Pierce LLP

ADDRESS: P.O. Box 26000

CITY: Greensboro **STATE:** NC **ZIP CODE:** 27420

APPEARANCE ON BEHALF OF: Carolina Utility Customers Association

APPLICANT: ___ **COMPLAINANT:** ___ **INTERVENOR:** x

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

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Email: mtynan@brookspierce.com

SIGNATURE: Matthew B Tynan

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8-28-23 **DOCKET NO.:** E-7, Sub 1276

ATTORNEY NAME and TITLE: Christopher B. Dodd

FIRM NAME: Brooks Pierce McLendon Humphrey & Leonard, LLP

ADDRESS: 115 N. 3rd St #301

CITY: Wilmington **STATE:** NC **ZIP CODE:** 28401

APPEARANCE ON BEHALF OF: CUCA

APPLICANT: ___ **COMPLAINANT:** ___ **INTERVENOR:** X

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

Non-confidential transcripts are located on the Commission's website. To view and/or print transcripts, go to https://www.ncuc.net/, hover over the Dockets tab, select Docket Search, enter the docket number, and click search, select the highlighted docket number and select Documents for a list of all documents filed.

ONLY fill out this portion if you have signed an NDA to receive CONFIDENTIAL transcripts and/or exhibits:

X **Yes, I have signed the Confidentiality Agreement.**

Email: cdodd@brookspierce.com

SIGNATURE: /s/ Christopher Dodd

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: August 22, 2023 **DOCKET NO.:** E-7, Sub 1276; E-7, Sub 1134

ATTORNEY NAME and TITLE: Christina Cress, Partner; Douglas "D.C." Conant, Associate (Bailey & Dixon, LLP)

Chris S. Edwards, Partner (Ward & Smith, LLP)

FIRM NAME: Bailey & Dixon, LLP (CDC & DC); Ward & Smith, LLP (CSE)

ADDRESS: 434 Fayetteville St., Ste. 2500 (Bailey & Dixon); 127 Racine Drive (Ward & Smith)

CITY: Raleigh (B&D); Wilmington (W&S) **STATE:** NC **ZIP CODE:** 27601 (B&D); 28403 (W&S)

APPEARANCE ON BEHALF OF: CIGFUR III, Haywood EMC, Blue Ridge EMC, Piedmont EMC, and Rutherford EMC

APPLICANT: ___ **COMPLAINANT:** ___ **INTERVENOR:** X

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

Non-confidential transcripts are located on the Commission's website. To view and/or print transcripts, go to https://www.ncuc.net/, hover over the Dockets tab, select Docket Search, enter the docket number, and click search, select the highlighted docket number and select Documents for a list of all documents filed.

ONLY fill out this portion if you have signed an NDA to receive CONFIDENTIAL transcripts and/or exhibits:

X **Yes, I have signed the Confidentiality Agreement.**

Email: ccress@bdixon.com

SIGNATURE: Christina D. Cress Digitally signed by Christina D. Cress Date: 2023.08.22 13:33:10 -04'00'

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8/28/23 **DOCKET NO.:** E-7 Sub 1276

ATTORNEY NAME and TITLE: Ethan Blumenthal, Regulatory Counsel

FIRM NAME: North Carolina Sustainable Energy Association

ADDRESS: 4800 Six Forks Rd., Suite 300

CITY: Raleigh **STATE:** NC **ZIP CODE:** 27609

APPEARANCE ON BEHALF OF: North Carolina Sustainable Energy Association

APPLICANT: ___ **COMPLAINANT:** ___ **INTERVENOR:** X

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

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_____ **Yes, I have signed the Confidentiality Agreement.**

Email: ethan@energync.org

SIGNATURE: Ethan Blumenthal Digitally signed by Ethan Blumenthal Date: 2023.08.21 21:17:22 -04'00'

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8-28-23 **DOCKET NO.:** G-7, Sub 1276

ATTORNEY NAME and TITLE: Cassie Gavin, Director of Policy

FIRM NAME: NCSEA

ADDRESS: 4800 Six Forks Rd, Suite 300

CITY: Raleigh **STATE:** NC **ZIP CODE:** 27609

APPEARANCE ON BEHALF OF: NCSEA

APPLICANT: ___ **COMPLAINANT:** ___ **INTERVENOR:** X

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

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ONLY fill out this portion if you have signed an NDA to receive **CONFIDENTIAL** transcripts and/or exhibits:

☐ **Yes, I have signed the Confidentiality Agreement.**

Email: cassie@energync.org

SIGNATURE: s/by KTM: Cassie Gavin

(Signature Required for distribution of CONFIDENTIAL information)

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May 26 2023

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8/28/23 DOCKET NO.: E-7, Sub 1276

ATTORNEY NAME and TITLE: Ben Snowden, Partner

FIRM NAME: Fox Rothschild LLP

ADDRESS: 434 Fayetteville St., Suite 2800

CITY: Raleigh STATE: NC ZIP CODE: 27601

APPEARANCE ON BEHALF OF: North Carolina League of Municipalities

APPLICANT: ___ COMPLAINANT: ___ INTERVENOR: x

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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Email: bsnowden@foxrothschild.com

SIGNATURE: BSnowden Digitally signed by BSnowden Date: 2023.04.27 16:52:04 -04'00'

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8/25/2023 DOCKET NO.: E-7 Sub 1276

ATTORNEY NAME and TITLE:

Alan Jenkins

FIRM NAME: Jenkins at Law, LLC

ADDRESS: 2950 Yellowtail Ave

CITY: Marathon STATE: FL ZIP CODE: 33050

APPEARANCE ON BEHALF OF: The Commercial Group

APPLICANT: ___ COMPLAINANT: ___ INTERVENOR: x

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

Non-confidential transcripts are located on the Commission's website. To view and/or print transcripts, go to https://www.ncuc.net/, hover over the Dockets tab, select Docket Search, enter the docket number, and click search, select the highlighted docket number and select Documents for a list of all documents filed.

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Email: aj@jenkinsatlaw.com

SIGNATURE:

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: August 22, 2023 DOCKET NO.: E-7, SUb 1276

ATTORNEY NAME and TITLE: Catherine Cralle Jones

FIRM NAME: Law Offices of F. Bryan Brice, Jr.

ADDRESS: 130 S. Salisbury Street

CITY: Raleigh STATE: NC ZIP CODE: 27601

APPEARANCE ON BEHALF OF: Sierra Club

APPLICANT: ___ COMPLAINANT: ___ INTERVENOR: X

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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X **Yes, I have signed the Confidentiality Agreement.**

Email: cathy@attybryanbrice.com

SIGNATURE: Catherine Cralle Jones

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: August 22, 2023 DOCKET NO.: E-7, Sub 1276

ATTORNEY NAME and TITLE: Andrea C. Bonvecchio

FIRM NAME: Law Offices of F. Bryan Brice, Jr.

ADDRESS: 130 S. Salisbury Street

CITY: Raleigh STATE: NC ZIP CODE: 27601

APPEARANCE ON BEHALF OF: Sierra Club

APPLICANT: ___ COMPLAINANT: ___ INTERVENOR: X

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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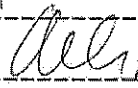
Email: andrea@attybryanbrice.com

SIGNATURE: 

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: August 28, 2023 DOCKET NO.: E-7, Sub 1276

ATTORNEY NAME and TITLE: David L. Neal, Senior Attorney

FIRM NAME: Southern Environmental Law Center

ADDRESS: 601 West Rosemary Street, Suite 220

CITY: Chapel Hill STATE: North Carolina ZIP CODE: 27516

APPEARANCE ON BEHALF OF:

North Carolina Justice Center, North Carolina Housing Coalition, Southern Alliance for Clean Energy, Natural Resources Defense Council, and Vote Solar (NCJC, et al.)

APPLICANT: ___ COMPLAINANT: ___ INTERVENOR: X

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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X **Yes, I have signed the Confidentiality Agreement.**

Email: dneal@selcnc.org

SIGNATURE: 2023.08.23 12:33:09 -04'00'

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 08/28/2023 **DOCKET NO.:** E-7, Sub 1276

ATTORNEY NAME and TITLE: Munaashe Magarira, Staff Attorney

FIRM NAME: Southern Environmental Law Center

ADDRESS: 601 W Rosemary Street, Suite 220

CITY: Chapel Hill **STATE:** NC **ZIP CODE:** 27516

APPEARANCE ON BEHALF OF: North Carolina Justice Center, North Carolina Housing Coalition, Natural Resources Defense Council, Southern Alliance for Clean Energy, and Vote Solar

APPLICANT: ___ **COMPLAINANT:** ___ **INTERVENOR:** x

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

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x **Yes, I have signed the Confidentiality Agreement.**

Email: mmagarira@selcnc.org

SIGNATURE: Digitally signed by Munaashe Magarira Date: 2023.08.22 09:28:18 -04'00'

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 05/04/2023 **DOCKET NO.:** E-2 Sub 1300

ATTORNEY NAME and TITLE: Thomas Gooding, Associate Attorney

FIRM NAME: Southern Environmental Law Center

ADDRESS: 601 W. Rosemary Street, Suite 220

CITY: Chapel Hill **STATE:** NC **ZIP CODE:** 27516

APPEARANCE ON BEHALF OF: North Carolina Justice Center, North Carolina Housing Coalition, Natural Resources Defense Council, Southern Alliance for Clean Energy, and Vote Solar

APPLICANT: ___ **COMPLAINANT:** ___ **INTERVENOR:** X

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

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X **Yes, I have signed the Confidentiality Agreement.**

Email: tgooding@selcnc.org

SIGNATURE: Thomas Gooding Digitally signed by Thomas Gooding Date: 2023.04.28 12:46:36 -04'00'

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 08/22/2023 DOCKET NO.: E-7, Sub 1276

ATTORNEY NAME and TITLE: Matthew D. Quinn, Partner

FIRM NAME: Lewis & Roberts, PLLC

ADDRESS: P. O. Box 17529

CITY: Raleigh STATE: NC ZIP CODE: 27619

APPEARANCE ON BEHALF OF: NC WARN

APPLICANT: ___ COMPLAINANT: ___ INTERVENOR: X

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8-28-2023 DOCKET NO.: E-7 Sub 1276

ATTORNEY NAME and TITLE: Kurt Boehm

FIRM NAME: Boehm, Kurtz & Lowry

ADDRESS: 36 East Seventh Street, Suite 1510

CITY: Cincinnati STATE: Ohio ZIP CODE: 45202

APPEARANCE ON BEHALF OF: Kroger Co. and Harris Teeter

APPLICANT: ___ COMPLAINANT: ___ INTERVENOR: X

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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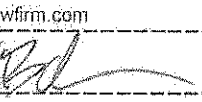
Email: kboehm@bkllawfirm.com

SIGNATURE: 

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: August 25, 2023 DOCKET NO.: E-7 Sub 1276

ATTORNEY NAME and TITLE: Jody Kyler Cohn, Esq.

FIRM NAME: Boehm, Kurtz & Lowry

ADDRESS: 36 East 7th Street, Suite 1510

CITY: Cincinnati STATE: Ohio ZIP CODE: 45202

APPEARANCE ON BEHALF OF: The Kroger Company

APPLICANT: ___ COMPLAINANT: ___ INTERVENOR: X

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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SIGNATURE: _____

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 08/25/2023 **DOCKET NO.:** E-2 Sub1300

ATTORNEY NAME and TITLE: Benjamin M. Royster, Attorney

FIRM NAME: Royster & Royster PLLC

ADDRESS: 851 Marshall St.

CITY: Mt. Airy **STATE:** NC **ZIP CODE:** 27030

APPEARANCE ON BEHALF OF: Kroger Co. and Harris Teeter

APPLICANT: ___ **COMPLAINANT:** ___ **INTERVENOR:** x

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8-28-23 **DOCKET NO.:** E-7, Sub 1276

ATTORNEY NAME and TITLE: Marcus W. Trathen

FIRM NAME: Brooks Pierce McLendon Humphrey & Leonard, LLP

ADDRESS: 1700 Wells Fargo Capitol Center, 150 Fayetteville St.

CITY: Raleigh **STATE:** NC **ZIP CODE:** 27601

APPEARANCE ON BEHALF OF: Andale, LLC

APPLICANT: ___ **COMPLAINANT:** ___ **INTERVENOR:** X

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

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To receive an electronic **CONFIDENTIAL** transcript, please complete the following:

☒ **Yes, I have signed the Confidentiality Agreement.**

Email: mtrathen@brookspierce.com

SIGNATURE: /s/ Marcus Trathen

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8/28/2023 **DOCKET NO.:** E-7, Sub 1276

ATTORNEY NAME and TITLE: Tirrill Moore

Assistant Attorney General

FIRM NAME: North Carolina Attorney General's Office

ADDRESS: 114 West Edenton Street

CITY: Raleigh **STATE:** NC **ZIP CODE:** 27602

APPEARANCE ON BEHALF OF: The using and consuming public; the State and its citizens

APPLICANT: ___ **COMPLAINANT:** ___ **INTERVENOR:** X

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

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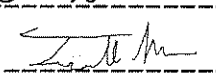
Email: temoore@ncdoj.gov

SIGNATURE: 

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: August 28, 2023 **DOCKET NO.:** E-7, Sub 1276

ATTORNEY NAME and TITLE: Derrick C. Mertz, Special Deputy Attorney General;

FIRM NAME: North Carolina Department of Justice

ADDRESS: 114 W. Edenton Steet

CITY: Raleigh **STATE:** NC **ZIP CODE:** 27603

APPEARANCE ON BEHALF OF: The using and consuming public pursuant to N.C.G.S. sec. 62-20, and on behalf of the State of North Carolina and its citizens pursuant to N.C.G.S. sec. 114-2(8)

APPLICANT: ___ **COMPLAINANT:** ___ **INTERVENOR:** X

PROTESTANT: ___ **RESPONDENT:** ___ **DEFENDANT:** ___

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X **Yes, I have signed the Confidentiality Agreement.**

Email: dmertz@ncdoj.gov

SIGNATURE: Derrick Mertz Digitally signed by Derrick Mertz Date: 2023.08.23 15:26:03 -04'00'

(Signature Required for distribution of CONFIDENTIAL information)

NORTH CAROLINA UTILITIES COMMISSION
PUBLIC STAFF - APPEARANCE SLIP

DATE August 28, 2023 DOCKET #: E-7, Sub 1276

PUBLIC STAFF ATTORNEY Lucy E. Edmondson; Robert B. Josey; Nadia L. Luhr; Thomas J. Felling; William E. H. Creech; William S.F. Freeman; Anne M. Keyworth

TO REQUEST A **CONFIDENTIAL** TRANSCRIPT, PLEASE PROVIDE YOUR EMAIL ADDRESS BELOW:

ACCOUNTING

CONSUMER SERVICES
COMMUNICATIONS
ENERGY

ECONOMICS
LEGAL lucy.edmondson@psncuc.nc.gov; robert.josey@psncuc.nc.gov; nadia.luhr@psncuc.nc.gov; thomas.felling@psncuc.nc.gov; zeke.creech@psncuc.nc.gov; william.freeman@psncuc.nc.gov; anne.keyworth@psncuc.nc.gov

TRANSPORTATION
WATER

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COUNSEL/MEMBER(s) REQUESTING A **CONFIDENTIAL** TRANSCRIPT WHO HAS SIGNED A CONFIDENTIALITY AGREEMENT WILL NEED TO SIGN BELOW.

/s/ Lucy E. Edmondson

/s/ Robert B. Josey

/s/ Nadia L. Luhr

/s/ Thomas J. Felling

/s/ William E. H. Creech

/s/ William Freeman /s/ Anne M. Keyworth

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Sep 26 2023

From: kszyman
To: Rory McIlmoil
Cc: detrickclark@nccaa.net; Christina Cress; danielparker@energync.org; kgrubb@rowanhelpingministries.org; al@ncjustice.org; claire@ncjustice.org; forest@cleanenergy.org; Bradley.Harris@duke-energy.com; kathleen.richard@duke-energy.com; Tim.Duff@duke-energy.com; lisa.messina.fajohn@dominionenergy.com; anitra.c.watson@dominionenergy.com; kay.jowers@duke.edu; paula.hemmer@ncdenr.gov; Pforce@ncdoj.gov; jack.floyd@psncuc.nc.gov; lucy.edmondson@psncuc.nc.gov; Munashe.Magarira@psncuc.nc.gov; Tommy.Williamson@psncuc.nc.gov; Kprice@theinstitutenc.org; vijeta.jangra@guidehouse.com; jamie.bond@guidehouse.com; Kim Campbell; jhowat@nclc.org; Elaine.Jordan@duke-energy.com; Arnie.Richardson@duke-energy.com
Subject: Re: LIAC Sub-Team C: Important Poll on Public Support for Underwriting Electricity Bill Discount
Date: Thursday, March 17, 2022 12:26:38 AM

Rory:

Excellent contributions/context in every regard. Absolutely, a volumetric rider is strongly preferred to any flat surcharge. So, a Duke Energy customer with a $200 monthly bill would have double the rider/fee compared to a customer with a $100 monthly bill (the example used below of how much an "average" customer would pay is an oversimplification, designed to prod LIAC discussion, which would need much greater sophistication/methodology).

The low-income customer needs vs. the acceptability/palatability to the general public to shoulder the cost in what some would call a "cross-subsidy" is "the meat of the coconut" in this conversation. A mechanism that "trades off" of each other. In calculating the magnitude of low-income customer needs that would specifically be tied into a program proposal addressing the NCUC's "Determine appropriateness of implementation" charge language, LIAC needs to arrive at (as you know):
* The total pool of low-income households that might be deemed eligible for assistance (@ for example 75%, 100%, 150%, or 200% of FPL - realizing the more generous the Umbrella, the greater the general public cost).
* The depth of discount - including whether discounts are graduated by income strata within the eligibility pool. Again, the more generous the discount, the greater the general public cost.
* An understanding of a realistic projection of program implementation penetration over time (will Year 1 capture/serve 15% of the eligible households? will Year 4 capture/serve 75% of the eligible households? Year 4 would require 5 times the $ to run the program compared to Year 1). The assumption here is that it will take time to crank up a program.

So, let's say purely for discussion that the total program cost in say, Year 2 (again, the 3 asterisks above, once assumptions are plugged in, can generate substantially or even wildly different numbers) is $200 Million. And arguably, the NCUC might say that "legislative direction is needed at the N.C. General Assembly". But the General Assembly - our fairly conservative G.A. -might say, "We'll approve a Bill that would cap such a program (or arrive at language that would effectively cap such a program) at $35 Million. The Legislature is going to be sensitive to the folks back home that will underwrite a Program. Then it's back to the drawing board about the assumptions of who is to be served.

Even if the Commission concludes it doesn't need/want to go to the Legislature, they may not want to approve a program that would address 100% of the need. Duke Energy is going to be sensitive to the size of the volumetric riders that their customers will be asked to pay, too. And whether this would be a DEC/DEP program or a State of North Carolina program remains to be seen.

We're seeking much-needed relief for low-income electricity customers which is somewhat

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Sep 26 2023

analogous to the housing subsidy programs. Remember that the Housing Choice Voucher Program has been around since 1974, but still only serves 25% of the needy households in North Carolina. The other 75% are stuck fending for themselves.

You and I likely will have different views about how to best craft a program of this nature, but that's the beauty of the LIAC - coming together to arrive at an appropriate, centrist recommendation.

I look forward to rolling up the shirtsleeves and making progress on this. Thanks!

Ken

On Mar 16, 2022, at 10:31 PM, Rory McIlmoil <rory@appvoices.org> wrote:

> Hey Ken,
>
> Apologies for the late reply on this but I think a lot of context is needed here. First of all, typically recommendations such as a PIPP program or tiered discount rate would be funded through a *volumetric rider*, not a monthly surcharge, in my understanding. Second, residential customers in NC already pay $2.25 per month for the REPS charge, so giving some basis for comparison would be helpful. Third, as Duke's analysis has shown, low-income customers are already subsidizing non-low-income customers to the tune of (in my calculation) $35-$45 million/year. There are roughly 3 million residential DEC/DEP customers so that equates to around $1/month at a minimum. So your first option of $0.50/month doesn't even eliminate that subsidy, while $1/month just breaks things even at best and may not even achieve that. As such I ask that survey participants consider their responses in these contexts, and I'd argue that the language in the question needs to be revised to place the focus on the needs of low-income customers rather than acceptability of the general public.
>
> Just some thoughts,
>
> Rory
>
> On Mon, Mar 7, 2022 at 4:30 PM <kszyman@aol.com> wrote:
>
> > Dear Sub-Team C Members:
> >
> > As you know, legislative direction for the NCUC may be needed at the N.C. General Assembly for some of the more important recommendations coming out of the LIAC to the NCUC. And we think our "determination of appropriateness of implementation of income-based rate plans" is going to be one of our most important recommendations. With the consideration of "legislative direction" comes the receptivity of the general public to our recommendations to the NCUC. Will the recommendations be perceived by North Carolinians as reasonable? As too ambitious? As not ambitious enough?
> >
> > As Co-Leads of Sub-Team C, we would like each of you to express your opinion about how much is appropriate to charge the population for an additional subsidy for the poor in the form of an electricity bill discount. We have created a form to enable you to provide input; click on this link and complete the poll: https://forms.office.com/Pages/ResponsePage.aspx?id=Q4_kTl3hSk-

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Sep 26 2023

tVdCZCqxmDqP5V_JKBvdGg3vlsclsOzFUMlBKWVdONlM5RkJGVEFUWFJOV1I2TElENy4u

We are concluding that research and projections on N,C, low-income household eligibility, depth of subsidy for each income strata, and statewide program penetration are all essential on the expense side of the equation. But the political acceptability of a given average monthly surcharge on the income side is going to be the biggest driver in the "determination of appropriateness". Collectively, the aggregate surcharges would form the pot of money that could pay for such a program or programs.

Kindly reply with your view at your earliest possible convenience. The results will help us with our program concepts and proposal creation. Thanks very much.

Detrick Clark and Ken Szymanski
Sub-Team C co-leads

--
Rory McIlmoil
Senior Energy Analyst

(*he/him/his)*

(w): (828) 278-4558
(o): (828) 262-1500, x. 624
(c): (423) 433-9415

I/A

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Aug 19 2022

Kathleen H. Richard
Counsel

NCRH 20 / P.O. Box 1551
Raleigh, NC 27602

o: 919.546.6776

kathleen.richard@duke-energy.com

August 12, 2022

VIA ELECTRONIC FILING

Ms. A. Shonta Dunston, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

RE: Joint North Carolina Low-Income Affordability Collaborative Quarterly Progress Report
Docket Nos. E-7, Subs 1213, 1214 and 1187 and E-2, Subs 1219 and 1193

Dear Ms. Dunston:

Pursuant to North Carolina Utilities Commission's ("Commission") March 31, 2021 *Order Accepting Stipulations, Granting Partial Rate Increase, and Requiring Customer Notice* in Docket Nos. E-7, Sub 1213, E-7, Sub 1214, and E-7, Sub 1187, and the Commission's April 16, 2021 *Order Accepting Stipulations, Granting Partial Rate Increase, and Requiring Customer Notice* in Docket Nos. E-2, Sub 1219 and E-2, Sub 1193 and the Commission's April 14, 2022 order granting an extension of time, enclosed for filing in the above-referenced dockets is the Joint North Carolina Low-Income and Affordability Collaborative Quarterly Progress Report of Duke Energy Carolinas, LLC, Duke Energy Progress, LLC and the Public Staff.

Please do not hesitate to contact me if you have any questions or need additional information.

Sincerely,

Kathleen H. Richard

Enclosure

cc: Parties of Record

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CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Carolinas, LLC; Duke Energy Progress, LLC and the Public Staff's Joint North Carolina Low-Income and Affordability Collaborative Quarterly Progress Report, in Docket Nos. E-7, Sub 1213; E-7, Sub 1214; E-7, Sub 1187; E-2, Sub 1219 and E-2, Sub 1193, has been served by electronic mail, hand delivery or by depositing a copy in the United States mail, postage prepaid, to parties of record.

This the 12th day of August, 2022.

Kathleen H. Richard
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Aug 19 2023

LIAC Final Report
Table of Contents

I. Background **2**

A. Procedural History 2

B. Key LIAC Activities to Date 4

II. Current Affordability Challenges **6**

A. Overview of Sub-Team A's Assessment of Current Affordability Challenges Facing Residential Customers 6

1. Overview of Sub-Team A's Analysis of the Number of Customers Living in Households with Income at or Less than 200% of the FPG ..9

2. Overview of Sub-Team A's Analysis of Patterns and Trends Concerning Energy Usage, DNPs, Payment Delinquency Histories, and Account Write-Offs Due to Uncollectability 10

B. Duke Energy Perspective 15

1. Overview of Analytics and Sources of Data 15

2. Data Attributes Assessed for the LIAC 16

III. Investigation of Current Programs **17**

A. Assessment of Current Income-Qualified Programs 18

1. Residential Income-Qualified Energy Efficiency and Weatherization Assistance for Individuals ("Weatherization Program and Equipment Replacement Program") 19

2. Residential Neighborhood Energy Saver Program 23

3. Low-Income Weatherization Pay for Performance Pilot Program 26

4. Supplemental Security Income Bill Discount Program 27

5. Share the Light Program [SM] 28

6. Helping Home Fund ("HHF") 29

a. Duke Energy Perspective 30

i. WPERP Ecosystem and Hurdles 31

ii. NES Program Expansion 32

iii. HHF Program Transition 32

iv. SSI Program 33

OFFICIAL COPY
Aug 19 2023

B. Metrics of a Successful Program 34
1. Duke Energy Perspective 35
C. Disconnection for Nonpayment Practices and Regulatory Provisions 36
1. Duke Energy Perspective 39
D. Existing Utility and External Funding Sources and the Utility's Opportunities to Collaborate and Partner with Third-Party Agencies and Organization to Deliver Affordability Programs 40
E. Cost-of-Service Allocation Effect on Rate Design and Affordability of Rates 41
1. Duke Energy Perspective 43
F. How Existing Programs Address Affordability, Cost-Causation, and Allowance of Costs Among Classes 43
1. Duke Energy Perspective 44
G. Review of EE/DSM and CRR Collaborative Efforts to Assist Low-Income Customers 45
IV. Jurisdictional Trends, Metrics, and Definitions for "Affordability" 45
A. Program Eligibility Requirements 46
B. Affordability Defined and Applied in Other Jurisdictions 47
1. Duke Energy Perspective 49
V. Overview of 3(e) Programs 50
A. Duke Energy and Public Staff Perspective 51
VI. LIAC Proposals 59
A. Duke Energy Perspective 77
VII. Duke Energy and Public Staff Recommendations 84
VIII. Public Staff Perspective on the LIAC 85
IX. Conclusion 86

OFFICIAL COPY
Aug 19 2023

LIAC Final Report
Table of Appendices

APPENDIX A **92**

LIAC February 21, 2022 Commission Briefing Presentation

APPENDIX B **101**

LIAC Approved Stakeholder List (Organization List Only)

APPENDIX C **103**

LIAC Version 4 Analytics

APPENDIX D **229**

LIAC Assessment

APPENDIX E **252**

LIAC Workshop VIII

APPENDIX F **325**

LIAC January 26, 2022 Joint Collaborative Meeting Breakout Session Feedback/Comments

APPENDIX G **412**

LIAC Proposals

APPENDIX H **502**

LIAC Workshop VII

APPENDIX I **538**

LIAC Workshop IX

OFFICIAL COPY
Aug 19 2023

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-7, SUB 1213
DOCKET NO. E-7, SUB 1214
DOCKET NO. E-7, SUB 1187
DOCKET NO. E-2, SUB 1219
DOCKET NO. E-2, SUB 1193

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1213 In the Matter of Petition by Duke Energy Carolinas, LLC, for Approval of Prepaid Advantage Program DOCKET NO. E-7, SUB 1214 In the Matter of Application by Duke Energy Carolinas, LLC, for Adjustment of Rates and Charges Applicable to Electric Utility Service in North Carolina DOCKET NO. E-7, SUB 1187 In the Matter of Application of Duke Energy Carolinas, LLC for an Accounting Order to Defer Incremental Storm Damage Expenses Incurred as a Result of Hurricanes Florence and Michael and Winter Storm Diego DOCKET NO. E-2, SUB 1219 In the Matter of: Application of Duke Energy Progress, LLC for Adjustment of Rates and Charges Applicable to Electric Service in North Carolina	**FINAL REPORT AND RECOMMENDATIONS OF THE NORTH CAROLINA LOW-INCOME AFFORDABILITY COLLABORATIVE**

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Aug 19 2023

DOCKET NO. E-2, SUB 1193	)
	)
In the Matter of:	)
Application of Duke Energy Progress,	)
LLC for an Accounting Order to Defer	)
Incremental Storm Damage Expenses	)
Incurred as a Result of Hurricanes	)
Florence and Michael and Winter Storm	)
Diego	)
	)

I. Background

A. Procedural History

In response to Duke Energy Progress, LLC's ("DEP") and Duke Energy Carolinas, LLC's ("DEC", collectively, "Duke Energy" or "the Companies") request for the North Carolina Utilities Commission (the "Commission" or "NCUC") to convene a Low-income Affordability Collaborative ("LIAC" or "Affordability Collaborative"), the Commission established the Affordability Collaborative in its March 31, 2021 Order Accepting Stipulations, Granting Partial Rate Increase, and Requiring Customer Notice in Docket No. E-7, Subs 1213, 1214, and 1187 and its April 16, 2021 Order Accepting Stipulations, Granting Partial Rate Increase and Requiring Customer Notice in Docket No. E-2, Subs 1219 and 1193 ("Rate Case Orders"). In those Rate Case Orders, the Commission directed Duke Energy and the Public Staff – North Carolina Utilities Commission ("Public Staff") to convene a collaborative for interested stakeholders within 90 days of the Rate Case Orders to address the affordability of electric service for low-income customers.

The Commission further ordered that Duke Energy and the Public Staff briefly summarize the progress made by the Affordability Collaborative within 180 days of DEC Rate Case Order date and provide quarterly progress reports thereafter. Pursuant to the

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Rate Case Orders, Duke Energy and the Public Staff filed the following progress reports with the Commission:

- 180-day Progress Report: Duke Energy and the Public Staff filed the 180-day Progress Report with the Commission September 27, 2021 ("180-day Progress Report").
- Q4 Progress Report: On January 18, 2022, Duke Energy and the Public Staff filed a progress report with the Commission summarizing LIAC activities through the fourth quarter of 2021 ("Q4 Progress Report").
- Commission Briefing: On February 4, 2022, the Commission issued an Order Requiring a Briefing on the Affordability Collaborative. In the Order, DEC and DEP, together with the co-leaders of the LIAC's four Sub-Teams, were directed to present a briefing to the Commission regarding the work of the LIAC. The co-leaders of the Sub-Teams presented to the Commission on February 21, 2022. The presentation is attached as Appendix A.
- Q1 Progress Report: On April 12, 2022, Duke Energy filed a Motion for Extension of Time to file the first quarter 2022 progress report summarizing LIAC activities between January through March 2022 ("Q1 Progress Report"). On April 14, 2022, the Commission granted Duke Energy's request for additional time, and Duke Energy and the Public Staff filed the Q1 Progress Report on April 25, 2022.

The Rate Case Orders also require that Duke Energy and the Public Staff file a joint final report with the Commission outlining the feedback and recommendations obtained in the LIAC within 12 months of the date of the first workshop ("Final Report")[1]. This Final

[1] On July 24, 2022, Duke Energy and the Public Staff filed a Joint Motion for Extension of Time to file the Final Report with the Commission. On July 27, 2022, the Commission issued an Order Granting the Joint Motion for Extension of Time (the "Order"). The Order extended the filing deadline from July 29, 2022, to August 12, 2022.

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Report summarizes the efforts, progress, and proposals of the LIAC as well as Duke Energy and the Public Staff's perspective regarding the same. Pursuant to the Rate Case Orders, the remaining LIAC participants will provide their comments and perspectives after the Commission issues a procedural order allowing for the public and interested parties to comment on the Final Report.

B. Key LIAC Activities to Date

On July 29, 2021, the LIAC hosted its initial meeting led by Guidehouse[2], the third-party facilitator. This was the first of nine LIAC workshops. Four Sub-Teams, comprised of a diverse group of Commission approved stakeholders[3], led and supported the analysis and work required to be completed by the LIAC, as described in the Rate Case Orders. In total, the four Sub-Teams held over 50 meetings to discuss and investigate affordability challenges for DEC and DEP residential North Carolina customers. As noted in the Rate Case Orders approving the LIAC, the opportunity for information sharing and alignment with the other collaboratives/working groups was an important objective of this process. On January 26, 2022, the LIAC hosted a joint workshop with members of both the Energy Efficiency Demand Side Management ("EE/DSM") and Comprehensive Rate Review ("CRR") collaboratives. The work led by the four Sub-Teams is described below.

Sub-Team A Prepared assessment of current affordability challenges facing residential customers:

- Assessed demographics by race, age, income, housing type, heating source, family size, housing value, and location
- Segmented by household income for DEC, DEP, and combined

[2]For purposes of transparency and to engage an experienced and independent third party, Duke Energy issued a request for proposals ("RFP") to a list of potential facilitators. Prior to issuing the RFP, Duke Energy worked with the Public Staff, the North Carolina Attorney General's Office ("NCAGO"), and North Carolina Justice Center ("NCJC") in drafting the RFP and identifying the potential bidders. Duke Energy and the Public Staff secured Guidehouse, Inc. ("Guidehouse") to serve as a third-party facilitator for the Affordability Collaborative's initiatives.

[3] See Appendix B

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- Analyzed billing data and arrears by average energy usage, average bill, past due amounts, disconnect non-pay, energy intensity, and seasonal impacts across all demographics
- Identified additional areas to analyze including disconnect non-pay (DNP) notifications, electric energy burden, and mobile homes
- Developed statistical models to enhance descriptive analytics
- Developed and shared initial findings related to customer challenges

Sub-Team B Jurisdictional Trends, Metrics, and Definitions for "Affordability"

- Identified and researched existing utility or state programs and metrics designed to address affordability
- Engaged subject matter experts to brief sub-team
- Investigated affordability criteria used by state or utility programs to identify program administration alignment opportunities
- Compiled findings into matrix for LIAC review

Sub-Team C Investigated existing customer offerings and practices, in addressing affordability

- Provided an overview of the following Duke Energy offerings that are income-qualified:
  - EE programs
  - Bill Pay Assistance program
  - Helping Home Fund Program
  - DEC Supplemental Security Income Bill Discount Program
- Compiled program-specific participation data requested by Commission filed in the Q1 Progress Report
- Provided overview of rate design concepts including cost of service, cost causation and cost allowances
- Provided rate design concept overview for sub-team members and support associated analyses related to minimum bill versus fixed charge and segmentation by residential class
- Overview of income-based rates and discount programs Virginia's Proposed Percent of Income Payment Plan
- Reviewed existing programs; developed program proposal process; and solicited potential proposals to be provided to the LIAC no later than April 8, 2022)

Sub-Team D Review of EE/DSM and CRR Collaborative Efforts to Assist Low Income Customers

- Held a joint meeting with members of the LIAC, EE/DSM, and CRR collaboratives on January 26, 2022
- Identified cross-collaborative participants and designated Duke Energy, the Public Staff and community/industry cross-collaborative liaisons

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- Added standing agenda item to regular LIAC sessions for sharing EE/DSM and CRR collaborative updates
- Shared customer demographic assessment data with EE/DSM and CRR collaboratives

II. Current Affordability Challenges

A. Overview of Sub-Team A's Assessment of Current Affordability Challenges Facing Residential Customers

As directed by the Commission, Duke Energy gathered data to address the following directives outlined in the Rate Case Orders:

> a. Provide an analysis of demographics of residential customers, including number of members per household, types of households (single family or multi-family), the age and racial makeup of households, household income data, and other data that would describe the types of residential customers the Company now serves. To the extent demographics vary significantly across the Company's service area, provide additional analysis of these demographic clusters.
>
> b. Estimate the number of customers who live in households with incomes at or less than 150% of the federal poverty guidelines ("FPG"), and those whose incomes are at or less than 200% of the FPG.
>
> c. For the different demographic groups identified as part of a. and b., provide an analysis of patterns and trends concerning energy usage, disconnections for nonpayment, payment delinquency histories, and account write-offs due to uncollectibility.[4]

The final version of the analytics is included in this Final Report as Appendix C, and the results are detailed in the Assessment of Customer Challenges Relating to Electric Energy Affordability ("Assessment") as Appendix D. [5] The analytics represent customer data generated March 1, 2019 through February 29, 2020 ("pre-COVID period") and serve as the primary basis for the Assessment. In response to feedback and requests from LIAC

[4] See DEC Rate Case Order at 176-179; DEP Rate Case Order at 186.
[5] Version 3 of the Assessment was provided to the Commission in the Q4 Progress Report. Version 4 was provided in the Q1 Progress Report.

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members, Duke Energy updated the analytics to include additional customer data attributes and analysis discussed further below.

As part of the LIAC process, Duke Energy presented data on the following customer segments stratified as follows: (1) Low-Income Energy Assistance Program ("LIEAP")/Crisis Intervention Program ("CIP")[6] participants, (2) less than 150% of the FPG, (3) between 150% and 200% of the FPG, (4) above 200% of the FPG, (5) meets arrears struggling definition, and (6) does not meet arrears struggling definition. In order to provide a unique supplemental look at electricity affordability and associated impacts for residential customers, the Duke Energy team developed an "arrears struggling" definition that is not directly based on income, but rather on the frequency and extent to which certain customers find themselves late in paying their monthly electric bill and/or being significantly behind on their bill. For the purpose of these analyses, Duke Energy defined "arrears struggling" customers as those who (1) were behind on paying their average/regular bill amount for six or more months during the pre-COVID period, **or** (2) were behind by twice the amount (or more) of their average bill for two or more months during that same pre-COVID period[7]. Duke Energy presented descriptive data analysis of each segment to LIAC members on the following customer demographic and housing characteristics: housing type (single versus multi-family, mobile and manufactured), housing status (owner vs renter), heating source, location, housing value, race, age of the

[6] To supplement and validate research into low-income customers, the North Carolina Department of Health and Human Services and Duke Energy executed an Amendment to an existing Data Sharing Agreement permitting Duke Energy to perform analysis on DEC and DEP customers identified as LIEAP and CIP recipients for purposes of the LIAC data analysis only. The LIEAP and CIP programs are intended to help low-income families who need assistance during a financial crisis to ensure they have access to both heating and cooling services.

[7] The arrears struggling definition is used throughout the LIAC report for the purposes of the LIAC analysis only. The definition was shared with LIAC members and used in LIAC materials without objection.

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account holder, and number of people in the household. The demographic and housing data was purchased from a third party, Acxiom, which Duke Energy primarily purchased for marketing purposes. In response to requests from the LIAC Sub-Team A members, Duke Energy updated the analytics to also include information detailing the following: Advanced Metering Infrastructure ("AMI") load shapes, additional insights to Acxiom data in comparison to census data,[8] tables including relative information detailed in graphs, insight to energy intensity, electric energy burden, sub-category housing including mobile homes, statistical modeling and analysis of disconnect non-pay notifications.

Duke Energy performed a comparison of information segmented by both income and arrears for DEC and DEP residential accounts included in the analysis. The analysis did not find any significant differences between the two utilities, and therefore the analytics reflect information for DEC and DEP collectively.

In response to requests from LIAC members for non-public customer information, including energy usage information, Duke Energy filed a Request for a Time-Limited Waiver of Certain Code of Conduct Provisions, seeking Commission approval to share the non-public customer information, without specific customer identification and aggregated to a zip code level, with LIAC members. The Commission issued an order on March 10, 2022 with conditions to provide zip code level data to Sub-Team A members. One such condition required Duke Energy to file a Memorandum of Understanding ("MOU") with Guidehouse within 30 days of the date of the order detailing the procedures for Sub-Team A members to request, receive, and destroy aggregated zip code level data[9]. On April 22, 2022, Guidehouse sent a communication to Sub-Team A detailing the process to request

[8] See Appendix C at 4-7.

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and receive zip-code level data in accordance with the filed MOU. On June 24, 2022, a member of Sub-Team A requested the information which was provided on July 7, 2022.

1. Overview of Sub-Team A's Analysis of the Number of Customers Living in Households with Income at or Less than 200% of the FPG

Duke Energy used LIEAP and CIP participation to supplement Acxiom data to identify low-income customers. To qualify for LIEAP funds, participants must have an income of less than 130% of the FPG,[10] and to qualify for CIP assistance, participants must have an income of less than 150% of the FPG. Also, Duke Energy does collect the age of account holder in the billing system, so that data was used over Acxiom's age data.

Per Duke Energy's analysis of eligible North Carolina residential accounts from the pre-COVID period, approximately 29% of these residential accounts served by DEC and DEP qualify as low-income, with a household income of 200% of the FPG or less (see Table 1 below). For the 29% of the accounts identified at or below 200% of the FPG, approximately 11% are between 150% and 200% of the FPG, 16% are less than 150% of the FPG, and the remaining 2% of the accounts are LIEAP/CIP recipients. The 29% of low-income customer accounts represent approximately 710,000 of the 2.4 million households included in the analysis (using data from the pre-COVID period). However, assuming the percentage has not declined since February 2020, 29% of Duke Energy's currently reported residential customer base of 3.07 million equates to 900,000 accounts qualifying as low-income. The 3.07 million residential accounts include all North Carolina residential active accounts as of September 30, 2021, regardless of how long the account

[10] The eligibility requirement as of March 31, 2022 was 130% of the FPG when the Version 4 analytics in Appendix C were shared with LIAC members. Duke Energy recognizes that Governor Cooper recently approved an increase in the new LIEAP income eligibility requirement from 130% to 150% of the FPG on July 11, 2022.

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was active[11]. In comparison, the 2.37 million residential accounts in the analysis reflect residential accounts active for the entire pre-COVID period from March 2019 through February 2020.

Table 1: Number of Customers at FPG Levels			
Category	% All Customers	No. Customers (2.37M)	No. Customers (3.07M)
LIEAP/CIP	2%	53,595	67,785
< 150% FPG	16%	385,339	487,365
150 - 200% FPG	11%	271,432	343,299
Total low-income	**29%**	**710,366**	**898,448**

Per Duke Energy's analysis, approximately 16% of the residential customer base (of the ~2.47 million customers included in the arrears analysis) met Duke Energy's arrears struggling definition, amounting to 395,204 customers. If this percentage were applied to the 3.07 million reported residential customers as of September 2021, the number of customers meeting Duke Energy's arrears struggling definition would be approximately 490,000.

2. Overview of Sub-Team A's Analysis of Patterns and Trends Concerning Energy Usage, DNPs, Payment Delinquency Histories, and Account Write-Offs Due to Uncollectability

Within each of the customer segments, Duke Energy provided data on average monthly kilowatt-hour ("kWh") usage, kWh usage per square foot, customers meeting Duke Energy's definition of arrears struggling, electric energy burden, 10-day and 24-hour notifications of DNP and executed DNPs. In addition, Duke Energy provided analyses on attributes by usage per month, average seasonal load shapes, and average peak day load shapes.

[11] See Docket No. M-100, Sub 158.

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Energy intensity is defined as the number of kilowatt hours per square foot and is a driving factor in low-income affordability challenges, likely in part due to housing inefficiencies. Low-income households, specifically LIEAP/CIP recipients and arrears struggling households, on average have a much higher energy intensity than non-low-income customers (> 200% FPG), as do (1) rural households, (2) younger customers, (3) customers living in low-value housing, (4) multi-family and mobile/manufactured homes households, and (5) rental households.

Additionally, Duke Energy's findings on seasonal usage for low-income and arrears struggling households indicate that a correlation may exist between higher usage and bills and inefficient housing, heating, and cooling systems. The analysis identified that low-income households use more energy in the winter and have higher winter bills than non-low-income households, but that the arrears struggling households use more energy year-round -- nearly 20% more in the summer and 30% more in the winter than non-arrears struggling households.

Other key findings from Duke Energy's analysis highlight the interplay between income level, energy intensity, and energy usage are as follows:

- Compared to non-low-income households, LIEAP/CIP recipient households experience an energy intensity that is 100% higher in the winter and approximately 40% higher in the summer.
- Non-LIEAP/CIP low-income customer energy intensity is about 33% higher than non-low-income households in winter and 14% higher in the summer.
- Arrears struggling households use 50% more energy per square foot in the winter and 33% more in the summer than households that did not meet the arrears struggling definition.
- Arrears struggling customers have a ~160% higher total bill in peak winter months (133% higher in peak summer months) than non-low-income households.
- LIEAP/CIP customers have a 100% higher total bill peak in winter months and ~70% higher in peak summer months than arrears struggling customers.

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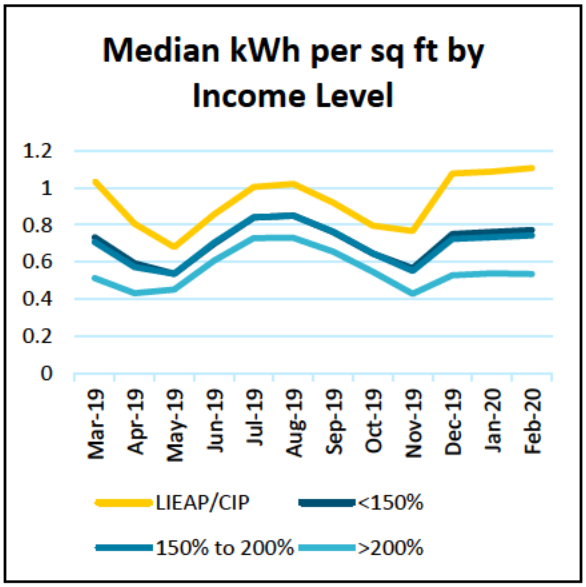
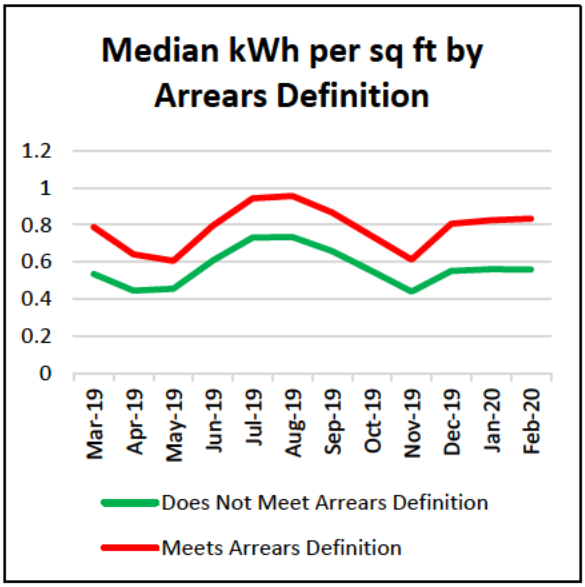
The graphs below show the median energy intensity for customers by income level (left) and arrears status (right).





Sub-Team A identified areas where additional statistical analysis could potentially be helpful to expand on the descriptive analytics to support the objectives of the LIAC. This was a more advanced analysis that helped the LIAC members better understand what was driving affordability challenges for low-income customers. Duke Energy committed to enhancing the analytics to support the Assessment. That analysis was presented on March 31, 2022 in LIAC Workshop 6 as part of Version 4 of the Analytics. Three logistic models were also created in response to stakeholder feedback to show: (1) the likelihood of low-income customers to meet the arrears definition, (2) the likelihood of low-income customers to receive a 24-hour disconnect notice, and (3) the likelihood of low-income customers to be disconnected given that they received a 24-hour DNP notice to be disconnected. The three logistic regression models assessed the relationship between each

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outcome and certain predictors,[12] which included 11 attributes: home value, electric energy burden, summer impact, winter impact and heat source, age of account holder, age of home, race, household size, population density, housing status and type, and education. The Assessment completed by Sub-Team A contains a detailed write-up of each of these models[13].

In general, most of Duke Energy's predictors had statistically significant impacts on the likelihood of a low-income customer meeting Duke Energy's definition of arrears struggling and/or being at risk of receiving a notice and being disconnected from service for non-payment. Sub-Team A found that electric energy burden, winter impact, and summer impact are the key factors that both predict being in arrears and are most capable of being addressed and improved through new programs and policies.[14] Reducing a household's winter impact appears to show the greatest potential for reducing the likelihood a household will fall into arrears, given that at even one category above the baseline, households[15] were 53% more likely to be in arrears, and at five categories above baseline, households were 129% more likely. Electric energy burden and summer impact were similar in the magnitude of their impact for groups above the baseline categories.

In addition, reducing household electric energy burden should also address financial insecurity concerns overall by lowering the overall amount of income going towards customers' electric bills. Household attributes were also statistically significant at

[12] Predictors are used in the Appendix C Analytics Version 4 statistical modeling. For example, the Age of Account Holder attribute used a Baseline of 55 Years Old. Predictors of age 18, 25, 35, 45, 65, and 85 are analyzed to show likelihood compared to the Baseline.
[13] See Appendix D at 7-18.
[14] For purposes of the statical analysis included on page 24-29 of Appendix C, the winter impact and summer impact reference the load increase over average monthly load. The impact is calculated by subtracting the average monthly load by the highest seasonal load.
[15] See Appendix C at 27.

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predicting being in arrears and suggest that focusing on renters across all types of homes (i.e., single family and multi-family) could reduce the likelihood of households falling into arrears based on Duke Energy's arrears struggling definition for the affordability analysis. Demographic and neighborhood characteristics were statistically significant in predicting the likelihood of those households that meet the arrears struggling definition in the affordability analysis. These results may provide guidance for program design or targeting outreach efforts to certain social groups, neighborhoods, and areas, but it is difficult to identify patterns regarding the age of the account holder, home value, and age of the home given that those variables utilized showed non-linearity in the models. Furthermore, race, education, and the size of a household were also significant predictors.

Regarding the likelihood of falling into the arrears struggling category, the predictors described above show that energy use-related factors significantly impact the likelihood that a customer received a 24-hour notice of disconnection for non-payment—winter impact once again showing the greatest magnitude among the energy use categories[16]. Finally, for those households receiving a 24-hour notice, energy use and age of the home were both statistically and practically significant. Those important data points suggest that focusing on reducing usage in both winter and summer and/or focusing on renters generally would reduce the likelihood of DNP once a household has received a notice. In addition, reducing household's electric energy burden would also reduce the likelihood of disconnections. Sub-Team A noted, however, that account holders with higher electric energy burdens were less likely to receive a 24-hour notice.

[16] See Appendix C at 28 for additional details.

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B. Duke Energy Perspective

1. Overview of Analytics and Sources of Data

Duke Energy partnered closely with the Affordability Collaborative members to identify, assess, and analyze the demographics information described above for residential customers. The analyses performed by Duke Energy are specific to assessing current electric energy affordability challenges facing residential customers. As discussed with LIAC members, Duke Energy recognizes there is a high likelihood that these same customers may face additional affordability challenges that expand beyond the scope of electric energy.

Acxiom is a third-party provider for demographic information that is primarily used for marketing by Duke Energy. They collect available information at the household level by using public data, buying activity, online registrations, magazine subscriptions, survey data, warranty information, etc. If this information is not available, they use other known variables of customers and information at the zip+4 and zip level using their proprietary model. They then optimize those data points to resemble the U.S. Census norms to the highest accuracy rate possible. This was the best information that was available for Duke Energy since we do not collect many of these demographics (such as race, income, etc.) and housing characteristics directly from our customers.

As discussed in Section II.A above, the analysis required Duke Energy to use demographics and income data obtained from third-party sources such as Acxiom and the North Carolina Department of Health and Human Services ("NCDHHS"). The demographics and income data obtained from Acxiom and the NCDHHS is not integrated in the Companies' billing system. Per Duke Energy's agreement with NCDHHS, the

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LIEAP/CIP recipient data provided was not used for any purpose outside of the LIAC analysis.

2. Data Attributes Assessed for the LIAC

Although Duke Energy was able to provide a comprehensive analysis and incorporate additional data attributes at the request of the LIAC in the Analytics and discussed in the Assessment, there were certain attributes that Duke Energy did not include. For instance, LIAC members requested the analysis include affordability attributes beyond electric energy such as food deserts and health care deserts. Because these areas of focus were both outside the scope of the LIAC and required data that was not readily available to Duke Energy, the request was not fulfilled because the performed analysis reflects affordability challenges specific to electric energy.

It is also important to note that Duke Energy was only able to analyze electric energy burden, and not the "full energy burden" which would include additional information for other utilities. Additionally, although the third-party data paints an accurate picture, the modeling used to perform the analysis is not exact. As such, the LIAC analytics reflects the best information Duke Energy had available at the time of analysis and, therefore, should be considered directionally accurate but not exact. As discussed further below, the analysis revealed important information and trends that will inform Duke Energy's consideration for programs and policies to assist customers facing affordability challenges.

Overall, Duke Energy agrees with the key findings that were stated in the Assessment. The Companies' key findings are as follows:

- Customers who are LIEAP/CIP recipients specifically have an opportunity for bill pay assistance and energy efficiency measures. Customers who meet the arrears

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struggling definition, which has 13% of customers who are above 200% FPG, also show opportunities in both winter and summer seasons. Customers who meet the arrears struggling definition use more energy year around but use 20% more in the summer and 30% more in the winter.

- Household attributes were also statistically significant at predicting being in arrears and suggest that focusing on renters across all types of homes (i.e., single family and multi-family) could reduce the likelihood of households falling into arrears based on Duke Energy's arrears struggling definition for the affordability analysis.
- The data results support opportunities for energy efficiency investment, especially in the winter months, to positively impact low-income households to reduce electric energy burden and energy intensity.

As discussed further in Section III below, Duke Energy, through partnerships with state agencies, currently offers energy efficiency programs to low-income customers; however, participation rates are very low. Duke Energy strongly believes that participation in energy efficiency opportunities could help lower the electric energy burden resulting in reducing arrears and DNPs. The Companies are committed to working with other organizations including leadership with NC Department of Environmental Quality State Weatherization Department ("NCDEQ") to increase the number of low-income customers receiving weatherization services.

III. Investigation of Current Programs

As directed by the Commission, the LIAC investigated the strengths and weaknesses of existing rates, rate design, billing practices, customer assistance programs and energy efficiency programs in addressing affordability and addressing the following questions:

a. What defines a "successful program" and what metrics should be monitored and presented that show the impact of programs on addressing or mitigating affordability challenges?
b. What percentage of residential customers are eligible for each existing program, and what percentage of eligible customers enroll in and/or take advantage of these programs?
c. What is the impact of existing programs on the energy burden for enrolled customers?

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d. Should existing programs be maintained, replaced or terminated? If maintained, should any changes be made to improve results? If programs are replaced, what would replace them?
e. (addressed in Section V of the Final Report).
f. How do specific programs addressing affordability affect cost-causation and allowance of costs among classes?
g. How does cost-of-service allocation affect rate design and affordability of rates?
h. What, if any, practices and regulatory provisions related to disconnections for nonpayment should be modified or revised?
i. What existing utility and external funding sources are available to address affordability? Estimate the level of sources that would be required to service additional customers.
j. What are the opportunities (and challenges) of the utilities working with other agencies and organizations to collaborate and coordinate delivery of programs that affect affordability concerns?

A. Assessment of Current Income-Qualified Programs

Sub-Team C members reviewed Duke Energy's current offering of income-qualified energy efficiency and bill pay assistance programs that address customer's affordability challenges. The specific programs reviewed and evaluated by Sub-Team C members and presented to the LIAC members included:

- Residential Income-Qualified Energy Efficiency and Weatherization Assistance for Individuals
- Residential Services Neighborhood Energy Saver Program
- Low-Income Weatherization Pay for Performance Pilot
- Helping Home Fund Program
- Share the Light Program
- Supplemental Security Income ("SSI")

The listed programs address affordability in various ways, e.g., customers participating in energy efficiency programs (and their associated supporting programs such as the Helping Home Fund) realize a reduction in their electric energy usage while customers participating in bill discount and bill pay assistance programs experience a reduction of their total bill amount. Below is a summary overview of each listed program and its role in addressing affordability.

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1. Residential Income-Qualified Energy Efficiency and Weatherization Assistance for Individuals ("Weatherization Program and Equipment Replacement Program")

Duke Energy's Weatherization Program and Equipment Replacement Program ("WPERP") is available for income-qualified customers in the DEC service territory residing in existing, individually metered single-family homes, condominiums, and mobile homes. The program funds weatherization measures, heating system replacement with a 14 or greater Seasonal Energy Efficiency Rating ("SEER") heat pump[17] and refrigerator replacement with an ENERGY STAR appliance[18]. Program participants receive a full energy audit[19] and assistance for energy efficiency measures based on energy usage. Higher energy intensity customers are eligible to receive additional funding to install more energy saving measures as outlined below.

Eligible WPERP participants must live in an individually metered single-family home and have a household income less than or equal to 200% of the FPG. The WPERP divides weatherization services participants into two tiers based on electric energy usage. Participants that have energy usage up to 7 kWh per square foot of conditioned space are in Tier 1 and may receive up to $600 for energy efficiency services. Participants that have energy usage of more than 7 kWh per square foot of conditioned space are in Tier 2 and may receive up to $4,000 for energy efficiency services. In addition, eligible customers may receive equipment upgrades for a HVAC replacement of an electric heating system

[17] The SEER measures air conditioning and heat pump cooling efficiency, which is calculated by the cooling output for a typical cooling season divided by the total electric energy input during the same time frame.
[18] Products that earn the ENERGY STAR label meet strict energy-efficiency specifications set by the U.S. Environmental Protection Agency.
[19] Full energy audit refers to having an energy expert evaluate the structure, systems and equipment to determine condition and opportunities to improve the energy efficiency of the home. The audit results determine which energy saving measures and improvements should be implemented by the weatherization agency. Health and safety issues that need to be resolved are also provided.

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and ENERGY STAR refrigerator. The replacement cost for an eligible electric heating system and ENERGY STAR refrigerator is up to $6,000 and $1,080, respectively[20]. The average investment per participant in 2020 is $4,741[21] for Tier I and Tier II weatherization and $898 for refrigerator replacement.

Duke Energy customers must be certified as having a household income that qualifies for the State of North Carolina Weatherization Assistance Program. Duke Energy's WPREP is administered through a non-profit, third-party organization that coordinates with the 20 NC Weatherization Assistance Providers ("NCWAP") to offer participants a full energy audit alongside subsequent weatherization measures and potential equipment and refrigerator replacement. Approximately, 33% of DEC's residential customers at 200% or less of the federal poverty level guidelines are eligible for the program. Since the program's inception, only 0.068% of eligible customers have participated in the programs. The low participation rate is attributed to various barriers, including the need for health and safety repairs to occur prior to installing energy efficiency measures, e.g., a participant with a hole in their roof may not receive insulation until the hole is repaired.

Duke Energy does not collect income-level household data from participants. The household income information used is based upon data from Acxiom and is applied to calculate the electric energy burden. This is similar to the process used to create the Assessment discussed in Section II of this report. This information, along with the impacts

[20] Tier I measures include air sealing, low-cost energy efficiency upgrades like LEDs, domestic water heater tank insulation, low-flow shower heads, and faucet aerators. Tier II measures include Tier I measures plus insulation improvements. Refrigerator replacement eligibility and incentive levels depend on the old refrigerator's size and a two-hour metering test.

[21] Average investment per participant is above the base Tier 1 and Tier 2 limit as the Program added up to $6,000 for HVAC replacement to Tier 2 starting in 2020.

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from the most recent final Evaluation, Measurement and Verification ("EM&V ") data reports[22] for Duke Energy's low-income energy efficiency programs, is used to calculate the energy burden impact for these energy efficiency programs including WPERP. However, the EM&V reports provide information at an aggregate level (i.e., at an average participant level); therefore, Duke Energy is unable to ascertain the specific household level impacts of its existing programs on its customers.

The EM&V savings for the Weatherization Tier 2 total impacts are calculated by determining the program participants' energy usage before and after program participation, which is then measured against a direct comparison group. Engineering estimates are utilized to evaluate the relative savings contribution of each measure in the program. Simply put, the EM&V examines impacts based on consumption. Efficiency standards and baselines were not factored into the calculation. Alternatively, Weatherization Tier 1 and Refrigerator Replacement impacts are generally the results of engineering analysis which utilizes algorithms to determine energy and demand savings via engineering equations.

The general approach for estimating a customer's electric energy burden and calculating the impact of applicable programs is as follows:

- The average income, kwh consumed, and bill amount of program participants is calculated.
- Each customer is assumed to have had the same kwh savings based on EM&V numbers blended between DEC and DEP NC, when applicable, by FPG level.
- The bill is then recalculated as if the customer did not achieve the kWh savings.

[22] The source of the impacts for the electric energy burden analysis are the Low-Income Weatherization Program (2016-2018) Evaluation Report – Final (4/16/2021) EM&V reports filed in Docket No. E-7, Sub 1265 on March 1, 2022 for Tier I, Tier II and Refrigerator Replacement and 2017 Neighborhood Energy Saver Program Evaluation Report Final (11/30/2019) filed in Docket Nos. E-7, Sub 1230 on February 25, 2020 and E-2, Sub 1252 on June 9, 2020.

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- Using those figures, the electric energy burden is calculated before and after program participation.

Below is a table showing the impact of the applicable programs on the customer's estimated electric energy burden.

Duke Energy Carolinas – North Carolina									
	Refrigerator Replacement			Weatherization Tier I			Weatherization Tier II		
	Before	After	Change	Before	After	Change	Before	After	Change
LIEAP/CIP	6.9%	6.8%	0.1%	6.9%	6.8%	0.1%	7.7%	6.8%	0.9%
<150%	6.8%	6.5%	0.3%	6.6%	6.5%	0.1%	7.5%	6.5%	1.0%
150% to 200%	4.0%	3.8%	0.2%	3.8%	3.8%	0.0%	4.3%	3.8%	0.5%

LIAC members discussed opportunities to remove barriers limiting participation in WPERP and evaluate opportunities for additional energy savings for program participants that are detailed below.

WPERP Assessment

While assessing the WPERP, Sub-Team C members posed questions to Duke Energy. Below are the questions, feedback, and recommendations received by the LIAC as a result of the assessment questions.

- What are the challenges of working with other agencies or organizations to collaborate and coordinate the delivery of this program?
  - Duke Energy has limited insight into how customers are prioritized by the NCWAP at the state and local agency level. The number of participants served could be limited by the staffing as well as contracting services available for installation.
- What opportunities are there to work with other agencies or organizations to collaborate and coordinate the delivery of this program?

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  - NCWAP works directly with the program participants and provides actionable feedback to determine how to expand the program.
- What are the strengths of this program?
  - The services are provided to program participants at no out-of-pocket cost, lower customers' energy bills, provide kWh savings to the Company and allow for investment from multiple funding sources.
- What are the weaknesses of this program?
  - Limitations to being able to address all customer needs at the time of service due to required health and safety investment.
- If given the opportunity, what are three things, you would change or add to this program to make it better and why?
  - Improve state and local agency reporting to provide more visibility into participant status and where health and safety funds are invested and tracking weatherization deferrals. This reporting will provide a greater understanding of any additional funding or program changes needed to enable customers to participate in WPERP.
  - Update the prioritization process of customers eligible for WPERP based on various factors that may include energy intensity, income level, and eligibility for other income-qualified programs and other funds.
  - Establish long-term funding for health and safety repairs to ensure customers are able to continue to receive needed WPERP services.

<u>WPERP Assessment Recommendations</u>:

- Identify opportunities to increase program participation through existing network of providers
- Evaluate opportunities to expand network of providers that supports increasing number of program participants
- Work with network providers to identify opportunities for Duke Energy to market program to eligible customers
- Evaluate opportunities with providers for increased health and safety investment

2. <u>Residential Neighborhood Energy Saver Program</u>

Duke Energy's Residential Neighborhood Energy Saver Program ("NES Program") is available to individually-metered residential customers in neighborhoods selected by Duke Energy based on data received by the U.S. Census and Acxiom. The data includes customer attributes such as income level and household size. Areas targeted for

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participation in this program typically have 50% or more of the households with income equal to or less than 200% FPG. The purpose of this program is to assist low-income participants in reducing energy costs through energy education and by installing or providing energy efficiency measures in the program participant's residence. Households with higher consumption are offered additional measures to address high energy use as discussed further below.

Participating homes receive a walk-through energy audit by Duke Energy's third-party administrator, education on energy efficiency techniques and measures, and a comprehensive package of energy efficiency measures installed by the third-party administrator. The energy efficiency measures recommended for installation may include but are not limited to LED lamps, electric water heater wrap, pipe wrap and low flow devices, electric water heater temperature check and adjustment, wall plate thermometer, window air conditioner winterization kits, and air sealing measures. The NES Program recently began offering additional measures such as attic insulation, duct sealing, air sealing with a blower door, floor insulation in mobile homes and a smart thermostat to eligible customers.[23] Customers that have energy usage of more than 7 kWh per square foot of conditioned space are eligible for the additional measures. Historically, approximately 65% of customers in the selected neighborhoods participate in the NES Program. Although the COVID –19 pandemic reduced participation rates in 2020, 2021 and into 2022, the NES Program has experienced an improvement in participation rates this year.

[23] These measures became available in the third quarter of 2021.

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Approximately 33% of DEC and DEP's North Carolina customers are eligible for the NES Program.[24] Since the Program's inception, 7.8% and 10% of eligible DEC and DEP customers respectively have participated in the program. The average investment per participant in 2020 was $299 and $329 for DEC and DEP, respectively. [25]

The third-party EM&V evaluator generally uses consumption analyses to verify the program savings unless extenuating circumstances (inequivalent comparison groups) exist. The verified energy savings from the most recent program EM&V at the time of this analysis were 715 kWh per year per DEC and DEP participant. Below is a table showing the impact of the program on the participant's estimated electric energy burden.

	Neighborhood Energy Saver		
	Before	**After**	**Change**
LIEAP/CIP	8.7%	8.3%	0.4%
<150%	8.1%	7.7%	0.4%
150% to 200%	4.6%	4.3%	0.3%

LIAC members discussed opportunities to eliminate barriers that limit participation in NES Program and evaluate opportunities for additional energy savings for program participants as detailed below.

[24] This percentage reflects active residential customers that reside in single family dwellings whose accounts have been identified as <200% FPL from Acxiom. This data may differ slightly from other analytics performed using different eligibility requirements and different timeframes.
[25] The investment per participant totals are corrected amounts. These amounts differ from the totals shared in Workshop VII on May 7, 2022 due to an identified lag in invoice processing.

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NES Program Assessment

While assessing the NES Program, Sub-Team C members posed assessment questions to Duke Energy. Below are the questions, feedback, and recommendations received.

- What are the opportunities of working with other agencies or organizations to collaborate and coordinate the delivery of this program?
  - Utilize NES Program to refer customers to state agencies for health and safety repairs. Engage local weatherization and agencies in kickoff and neighborhood events to better support customer additional needs.
- What are the strengths of this program?
  - The services are provided at no out-of-pocket cost to program participants. The program is able to serve a large number of customers and provide 1:1 recommendations and improvements for the customer's home.
- What are the weaknesses of this program?
  - Limitations on being able to address all customer needs at the time of service due to required health and safety investment.

NES Program Assessment Recommendations

The recommendations detailed below were identified by LIAC Sub-Team C members and shared with LIAC members:

- Explore expansion into additional energy savings measures such as HVAC repair and replacement opportunities.
- Explore opportunities to partner with additional contractor networks to provide services to qualifying customers who are not located within a "neighborhood".

3. Low-Income Weatherization Pay for Performance Pilot Program

Duke Energy's Low-Income Weatherization Pay for Performance Pilot Program ("LIWPPP")[26] offered in Buncombe County, North Carolina provided incentives based on the kilowatt-hours saved by installing qualified energy efficiency measures that include but

[26] Approved in Docket No. E-2, Sub 1187 on November 27, 2018.

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are not limited to, attic or wall insulation, air sealing, refrigerator replacement, lighting, or electric water heating measures. The purpose of the 36-month pilot was to find deeper energy savings in qualified homes. Eligible participants were selected by participating weatherization assistance and other non-profit organizations using current U.S. Department of Energy Low-Income Home Energy Assistance Program grant requirements[27]. The LIWPPP was approved to operate through June 30, 2022, by the Commission. At the time of the assessment of the LIWPPP, the EM&V results were incomplete, and therefore the electric energy burden calculation was not performed.

4. Supplemental Security Income Bill Discount Program

DEC offers a bill discount to eligible Supplement Security Income recipients ("SSI Program"). SSI is a federal income supplement program designed to help elderly, blind, and disabled people who have little to no income. SSI provides recipients with cash to meet needs for food, clothing, and shelter. The Commission approved DEC's SSI Program on August 31, 1978, in Docket No. E-7, Sub 237 as an experimental discount rate under the theory that SSI recipients have usage characteristics that differ substantially from the average residential customer and as a result have a smaller impact on system costs. The SSI Program provides customers that use more than 350 kWh per month a discount of $3.17. For customers that use less than 350 kWh per month, the bill discount is equal to the total kWh x 0.9054 cents. Approximately 10,000 DEC customers were enrolled in the SSI bill discount as of April 2022.

To be eligible for the SSI Program, the primary account holder must:

- Be a residential customer in the DEC service area;

[27] The requirement for participants is they must be less than 200% of the federal poverty guidelines, with the number of disabled, elderly, and minors in the household taken into consideration, as well as a high energy burden)

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- Receive SSI;
- Be either blind, disabled, or 65 years of age and older; and
- Be the head of household and/or the principal wage earner.

Program Assessment

The majority of LIAC members support a bill discount to eligible income-qualified customers. Although the SSI Program is only available to DEC customers, the LIAC did not recommend it be expanded to DEP customers at this time.

As discussed further below in Section VI, Program Proposal 24, Customer Affordability Program,[28] proposes a bill discount for eligible DEC and DEP customers. If the Customer Affordability Program is approved by the Commission, DEC would recommend discontinuing the SSI Program and enrolling current SSI Program customers in the approved program.

5. Share the Light Program [SM]

Duke Energy's Share the Light Program is a customer assistance program that supports our most vulnerable low-income customers who need assistance paying their energy bills. The program is funded by contributions from employees, customers, and shareholders. Funds are matched by the Duke Energy Foundation. The customer assistance program has been available for over 30 years and has provided over $42M in assistance and serves over 5,000 households per year. Customers make contributions through various channels including notation on the monthly bill, a one-time payment via check, money order, online, or bill roundup.

[28] The bill discount program was referred to as the Customer *Affordability* Program throughout the LIAC and in the Companies' Proposal 24; however, the Companies recently renamed the program and refer to it as the Customer *Assistance* Program in the Duke Energy Perspective of Section's VI and will refer to it as the Customer Assistance Program in any future proceedings.

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The program is administered by the Foundation for the Carolinas and NCDHHS in the DEC and DEP service territories, respectively. Over 100 agencies distribute the funds across the state of North Carolina to provide customers with bill pay assistance for monthly bills, deposits, reconnection charges and connection charges.

Program Assessment

Duke Energy will continue to work with program administrators and partnering agencies to identify opportunities to align the program between DEC and DEP to assist more customers.

6. Helping Home Fund ("HHF")

Duke Energy was the initial funding sponsor of the HHF with a contribution of $20 million to support appliance replacement, health and safety measures, weatherization and heating and cooling replacement and repairs in eligible homes. The program was designed to leverage funds from the State Weatherization Assistance Program, which consists of U.S. Department of Energy Weatherization Assistance Program and Low-Income Energy Assistance Program. Without the HHF, more than 40% of the homes would not have received services. The HHF is administered in coordination with the North Carolina Community Action Association. Since 2015, the program has assisted over 5,000 households. Eligible customers receive a home energy assessment and weatherization assistance to help save on energy bills. Eligible DEP customers may receive all services offered by the HHF while eligible DEC customers may receive all services except weatherization services. If a DEC customer is eligible for weatherization services, the services are provided by the WPERP.

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Depending on the needs of the customer identified during the home energy assessment, customers may receive:

- Health and safety repairs up to $3,000
- Appliance replacement up to $2,000, including refrigerators, washing machines, and room air conditioners
- Heating and cooling system repairs up to $800

The average investment per home is $5,151.

Program Assessment

The HHF Program is funded by Duke Energy shareholders. The remaining funds are expected to be spent by the year-end 2024.

a. Duke Energy Perspective

The assessment of Duke Energy's income-qualified programs by LIAC members identified best practices and opportunities in support of assisting income-eligible customers by providing both energy efficiency programs and bill pay assistance programs. Duke Energy agrees with the LIAC's assessment of the NES, HHF and WPERP. The assessment provides valuable insight for Duke Energy to increase program participation in its existing customer assistance and energy efficiency programs. With regard to specific program assessments, Duke Energy recommends maintaining WPERP and NES. Duke Energy agrees with the LIAC and recommends improvements be made to these existing energy efficiency programs to increase program participation and energy savings that include:

- Identify opportunities to increase program participation through existing NCWAP network and evaluate opportunities to expand the NCWAP network
- Work with NCWAP to identify opportunities for Duke Energy to market the program to eligible customers
- Evaluate opportunities with NCWAP to eliminate participation barriers that include, but are not limited to, limited access to health and safety investment and authorization required by landlords for renter occupied residences.

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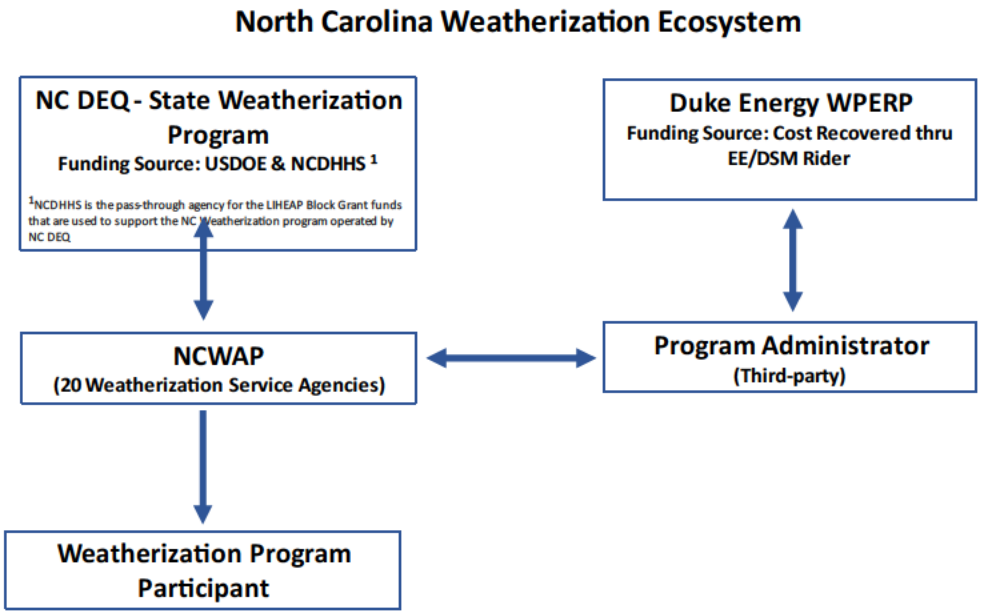
i. WPERP Ecosystem and Hurdles



WPERP is designed to provide eligible weatherization services and install equipment replacements. Through funding from DEC, the U.S. Department of Energy Office and NCDHHS through the North Carolina Department of Environmental Quality State Weatherization Program ("NCDEQ Program"), DEC's WPERP maximizes investment from multiple funding sources for in-depth weatherization services. The collaboration between NCWAP, Duke Energy, and NCDEQ is critical for maximizing energy savings and minimizing incremental costs to eligible customers without duplicating services and confusing customers. The NCWAP is responsible for qualifying eligible customers, prioritizing applications based on defined guidelines, identifying eligible health and safety investment, managing the deferral (waiting list) and evaluating approved household for weatherization programs. DEC's investment in eligible homes reduces the need for investments from other sources that would otherwise be required for energy efficiency improvements; as a result, increased investments are then available for the NCDEQ Program to make in non-DEC homes. DEC has the opportunity to recover its

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costs for its WPERP through the annual DSM/EE Riders, as provided for in Commission Rule R8-69. Therefore, an increase in customer demand can typically be met by increased funding by DEC to support more qualifying customers. DEC is committed to working with NCDEQ and NCWAP to better understand the hurdles to program participation which include but are not limited to: 1) reasons for deferral applications; 2) opportunities for marketing DEC's WPERP to DEC customers; and 3) limited health and safety investment.

ii. NES Program Expansion

The NES programs have been very well received by targeted neighborhoods, with an average participation rate of 65%, which generally serves a combination of low- and moderate-income households over a multi-month period. The personalized engagement helps build rapport and trust with the customers, resulting in them being more likely to engage with Duke Energy in receiving a variety of energy savings measures that are specific to their household needs. However, and similar to WPERP, the NES program also has opportunities to increase program participation by identifying health and safety investment. Additionally, the Companies will review opportunities to invest in additional resources necessary to expand the NES program offerings.[29]

iii. HHF Program Transition

Funded by Duke Energy shareholders, the HHF currently pays for health and safety repairs and eligible equipment replacements in the DEP and DEC service territories. The health and safety repairs were targeted for funding because they were identified as a key barrier to low-income customers receiving energy efficiency services in their household. In addition, HHF pays for DEP weatherization improvements. Based on recent estimates,

[29] Because the tight labor market in 2021 and 2022 has challenged expansion and operation of the program, Duke Energy would target adding more crews to serve additional customers in the future.

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the HHF program is currently funded through Q4 of 2024. To mitigate the impact of the HHF program ending, Duke Energy will continue to work with NCDEQ to identify different funding sources for health and safety investments and ways to increase low-income customer participation in WPERP.

DEP's recent filing for approval of its proposed Income-Qualified Weatherization Program will support ongoing funding for weatherization services and replacement of eligible equipment.[30] The pending DEP program proposes to provide weatherization services and replacement of eligible equipment. If the DEP Income-Qualified Weatherization Program is approved, DEP will offer weatherization services and replacement of eligible equipment as an approved energy efficiency program similar to the established DEC program.

iv. SSI Program

The SSI program provides eligible customers a bill discount based on the amount of kWh billed each month. The total program participation is approximately 10,000 customers; with customers age 55 years and older accounting for 85% of the total program participation. The high percentage of participants age 55 years and older is not surprising with age being a component of the SSI program eligibility requirements. In comparison to LIEAP/CIP, approximately 44% of the total LIEAP/CIP recipients are age 55 years and older.

Duke Energy acknowledges that a bill pay assistance program in both the DEC and DEP service territories will assist customers experiencing affordability challenges. As described in Section VI below, Duke Energy is proposing a new bill pay assistant program

[30] See Docket No. E-2, Sub 1299.

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Aug 19 2023

that supports auto-enrollment for LIEAP and CIP recipients. Once the program is filed and receives Commission approval, DEC would then recommend discontinuing the SSI Program and enrolling current and future eligible SSI Program customers in the new program.

B. Metrics of a Successful Program

The Sub-Team C members discussed a number of data points and desired outcomes for consideration in support of addressing affordability challenges. This information was shared and discussed with LIAC members on June 9, 2022, in LIAC Workshop VIII. The information below details the metrics recommended for monitoring purposes. As noted in the footnotes, the ability to monitor some of the data points is dependent upon the availability of the information and Commission regulatory approval.

Success Criteria: Desired Outcome	**Metrics Recommended to Monitor Program Impact: By Program**[31]
Minimize Barriers for Customers to Participate	• Number of Customers Served • Percent of Customers Served • Percent of Eligible Customers Served • Percent Program Participation by Housing Type
Significantly and Sustainably Help Participating Customers	• Average Electric Burden per Program Participant • Average Arrearages Amount per Program Participant • Percentage of Program Participants Disconnected[32] • Participants at Various Income Levels (50% FPL, 100% FPL, 200% FPL, etc.) • Affordability Ratio[33]

[31] The ability to track these metrics geographically would be valuable. It is important to note that the ability to provide non-public zip code level data publicly will depend on the NCUC approval. There is a pending rulemaking in Docket No. E-100, Sub 161 that involves, in part, disclosure of non-public zip code level data.

[32] This metric could benefit from a more sophisticated calculation to account for economic impacts that are outside the control of Duke Energy.

[33] This metric quantifies the percentage of a representative household's income that would be used to pay for an essential utility service, after non-discretionary expenses such as housing and other essential utility service charges are deducted from the household's income. It is important to note a data source to support this metric may not be available.

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Success Criteria: Desired Outcome	Metrics Recommended to Monitor Program Impact: By Program[31]
Significantly Help Participating Customers (Needs Based)	• Number of Measures installed • Evaluated and Verified kWh Reductions (Due to Measures Installed) • Needs served based on Opportunity per Customer[34] • Percent of Households Deferred Due to Health and Safety Issues[35]
Low Administrative Cost of Operation of the Program	• Cost of Program • Cost of Program per Program Participant • Cost of Program per Program Participant Weighted by Value to Participants • Maximize Leveraged Dollars[36]
Minimize bill impacts for Non-Participants	• Average kWh cost across all Customers • Percentage (and/or) Average Monthly Bill Increase for Non-Participants
Eligible for Cost Recovery[37]	

1. Duke Energy Perspective

Duke Energy acknowledges the benefit of metrics to track the effectiveness of programs designed to address affordability challenges. The applicability of the suggested metrics discussed by LIAC members may vary by program depending on the design and goals of the program. In addition, the ability to track the information for the metric will be dependent upon whether the information is readily available to the Companies. Several of the metrics will require the Companies to obtain data from third parties; therefore, the information may not be exact. For example, to calculate energy burden and track participation by FPG, customer income information must be collected from a third party. Tracking the percentage of households deferred in the weatherization program due to

[34] The intention of this metrics is to capture what percentage of eligible measures are served per customer/household.
[35] Deferral information as a metric will need to be carefully crafted to avoid unintended incentives around program implementation.
[36] This metrics should explicitly state the involvement of the agency performing the work on behalf of Duke Energy.
[37] No metrics are recommended for monitoring this success criteria, though it is important to consider the reliability of funding sources for each program.

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health and safety issues will require information from a third party. Depending on the third-party source of the information, the Companies may have to enter into data sharing agreements to receive the necessary information to track specific information. Additionally, the LIAC did not establish a baseline for each metric; that effort requires additional work to evaluate the impact of the program to address affordability for low-income customers.

C. Disconnection for Nonpayment Practices and Regulatory Provisions

In response to the Commission's requirement to review practices and regulatory provisions related to disconnections for nonpayment, Sub-Team C members reviewed NCUC Rule R12-11 Disconnection of Residential Customer's Electric Service ("Disconnection Rule") and Duke Energy disconnection policies and disconnect data. This information was discussed with LIAC members on May 19, 2022 in Workshop VII.

As detailed in the Disconnection Rule, electric utilities are required to notify residential customers in advance of disconnection for non-payment. In addition, the Disconnection Rule details requirements for customers to participate in a moratorium for disconnection for non-pay between November 1 and March 31 annually.[38] The LIAC discussed how Duke Energy voluntarily enrolled North Carolina Housing Opportunities and Prevention of Eviction Program ("NC HOPE"), LIEAP, and CIP recipients in the

[38] With respect to bills rendered between November 1 and March 31 of every year and in conformity with the policy considerations expressed by Congress in the Public Utility Regulatory Policies Act ("PURPA") of 1978, the notice of proposed termination shall also contain a statement that no termination shall take place without the express approval of the Commission if the customer can establish all of the following: (a) That a member of the customer's household is either handicapped or elderly (65 years of age or older), or both. (b) That the customer is unable to pay for such service in full or in accordance with subsection (l)(3) of this rule. (c) That the household is certified by the local social service office which administers the Energy Crisis Assistance Program or other similar programs as being eligible (whether funds are then available or not) to receive assistance under such programs.

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moratorium from November 1, 2020 to March 31, 2022.[39] This was supported by a Data Sharing Agreement ("Moratorium DSA") that permitted the North Carolina Department of Health and Human Services to share a list of LIEAP and CIP recipients and North Carolina Office of Recovery and Resiliency to share a list of NC HOPE recipients with Duke Energy. The scope of the Moratorium DSA was limited to enrolling recipients in the moratorium.

The Disconnection Rule requires electric utilities to notify residential customers in advance of DNP of electric service. The Disconnection Rule requires, in part:

- "Electric service to a residential customer shall not be terminated for nonpayment of a delinquent account until the utility has given such ***customer at least 10 days'*** *written notice* that his service is subject to termination."
- "**At least 24 hours** prior to a proposed service termination, the utility shall, in good faith, attempt to contact a customer to whom a written disconnect notice has been mailed…"
- **"Immediately prior to the actual termination of service**, the utility's representative shall attempt to personally contact the customer on the premises.

As shared with the LIAC, Duke Energy sends customers additional notifications via a number of communication channels that include email, text and/or phone depending on the customer's preferences. In discussing the effectiveness of the notifications, Duke Energy shared the notice effectiveness information for the pre-COVID and post-COVID timeframe for both DEC and DEP detailed below and filed in the Q1 Progress Report.

[39] See Docket No. M-100, Sub 158.

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DEC – Average Monthly Residential Notices							
Pre & Post COVID		10-Day Notice	24-Hour Notice	Day of Disconnect Notice	DNP	Reconnected	No Action
PRE	July 2019-Dec. 2019	~335,000	~179,000	~32,000	~9,300	~8,700	~600
	Reductions from previous notice		46%	82%	72%		Less than 1% (of delinquent population)
POST	Nov. 2020 – Feb. 2021	~228,000	~105,000	~48,000	~6,700 ~7,500	~5,000	~9,200
	Reductions from previous notice		54%	54%	70%		4% (of delinquent population)

DEP – Average Monthly Residential Notices							
Pre & Post COVID		10-Day Notice	24-Hour Notice	Day of Disconnect Notice	DNP	Reconnected	No Action
PRE	July 2019-Dec. 2019	~180,000	~101,000	~21,000	~8,000	~6,800	~1,200
	Reductions from previous notice		44%	79%	62%		Less than 1% (of delinquent population)
POST	Nov. 2020 – Feb. 2021	~159,000	~105,000	~25,000	~7,300 ~200	~6,500	~1,000
	Reductions from previous notice		34%	76%	70%		Less than 1% (of delinquent population)

The information above shows that the number of notifications decreases in response to customers who take action upon receiving the prior notification. Upon receiving the initial notification or subsequent notification(s), customers are prompted to take action that includes making a payment and/or enrollment in an installment plan. While the LIAC members recognize there is a correlation between notifications and customer action, the

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LIAC did not make a determination as to whether the Disconnection Rule required revisions.

Due to the application of the Disconnection Rule to all residential customers and the impact of proposed rule changes to all electric utilities regulated by the Commission, the LIAC did not recommend changes to the Rule. Instead, the LIAC recommends review of regulatory provisions related to disconnections for nonpayment that would be addressed by the Commission in a rulemaking procedure.

1. Duke Energy Perspective

While Duke Energy acknowledges the involuntary interruption of a customer's electric service is a last resort, the information detailed above shows the effectiveness of DNP notifications required by the Disconnection Rule. From the time the 10-day disconnection notice is issued, there is a 46% reduction on average in the number of customers who receive the 24-hour notice. An average decline of nearly 74% is experienced between the time the 24-hour notice issued and the day of disconnect notice is issued. The same trend exists from when the day of disconnect notice is issued and a DNP occurs. Nearly 69% of customers who receive a day of disconnect notice take action and avoid DNP. In addition to the required notifications detailed in the Disconnection Rule, the Companies recognize that some customers prefer communications via electronic channels including email and text to take action to avoid DNP.

Duke Energy agrees with the LIAC's recommendation that a review of the Disconnection Rule should be initiated by the Commission. This will allow all impacted utilities and interested stakeholders the opportunity to provide input on such review and proposed changes.

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D. Existing Utility and External Funding Sources and the Utility's Opportunities to Collaborate and Partner with Third-Party Agencies and Organizations to Deliver Affordability Programs

The LIAC members discussed existing opportunities where Duke Energy works with other program administrators and organizations to deploy programs and services to address affordability challenges. Similar to other states, the state agencies addressing affordability by offering income-qualified programs are serving some of the same customers as Duke Energy. Duke Energy's low-income programs are funded through the North Carolina ratemaking framework, i.e., base rates or rate riders or shareholder contributions. The state agencies that fund income-qualified weatherization and bill pay assistance programs (LIEAP/CIP) are the NCDEQ and NCDHHS, respectively.

The LIAC members also discussed opportunities to assist more customers through increased attention and ongoing partnerships with the NCDHHS and NCDEQ. Duke Energy's WPERP and the NCDEQ Program are implemented by the NCWAP. This allows NCWAP to maximize the benefits and energy savings for program participants through multiple funding sources.

As a result of these discussions, the LIAC members identified the following opportunities and challenges when working with other agencies and organizations to deliver programs to address affordability.

Opportunities:

- NCDHHS plans to deploy a new software platform for use with Community Action Agencies to centrally collect data and information. This new platform may be used by DEQ for data collection and reporting on the NCWAP.
- Any weatherization program deferral for health and safety needs will be visible for all local agencies to monitor.
- Use of qualification for LIEAP/CIP to aid in energy burden calculation.

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- Share LIEAP/CIP program participation information in support of participant receiving other services such as weatherization.

Challenges:

- Lack of transparency and information sharing
- No standardized process to collect/track deferral information
- Misalignment on the timing of which organization is spending funds
- Miscommunication/misunderstanding around priority process for weatherization program participant applications
- Low level of funding per participant compared to the need

E. Cost-of-Service Allocation Effect on Rate Design and Affordability of Rates

During the analytics portion of the LIAC, Duke Energy conducted intraclass cross-subsidization analyses within the residential customer schedules (schedule RES for DEP, and schedules RS and RE for DEC).[40] Given the nature of the utility system as a network with a variety of common system costs that are shared among all customers, some level of cross-subsidization is inherent in ratemaking. The analyses looked through two different lenses: embedded and marginal cost. Both lenses are foundational to rate design and answer different questions.

An embedded cost analysis indicates whether customers are paying their "fair share" of historical costs. Embedded costs are costs that have already been incurred and are recovered through rates; in other words, they are included in the utility's revenue requirement.

A marginal cost analysis determines the cost to serve the next unit of demand. For example, the analysis would indicate how much an additional kWh costs when a new customer joins the system.

[40] See Appendix E at 23.

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For North Carolina residential customers in both DEC and DEP, it appears that LIEAP/CIP recipients and customers that meet the definition for struggling with arrears are cross-subsidizing other residential customers. The straight average (i.e., the average of the embedded and marginal analyses results) annual cross-subsidy for LIEAP/CIP customers is:

- DEP RES - $72
- DEC RS - $162
- DEC RE - $6

The straight average annual cross-subsidy for customers that meet Duke Energy's arrears struggling definition is:

- DEP RES - $90
- DEC RS - $114
- DEC RE - $60

Due to the complexity of allocating costs, competing goals in rate design, as well as average cost ratemaking, there will always be instances where some customers pay more or less than the cost to serve them. There are factors, such as differences in distribution costs, that could not be included in this study. Additionally, any change to the cost of service allocation methodologies would change the total costs allocated to a rate class, which would change the intraclass cross-subsidization results. Furthermore, the majority of costs are recovered from residential customers on a per kWh basis; any customer in a group that uses more kWh than average will inherently be paying more than the cost to serve that group because most of the costs to serve a customer are fixed.

Due to the number of variables, any result from the analyses conducted in the LIAC should be taken as informational and directionally accurate, not as a precise measure of intraclass cross-subsidization.

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1. Duke Energy Perspective

Cost-of-service allocation determines the amount of the utility's revenue requirement that each customer rate class is responsible for and thus must be recovered through rates. Therefore, cost allocation is critical to determining the amount each customer group should pay for their use of the electric system. Changes in cost-of-service methodologies will change the revenue requirement for each rate class, with some methodologies resulting in a higher revenue requirement and others reducing the revenue requirement. Although cost-of-service helps guide rate design, it does not dictate the final rate designs entirely. There are important practical and public policy considerations that are critical to rate design but are not quantified in the cost-of-service or cost allocation processes.

F. How Existing Programs Address Affordability, Cost-Causation, and Allowance of Costs Among Classes

Energy efficiency programs that reduce energy usage lower the residential allocation of embedded costs. Conversely, any programs that increase energy use increase the allocation of embedded costs. The overall effect these programs would have on other customers' rates depends on the revenue collected from each customer (i.e., contribution towards the rate class's revenue) compared with the costs allocated to the rate class as a result of a customer (i.e., addition to the rate class's revenue requirement). If the increase in allocated costs exceeds the incremental revenue from a customer, then it will result in an increase in rates for customers within the rate class. If the allocated costs are less than the incremental revenue, then there would be downward pressure on rates within the rate class.

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1. Duke Energy Perspective

Rate design options can provide customers with additional cost-based pricing tools, such as time-of-use ("TOU") rates, that give customers the opportunity to manage their overall energy cost by shaping their consumption in response to price signals. Customer affordability will improve, to the extent a customer responds to the cost-based price signal, and commensurately lowers their bill. In addition, because the price signal is cost based, it will also reduce system costs. Ideally, in an effective TOU rate design, the customer savings and system cost savings would be approximately the same. The potential for new rate design features to provide customers with additional tools to manage their bills will enhance customer affordability. These designs move system cost recovery to the customer groups that are actually driving system costs and avoid an unfair cost shift.

In addition to new rate designs, the bundling of additional products or services, such as energy efficiency measures (e.g., smart thermostats) or demand response programs (e.g., critical peak pricing), can enhance the ability for a customer to save money, Subscription concepts, such as TOU electric vehicle managed charging, can enhance customer savings without disrupting a customer's lifestyle.

Establishing TOU rates is a representative example showing the broad considerations relevant to sound rate design. To that end, any proposed rate should balance the conflicting principles of rate design as presented in Workshop IV:

- Reflect cost causation (no unjust or undue discrimination);
- Incent beneficial consumption patterns (send efficient price signals);
- Recover the cost to serve (i.e., recover the revenue requirement) and;
- Meet public policy goals (as determined by public utility commissions and state governments).

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G. Review of EE/DSM and CRR Collaborative Efforts to Assist Low-Income Customers

Sub-Team D was tasked with reviewing the ongoing efforts of the EE/DSM, CRR and LIAC (individually as "Collaborative" collectively, "the Collaboratives") due to the overlapping nature of the work by the Collaboratives. The LIAC hosted a joint meeting on January 26, 2022, with over 130 individuals representing the three Collaboratives in attendance. The joint meeting was designed to allow members of each collaborative to learn about efforts underway to assist low-income customers, provide feedback about opportunities for cross collaboration, identify gaps and challenges, and propose solutions and changes. Each Collaborative made a presentation during the joint meeting that provided an overview of its efforts underway to assist low-income customers with addressing affordability challenges. In addition to these presentations, the meeting included breakout sessions designed for interactive discussion to collect feedback. The breakout sessions allowed participants to provide information through discussions and identification of opportunities for collaborative intersections, challenges and gaps, and potential changes and solutions further detailed in Appendix F. In support of ongoing information sharing for the duration of the LIAC, the EE/DSM and CRR identified points of contact responsible for providing LIAC members updates on the work underway that overlapped with LIAC areas of focus. These updates were provided during the subsequent workshop meetings hosted by the LIAC.

IV. Jurisdictional Trends, Metrics, and Definitions for "Affordability"

During the March 31, 2022 Workshop VI, Sub-Team B members presented on the following topics:

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- Resources to identify and measure affordability challenges.
- Identifying an industry-accepted definition for affordability, adopted metrics that measure the effectiveness of affordability programs and the eligibility guidelines for income-qualified programs (both utility and government offered).
- Eligibility requirements for income-qualified bill pay assistance and/or energy efficiency programs designed to address affordability.

A. Program Eligibility Requirements

Sub-Team B's findings show that income qualifications for program eligibility range between programs offered within North Carolina. The income qualifications are determined by a percentage of FPG, mass gross income limit, state median income, and area median income. Most of the programs that are listed below identified federal poverty guidelines as the income qualifier with the percentage being no more than 200% of the FPG. This is consistent for the majority of income-qualified bill pay assistance and energy efficiency programs serving single family and multi-family homes regardless of whether the home is owner-occupied or occupied by a renter as shown in the table below.

Analysis of Low-Income Program Eligibility

	LIEAP	CIP	HOPE	FNS	State WTHZ	WPERP	NES
HOUSING							
Owner (O) Renter(R)	O&R	O&R	R	O&R	O&R	O&R[41]	O&R
Single Family (SF) Multifamily (MF)	SF & MF	SF & MF	SF & MF	SF & MF	SF & MF	SF	SF & MF
INCOME LEVEL							
Criteria Used	FPG	FPG	Area Median	Max Gross Income Limit	FPG	FPG	Targets Neighborhoods where ≥ 50% households are below 200% FPG
Eligibility Level	≤130%	≤150%	≤80%	130% or 200%	200%	(Mirrors State WTHZ)	

[41] Renters are eligible pending landlord provides authorization and agrees to defined requirements

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Analysis of Low-Income Program Eligibility							
OTHER							
Heating Source-Dependent?	Yes	No	Yes	No	No	No	No

B. Affordability Defined and Applied in Other Jurisdictions

The LIAC was unable to identify an energy-industry accepted definition for affordability. However, there are jurisdictions further discussed below that have taken regulatory action to study affordability challenges and ways to measure affordability.

Both the Pennsylvania Public Utility Commission ("PPUC") and California Public Utilities Commission ("CPUC") opened dockets to study affordability for low-income customers. The PPUC[42] initiated a study to examine the home energy burden for low-income customers in Pennsylvania in evaluating the affordability, cost-effectiveness, and prudence of Universal Service Programs[43]. The study examined the impacts of bill assistance on customer energy burden levels, outlined the maximum energy burdens and revised previous third-party studies dealing with related topics for both electric and gas customers. Pennsylvania's maximum energy burdens as articulated in the CAP Policy Statement are higher than maximum energy burdens used by neighboring states.[44]

In California, the CPUC issued an order to assess the impacts of affordability of individual CPCUC utility rate requests. The goals of the proceedings were to develop a framework and principles to identify and define affordability criteria for all utility services

[42] https://www.puc.pa.gov/pcdocs/1602386.pdf.

[43] See the May 5, 2017 "Energy Affordability for Low Income Customers Order" in Docket No. M-2017-2587711. This was the first comprehensive energy burden and affordability study of Pennsylvania households using information from utilities and other third parties.

[44] Ohio's utility payment assistance program has a maximum energy burden of 10%. The New York and New Jersey utility payment assistance programs both have a maximum energy burden level of 6%.

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under CPUC jurisdiction and develop the methodologies, data sources, and processes necessary to comprehensively assess the impacts on affordability of individual CPUC proceedings and utility rate requests for the residential rate class. The CPUC adopted metrics and methodologies for assessing the affordability of public utility service under the CPUC's jurisdiction. The California Commission adopted three independent, but related, metrics which allow for the creation of a more complete picture of affordability than any one metric could provide on its own. The three metrics include the following:

- The Affordability Ratio ("AR") metric quantifies the percentage of a representative household's income that would be used to pay for an essential utility service, after non-discretionary expenses such as housing and other essential utility service charges are deducted from the household's income. The higher an AR, the less affordable the utility service. The AR may be calculated for a single essential utility service, a combination of services, or all essential utility services combined.

- The Hours at Minimum Wage metric quantifies the hours of earned employment at the city minimum wage necessary for a household to pay for essential utility service charges. The minimum wage-based metric also implicitly considers the impact of essential utility service charges on lower-income customers regardless of the socioeconomic conditions of the community as a whole.

- The Socioeconomic Vulnerability Index ("SEVI") metric represents the relative socioeconomic standing of census tracts, referred to as communities, in terms of poverty, unemployment, educational attainment, linguistic isolation, and percentage of income spent on housing. This metric therefore considers how a rate change may affect one community's ability to pay more than another's.

On April 29, 2021, the CPUC issued the 2019 Annual Affordability Report. [45]

The New York Public Service Commission adopted a policy that an energy burden at or below 6% of household income shall be the target level for all low-income households in New York. It recognized that success is only achievable through a holistic approach that coordinates and leverages all available resources.[46]

[45] 2019 Annual Affordability Report (ca.gov).
[46] http://www.psc.state.fl.us/Files/PDF/Home/NCRA/NCRA%20Presentations/Session%2006%20-%20Shot%20Across%20Bow/Supplemental%20Materials%20(R%C3%A1bago).pdf.

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Although the Sub-Team B research did not identify a common definition for affordability, the research findings identified efforts underway by state commissions, as described above, for utility services under its regulation to track and understand affordability challenges and ways to measure affordability. The metric to measure affordability ranges by state from the three independent, but related, metrics, adopted by the CPUC to an average target energy burden for low-income customers adopted by New York.

Based on the research findings, the recommendation from the LIAC is that the NCUC should consider FPG at or below 200% when determining eligibility for programs to address affordability. This aligns with the majority of the income-qualified programs identified in the Sub-Team B research and analytics information completed for the LIAC. While Sub-Team B recognizes that program eligibility will vary by program, the recommendation is that program design should incorporate and be available to income-qualified customers regardless of home types (single family and multifamily), renters and owners, and be available regardless of the heating source.

1. Duke Energy Perspective

The findings by Sub-Team B members provided insightful information regarding how other jurisdictions are defining and measuring affordability for low-income customers. The programs reviewed by Sub-Team B reveal that many low-income customer programs are offered to customers who meet income eligibility requirements (at or below 200% FPG) regardless of their housing type (single family or multi-family), housing status (renter or owner) and heating source. Duke Energy supports programs that include these characteristics when designing programs to address affordability challenges.

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While the work performed by the LIAC is insightful and provides a level of detail not previously available, Duke Energy acknowledges that a comprehensive study of all North Carolina utilities would provide a more informed view of opportunities to assist low-income customers with affordability challenges ("Comprehensive Study"). Additionally, while the studies performed by the PPUC and CPUC are similar, there are significant differences in focusing on specific opportunities and policies to address affordability challenges of customers in their state. Duke Energy supports a Commission-ordered Comprehensive Study to evaluate affordability challenges and solutions for North Carolina's low-income utility customers.

V. Overview of 3(e) Programs

The Commission directed the LIAC to provide an overview of certain low-income programs including: minimum bill concepts as a substitute for fixed monthly charges; income-based rate plans, such as Ohio's percentage of income payment plan ("PIPP"); segmentation of the existing residential rate class to take into account different levels of usage; expanding eligibility for DEC's current SSI-based program to include additional groups of ratepayers; and whether a specific component in rates to be used to fund supplemental support programs ("3(e) Programs"). As part of the overview, the LIAC was tasked with determining whether the 3(e) Programs, in addition to any other programs agreed upon by the collaborative, are appropriate for implementation in North Carolina and, if so, what statutory or regulatory changes are necessary to permit implementation.

Pursuant to the Rate Case Orders and the Commission's directive, the Affordability Collaborative evaluated the appropriateness of several program ideas, including the 3(e)

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Programs, throughout various LIAC workshops and Sub-Team meetings.[47] The results of those evaluations are included in the LIAC's proposed programs and recommendations in Appendix G and discussed further in Section VI of this Final Report.

As part of the overview, the LIAC also evaluated and discussed the regulatory and statutory framework and any changes that may be necessary to implement 3(e) Programs. The LIAC agreed that the Commission has broad authority under existing North Carolina law, but whether any particular proposal or program may require regulatory or statutory changes to be implemented cannot be determined in the abstract without a more detailed proposal.

A. Duke Energy and Public Staff Perspective

Duke Energy and the Public Staff agree with the LIAC's determination that it is challenging to evaluate whether any program, including 3(e) Programs, would require any regulatory or statutory changes without more details regarding the proposed program. However, Duke Energy and the Public Staff conducted a high-level overview of the Commission's general authority under the current regulatory and statutory framework and its potential impact on the implementation of 3(e) Programs or low-income programs in general.

There are several statutes germane to the question of whether there are statutory or regulatory barriers to implementation of a program to assist low-income customers with affording the cost of electricity. North Carolina General Statute ("G.S.") § 62-2 is the declaration of policy regarding the rates, services, and operations of public utilities. G.S. § 62-2 (3) indicates that it is the policy "[t]o promote adequate, reliable and economical

[47] See the Q4 Progress Report and Appendix E.

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utility service to all of the citizens and residents of the State", and G.S. § 62-2 (3a) states that it is the policy to fix "rates in a manner to result in the least cost mix of generation and demand side reduction measures which is achievable . . ." It is also the policy of the State pursuant to G.S. § 62-2 (4) ". . . [t[]o provide just and reasonable rates and charges for public utility services without unjust discrimination, undue preferences or advantages . . ."

G.S. § 62-131 dictates two important principles regarding rates and utility service. First, rates must be just and reasonable. Second, a utility is required to "furnish adequate, efficient and reasonable service". G.S.§ 62-133 establishes how the Commission sets rates. Rates must be fair to both utility and customer, based on costs of utility to serve *all* customers, and reasonable. The Commission has broad but not unlimited discretion to set rates. The Commission cannot exceed its jurisdiction. The Commission exercises its judgement in its determination of what is in the "public interest". The Commission's decisions must be based on evidence.

In addition, rates must be developed based on cost-causation principles (i.e., the cost causer pays for its costs). In DEC's recent rate case, Docket No. E-7, Sub 1214, Public Staff witness Jack Floyd addressed these issues. He stated "[r]ate design should follow the same cost causation approach underlying the [cost of service study], such that each customer class, or customer, is responsible for an appropriate share of the costs that are planned for and incurred in order to serve them."[48] He also stated that "[t]he Public Staff continues to fundamentally believe that rate design must first be based on cost-causation principles. After cost-based rates are determined, public policy may provide further guidance in designing final rates."[49]

[48] Direct Testimony of Jack Floyd filed February 18, 2020, Docket No. E-7, Sub 1214 at P. 9, ll. 10-13.
[49] Id at P. 58, ll. 13-16.

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Aug 19 2023

By using cost-causation principles to develop rates, bills are based on usage, thus incenting customers to conserve energy to lower their bills. When rates are not based on cost causation, the tie between usage and price is severed, thus sending inaccurate price signals and reducing or eliminating the incentive for customers to conserve energy. Witness Floyd went on to say that "[a]ny rate discount for low-income customers will shift revenue recovery to other customers in the form of slightly higher rates. This shift or subsidization must be thoroughly understood in terms of the dollars to be shifted and the effect on rates paid by other customers."[50] It is important to note that in the newly passed S.L. 2021-165 ("House Bill 951"), section (b) requires that the revenue requirement be allocated pursuant to cost-causation principles for any electric public utility rate case filed along with an application for performance-based regulation. Section (a)(1) defines the "cost causation principle" as "establishment of a causal link between a specific customer class, how that class uses the electric system, and costs incurred by the electric public utility for the provision of electric service."

The Commission is also barred from setting rates that are unreasonably discriminatory. G.S.§ 62-140(a) provides that "[n]o public utility shall, as to rates or services, make or grant any unreasonable preference or advantage to any person or subject any person to any unreasonable prejudice or disadvantage. No public utility shall establish or maintain any unreasonable difference as to rates or services either as between localities or as between classes of service . . ." The form of the aid given to low-income customers by the utility is not dispositive in determining whether it is in violation of G.S. § 62-140.

[50] *Id.* at P. 59, lines 16-21.

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The question is what would be considered an "unreasonable preference or advantage." The Courts have interpreted this statute multiple times.

In *State ex rel. Util. Comm'n v. Mead Corp.*, 238 N.C. 451, 78 S.E. 2d 290 (1953), the Supreme Court wrote, "The obligation of a public service corporation to serve impartially and without unjust discrimination is fundamental…. There must be substantial differences in service or conditions to justify differences in rates. There must be no unreasonable discrimination between those receiving the same kind and degree of service." In *State ex rel. Util. Comm'n v. Bird Oil Co.*, 302 N.C. 14, 273 S.E. 2d 232 (1981), the Court found that differentiated rates were not unjust or unreasonable when there were substantial differences in the (1) quantity of use, (2) time of use, (3) manner of use, and (4) costs of rendering the two services. In *State ex rel. Util. Comm'n v. Municipal Corporations, 243 N.C. 193 (1955),* the Court held a substantial difference between the costs of rendering the services justifies some difference in rates. These same criteria were again confirmed by the Court in *State ex rel. Util. Comm'n v. Carolina Utility Customers Ass'n,* 351 N.C. 223, 524 S.E. 2d 10 (2000).

In a single class of residential customers, it is unlikely that there is a substantial difference between the cost of rendering service to low-income individuals as opposed to non-low-income individuals. Thus, from the statute and case law it is unclear whether a low-income rate or discount would be unreasonably discriminatory under G.S. § 62-140 when there are not substantial differences between the costs to serve low income and non-low income customers. Duke Energy and the Public Staff have found no cases concerning rate discrimination among customers in the residential class. Whether the Commission and

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courts may view a low-income rate or discount as a reasonable form of discrimination is uncertain.

While there are no cases addressing whether the Commission can approve a low-income rate that is not based on cost-causation principles absent legislative authorization, the Supreme Court in *State ex rel. Util. Comm'n v. Cooper,* 366 N.C. 484, 739 S.E,2d 541 (2013)[51] concluded, in remanding a general rate case to the Commission, that the Commission must take customer interests and changing economic conditions into consideration when making a determination on return on equity. While the Court's analysis was based on other factors, the Court referenced the language of G.S. § 62-133(b)(4), a general rate case statute, holding the Commission must consider whether the approved return is reasonable and fair to the utility's customers. Although *Cooper I* does not suggest that a specific low-income rate is appropriate, it does suggest some concern by the Court of the impacts of increased utility rates on customers during times of changing economic circumstances. In *Cooper II*, the Court affirmed the Commission's decision but also noted that not only G.S. § 62-133 (b)(4) but Chapter 62, as a whole, requires the Commission to treat consumer interests fairly and not indirectly or as mere afterthoughts. This might suggest that, if challenged, a carefully crafted low-income rate might lead the Court to find that the rate is not unduly unreasonable or unjust so as to violate the anti-discrimination provisions of G.S. § 62-140.

The Commission has exercised its authority in the past to approve rates or programs for low-income customers. Indeed, the Commission has approved energy efficiency

[51] This case is usually referred to as *Cooper I.* Following remand and a further Order by the Commission, the Supreme Court issued a subsequent decision dated December 19, 2014, in *State ex rel. Util Comm'n v. Cooper*, 366 N.C 644, 766 S.E. 2d 827 (2014), which is usually referred to as *Cooper II.*

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Aug 19 2023

programs targeted at low-income customers that are not cost effective but provide societal benefits. There is also Commission precedent adopting a discounted rate for certain customers. The discounted rate was limited to elderly, blind or handicapped customers who met federal poverty guidelines and were receiving Supplemental Security Income ("SSI"). The Commission justified the rate by concluding that the usage of such customers was inelastic and unresponsive to price changes and because it would allow the Commission to collect meaningful data in its comprehensive study of lifeline-type rate schedules mandated by the 1977 General Assembly. The rate was adopted by the Commission for Duke Power Company on August 31, 1978, in Docket No. E-7, Sub 237. Although this discounted rate was adopted as an experimental rate for study purposes, it is still in place in DEC Rate Schedules RS and RE. Presently, DEC Rate Schedule RS states, "For customers receiving SSI under the program administered by the Social Security Administration and who are blind, disabled, or 65 years of age or over, the rate for the first 250 kWh used per month shall be 8.4772 cents per kWh." The present maximum discount to customers is $3.17 per month. Notably, this rate was authorized as an "experimental rate", and it remains an "experimental rate."

The experimental rate was addressed further in Duke Power Company's 1982 general rate case in Docket No. E-7, Sub 338.[52] In that case, the Commission found that the cost justification for the experimental SSI rates was inconclusive and that the matter should be considered further by the full Commission in Docket No. E-100, Sub 143. However, fundamental to the Commission's consideration of the SSI rate was the principle

[52] Public Staff Witness Jack Floyd extensively addressed affordability and other lifeline issues in testimony submitted on February 18, 2020 in Docket No. E-7, Subs 1213 and 1214. Mr. Floyd's testimony also reviews the background of the SSI rate originally adopted on August 31, 1978 in Docket No. E-7, Sub 237.

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Aug 19 2023

that the rate had to be based on cost-of-service differences between SSI customers and residential customers as a whole or based on a lower elasticity of demand than residential customers. The SSI rate was not intended as a lifeline rate or as a promotional rate. It should be noted the SSI rate was adopted during a time of changing economic circumstances, when the country was facing an oil embargo and massive construction costs association with building nuclear plants, creating upward pressure on electricity rates. While the Commission's approval of the experimental SSI rate provides some precedent, the Commission also expressed concerns about its ability to approve rates based on social objectives.

> The Commission shares the concern of the state for the elderly, the handicapped, and the poverty stricken, especially in times of high energy costs. However, the Commission is of the opinion that such social objectives as providing relief for certain disadvantaged segments of the general population are, and should be, beyond the rate making authority of the commission. The authority for social objectives is vested with the duly elected representatives of the general public, and the commission has not been delegated any such authority. The commission can best and most properly perform its legislative mandate by enduring that the rates it approves for service to disadvantaged customers do not exceed the actual costs to provide such services.[53]

The General Assembly authorized a low-income rate for telephone customers due to upward pressure on local telephone rates caused by industry deregulation. The statute authorized a state discount that was equivalent to a federal discount approved by the Federal Communication Commission. An exception in G.S. § 62-140 states, "It shall not be considered an unreasonable preference or advantage for the Commission to order, if it finds the public interest so requires, a reduction in local telephone rates for low-income residential consumers meeting a means test established by the Commission in order to

[53] Docket No. E-7, Sub 338 at 89.

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Aug 19 2023

match any reduction in the interstate subscriber line charge authorized by the Federal Communications Commission." Here, the General Assembly explicitly carved out an exception to allow for a low-income rate for telephone service. This could potentially bolster the argument that legislation is needed to create an exception for a low-income rate for electric service. On the other hand, it could be argued that just as a low-income rate for telephone customers is not unreasonably discriminatory, neither is a low-income rate for electric customers.[54]

Consideration of whether a particular rate or program is in the public interest begins by reviewing cost-based revenues, cost allocations, and rate designs, including fixed versus variable costs; demand- versus energy-related costs; flat rates, demand rates, and volumetric rates; and inclining versus declining block rates. Next, subsidies between classes are minimized as much as possible, and any that remain must accomplish a public interest objective. To the extent a low-income assistance program is proposed as part of a rate case filed with an application for performance-based regulation, any interclass subsidization of ratepayers must be "minimized to the greatest extent practicable by the conclusion of the MYRP period." G.S. 62-133.16(b). The rate or program should provide opportunities for as many eligible customers as possible to participate. There should be identification of clear public policy objectives, and specific definition of the benefits and

[54] While this language remains in the statute, the low-income rate for telephone service has been effectively repealed. The General Assembly passed an amendment to G.S. § 62-140 which states, "If the State repeals any State funding mechanism for a reduction in the local telephone rates for low-income residential consumers, the Commission shall take appropriate action to eliminate any requirement for the reduced rate funded by the repealed State funding mechanism." The low-income rate was funded through a tax credit given to telecommunications providers to recover the costs of the low-income rate. In S.L. 2013-316, the General Assembly repealed the tax credit, and in doing so effectively repealed the low-income rate for telecommunications services. Although the action of the General Assembly targeted the elimination of the tax credit, the credit was applicable to traditional landline telephone service. The number of customers taking advantage of the program had declined significantly due to the increased utilization of wireless phones.

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Aug 19 2023

costs to customers and utility system. Cost recovery (revenues, allocations, and rate designs) should align with the distribution of benefits as much as possible. Any deviation should be shown to be "in the public interest."

VI. LIAC Proposals

In response to feedback shared by LIAC members during LIAC Workshop 3 on November 12, 2021, Guidehouse created and distributed the electronic program submission form on November 28, 2021, in advance of the original Q1 timeframe. The electronic form detailed the required data points for proposals to address affordability challenges. Guidehouse received 22 proposals submitted from LIAC members by the April 8, 2022 due date. Guidehouse distributed each proposal to LIAC members on April 12, 2022. On April 20, 2022, Guidehouse distributed the LIAC Proposal Packet, a comprehensive list of all proposals and supporting information submitted, to LIAC members for Pitch Day. On Pitch Day, April 20, 2022, the LIAC members that submitted proposals presented information about their proposals to the other LIAC members and answered questions.

During Pitch Day, LIAC members discussed opportunities to combine similar proposals and potentially align proposals with other efforts underway by Duke Energy. Based on discussions among LIAC members and with agreement of the participant who submitted the proposal, Guidehouse worked to combine similar proposals or align proposals with other Duke Energy efforts. The table below details the original proposals submitted and proposals combined or aligned with other initiatives as a result of LIAC member feedback. The information in the table does not reflect all the information submitted for each proposal. See Appendix G for a detailed information of each proposal

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Aug 19 2023

submitted, assessment of each proposal by LIAC members, and feedback from 20 LIAC members in response to the proposal.

<table>
<tr><th colspan="5">PROPOSAL INFORMATION</th></tr>
<tr><td>Proposal Number: 1</td><td colspan="4">Proposal Name: Closing the Income-Qualified Energy Efficiency Program Spending and Savings Gap Between DEP and DEC</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: Proportionately, Duke Energy Carolinas has historically spent and delivered more efficiency savings than Duke Energy Progress. This recommendation is for DEP to increase its spending and savings to close this gap.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>76%</td><td>10%</td><td>0%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Duke Energy: It is Duke Energy’s intention and aspiration to serve as many qualified customers as possible through low-income energy efficiency programs, but a singular territory comparison of program spending and energy savings rarely tells the whole story of how well customers in need are being helped.

Public Staff: “The Public Staff has reviewed each of these proposals in isolation without any projections of costs, benefits, cost-effectiveness, participation, etc. Only with this and other pertinent information could the Public Staff make a final determination as to whether it supports or does not support a proposal. The Public Staff would also have to consider the cost and rate impact of all programs or proposals to be implemented at the same time before making a final determination as to its position. This statement applies to each proposal.”</td></tr>
<tr><td>Proposal Number: 2</td><td colspan="4">Proposal Name: Duke Energy Progress Income-Qualified Weatherization Program</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: Modeled off of the DEC program of the same name, the DEP Income-Qualified Weatherization program will incorporate the ability for Duke to fund the entire project cost for EE improvements with flexibility for per-home spending levels (up to $10,000) comparable to the 2019 Durham Pilot. Total program spending levels will at least match those on a per residential customer basis as the DEC program.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>72%</td><td>14%</td><td>0%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">AARP: “AARP looks forward to learning more about the specific ways in which this program would lower the cost barrier to energy efficiency retrofits in low-income households, and information about the cost and savings for low-income households that participate in this and other energy efficiency programs. AARP supports cost-effective measures to promote clean energy that yield affordable energy, AARP supports energy efficiency and</td></tr>
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Aug 19 2023

<table>
<tr><td></td><td>weatherization programs including for low-income customers. We urge that DOE and Federal infrastructure funds be used first to fund such a program."

Public Staff: "Only non-ratepayer funds should be utilized for health and safety work."
Duke Energy: "The Company plans to file the DEP Income Weatherization Program with the NCUC within the next two weeks."</td></tr>
<tr><td>Notes:</td><td>On June 13, 2022, in Docket No. E-2, Sub 1299, DEP filed its Proposed Residential Income-Qualified Energy Efficiency and Weatherization Program. The proposed filing is similar to Proposal 2.</td></tr>
<tr><td>Proposal Number: 3</td><td>Proposal Name: Income-Qualified High Energy Use</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td>Summary of Program Description: This program provides deep energy retrofits at no cost to low-income customers with high energy use. The program will develop processes to incorporate additional funding for health and safety repairs from non-ratepayer sources to serve previously ineligible customers. The program would be based on a proposed pilot program developed by advocates and Duke Energy out of a 2021 rate case settlement agreement and will likely be filed at the NCUC in early Summer 2022. The pilot will serve 1,000 customers in two selected test regions. The proposed pilot is a first step to developing a full program that addresses the systemic and persistent need of high energy use low-income customers.</td></tr>
<tr><td>Assessment Results:</td><td><table>
<tr><th>Support</th><th>Support with Revisions</th><th>Do Not Support</th><th>Abstain</th></tr>
<tr><td>67%</td><td>19%</td><td>0%</td><td>14%</td></tr>
</table></td></tr>
<tr><td>LIAC Member Comments:</td><td>AARP: "AARP supports energy efficiency programs including for low-income customers. We urge that DOE and Federal infrastructure funds be used first to fund such a program. We think a pilot program might also be a good idea."

Public Staff: "The system impact is greatest by targeting high electric energy consumption customers. Only non-ratepayer funds should be utilized for health and safety work. If ratepayer funds are used for the energy-related portions of the program, any savings claimed by Duke must go through the EM&V process."

Rowan Helping Ministries: "Must include a component for customer education for maintenance of equipment and practical ideas to reduce energy consumption."

Nicholas Institute: "In the statistical analysis, higher winter peak and summer peak usage were associated with a customer being more likely to be in arrears, receive a 24-hour notice, and be disconnected. These results would support reducing high energy use via this pilot and the resulting research could prove valuable."

Duke Energy: "The Companies support an income qualified high electric use pilot program with plans to file it for NCUC approval in the near future."</td></tr>
<tr><td>Notes:</td><td>On June 30, 2022, in Docket No. E-7, Sub 1272, DEC filed its Proposed Residential Income-Qualified High-Energy Use Pilot. This proposed pilot is</td></tr>
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Aug 19 2023

	the product of the settlement approved Docket No. E-7, Sub 1214 issued on March 31, 2021.			
Proposal Number: 4	Proposal Name: Residential Electric Resistance Tank Water Heater (ER) and Hybrid Heat Pump Hybrid Water Heater (HHPWH) Rental Program			
Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)	**Summary of Program Description:** The Residential Electric Resistance Tank Water Heater (ER) and Hybrid Heat Pump Water Heater (HHPWH) Rental Program is operated by Duke Energy DEP and DEC (Hereinafter Duke) as a service to residential rate payers. The program will market water heater replacement services to all residential ratepayers.			
Assessment Results:	**Support**	**Support with Revisions**	**Do Not Support**	**Abstain**
	71%	10%	0%	19%
LIAC Member Comments:	**Public Staff:** "A waiver of the Commission disconnect rules may be needed to avoid disconnect based on non-payment of non-electric charges. The Public Staff has historically opposed disconnection for non-electric charges. More detail about the rental contracts needs to be provided before it can be determined whether it is appropriate to implement this program through a rental program. It may be more appropriate to implement this measure in a traditional EE program where the customer purchased, owned, and maintained the equipment and then qualified for a credit/discount similar to the Smart Saver program." **Duke Energy: "**The Companies are committed to evaluating a customer owned program offered via an on-tariff financing offer."			
Proposal Number: 5	Proposal Name: Manufactured Homes Energy Efficiency Retrofit and Replacement Program			
Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)	**Summary of Program Description:** Manufactured homes on average use substantially more energy per square foot than other housing types, while residents frequently lack the financial resources to address problems of energy waste. This program aims to overcome barriers to affordability and dramatically increase the efficiency of Duke's manufactured homes through improvements to existing manufactured homes, replacement of the most outdated units, and increasing the overall efficiency performance of new manufactured homes.			
Assessment Results:	**Support**	**Support with Revisions**	**Do Not Support**	**Abstain**
	67%	14%	5%	14%
LIAC Member Comments:	**AARP:** "AARP in general supports energy efficiency programs including for low-income customers. We would appreciate more information on this program." **Public Staff:** "It is not appropriate to use ratepayer funds for replacement of manufactured homes. The program should implement only cost-effective EE measures for low-income customers living in manufactured homes similar to other EE programs."			

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<table>
<tr><td></td><td colspan="4">Nicholas Institute: “The findings of the statistical analysis support a focus on mobile homes regardless of the tenure of the account holder (owner or renter).”

Rowan Helping Ministries: “This seems beyond the scope of the Duke Energies corporate responsibilities. Great idea for another organization to administer.”

Duke Energy: “Yes, the Companies are committed to evaluating this proposal although it may be cost prohibitive.”</td></tr>
<tr><td>Proposal Number: 6</td><td colspan="4">Proposal Name: Arrearage Management Pilot EE Program</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: This program would be intended to link energy burden, energy inefficiency, and arrearage management in a unified, encompassing program offering. Households with limited incomes typically face much higher energy burdens that the general population, and as such may be at much higher risk of not being able to pay utility bills on time – especially when they are higher than they could be due to inefficient structures, HVAC equipment, and appliances. The program assumes that most households that fall behind in paying their bills would pay them if they could. Therefore, to make paying those bills more manageable this program would identify households that have fallen behind in their bills and offer a three-part program that includes the following: 1) installation of energy efficiency measures to reduce forward-going bills, preferably through a comprehensive weatherization approach; 2) a payment plan for affordably repaying a portion of the arrearage, and; 3) if the household adheres to the payment plan, forgiveness of the remaining unpaid arrearage. The program revolves around the creation of a relationship between the utility and participating households that is less focused on collections than on working together to identify a plan to reduce the likelihood of future arrearages.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>67%</td><td>9%</td><td>5%</td><td>19%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Public Staff: “It is generally not appropriate to use ratepayer funds for arrearage forgiveness; however non-ratepayer funds could be utilized for arrearage forgiveness. It may be appropriate to use ratepayer funding for arrearage forgiveness to the extent that it is revenue neutral. Duke should analyze the impact to uncollectibles and assess the actual administrative costs and late fees. This delta could flow back to offset arrearages/ uncollectibles. Such an offset would be appropriate for consideration in the next rate case. It is inappropriate for a utility to profit based on ratepayers’ inability to pay their bills. Prior to arrearage forgiveness, all other sources of funding should be sought and utilized. Arrearage metrics should be tracked to ensure that no perverse incentive to stop paying bills has been created. Access to arrearage forgiveness should limited (1-5 years).”

Rowan Helping Ministries: “We are seeing first hand payment arrangements - post moratorium - are not working for our clients. Our clients are making payment arrangements without the ability to pay. Arrangements</td></tr>
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Aug 19 2023

<table>
<tr><td></td><td colspan="4">need to be made soon after an arrearage occurs and payment needs to fit the financial capacity of the customer."

Nicholas Institute: "The findings of the statistical analysis show that those with higher than the national average electric burdens were statistically significantly more likely to be in arrears and more likely to be disconnected over time."

Duke Energy: "The Companies are opening to evaluating an arrears management program in the CAP proposal that is not specific to energy efficiency program participation."</td></tr>
<tr><td>Proposal Number: 7</td><td colspan="4">Proposal Name: LI Carve-out from Market Energy Efficiency Programs</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: The extent to which income-eligible customers may participate in programs designed for the general public is a topic of discussion in many jurisdictions. It is likely true that income-eligible utility customers participate to some degree in these programs; however, this raises important questions about whether those programs serve these customers well, given that in many cases the participant is required to share in the costs of the measure, which may place additional financial burdens on the household. To ensure this would not be the case, residential general market programs can be designed with enhanced incentives for income-eligible customers.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>67%</td><td>9%</td><td>0%</td><td>24%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Public Staff: "A market study is necessary before this proposal should move forward. The participant incentive should not exceed 25% of the cost of measure."</td></tr>
<tr><td>Proposal Number: 8</td><td colspan="4">Proposal Name: Comprehensive Affordable Multifamily Energy Efficiency Program</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: Various regulations commonly drive utility energy efficiency programs aimed towards multifamily housing to take a fragmented approach in providing services. Multifamily tenants who are income-eligible may receive no-cost efficiency measures that are applicable only to their units, such as efficient lighting, but may not be eligible for incentives or measures that are tied to the property owners' utility bills, which are commonly on commercial rates. The incentives available through standard commercial programs may not be sufficient to make efficiency measures affordable – and clearly operating costs play a key role in determining the costs of operating multifamily housing. The result is that comprehensive efficiency projects in affordable multifamily housing are unlikely to occur, thus failing to make a significant dent in the energy costs for these buildings. To overcome these obstacles, this program would provide a one-stop shop approach where a single program point of contact would work with property owners to facilitate comprehensive efficiency projects that address both in-unit (residential) and common area/common system (commercial) efficiency measures. Rather than treating the commercially</td></tr>
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Aug 19 2023

	metered elements of affordable multifamily housing as a business, the program would offer enhanced incentives on the basis of the income-eligible residents, thus helping reduce the operating costs for the building as well as tenants' bills.
Notes:	**Proposal 8 combined with Proposal 18 are evaluated as Proposal 23.**
Proposal Number: 9	Proposal Name: Comprehensive Tiered Discount Bill Payment Assistance
Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)	**Summary of Program Description:** The Electric Payment Assistance Program will provide certain income-eligible residential customers with monthly payment assistance to help electric energy insecure rate payers pay their electric bill.
Notes:	**Proposal 9 combined with Proposal 22 are evaluated as Proposal 24.**
Proposal Number: 10	Proposal Name: Adopt a Comprehensive Definition of Affordability and Develop Metrics and Methodologies for Assessing and Monitoring the Relative Affordability of Electric Service
Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)	**Summary of Program Description:** Until the Low-Income Affordability Collaborative was initiated, and Duke Energy began analyzing customer data related to energy consumption and costs, income, demographics, arrearages, disconnections and other factors, very little information or data was available to understand the scale and depth of affordability challenges facing the Companies' low-income residential customers. Thanks to that analysis we now have a deeper understanding of who is impacted by those challenges as well as the socioeconomic, housing and other factors that are contributing to those challenges. However, it is critical to both have a more comprehensive definition of affordability as well as metrics that can be used to more accurately assess affordability on the household level and track changes in those metrics over time as new programs are developed and implemented. The proposed program would adopt the California Public Utilities Commission's (CPUC's) definition of affordability along with the three metrics the CPUC adopted for annually measuring and monitoring affordability. The adopted definition is as follows: "the degree to which a representative household is able to pay for an essential utility service charge, given its socioeconomic status. A "representative household," rather than households in general, recognizes that households will have a wide variety of experiences that cannot be perfectly captured by depicting a single household. "Essential utility service charge" refers to the costs borne by a representative household for the quantity of utility service required to enable a ratepayer's health, safety, and full participation in society. "Socioeconomic status" refers to the social and economic standing of a given household."
Assessment Results:	**Support**: 67% | **Support with Revisions**: 9% | **Do Not Support**: 5% | **Abstain**: 19%
LIAC Member Comments:	**Public Staff:** "This proposal is not a mitigation program; it seeks to define affordability for purposes of further developing programs to mitigate conditions related to affordability."

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April 19, 2023

<table>
<tr><td></td><td colspan="4">Nicholas Institute: “The statistical analysis included predictors for many but not all of the factors proposed for the definition of affordability in Proposal 10, and generally, all were significant in predicting the likelihood of being in arrears, receiving a 24-hour notice, and disconnections (excepting home value for disconnections). This suggests complex relationships between sociodemographic, home attributes, neighborhood characteristics, and energy usage. Capturing this complexity in reported metrics over time is supported by the findings of the statistical analysis.”

Duke Energy: “The Companies support the North Carolina Utilities Commission opening an affordability docket similar to the process that the California Public Utilities Commission ordered to evaluate affordability for their regulated utilities.”</td></tr>
<tr><td>Proposal Number: 11</td><td colspan="4">Proposal Name: Prioritized Marketing and Distribution of Low-Income Funds</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: This recommendation could work in combination with or independently of recommendation LIAC PP011. Recognizing that affordability challenges and impacts are experienced more acutely by some households and communities than others, there is a need to ensure that low-income funds and other support are prioritized in a manner that has the greatest impact for those most affected and addresses, to the extent practicable, certain disparities that were exposed as a result of the Companies’ analysis. For example, the analytics show that African American households served by the Companies experience the highest rate of meeting the Companies’ arrears definition (33% of all households, compared to the average of approximately 16% for all households) as well as the highest rate of disconnections for non-pay (8% compared to 3.9%). Rental, multifamily, mobile home and low-value households experienced similar disparities. In summary, the marketing and distribution of low-income funds and programs should prioritize the customers that experience the highest rate of arrearages and disconnections for non-pay.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>76%</td><td>0%</td><td>10%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Public Staff: “All low-income customers should be eligible for low-income programs and initiatives. There does not appear to be an EE component tied to the assistance sought in this program.”

Nicholas Institute: “The findings of the statistical analysis provide support for prioritizing outreach to based on sociodemographic and electric burden.”

Rowan Helping Ministries: “Carving our communities for distribution of funding could negatively more rural communities/households.”</td></tr>
<tr><td>Proposal Number: 12</td><td colspan="4">Proposal Name: Required Reporting of Key Credit and Collections Data by NCUC Regulated Utilities</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as</td><td colspan="4">Summary of Program Description: The challenges posed by the COVID-19 crisis have heightened the importance of sustained, affordable access to essential home energy service for all households in NC and across the nation.</td></tr>
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Aug 19 2023

submitted by NC Justice Center)	Yet, there is currently only limited capacity and opportunity in NC to gain a clear, data-driven understanding of the number of households that lose access to home energy services and otherwise struggle with utility affordability and security. Without the data, home energy affordability challenges and their often-dire consequences remain invisible, and the effectiveness of utility credit and collections practices cannot be assessed. Further, development and implementation of effective programs and policies to address access and affordability challenges is thwarted by lack of data. There is a pressing need to step up utility collection and public reporting of data reflecting service disconnections and restorations, as well as other measures of home energy security.			
Assessment Results:	**Support**	**Support with Revisions**	**Do Not Support**	**Abstain**
	71%	5%	5%	19%
LIAC Member Comments:	**Public Staff:** "These data points could provide meaningful value and may be appropriate as one of the metrics established in the next Duke rate cases. **Duke Energy:** "The Companies support the reporting of aggregated data pending it meets the requirements to keep information confidential. If the NCUC approves the reporting of zip code level data, the requirements should align with a NCUC decision in the pending Rulemaking filed in Docket No. E-100, Sub 161."			
Proposal Number: 13	Proposal Name: Minimum Bill Pilot Program			
Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)	**Summary of Program Description:** Historically, Duke Energy has had a two-part rate for residential customers: (1) a volumetric, or per kilowatt hour rate; and (2) a fixed, customer charge, currently set to $14.00 per month. As part of its Order establishing the Low-Income Affordability Collaborative, the Commission asked whether a minimum bill concept would be appropriate as a substitute for fixed monthly charges. To explore this minimum bill rate design, Duke Energy will offer customers who enroll in bill payment assistance programs and customers that enroll in any low-income energy efficiency or any tariffed on-bill financing program a minimum bill option. Under the minimum bill option, participating customers would owe a minimum of about $14.00 per month, regardless of usage, and the prior $14.00 customer charge would be removed from the bill and folded into the volumetric rate. This would result in an increase of about 1.27 cents/kWh, increasing the value of any energy efficiency investments and providing bill savings for all customers who use less than about 1,100 kWh/month. Any customers who consume more than 1,250 kWh/month and may face an increase in their monthly bill but are enrolled in a discount rate or bill payment assistance program would be protected from being harmed from the risk of bill increases from the incremental increase in the volumetric rate.			
Assessment Results:	**Support**	**Support with Revisions**	**Do Not Support**	**Abstain**
	62%	0%	14%	24%
LIAC Member Comments:	**Public Staff:** "This program does not follow cost of service principles. Not a mitigation program."			

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<table>
<tr><td></td><td colspan="4">Dominion: “Proposal doesn’t explain how this program will be funded. Need more information on how the utility is expected to recover costs when usage that exceeds the minimum payment.”

Nicholas Institute: “The statistical analysis findings showed that households with higher winter and summer peak impact were more likely to be in arrears and receive 24-hour notifications. Those households at the highest categories of impact were also more likely to be disconnected.”

Duke Energy: “The Companies do not support the proposed minimum bill pilot. Overall, the Companies support minimum bill as a rate design tool similar to minimum bill rate design offered by Duke Energy regulated utilities in South Carolina and Florida.”</td></tr>
<tr><td>Proposal Number: 14</td><td colspan="4">Proposal Name: Voluntary Weatherization, Energy Efficiency, Urgent Repair Partnership Forum co-led by North Carolina Department of Environmental Quality and the North Carolina Utilities Commission</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: This proposal recommends the creation of a voluntary forum where leaders from NC Department of Environmental Quality (“DEQ”), the NCUC, the NC Housing Finance Agency, regulated utilities, and other stakeholders would periodically meet to coordinate the operation of respective EE, Urgent Repair, and Weatherization programs. The DEQ is responsible for administering the Weatherization Assistance Programs (“WAP”) in North Carolina. The North Carolina Housing Finance Agency runs an Urgent Repair Program. The NCUC oversees certain energy efficiency programs in NC, and some utilities maintain programs that address certain weatherization and urgent repair / health and safety dynamics for residential ratepayers. The goal of the Forum would be to create new ways that operators of these respective programs could meet the needs of low-income residential customers through better coordination of program design, administration, and implementation.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>81%</td><td>5%</td><td>5%</td><td>9%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Public Staff: “This proposal would duplicate initiatives of the State Energy Office and thus is unnecessary.”</td></tr>
<tr><td>Proposal Number: 15</td><td colspan="4">Proposal Name: Revisions to the Duke Energy Winter Moratorium</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: During part of the COVID pandemic, and to the credit of the NCUC, the Public Staff, the NC Attorney General, and Duke Energy, what is commonly known as the Duke Energy Winter Moratorium (“WM”) was expanded to include LIEAP, CIP, and NC Hope recipients. The modified WM covered three of Duke’s Companies; Duke DEC, Duke DEP, and Piedmont Natural Gas and covered 114,000 residential accounts. This proposal would permanently alter the Winter Moratorium by adding the following provisions: 1) Automatically enroll CIP and LIEAP recipients in the moratorium. 2) A moratorium against disconnections would be provided to eligible customers provided arrearages remain below $550. 3) An automatic CIP assistance referral would be triggered when arrears reach</td></tr>
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Aug 19 2023

<table>
<tr><td></td><td colspan="4">$550. 4) A 24-month repayment plan for any arrearage balances that remain upon the conclusion of the moratorium with a provision allowing for 2 missed payments per year during the repayment period.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>67%</td><td>8%</td><td>10%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Crisis Assistance Ministry: “Automatically enrolling customers should be done with caution. If a family cannot keep up with their payment, stopping the disconnection automatically doesn't make it any easier for them to afford electricity of course. Alternatives are -- work with the person to pay as much as they can each month to minimize debt build up, encourage them to apply for all the available funds so as not to lose them, help the person realize they can't afford to stay where they are and help them move in with a family member, friend or in some cases a shelter can be their best option (some approaches we consider at Crisis Assistance Ministry.) Each of these could be more empowering than encouraging a person to continue amassing debt, even if there are 24 months to pay it off or inadvertently encouraging them not to seek available winter aid. If we go this route we should send a notice that they will not be disconnected in certain temperatures but clearly stating that not only is the bill accumulating but that there are places to call for housing counseling to explore alternative options (including budget counseling if applicable) or financial assistance.”

Public Staff: “This would be best suited as a pilot program, specific – at least initially – to the winter season only. The Commission should consider expanding any potential pilot to all IOUs and LDCs.”

Rowan Helping Ministries: “Our observation is that the COVID moratorium did nothing to help our clients but saddled them with higher bills and payment arrangements they could not manage once the bills came due. It created a debt tsunami.” –

Duke Energy: “The Companies support enrolling LIEAP and CIP recipients in a Winter Moratorium that aligns with the timeframe detailed in NCUC Rule 12-11 from November 1 – March 31. LIEAP and CIP recipients would be automatically enrolled in a 6-month payment arrangement at the end of the moratorium. The Companies do not support a summer moratorium or automated referral for arrears greater than $550. The Company will request to seek cost recover of any debts that result to uncollectible charges; similar to the existing process to collect uncollectible charges. The enrollment of LIEAP and CIP in a Winter Moratorium is dependent up receiving the required information from the NCDHHS.”</td></tr>
<tr><td>Proposal Number: 16</td><td colspan="4">Proposal Name: NCUC Rulemaking to Re-examine the Effectiveness of the Regulatory Consumer Protection Structure</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as</td><td colspan="4">Summary of Program Description: In light of the sweeping economic and technological transformation of the electric power sector, and with the prospect of dramatically increased reliance on electricity service in the face of electrification and decarbonization efforts, low-income and historically</td></tr>
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<tr><td>submitted by NC Justice Center)</td><td colspan="4">disadvantaged households and communities are particularly reliant upon effective utility consumer protections. However, many of the existing state consumer protection frameworks are no longer effective in providing consumers with reasonable security from loss of vital service. Today's energy price levels and critical importance of service may not have been contemplated when original regulations were adopted decades ago. As evidenced LIAC assessments of residential customer involuntary service disconnections, existing North Carolina consumer protections have proven inadequate to provide an acceptable level of household energy security and uninterrupted access to vital service. Meantime, the necessity of electricity service is increasing for a wider range of purposes — school, work, building end uses, and transportation. When consumer protections are inadequate and energy security is compromised, the protections for low-income households actually work counter to the goals and objectives of federal and state payment assistance and energy efficiency programs. For example, when a state LIHEAP office scrambles to cobble together the resources necessary to keep a client from losing utility service, those efforts may be undermined by an unreasonable payment plan or onerous security deposit and late payment fee provisions. What is needed now is a reexamination of existing utility consumer protections to ensure that vulnerable customers who demonstrate good faith efforts to make affordable utility payments are protected from loss or degradation of service.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>81%</td><td>5%</td><td>0%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Duke Energy: "The Companies support the review of the existing regulatory consumer protections detailed in NCUC Rule R12-11. If the output of the review requires technical system changes, the Companies request the required timeframe to update impacted systems which could be 12 months. In addition, the Companies will seek cost recovery of costs associated with required technical system changes and costs incurred as a result of any policy/rule changes."</td></tr>
<tr><td>Proposal Number: 17</td><td colspan="4">Proposal Name: Help My House Model (based on South Carolina program)</td></tr>
<tr><td>Submitter: Christina Cress, Bailey & Dixon, LLP</td><td colspan="4">Summary of Program Description: "The results of the 'Help My House' pilot [in South Carolina] were extremely positive. Billing data on the 125 participating homes indicates a 34 percent reduction in energy use (1.35 million kWh) in the year after the energy efficiency improvements were completed, an average savings of $288 per home after loan payments."</td></tr>
<tr><td>Notes:</td><td colspan="4">Proposal 17 redirected to the Tariff Working Group[55] to align with Duke Energy's On-Tariff Bill offer under consideration.</td></tr>
<tr><td>Proposal Number: 18</td><td colspan="4">Proposal Name: Smart $aver Low-income Multi-Family Retrofit</td></tr>
</table>

[55] Insert Description of the Tariff Working Group effort in comparison to the settlement in the prior DEC rate case settlement or HB951 requirement

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Submitter: Christina Cress, Bailey & Dixon, LLP	**Summary of Program Description:** Smart $aver LIMP projects would involve efficiency upgrades for buildings with currently high energy consumption, specifically for lighting, appliances, weatherization, heating systems, controls, domestic hot water, and HVAC/mechanical systems. Eligible measures under the LIMRP would be directly installed at no charge to the low-income customer, and would include: (1) comprehensive energy assessment, including customer education; (2) weatherization, including wall, attic, floor, and pipe and duct insulation, as well as air sealing (caulking, weather stripping, door and window hardware, window parting beads and stops); (3) programmable thermostats; (4) blower door analysis; (5) heating system tune-up, repair, and replacement; (6) low-flow showerheads and faucet aerators; (7) minor building repairs, including glass replacement and adjustment of window meeting rails; (8) replacement of inefficient appliances, including refrigerators and clothes washers; (9) installation of compact fluorescent lamps ("CFLs") and LEDs; (10) health and safety measures such as wire inspection, ventilation, and the DOE lead-free protocol; and (11) multi-family-building-specific measures, such as common area lighting fixtures, HVAC motors and controls and heating systems.
Notes:	**Proposal 18 combined with Proposal 8 and evaluated as Proposal 23.**
Proposal Number: 19	Proposal Name: The NC Healthy Homes Initiative ("NC HHI")
Submitter: Detrick Clark, The North Carolina Community Action Association	**Summary of Program Description:** One of the by-products of weatherization programs is the positive impact on health, as outlined in the CDC's HI-5 (Health Impact Interventions in 5 years). But unfortunately, some repairs are ineligible for NC WAP and DEC WX funding, leaving important health-related concerns untouched. The NC Healthy Homes Initiative will provide families with home repairs that are crucial to improving their overall health. Considering most Americans spend nearly 60 percent (pre-COVID) of their time in their homes, the condition of their homes has a significant impact on their health and overall quality of life. As a result, the condition of one's home plays a vital role in our health. Poor quality and inadequate housing contribute to health problems such as chronic diseases and injuries and can have harmful effects on childhood development. Unfortunately, many of North Carolina's families cannot afford the repairs and home safety updates necessary to protect their physical and mental health. The NC HHI will help fill these gaps by providing funding to North Carolina's most underserved communities to make those additional, health-centered, repairs for families to increase overall health outcomes.
Assessment Results:	**Support** 48% | **Support with Revisions** 29% | **Do Not Support** 9% | **Abstain** 14%
LIAC Member Comments:	**Southern Environmental Law Center:** "This is a critically needed program and builds on NCCAA's experience with the BC/BS grant for the Healthy Homes Initiative and the Duke Healthy Home Fund. But it is not clear from the proposal where the funds would come from for this NC HHI. Ratepayer funds have historically been limited to energy efficiency related upgrades. Ideally, healthcare related funds or other government programs could support

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Aug 19 2023

	an initiative like this to improve the health and safety of homes and make them ready for EE upgrades." **AARP:** "This program should be funded first with DOE weatherization funds and LIHEAP." **Public Staff:** "The program administration should be determined by RFQ. Only non-ratepayer funds should be utilized for health and safety work. Ratepayer funds could be used for EE measures and to reduce cost of service." **Dominion:** "Scope is focused on healthier home initiative vs removing energy burden via EE initiatives." **North Carolina Justice Center:** "This is a critically needed program and builds on NCCAA's valuable experience with the BC/BS grant for the Healthy Homes Initiative and the Duke Helping Home Fund. But it is not clear from the proposal where the funds would come from for this NC HHI. Ratepayer funds have historically been limited for energy efficiency related upgrades. Ideally, healthcare funds could be identified to support an initiative like this to improve the health and safety of homes, which would have the added benefit of making them ready for EE upgrades." **North Carolina Sustainable Energy Association** - "We support the intent of the program but think there needs to be more discussion about where the funding for this program comes from since that does not seem to have been defined in this proposal." **Southern Alliance for Clean Energy:** We strongly support the establishment of consistent funding for health, safety, and incidental repairs to supplement federal, state, and ratepayer funds for energy efficiency. We know there are potential challenges with regard to use of ratepayer funds for these purposes but are committed to working through the associated regulatory issues and/or assist in seeking additional funding from other sources." **Duke Energy:** "The Companies do not support this proposal as it doesn't have a specific time to the scope of identifying opportunities to address affordability for low-income customers."
Proposal Number: 20	Proposal Name: The Duke Energy Progress Weatherization Program (DEP WX)
Submitter: Detrick Clark, The North Carolina Community Action Association	**Summary of Program Description:** The Duke Energy Progress Weatherization Program (DEP WX) is a robust weatherization program designed to assist DEP income-qualified customers by directly installing energy-efficient measures and providing education on energy efficiency. Like the Helping Home Fund, Healthy Home Initiative, and the DEC WX program, the DEP WX Program would lean on the collaboration and expertise of the NCCAA, and its dedicated weatherization service providers network for implementation. If expanded, funds will be distributed to participating Service Providers involved in assisting income-qualified

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Aug 19 2023

<table>
<tr><td></td><td colspan="4">customers with energy efficiency. The DEP WX program would function as a rebate program.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>52%</td><td>29%</td><td>0%</td><td>19%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Southern Environmental Law Center: “For the same reasons that we support LIAC Program Proposal Number 2, which calls for a DEP Weatherization Program modeled after the DEC Weatherization Program, we also support the substance of this Proposal (No. 20). Even though NCCAA has unmatched experience administering this kind of program (as it does the DEC Weatherization Program, Helping Home Fund, and HHI), it is our understanding that Duke Energy would need to go through an RFP process to identify the program administrator and that it may be premature to assign that role to NCCAA at this time.”

Crisis Assistance Ministry: “This is not a suggested revision, it's a comment overall on this as well as the other weatherization related proposal/s all of which we do support. It's also somewhat similar to the concept in #23. We operate in a space at Crisis Assistance Ministry where over 15,000 renting households annually need help with utilities and/or rent (often times it's rent one month and utilities the next month when juggling on a limited income.) Less than 1% are homeowners. Weatherization solutions that are more equitability available for low-income families would include more options for rental housing. In the vast majority of apartment complexes there is income segregation (apartments class A, B, C corresponds to income.) Could we work with landlords running low-income apartment complexes as the target of weatherization outreach? Certainly, many are owned from out of state vendors or equity funds but still there are thousands of complexes owned by local "mom and pop" landlords who could help 200-300 families at one time if they are given an opportunity to receive help weatherizing their units.”

AARP: “This program should be funded first with DOE weatherization funds and LIHEAP.”

Public Staff: “The program administration should be determined by RFQ. Only non-ratepayer funds should be utilized for health and safety work. Ratepayer funds could be used for EE measures and to reduce cost of service.”

Nicholas Institute: “In the statistical analysis, higher winter peak and summer peak usage were associated with a customer being more likely to be in arrears, receive a 24-hour notice, and be disconnected. These results would support reducing high energy use via weatherization.”

North Carolina Justice Center: “For the same reasons that we support LIAC Program Proposal Number 2, which calls for a DEP Weatherization Program modeled after the DEC Weatherization Program, we also support the substance of this Proposal (No. 20). Even though NCCAA has unmatched experience administering this kind of program (as it does the DEC</td></tr>
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<table>
<tr><td></td><td colspan="4">Weatherization Program, Helping Home Fund, and HHI), it is our understanding that Duke Energy would need to go through an RFP process to identify the program administrator and that it may be premature to assign that role to NCCAA at this time."

Duke Energy: "The Company plans to file the DEP Income Weatherization Program with the NCUC within the next two weeks."</td></tr>
<tr><td>Notes:</td><td colspan="4">On June 13, 2022, in Docket No. E-2, Sub 1299, DEP filed its Proposed Residential Income-Qualified Energy Efficiency and Weatherization Program. The proposed filing is similar to Proposal 20.</td></tr>
<tr><td>Proposal Number: 21</td><td colspan="4">Proposal Name: NC Low-Income Energy Major Home Repair Program</td></tr>
<tr><td>Submitter: Detrick Clark, The North Carolina Community Action Association</td><td colspan="4">**Summary of Program Description:** The NC Low-Income Energy Major Home Repair Program is a preweatherization deferral assistance program designed to help DEP and DEC program eligible families with costly home repairs and other health and safety issues that have previously prevented them from receiving assistance from weatherization assistance program service providers. Annually, hundreds of families are added to the NCWAP deferral list because their homes were deemed fiscally and physically inadequate. Since 2018, over 1,100 low-income families have been placed on the NC Weatherization Assistance Program deferral list because the condition of their homes rendered the delivery of weatherization services either unsafe or ineffective. Because the NCWAP program prioritizes families with children and those that are either elderly, disabled or high-energy users, deferrals present an additional hardship for these families who are already struggling to simply make ends meet.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>**Support**</td><td>**Support with Revisions**</td><td>**Do Not Support**</td><td>**Abstain**</td></tr>
<tr><td>52%</td><td>29%</td><td>5%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">**Southern Environmental Law Center:** "As we said with respect to No. 19, this is a critically needed program and builds on NCCAA's valuable experiences. But it is not clear from the proposal where the funds would come from for this Major Home Repair program. Ratepayer funds have historically been limited to energy efficiency related upgrades. Ideally, federal or state funds could support an initiative like this to provide the repairs necessary to make them ready for EE upgrades."

AARP: "We support DOE or infrastructure funds from the Federal government be used for a pilot program."

Public Staff: "The program administration should be determined by RFQ. Only non-ratepayer funds should be utilized for health and safety work. Ratepayer funds could be used for EE measures and to reduce cost of service."

Nicholas Institute: "In the statistical analysis, higher winter peak and summer peak usage were associated with a customer being more likely to be in arrears, receive a 24-hour notice, and be disconnected. These results would support reducing high energy use and this proposal would facilitate that</td></tr>
</table>

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Aug 19 2023

<table>
<tr><td></td><td colspan="4">process by providing for repairs and reducing deferrals from weatherization assistance."

North Carolina Justice Center: "As we said with respect to No. 19, this is a critically needed program and builds on NCCAA's valuable experiences. But it is not clear from the proposal where the funds would come from for this Major Home Repair program. Ratepayer funds have historically been limited to energy efficiency related upgrades. Ideally, federal or state funds could support an initiative like this to provide the repairs necessary to make them ready for EE upgrades."

North Carolina Sustainable Energy Association: "Similar to our response to proposal 19, we support the program but are interested in more discussion about how to fund it since that does not seem to have been defined."

Southern Alliance for Clean Energy (SACE): "We strongly support the establishment of consistent funding for health, safety, and incidental repairs to supplement federal, state, and ratepayer funds for energy efficiency. We know there are potential challenges with regard to use of ratepayer funds for these purposes, but are committed to working through the associated regulatory issues and/or assist in seeking additional funding from other sources."

Duke Energy: "The Companies do not support this proposal as it doesn't provide a specific time to the scope of identifying opportunities to address affordability for low-income customers."</td></tr>
<tr><td>Proposal Number: 22</td><td colspan="4">Proposal Name: Customer Affordability Program ("CAP")</td></tr>
<tr><td>Submitter: Brad Harris, Duke Energy</td><td colspan="4">Summary of Program Description: CAP is a monthly credit applied directly to the customer's bill. The customer would receive the credit for 12 months. Eligible customers would be automatically enrolled in the program via a list given to the Companies from eligible state agencies that are already qualifying people for government assistance programs. Customers would be eligible for CAP for a predetermined amount of time and will require recertification after this timeframe from a CAP participating organization.</td></tr>
<tr><td>Notes:</td><td colspan="4">Proposal 22 combined with Proposal 9 are evaluated as Proposal 24.</td></tr>
<tr><td>Proposal Number: 23</td><td colspan="4">Proposal Name: Smart $aver Low-income Multi-Family Retrofit Program ("Smart $aver LIMP")</td></tr>
<tr><td>Submitter: Christina Cress, Bailey & Dixon, LLP with NCJC and other Stakeholders</td><td colspan="4">Summary of Program Description: Smart $aver LIMP projects would involve efficiency upgrades for buildings with currently high energy consumption, specifically for lighting, appliances, weatherization, heating systems, controls, domestic hot water, and HVAC/mechanical systems.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>62%</td><td>19%</td><td>0%</td><td>19%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">AARP: "We support DOE or infrastructure funds from the Federal government be used for a pilot program."</td></tr>
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Aug 19 2023

	Public Staff: "Ratepayer funds could only be used only for the EE components; non-ratepayer funds could be leverage for non-EE components of this proposal." **Rowan Helping Ministries:** "The utility should not be administering the program or leveraging funds. Seems like this should fall under a community action agency or non-profit." **Nicholas Institute:** "The findings of the statistical analysis support focusing on reducing energy consumption in multi-family housing, particularly multi-family rental housing." **Duke Energy:** "The low-income multifamily segment of the Duke Energy customer base is an area of opportunity to assist the income-qualified tenants. Duke has been working with a group of interested stakeholders on a investigating a low-income multifamily pilot program and thru that work has identified challenges including, but not limited to the following: • These income qualified customers maybe receiving overlapping efficiency measures through the Neighborhood Energy Saver Program • There is an existing direct install multifamily program in the Duke Energy program portfolio that can serve all customers, so there is potential confusion for this program. Are these programs related or operated separately while serving the same multifamily dwellings? • There isn't an intake process for determining low-income eligibility directly through Duke Energy right now. The information is sensitive and time constrained. Is the intent to use other low-income entities to determine eligibility? • The weatherization agencies also can serve this segment of the population, what is the best way to coordinate services between the programs? • This program seems to be targeted and reported through the tenant meter, since the property owner must agree to the upgrades, what is the proposed coordination with tenant and property owner? • Does the landlord or property owner have to agree not increase rent for some period of time? • How will energy savings be captured when the measure might include shared space like attic insulation? • Is fully up to Duke Energy to determine the best method, process and cost to implement the upgrades? Would Duke be expected to submit or assist with grant applications? At what point would the NCUC evaluate the program for best practices by project or at/after EM&V?"
Notes:	**Proposal 23 reflects the combination of Proposal 8 and Proposal 18.**
Proposal Number: 24	Proposal Name: Customer Affordability Program ("CAP")
Submitter: Joint proposal from multiple stakeholders merging Program Proposal # 9 with # 22	**Summary of Program Description:** CAP is a monthly credit applied directly to the qualified customer's bill. Eligible customers would be automatically enrolled in the program via a list given to the Companies from eligible state agencies that are already qualifying people for government assistance programs. Customers would be eligible for CAP for a predetermined amount of time and will require recertification after this timeframe. The CAP program will strive to develop a process so that customers can be automatically recertified.

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Aug 19 2023

Assessment Results:	**Support**	**Support with Revisions**	**Do Not Support**	**Abstain**
	62%	24%	5%	9%
LIAC Member Comments:	**AARP:** "AARP supports such comprehensive and coordinated measures to help low-income customers pay their bills and supports the idea conceptually. We especially like the auto enrollment feature. We are interested to ensure that the program can be readily understood by consumers and can be administered without undue complexity. We would like more information on the complexities created by having three different benefit tiers. A pilot program should be used to test the viability of this new idea." **Public Staff:** "This program is supported to the extent that it is based upon cost of service principles. Participation in applicable EE programs should be required instead of 'highly suggested.'" **North Carolina Dept of Health and Human Services:** "In regards to the Tiered approach, DHHS does not currently capture the data necessary to determine the FPL levels discussed in this proposal. For CIP, LIEAP, LIHWAP, SNAP, and Medicaid, a recipient's income eligibility is determined by whether they fall under a certain FPL but what percentage they fall into is not recorded. This could potentially change in the future; however, due to the amount of work that is ongoing with our NC FAST team on making changes to our system that take priority, it is unclear as to when our team would have availability to make these upgrades to capture this data." **Carolina Industrial Groups for Fair Utility Rates (CIGFUR):** "Violates cost-causation principles to recover costs from all classes of customers. Costs should be contained to residential class of customers. This proposed interclass cross-subsidization is not consistent with existing NC law, in particular H951." **Nicholas Institute:** "The results of the analysis support efforts that would reduce electric burden for households." **Rowan Helping Ministries:** "Requirement for participants in program to have an energy efficiency audit to identify ways to reduce energy consumption. Recertification would take into consideration the customers implementation of energy efficiency recommendations and/or use of the free weatherization services."			
Notes:	**Proposal 24 reflects the combination of Proposal 9 and Proposal 22.**			

A. Duke Energy Perspective

Affordability Ecosystem

Duke Energy recognizes that multiple solutions are necessary to address energy affordability challenges for low-income customers ("Affordability Ecosystem"). The

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Affordability Ecosystem is a multipronged approach to address affordability challenges that are both short-term (arrears and DNP) and long-term (electric energy burden and energy intensity) by connecting eligible customers with current and future products and services. The LIAC discussions highlighted the opportunity for in-bound requests from low-income customers to receive information about Duke Energy and third-party offerings designed to address affordability challenges. Duke Energy is committed to addressing energy affordability challenges by providing products and services that complement the affordability ecosystem. The products and services include bill payment assistance, energy efficiency offerings with a focus on weatherization, and equipping our customers service team with information to proactively educate low-income customers about opportunities to address affordability challenges.

Fourteen of the twenty-two proposals recommended by LIAC were related to expanding energy efficiency programs and offerings to income qualified customers. These proposals suggest the LIAC's acknowledgment that energy efficiency and bill pay assistance are necessary to address affordability challenges experienced by low-income customers.

Proposals 1, 2, 3, 4, 5, 7, 11, 20, and 23

During the Joint Collaborative Meeting in LIAC Workshop V, LIAC members were informed about the work underway to file a DEP weatherization program that would apply learnings from WPERP and a DEC pilot designed to target income-qualified high electric energy usage residences. On June 13, 2022, in Docket No. E-2, Sub 1299, DEP filed its Proposed Residential Income-Qualified Energy Efficiency and Weatherization Program. The proposed filing is similar to Proposals 2 and 20. Additionally, on June 30,

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2022, in Docket No. E-7, Sub 1272, DEC filed its Proposed Residential Income-Qualified High-Energy Use Pilot. This proposed pilot is the product of the settlement approved Docket No. E-7, Sub 1214 issued on March 31, 2021. This filing is similar to the Proposal Number 3 detailed above. The assessment of these three proposals received a majority of consensus with support and support with revisions. Comments recently filed in in Docket No. E-2, Sub 1299 on behalf of LIAC members, North Carolina Justice Center, North Carolina Housing Coalition, Southern Alliance for Clean Energy and Southern Environmental Law Center applaud DEP and expressing their strong support for the DEP Proposed Residential Income-Qualified Energy Efficiency Weatherization Program.[56]

Similar to the process to evaluate the recently filed energy efficiency programs described above, Duke Energy will discuss the energy efficiency related proposals[57] with members of the EE/DSM Collaborative by year-end and file an update on the proposal status in the next EE/DSM annual filings. Duke Energy recognizes the difference or "gap" in both energy savings and program spending for energy efficiency offered in DEC and DEP. There are a number of factors that lead to this outcome including, but not limited to, the difference in the number of eligible customers and programs offered. As Duke Energy continues to identify opportunities to offer additional energy efficiency programs and work toward increasing participation, there is a likelihood that the gap will be reduced.

Proposal 6

While Duke Energy recognizes that participation in energy efficiency programs supports reducing a customer's energy burden and energy intensity, the requirement to participate in a program may be outside of the customer's control. For example, if a

[56] ViewFile.aspx (ncuc.gov).
[57] LIAC Proposals 4, 5, 7, 11, and 23 detailed in Appendix G.

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Aug 19 2023

customer is renting their residence, the property owner must provide authorization. Duke Energy is open to evaluating an arrears management that is not specific to energy efficiency program participation as discussed further in Proposal 24.

Proposal 10

As previously discussed in Section IV of the Final Report, Duke Energy supports a Comprehensive Study to evaluate affordability challenges and solutions for North Carolina's low-income customers. If a Comprehensive Study is ordered by the Commission, Duke Energy believes the LIAC's research will be helpful in forming the scope which may include a state-wide definition of affordability and metrics. As described earlier in the Final Report, the scope of researching affordability by the CPUC and PPCU varied. Although the affordability challenges experienced by low-income customers may be similar across jurisdictions, the dynamics of each jurisdiction vary. For this reason, Duke Energy does not support adopting the CPUC's definition of affordability and metrics.

Proposal 12

If the Commission approves Proposal 12, the reporting requirements should align with the Commission's decision in the pending Rulemaking filed in Docket No. E-100, Sub 161.

Proposal 13

The Companies do not support the proposed minimum bill pilot. Overall, the Companies support minimum bill as a rate design tool similar to minimum bill rate design offered by Duke Energy regulated utilities in South Carolina and Florida.

Proposal 14

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Duke Energy supports Proposal 14 and recognizes the scope of the forum may expand to include areas beyond electric energy affordability. Duke Energy's participation will allow for policy discussions and input to address electric energy affordability challenges and opportunities to collectively assist more income-qualified customers.

Proposal 15

On February 11, 2021, Duke Energy notified the Commission of plans to broaden the winter disconnection moratorium for some of the most vulnerable members of our communities by expanding eligibility to include LIEAP and CIP recipients. Duke Energy voluntarily extended the winter moratorium three additional times through March 31, 2022. This change removed the potential for a disconnection of service for non-payment for the timeframe of the winter moratorium, provided additional time to access LIEAP and other assistance funds, and allow a transition to manageable payments for remaining balances at the end of the winter heating season. Duke Energy worked with NCDHHS to identify the North Carolina customers that currently receive, or received during the 2019-2020 winter season, assistance through LIEAP or CIP. Both programs are components of the federal Low-Income Home Energy Assistance Program.

Under normal circumstances and pursuant to the Disconnection Rule, Duke Energy's residential customers in North Carolina may qualify for a disconnection moratorium from November 1 to March 31 if they are (1) certified by the local social service office which administers the Energy Crisis Assistance Program or other similar programs as being eligible to receive assistance under such programs (e.g., LIEAP-eligible), (2) suffering financial hardship that prevents them from being able to afford their bills or a 6-month payment arrangement, and (3) have a household member who is

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handicapped and/or elderly (65 or older) or both. Duke Energy acknowledges the benefits of extending the moratorium to LIEAP and CIP recipients to prevent involuntary interruption for electric service and the opportunity to seek LIEAP and CIP bill pay assistance. Duke Energy supports expanding the winter moratorium to include LIEAP and CIP recipients that aligns with the timeframe detailed in the Disconnection Rule and automatically enrolling moratorium participants in a six-month payment arrangement at the end of the moratorium timeframe. The analytics data supports that LIEAP/CIP customer bills are higher in the winter months in comparison to non-low-income customers. The winter moratorium timeframe aligns with the current timeframe that LIEAP assistance is available for eligible customers (dependent upon heating source). Duke Energy does not support automatic referral for participation in the moratorium for accounts with an arrears greater than $500 nor expanding the moratorium to include the summer months. If there is a broader decision to permanently expand winter moratorium eligibility, Duke Energy may be required to implement technical changes. The expansion of a winter moratorium eligibility requirements could result in increased uncollectibles that will be requested via cost recovery. The enrollment of LIEAP/CIP in the moratorium is dependent upon an approved agreement with NCDHHS. Duke Energy recommends the Commission evaluate expanding eligibility of winter moratorium in a review of the disconnect rules as detailed in Proposal 16.

Proposal 16

Duke Energy supports the Commission initiating a rulemaking docket to review the existing regulatory consumer protections detailed in NCUC Rule R12-11.

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Proposals 19 and 21

Duke Energy does not support these programs because they are outside the scope of addressing specific electric energy affordability opportunities for low income-customers.

Proposal 24

Due to the similarities of Proposals 9 and 22, the submitters agreed to combine the proposals for assessment purposes by LIAC members and rename it as Proposal 24. Proposal 24 details a submission for an arrears management and bill payment assistance program for eligible customers referred to as the Customer Assistance Program ("CAP").[58] The proposed program would assist low-income customers who are experiencing electric energy affordability challenges. The design of CAP applies feedback shared by stakeholders such as autoenrollment, ease of implementation, and low program administration costs which would be no more than 5% of the value of the program costs after the initial year.

Duke Energy will work with NCWAP to implement a referral program for CAP recipients to apply for weatherization services and eligible equipment upgrades such as those offered in WPERP. These efforts support the Affordability Ecosystem by addressing short-term and long-term affordability challenges.

As detailed in the LIAC analytics, compared to non-low-income households, LIEAP/CIP recipient households experience an energy intensity that is 100% higher in the winter and approximately 40% higher in the summer. The average electric energy burden for Duke Energy households is 3.5% compared to over 8% for LIEAP and CIP

[58] As discussed in Footnote 28 in Section III.A.1, the proposed discount bill discount program was referred to as the Customer *Affordability* Program throughout the LIAC and in the Companies' Proposal 24 but was recently renamed as the Customer *Assistance* Program.

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households[59]. The statistical modeling results show that households with an 8% electric energy are 19% more likely to meet the arrears struggling definition compared to households with a 6% electric energy burden. The direct impact of reducing a household's electric energy burden makes their bill more affordable by reducing the likelihood that they may receive a 24-hour disconnect notice and experience a DNP.

The autoenrollment of LIEAP and CIP recipients in CAP eliminates the hurdle of a customer being required to complete *another* application for assistance. In order to automatically enroll LIEAP and CIP recipients in CAP, Duke Energy and the NCDHHS would need to execute a Data Sharing Agreement.[60] Upon seeking approval for CAP in a future regulatory proceeding before the Commission, the Companies must request that the Commission also approve using LIEAP and CIP status as eligibility criteria for receiving a bill discount. An arrears management program could be added but will require additional evaluation to determine terms and feasibility of timely implementation.

VII. Duke Energy and Public Staff Recommendations

As a result of the numerous, discussions and work provided throughout the Affordability Collaborative, Duke Energy and the Public Staff support the following recommendations for the Commission's consideration:

- The Commission should consider FPG at or below 200% when determining eligibility for programs to address affordability. As discussed in Section IV, this

[59] See Appendix C at 20.

[60] This is similar to the agreement with NCDHHS to share LIEAP and CIP recipient information to enroll them in the expanded moratorium during the COVID-19 pandemic. The Companies along with Piedmont Natural Gas informed the Commission of their intention to work with DHHS to identify the North Carolina customers that currently receive, or received during the 2019-2020 winter season, assistance through LIEAP or CIP. *See Duke Carolinas, LLC, Duke Energy Progress, LLC and Piedmont Natural Gas Company, Inc.'s Notification of Change to Winter Moratorium*, Docket Nos. E-7, Sub 1236; E-2, Sub 1228; G-9, Sub 767; M-100, Sub 158; E-7, Sub 1241 and E-2, Sub 1258 (February 11, 2021).

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recommendation aligns with the majority of the income-qualified programs identified in the Sub-Team B research and analytics information completed for the LIAC.

- The Commission should approve and adopt the metrics recommended for monitoring affordability program impacts as discussed in Section III.B of the Final Report.
- The Commission should initiate a rulemaking docket to review the existing regulatory consumer protections detailed in NCUC Rule R12-11 as discussed in Section III.C of the Final Report.

VIII. Public Staff Perspective on the LIAC

Throughout the duration of the LIAC there has been robust discussion, sharing of points of views, and education on differing perspectives among the members. Those engagements have benefited the entire LIAC. The Public Staff welcomes the opportunity to explore potential avenues for making electric rates more affordable for low-income customers.

The Public Staff has been consistent in its position that cost-of-service principles remain in effect and must be a primary concern to ensure rates remain fair, reasonable, and affordable for all customers. Cross-subsidization between customer classes and within classes should be minimized and only be allowed if there is legislation requiring or permitting the cross-subsidization or upon the articulation of explicit policy decisions by the Commission.

There are two primary opportunities to assist low-income customers in paying their electric energy bills: (1) reduction of customer usage through participation in energy

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efficiency programs, or (2) bill assistance, which is usually for a short term, or through low-income rates. Energy efficiency reduces energy consumption and thus should lower bills over the long-term.[61] Low-income qualified energy efficiency programs, which are typically not cost effective, should be designed such that costs in excess of benefits are minimized to the greatest extent possible, as determined by a thorough EM&V process. Any bill assistance or low-income rates should include participation in the full suite of low-income energy efficiency programs available as applicable to the individual customer's circumstances.

The Public Staff reviewed each proposal submitted by LIAC members as a standalone submission. While supportive of many of the proposals, none of the proposals were accompanied by estimates of the costs, benefits, cost-effectiveness, participation, rate impact, and other variables that would be necessary to appropriately evaluate each proposal. Such an exercise would typically occur when Duke files a program for Commission approval. Only with this and other pertinent information could the Public Staff make a final determination as to whether it supports a specific proposal. Further, if all or several of the proposals developed by the LIAC are filed for approval with the Commission, the combined rate impact of all the programs on customers should be considered.

IX. Conclusion

Duke Energy and the Public Staff appreciate the Commission's dedication to explore and address affordability challenges for low-income customers. The Final Report reflects the comprehensive and thorough work completed by the LIAC to support those

[61] Bills may increase if increases in customer usage, base rates, or riders offset the energy efficiency savings.

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efforts. Although the Final Report marks a significant milestone in addressing affordability concerns, Duke Energy and the Public Staff recognize that, as detailed in the report, additional work remains through partnerships with external facing organizations to help mitigate the challenges faced by low-income customers.

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APPENDIX A – LIAC

2/21/22 COMMISSION BRIEFING PRESENTATION

DOCKET NOS. E-7, SUB 1213; E-7, SUB 1214; E-7, SUB 1187; E-2, SUB 1219 AND E-2, SUB 1193

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North Carolina

Low Income Affordability Collaborative

North Carolina Utilities Commission Briefing

February 21, 2022

Convened by

DUKE ENERGY.

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North Carolina Utilities Commission

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Low Income Affordability Collaborative (LIAC) Approach

38 distinct tasks for the LIAC in the Commission order

Low Income Affordability Collaborative (LIAC)

SUB-TEAM A Customer Challenges	SUB-TEAM B Affordability Metrics	SUB-TEAM C Rates & Programs	SUB-TEAM D Collaborative Coordination
exploring customer energy affordability challenges	*benchmarking definitions of and metrics used for defining "affordability"*	*investigating current assistance programs, rate designs, cost impacts*	*engaging the EE and CRD Collaboratives; proposing consensus and prioritization rules*

LIAC Program Proposal process

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Joint Final Report

- Outlines the feedback and recommendations obtained from LIAC
- Documents program proposals for near-term and longer-term fully costed out programs categorized by:
  - programs/rate designs layered on top of rate plans
  - programs not requiring rate design changes (needing separate proceeding)
  - programs requiring rate design changes (to be considered in next general rate case)

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Stakeholder work is conducted through subteams. Key subteam outputs are posed to the LIAC for endorsement.

	Subteam A	Subteam B	Subteam C	Subteam D
Subteam Tasks	**Assess Customer Challenges:** Assess current energy affordability challenges facing residential customers	**Develop Affordability Metrics:** Develop suggested metrics or definitions for "affordability" and explore trends in affordability	**Investigate Existing Rates & Programs:** Investigate the strengths and weaknesses of existing rates, rate design, billing practices, customer assistance programs and energy efficiency programs in addressing affordability	**Drive Collaborative Coordination:** Coordinate between the affordability collaborative and the comprehensive rate review and energy efficiency stakeholder groups
Co-Leads	**Rory McIlmoil** Appalachian Voices **Arnie Richardson** Duke Energy	**Conitsha Barnes** Duke Energy **La'Meshia Whittington** Advance Carolina	**Detrick Clark** NC Community Action Association **Ken Szymanski** Apartment Association of NC	**Thad Culley** Sunrun **Paula Hemmer** NC DEQ State Weatherization
Teams	20 LIAC members 12 LIAC organizations	19 LIAC members 9 LIAC organizations	23 LIAC members 12 LIAC organizations	15 LIAC members 10 LIAC organizations

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LIAC consists for **33 organizations** and approximately **50 active participants**

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Sub-Team A Update

Prepare an assessment of current affordability challenges facing residential customers.

Task	Activities Completed
Analysis of demographics of residential customers	• Assessed demographics by race, age, income, housing type, heating source, family size, housing value, location
Household income-based estimations	• Segmented by household income for DEC, DEP, total
Analysis of trends and patterns	• Analyzed billing data and arrears by average energy usage, average bill, past due amounts, disconnect non-pay, energy intensity, and seasonal impacts across all demographics
On-going Analytics (in-progress)	• Identified additional areas to analyze including DNP notifications, electric burden, mobile homes • Developing statistical models to enhance the descriptive analytics
Assessment of Affordability Challenges	• Developed and socialized initial findings related to customer challenges • Awaiting final LIAC endorsement

Preview of Initial Findings

- 2% of customers are LIEAP/CIP customers, 15% of customers are estimated to be below 150% FPL, with another 11% between 150% and 200% FPL (28% total)
- Significant number of customers meet the "arrears definition"[1]
- Energy intensity (kWh/square foot) is a driving factor
- Seasonal energy intensity drives higher bills in the winter
- Racial disparities in arrears and disconnects for non-pay[2]

[1] *Arrears* is defined as two months spent at two times (2x) the average bill overdue *or* six months spent at one times (1x) the average bill overdue

[2] DEC/DEP applies NC Rule 12-11 consistently regardless of racial status

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Docket No. E-7, Sub 1276
Harris Exhibit 1
Page 98 of 548

Progress To Date

Develop suggested metrics or definition for "affordability" and explore trends in affordability

Task	Activities Completed
Definition and application of "affordability" in other jurisdictions	• Analyzed existing programs and metrics used across other jurisdictions Identified existing utility and state programs designed to address affordability
Trends in affordability	• Engaged subject matter experts to brief subteam • Defined questions to be answered and conducted jurisdictional research
Criteria for determining affordability program eligibility	• Investigating affordability criteria used by state or utility programs to identify program administration alignment opportunities • Compiling findings into matrix for LIAC review
Suggested affordability metrics	• Currently exploring metrics for existing utility or state programs designed to address affordability
Documentation of findings underway and *expect to brief LIAC on affordability trends in March*	

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Progress To Date

Investigating existing customer offerings and practices, in addressing affordability

Task (Assessments)	Activities Completed
Income qualified program insights	• Overviewed existing income-qualified offerings – DEC/DEP EE programs (weatherization programs and pilots, Refrigerator Replacement, and Neighborhood Energy Saver program) – Assistance program (Share the Light) – Helping Home Fund Program • Compiled program-specific participation data requested by Commission
Affordability program effects on cost causation and allowance of cost among classes	• Overviewed rate design concepts including cost of service, cost causation and cost allowances
Appropriateness of implementation of specific rates (min bill, income-based rates, SSI-based rates, segmentation)	• Engaged rate design SMEs to provide rate design concept overview for subteam members and support associated analyses related to minimum bill vs fixed charge and segmentation by class • Overviewed income-based rates and discount programs, including: – DEC SSI discount program – Virginia's Proposed Percent of Income Payment Plan
Customer program proposals and recommendations	• Reviewed existing programs for subteam awareness; program proposal process developed, and proposals solicited (proposals requested no later than March)

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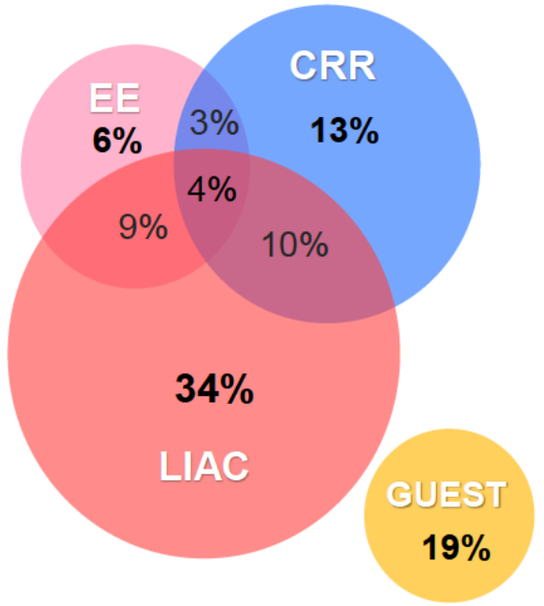
Key Subteam D Tasks

Consider ongoing work of the EE and CRR Collaboratives

Task	Activities Completed
Discussion of key areas of concern via Joint Meeting	• Held joint meeting of three collaboratives on 2/26; 147 participating, • Hosted four concurrent breakout sessions to discuss areas of intersection, gaps and opportunities
Consideration of ongoing EE and CRR Collaborative work	• Identified cross-collaborative participants and designated Utility, Public Staff and community/industry cross-collaborative liaisons • Standing agenda item added to regular LIAC sessions for sharing EE/DSM and CRR updates
Access to interim material produced by three collaboratives	• Leveraged cross-collaborative members to share EE/DSM program insights and rate design concepts • Shared customer demographic assessment data with EE/DSM and CRR collaboratives

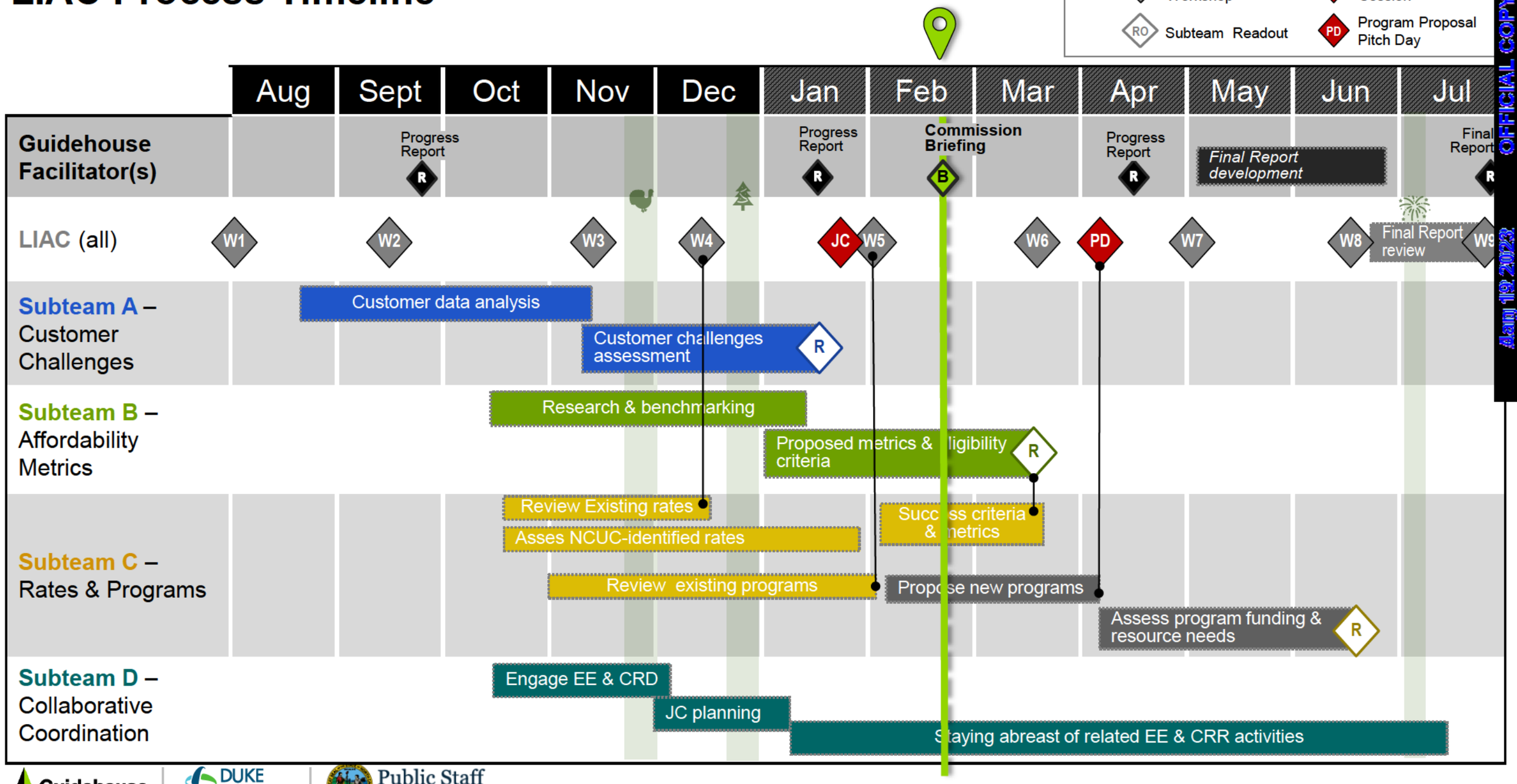
Joint Session Participation



LIAC/EE/CRR jointly identified:

- **36** distinct gaps and opportunity areas
- **19** distinct solution areas

LIAC Process Timeline



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APPENDIX B – LIAC

APPROVED STAKEHOLDER LIST
(ORGANIZATION LIST ONLY)

DOCKET NOS. E-7, SUB 1213; E-7, SUB 1214; E-7, SUB 1187; E-2, SUB 1219 AND E-2, SUB 1193

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Appendix B - Low Income Affordability Collaborative Members

Organization
AARP
Advance Carolina
Apartment Association of NC
Appalachian Voices
Carolina Small Business Development Fund
ChargePoint
Charlotte Area Fund
Carolina Industrial Group For Fair Utility Rates
City of Raleigh
Crisis Assistance Ministry
Dominion Energy
Duke Energy
Guidehouse (Facilitator)
Legal Aid of NC
NAACP
National Institute Economic Development
NC Attorney General's Office
NC Community Action Association
NC Department of Environmental Quality
NC Dept of Health and Human Services
NC Housing Coalition
NC Justice Center
NC League of Municipalities
NC Office of Recovery & Resiliency
NC Sustainable Energy Association
NC Electric Membership Corporation
Nicholas Institute (Duke University)
Public Staff of the NC Utilities Commission
Rowan Helping Ministries
Sierra Club
Southeast Energy Efficiency Alliance
Southern Alliance for Clean Energy
Southern Environmental Law Center
Sunrun (South Carolina)
Vote Solar

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APPENDIX C – LIAC

VERSION 4 ANALYTICS

DOCKET NOS. E-7, SUB 1213; E-7, SUB 1214; E-7, SUB 1187; E-2, SUB 1219 AND E-2, SUB 1193

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NC Low Income Collaborative Analytics

Version 4 – March 2022

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OVERALL GOAL

- Equip LIAC to **prepare an assessment** of current affordability challenges

  (using the data presented as key input into assessment)

LANGUAGE FROM THE COMMISSION ORDER

Prepare an **assessment of current affordability challenges** facing residential customers. The assessment should:

- Provide an **analysis of demographics of residential customers**, including number of members per household, types of households (single family or multi-family), the age and racial makeup of households, household income data, and other data that would describe the types of residential customers the Company now serves. To the extent demographics vary significantly across the Company's service area, provide additional analysis of these demographic clusters.
- **Estimate the number of customers** who live in households with incomes at or less than 150% of the federal poverty guidelines (FPG), and those whose incomes are at or less than 200% of the FPG.
- For the different demographic groups identified as part of a. and b., provide an **analysis of patterns and trends** concerning energy usage, disconnections for nonpayment, payment delinquency histories, and account write-offs due to uncollectability.

The data included in this presentation is specific to eligib

Scope of Analytics

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Included in Analytics:

Per North Carolina Utilities Commission Order:

- Insights into customers under 150% and 200% federal poverty level (FPL)
- Demographics/housing including dwelling type, heating source, renter/owner, racial makeup, age of account holder and number of people in the household
- Trends in delinquency, write-offs, disconnect non-pay (DNP) and energy usage

Per LIAC Members Request:

- Advanced Metering Infrastructure (AMI) Load Shapes
- Additional Insights into Acxiom Data
- Tables including relative information for information detailed in graphs
- More insight into energy intensity
- Electric Energy Burden (New in V4)
- Sub-Category Housing (New in V4)
- Statistical Modeling (New in V4)
- Analysis of DNP Notifications (New in V4)

Other:

- Low Income Energy Assistance Program and Crisis Intervention Program (LIEAP/CIP) recipients as their own segment

Updates to Final Analysis:

- Previous analysis had incomplete DNP data due to data retention policies in historic billing systems, which have since been resolved. As a result of the revisions, the DNP numbers have increased
- Refinements to the Companies' analytics allowed for more accurate segmentation of customers, leading to minor changes in insights on affordability challenges

The data included in this presentation is specific to eligible accounts from March 2019 - February 2020 for purposes of Low-Income Affordability Collaborative analysis

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This Analysis Utilizes the Data Sources Available

- Acxiom (3rd party provider for demographic information) has been verified as useful and reasonably accurate over large data sets, like the ones included in this presentation
  - Correlates with Census data and billing system
  - Correlates when compared with the Company employee checks on personal information (on subset of variables)
  - Primary use case is for marketing
- A great number of external data sources could theoretically be used for this analysis
  - To acquire individual customer-level data requires careful adherence to customer privacy laws and practices
  - Transferring, cleaning, verifying, and analyzing any new data sources on every North Carolina customer would take months
  - The Companies will continue to investigate additional data sources as necessary
- To supplement and validate research into low-income customers the North Carolina Department of Health and Human Services and the Companies entered in a data share agreement permitting the Companies to perform analysis on DEC and DEP customers identified as LIEAP and CIP recipients
- LIEAP & CIP programs are intended to help low-income families who need assistance during an energy crisis to ensure they have access to both heating and cooling services
- The Companies were provided ~53k customers (active as of 2021)
  - LIEAP Qualifications: Less than 130% FPL and reserves at or below $2,250
  - CIP Qualifications: Less than 150% FPL and in an energy crisis

The data included in this presentation is specific to eligible accounts from March 2019 - February 2020 for purposes of Low-Income Affordability Collaborative analysis

Acxiom Data Process

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Collect information at a household level

Public data, buying activity, online registrations, magazine subscriptions, survey data, warranty information, etc.

Model missing data

Uses other known variables of customers and information at the zip+4 and zip level using their proprietary model

Race: surname, language preference, geography, country of origin, etc.

Income: age, occupation, home ownership, and median income for the local area

Optimize to resemble US Census norms at the highest accuracy rate possible

Balancing happens at a stat level for most variables

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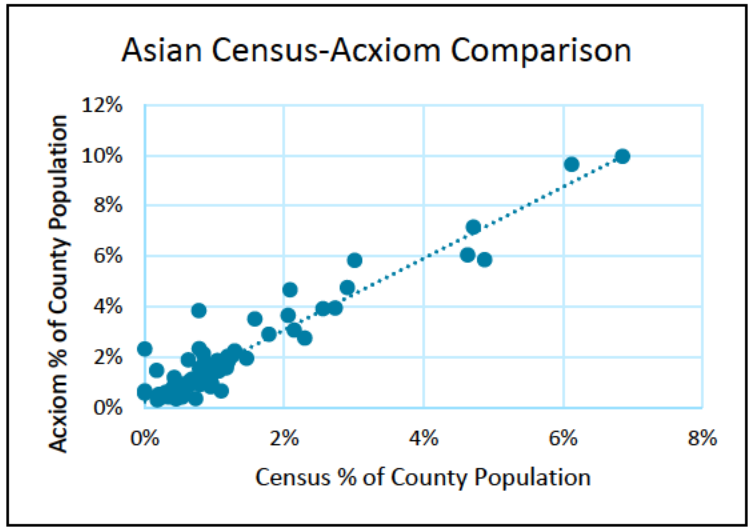
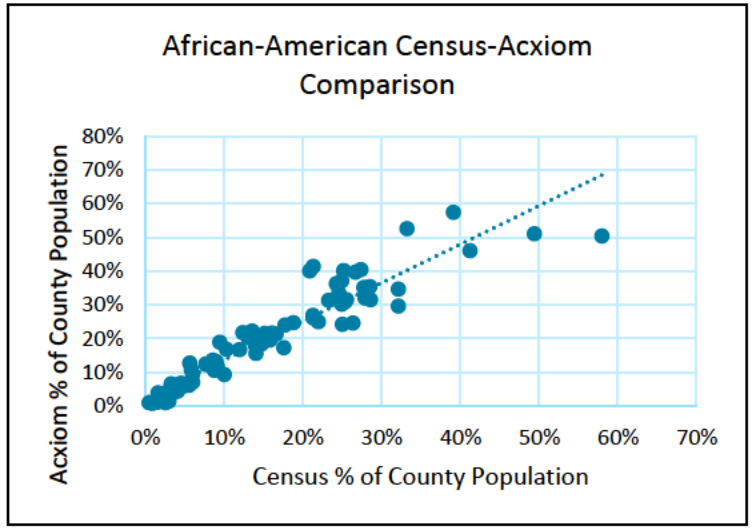
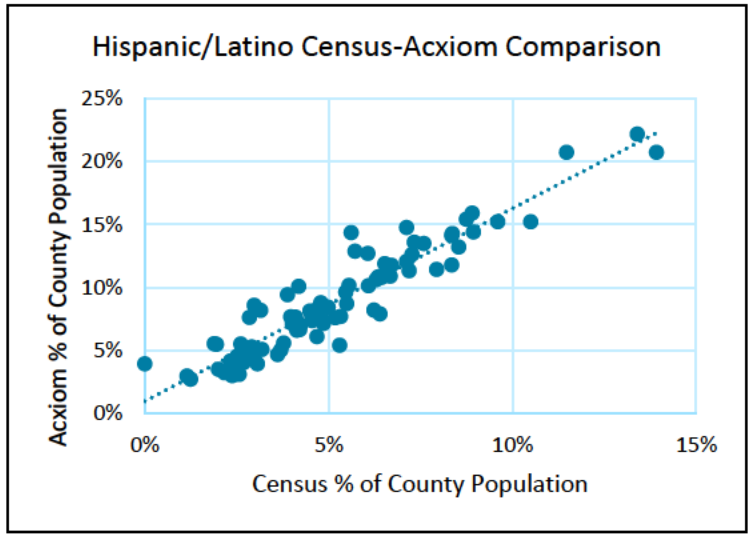
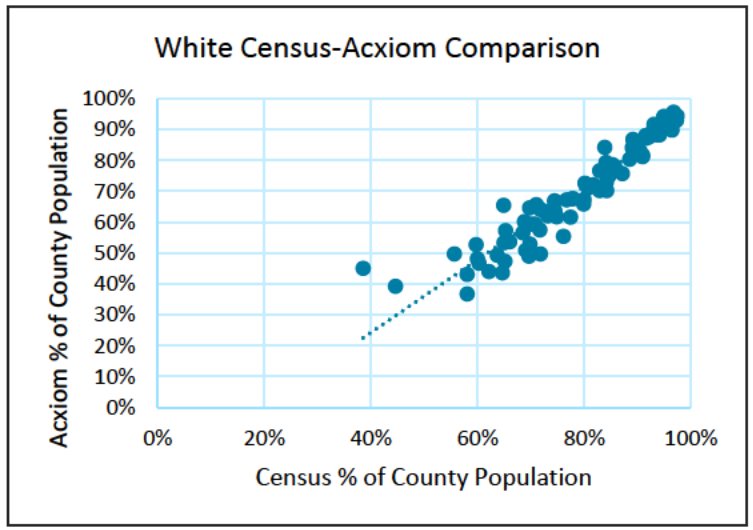
Census-Acxiom Race Count Comparisons

- Acxiom and Census results are similar when comparing counties by the racial makeups
- Acxiom slightly overestimates Hispanic/Latino, African-American, and Asian populations compared to the Census, while underestimating White population
- Acxiom data is at the DEC an DEP account level, which could explain the slight disparities
  - This count only includes one adult per household
  - This would not include households not served by the Companies









Hispanic/Latino were consolidated in the Census and Acxiom

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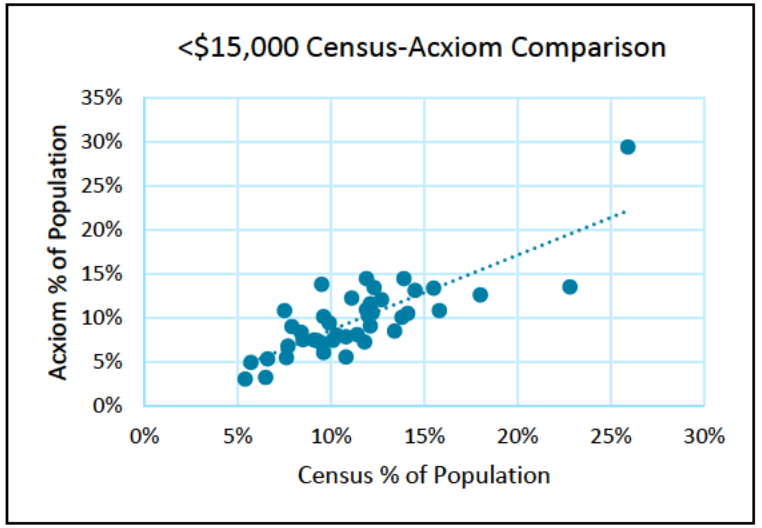
Census-Acxiom FPL Comparisons

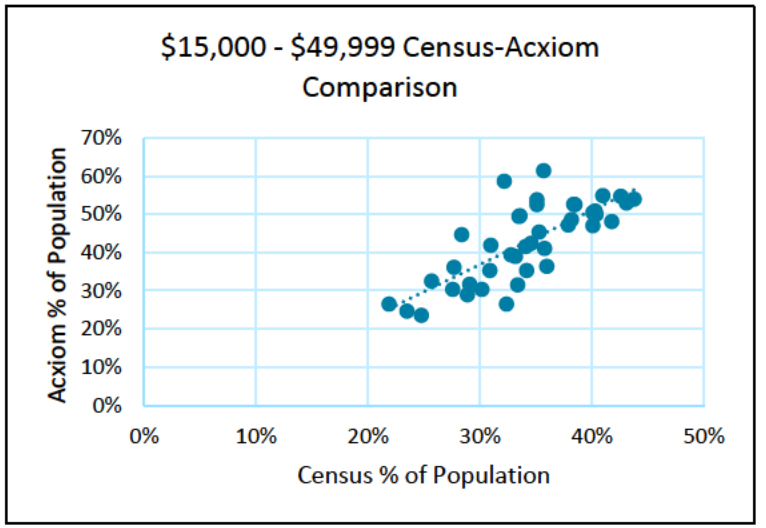
- Acxiom and Census results are similar when comparing counties by the income levels
- Acxiom slightly overestimates lower incomes compared to the Census, while underestimating higher incomes

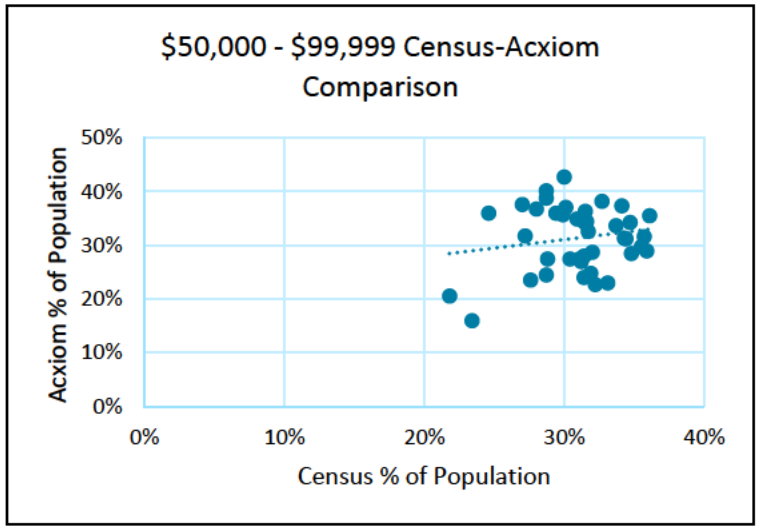
Acxiom Modeling Results

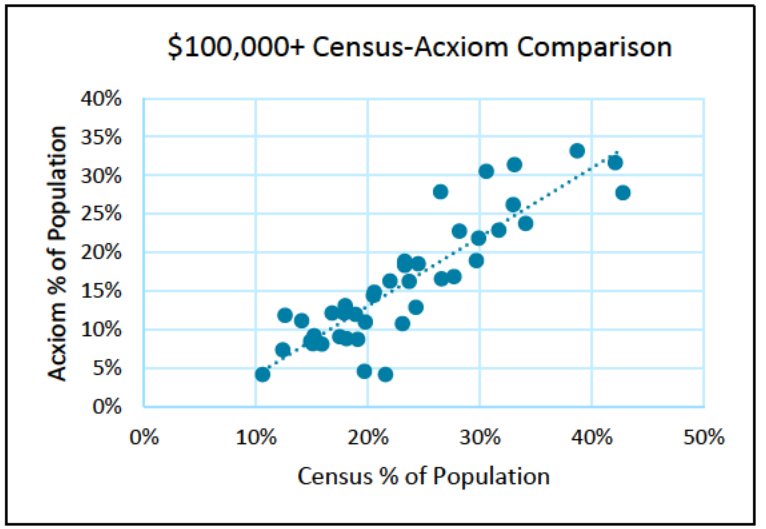
Data Source	<150%	150% to 200%	>200%
Household/ Household Inferred	88.0%	88.0%	94.5%
Zip code+4	10.4%	8.0%	3.8%
Zip code	1.6%	4.0%	1.7%

Includes Income & number of people in household









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Overview of Data Analysis Conducted

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Assessing Customer Demographics: By Income Level

- The Federal Poverty Level ("FPL") is a measure of income **per household size**
- *Relationship of Household Income to FPL* is a common way to classify by income
- Shortfalls of using this metric only:
  - Indicator lags up to a year
  - Does not capture recent changes to status (e.g., job loss, family catastrophe, etc.)
  - Does not account for those with high access to economic resources (i.e., wealthy with low or no reportable income)

150% of Federal Poverty Level

Household Size	Maximum Countable Annual Income
1	$19,320
2	$26,130
3	$32,940
4	$39,750
5	$46,560
6	$53,370
7	$60,180
8	$66,990

2021 FPL Guidelines
Poverty Guidelines, 48 Contiguous States (all states except AK and HI) (hhs.gov)

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Assessing Customer Demographics: By Arrears

Arrears: Money that is past due

Intended to supplement, not replace, other measures of struggling customers

Intended for analytical purposes

1. **Direct measure** of how much customers are struggling to pay their bills
2. Should identify low economic resource customers that could be **struggling for many reasons**, not only low-income
3. **High quality data source**, updated monthly

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Assessing Customer Demographics: Income Level + Account Status

- Requires 3rd party survey data (impacting data accuracy)
- Requires 3rd party verification for program eligibility use
- Not a good indicator of access to economic resources

Income (FPL)

- ✓ Industry Standard Metric
- ✓ Despite drawbacks is believed to be a good metric

- Does not reflect level of high energy burden
- Does not alone capture low-income population

Payment Status (Arrears)

- ✓ Analyzes customers struggling to keep the lights on
- ✓ Readily accessible, high-quality data

APPROACH:
Combining Income + Payment Status

- **Good data:** accessible, higher-quality
- **Good for targeting:** identifies those struggling with energy affordability; identifies those with high energy burdens

The data included in this presentation is specific to eligible accounts from March 2019 - February 2020 for purposes of Low-Income Affordability Collaborative analysis

Analysis Approach

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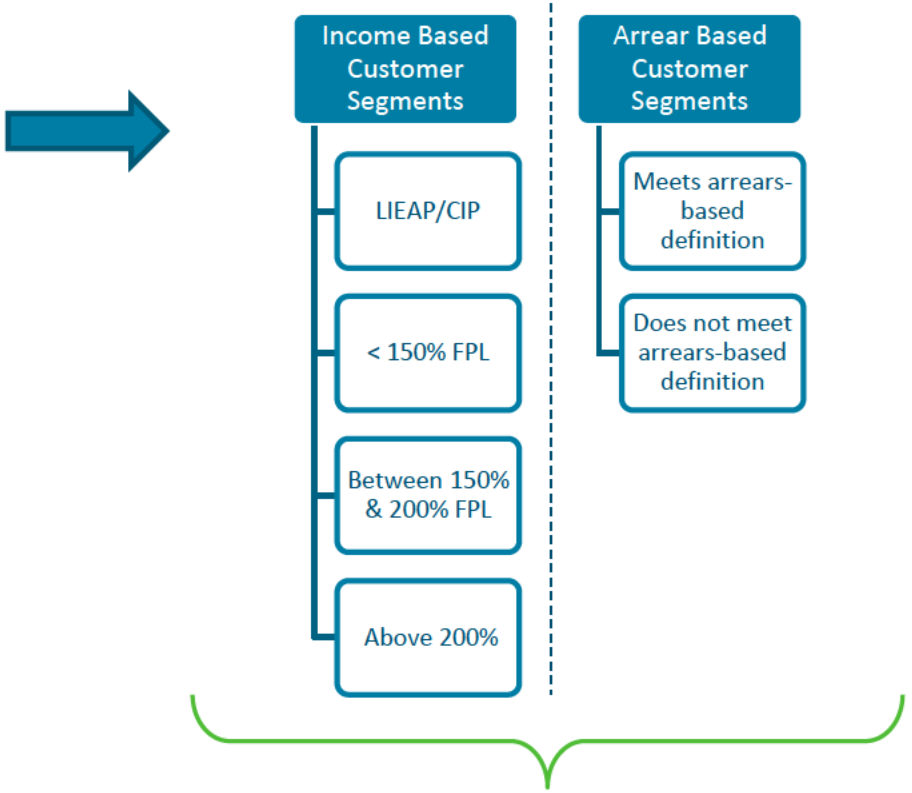
Third Party Data

- Demographics (income range, number of people in household, etc.)
- Housing data (housing type, square footage, owner/renter, etc.)
- The Companies choice of demographic data, updated quarterly
- Uses aggregated public data on individuals or zip code averages
- Directionally valid, not to be used for eligibility
- LIEAP/CIP data quality believe to be excellent*

**LIEAP/CIP data is for information received in 2021, after the study time period*

DATASET:
North Carolina (DEC & DEP)
Pre-COVID data (3/2019-2/2020):
2.37 million residential accounts
Customers who were active for the full time period



Company Billing Data

- Billing and charges data (charges, past due amounts, disconnects)
- Customer Data (location, heating type, age, etc.)
- High quality, updated monthly, unique to the Companies data source

By considering income and arrearage status the Companies can better identify customers who may truly be struggling to afford their energy bills

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Trends in Arrears

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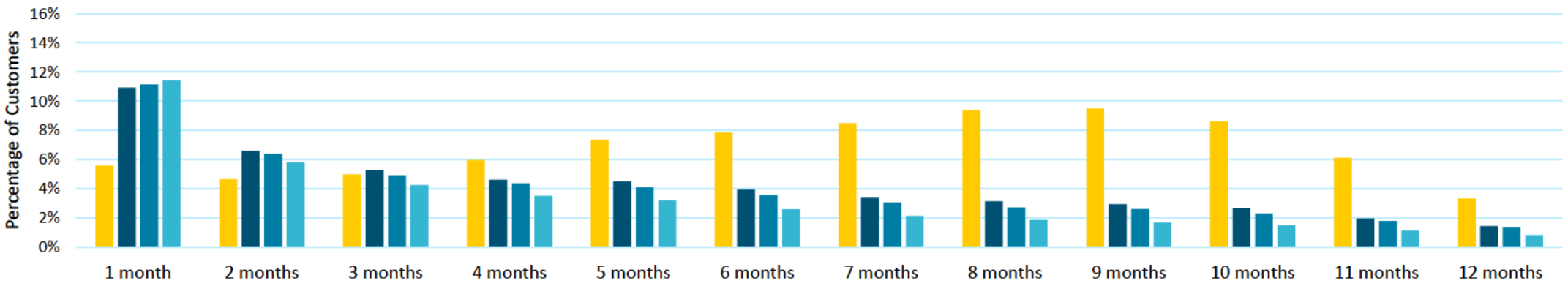
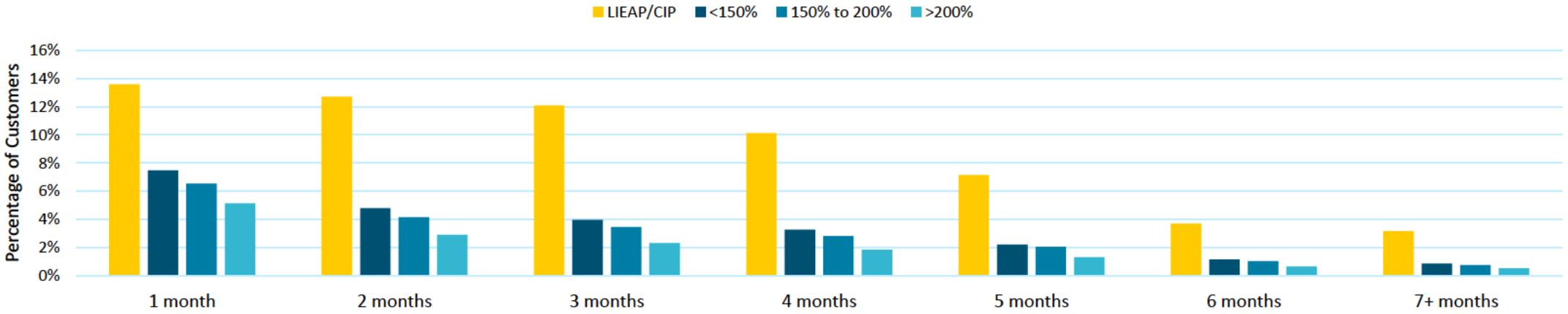
Months Spent with Past Due Amount 1x Average Bill



*Numbers are mutually exclusive

Months Spent with Past Due Amount 2x Average Bill



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Drawing the Line for Defining which Customers are Struggling with Arrea

EXPECTATIONS (HYPOTHESIS):

- LIEAP/CIP recipients are more likely to struggle to stay current on their bill – must have low financial reserves or be in an energy crisis in addition to being low-income
- Not all struggling/vulnerable/low-income customers will struggle with arrears (as some simply prioritize electricity bill over other expenses and others receive assistance)
- Some customers above 200% FPL struggle to pay their bill
- Some customers will miss payments for non-financial reasons

Evaluated metrics to arrive at a definition of customers struggling with arrears:

- High % of customers below 200% FPL
- High % of LIEAP/CIP recipients
- Low % of Customers above 200% FPL
- Reasonable total % of the population

	% of Customer that meet Arrears Definition				
Arrears Segmentation for Analytics	**Customers LIEAP/CIP**	**Customers <150% FPL**	**Customers 150-200% FPL**	**Customers >200% FPL**	**Total Customer Population**
2 Months spent at 2x average bill overdue OR 6 Months spent at 1x average bill overdue	58%	22%	19%	13%	16%

Definition not used to define affordability or eligibility for different programs

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Definitions of V4 Additions

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- Home Sub-Categories
  - Multi-Family Dwelling – Condo, Apartments, Duplex, Triplex, Quadplex, etc.
  - Mobile Home
  - Single Family Dwelling
  - Unknown

- DNP Notifications
  - No Delinquency Notice (DLQ) – no delinquency notifications issued
  - 10-Day Notice – notified on bill or at least 10 days before scheduled disconnection
  - 24-Hour Notice – at least 24 hours prior to scheduled disconnection
  - DNP – customer was disconnected

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Analysis of NC Customers

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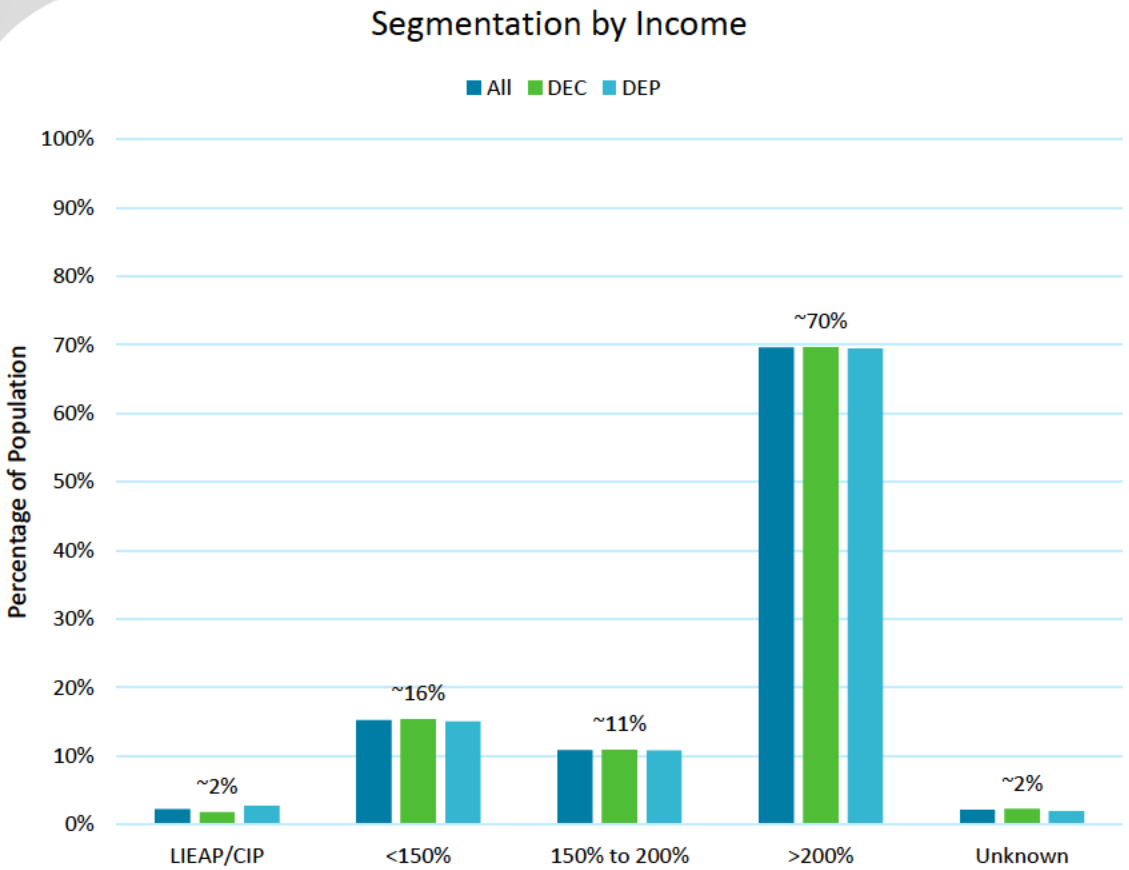
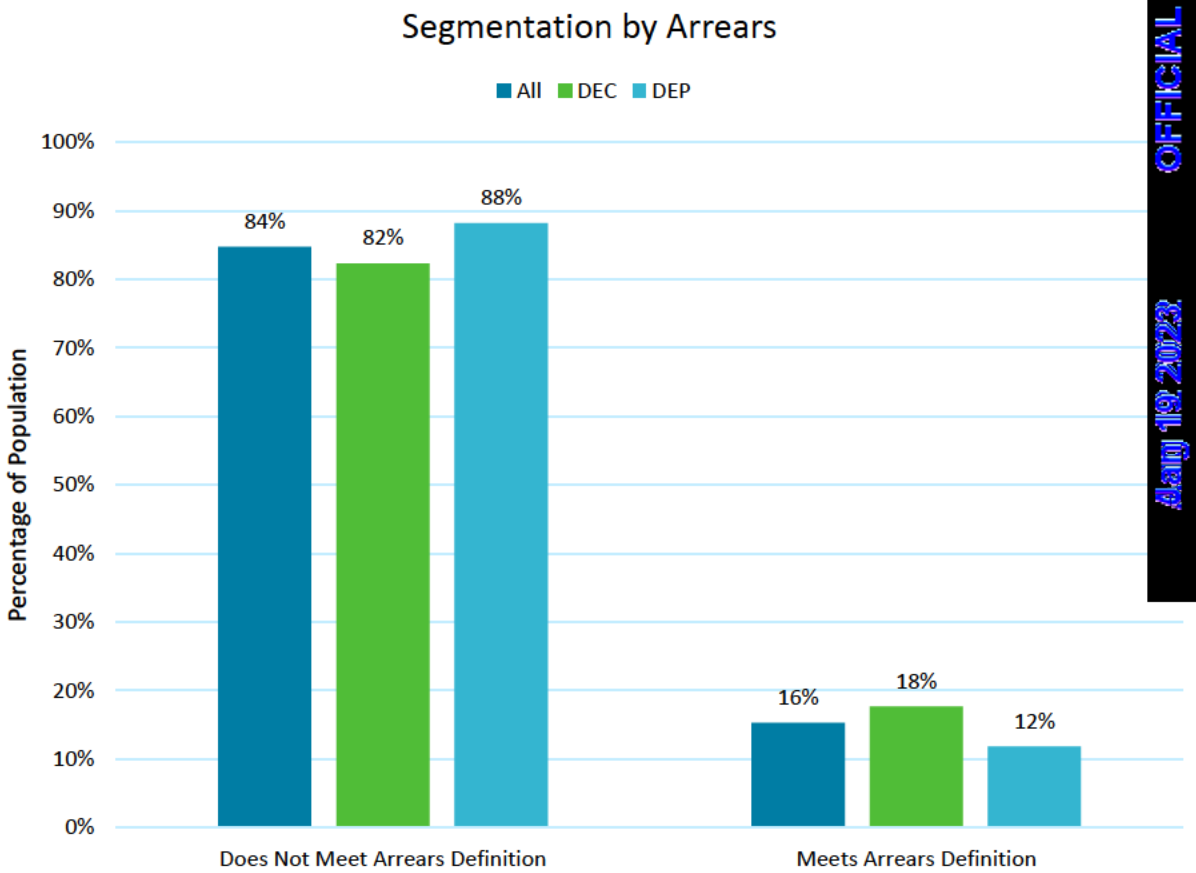
Segmenting by Income and Arrears in North Carolina





Recovered additional historic Acxiom data from this time period to decrease the amount of Unknown from version 1

- Some customers did not have income information in the third-party data
- No major differences between DEC and DEP customers

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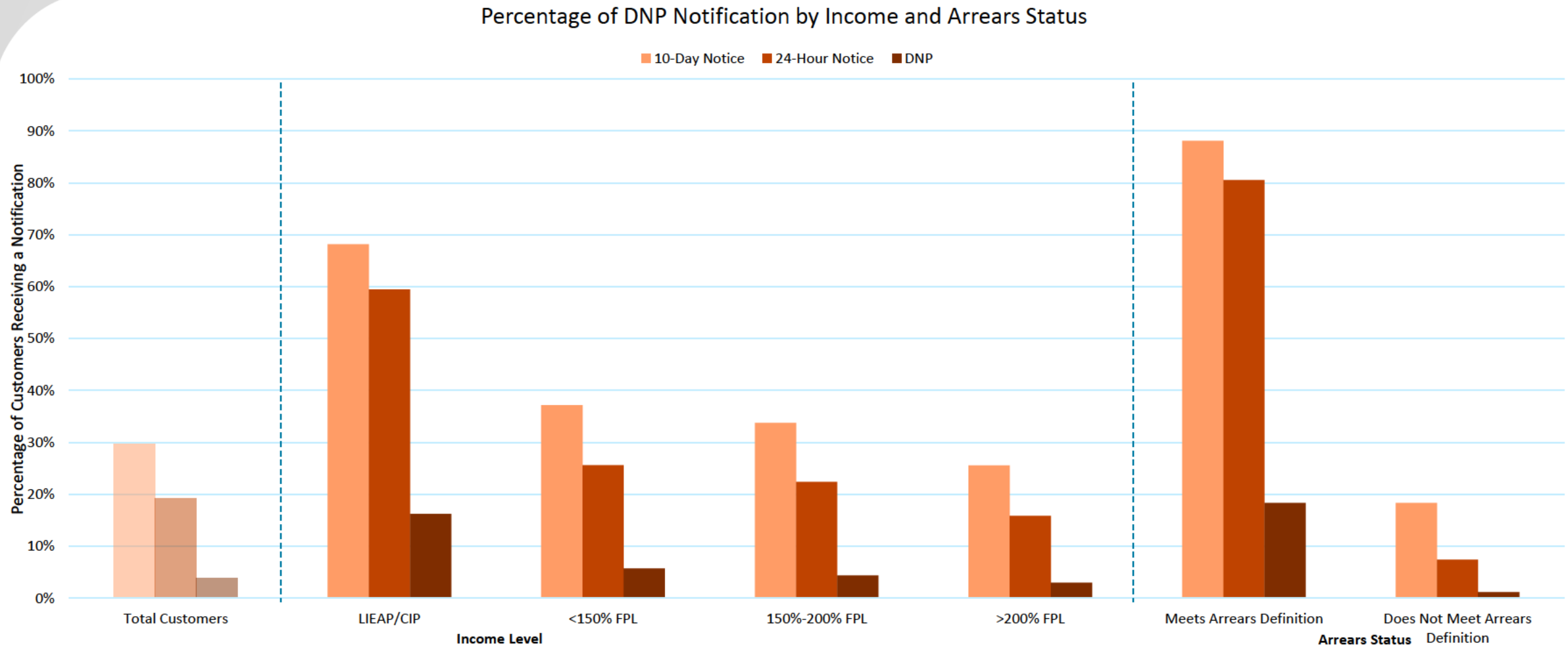
Percentage of DNP Notifications by Notification Type for Income and Arrears Status



% Total Customers in Category*	98%	2%	16%	11%	69%	16%	84%

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DNP Notifications

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Total Numbers	LIEAP/CIP	<150% FPL	150%-200% FPL	>200% FPL	Meets Arrears Definition	Does Not Meet Arrears Definition
Non-DNP/DLQ	17,055	241,982	179,776	1,277,639	49,069	1,716,146
10-Day Notice	36,540	143,355	91,656	439,317	346,138	373,678
24-Hour Notice	31,889	98,741	60,834	272,154	316,454	150,676
DNP	8,714	22,109	11,940	51,817	72,144	23,876

Percentage of Customers in that Segment Received a DNP Notification (i.e., Percentage of <150% FPL customers that received a 10-Day Notice)	LIEAP/CIP	<150% FPL	150%-200% FPL	>200% FPL	Meets Arrears Definition	Does Not Meet Arrears Definition
Non-DNP/DLQ	31.8%	62.8%	66.2%	74.4%	12.5%	84.4%
10-Day Notice	68.2%	37.2%	33.8%	25.6%	88.1%	18.4%
24-Hour Notice	59.5%	25.6%	22.4%	15.9%	80.6%	7.4%
DNP	16.3%	5.7%	4.4%	3.0%	18.4%	1.2%

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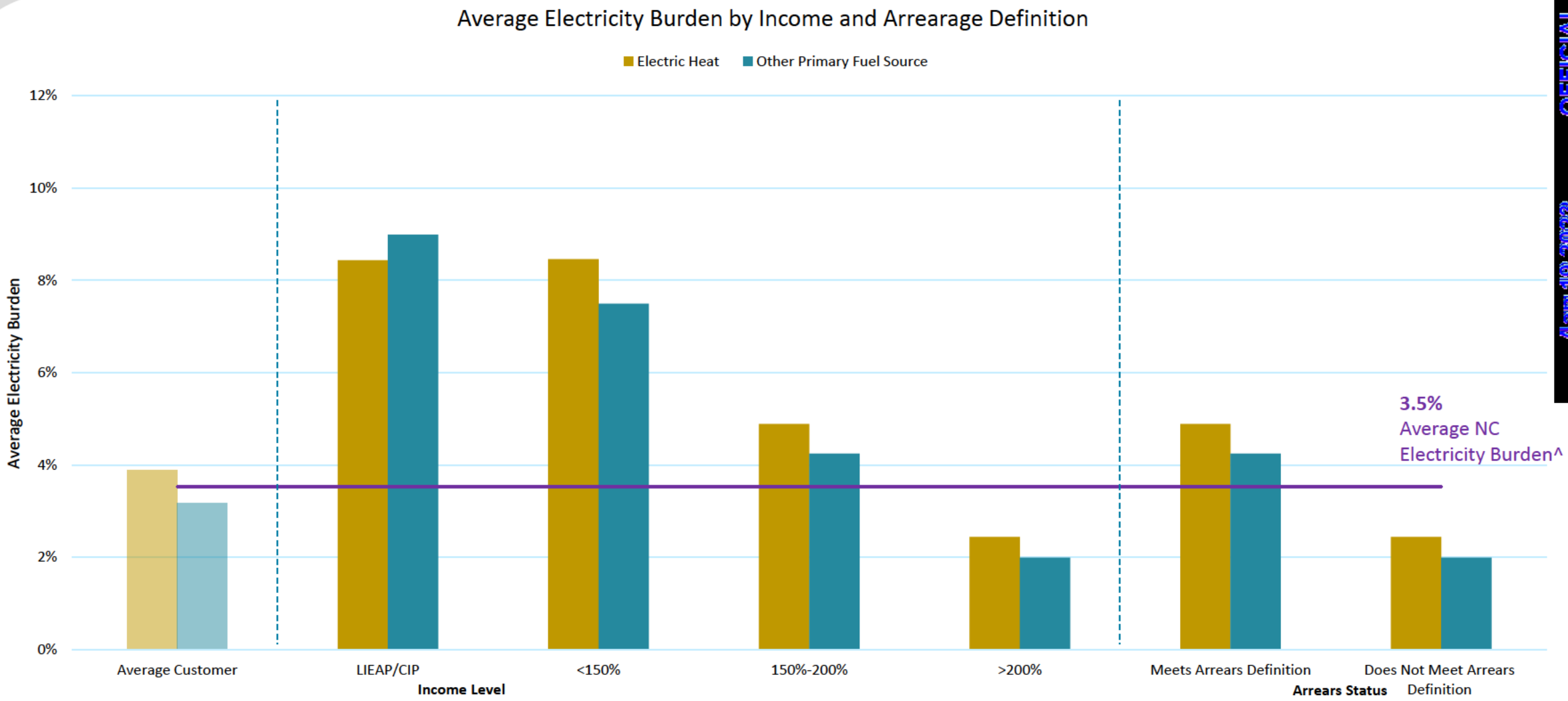
Average Electricity Burden Income and Arrearage Definition



% Total Customers in Category*	79%	2%	16%	11%	69%	16%	84%

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Electricity Burden

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Total Numbers	LIEAP/CIP	<150%	150%-200%	>200%	Meets Arrears Definition	Does Not Meet Arrears Definition
Electric Heat	31,304	137,087	103,872	606,039	147,315	731,760
Other Primary Fuel Sources	19,036	160,977	115,362	786,280	152,792	931,129

Percentage of Customers in each Segment	LIEAP/CIP	<150%	150%-200%	>200%	Meets Arrears Definition	Does Not Meet Arrears Definition
Electric Heat	1.3%	5.5%	4.2%	24.4%	5.9%	29.4%
Other Primary Fuel Sources	0.8%	6.5%	4.6%	31.6%	6.1%	37.5%

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Charge-Offs

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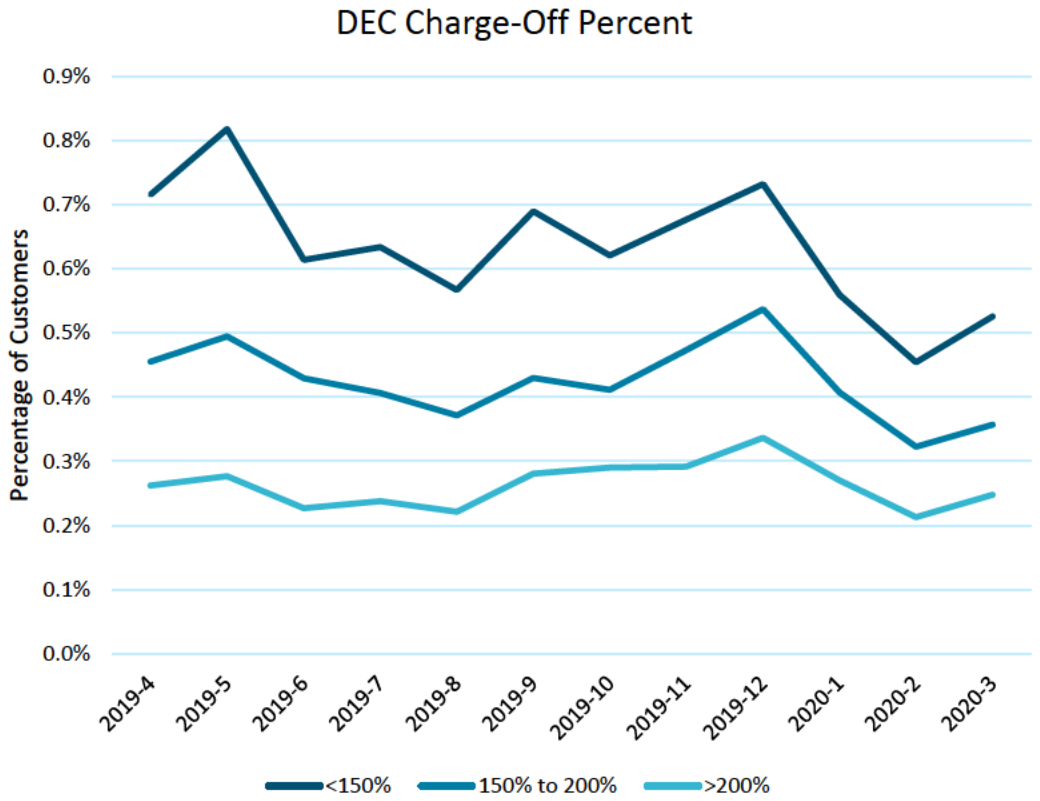

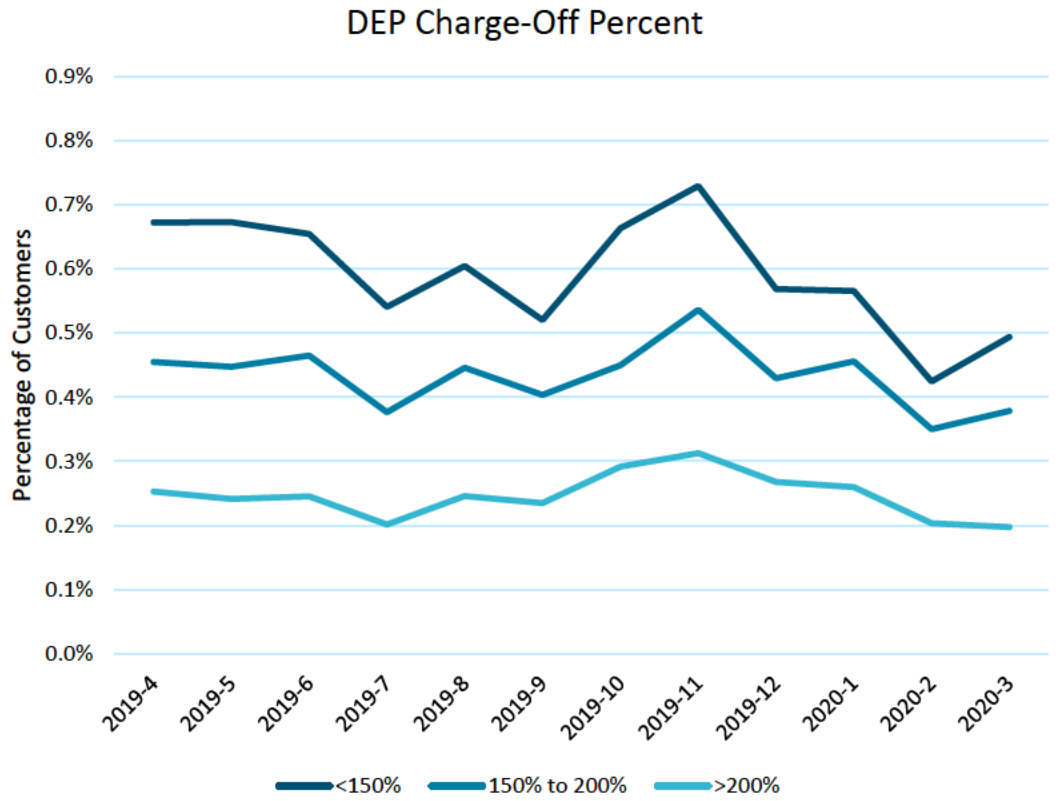

# of customers charged off in that month / (# of active customers in that month + customers charged off)

- Charge-off is for customers who closed their account but still owed money and ended up in collection
- This population is on customers who closed their account during this time period, while the rest of the analysis is based on a population that was active the entire time period
- Charge-off customers were all closed by March 1, 2020, and the LIEAP/CIP list is from 2021

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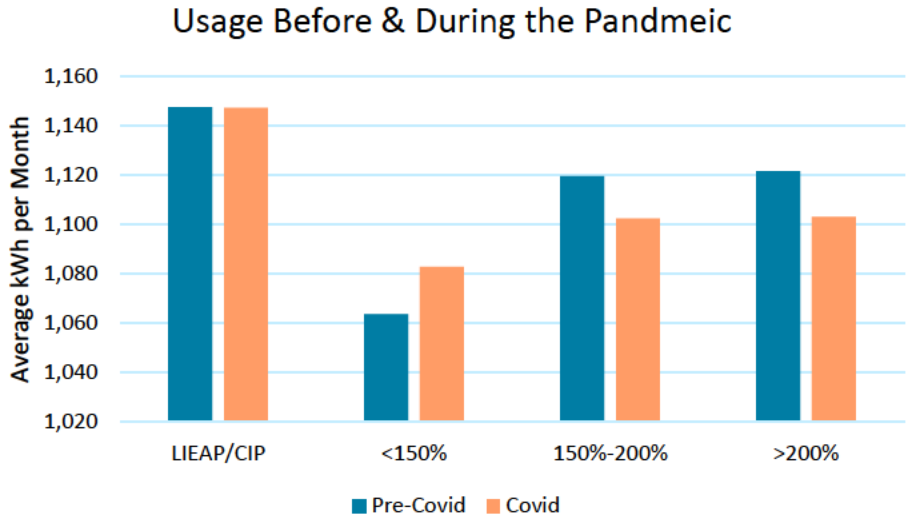
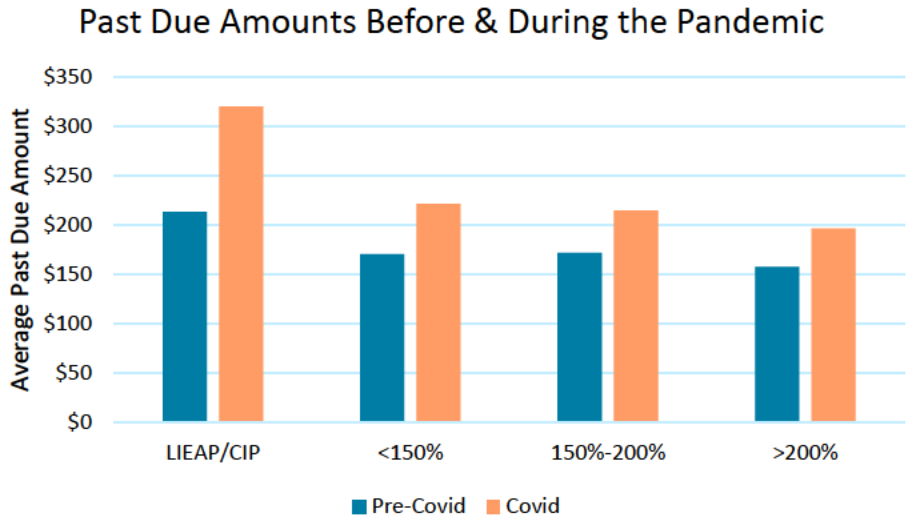
Data Shows Limited Impact of the Pandemic on Key Metrics

- Usage did not meaningfully change for residential customers
  - Affected by weather in addition to changes in customers' consumption habits
  - Consistent with Load Research data and similar to other Southeast utilities
- Past due amounts (i.e., arrears) grew significantly for LIEAP/CIP customers and slightly for other customers.
  - The disconnection moratorium likely affected payment behaviors for some customers





The COVID period was from 3/2020-2/2021, and includes customers that were active the full 12 months

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Statistical Analysis

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Data Available for Modeling

Numerical Attributes in the Model

- Customer Home Value ($)
- Energy Burden
- Summer Load Impact
  - Calculated by subtracting the highest summer monthly load by the average monthly load
  - Represents additional load from summer conditions
- Winter Load Impact
  - Calculated by subtracting the highest winter monthly load by the average monthly load
  - Represents additional load from winter conditions
- Interacted with heat source (electric or other primary fuel source)
- Age of Account Holder
- Age of Home

Categorical Attributes in the Model

- Race: African-American, Asian, Hispanic, or White
- Household Size: Breakdown by number of people in the household, and if there are children
- Population Density: A measure of people per square mile
- Heat Source: Electric or other primary fuel source
- Housing Status & Type: Owner or renter, single family or multifamily, further broken down by condo, apartment, mobile home, etc.
- Education: High school, college, or graduate school

Variables are transformed to better capture non-linear relationships

•Categorical attributes were included in the model as 1/0 indicator variables

•Some numerical attributes were log-transformed

•Other numerical attributes were treated as piecewise-linear, such that the effect of the attribute on arrears is more dynamic as that attribute changes

•Some attributes were interacted with other attributes

•For example, other primary fuel source customers winter load was treated as a separate variable from electric customer winter load

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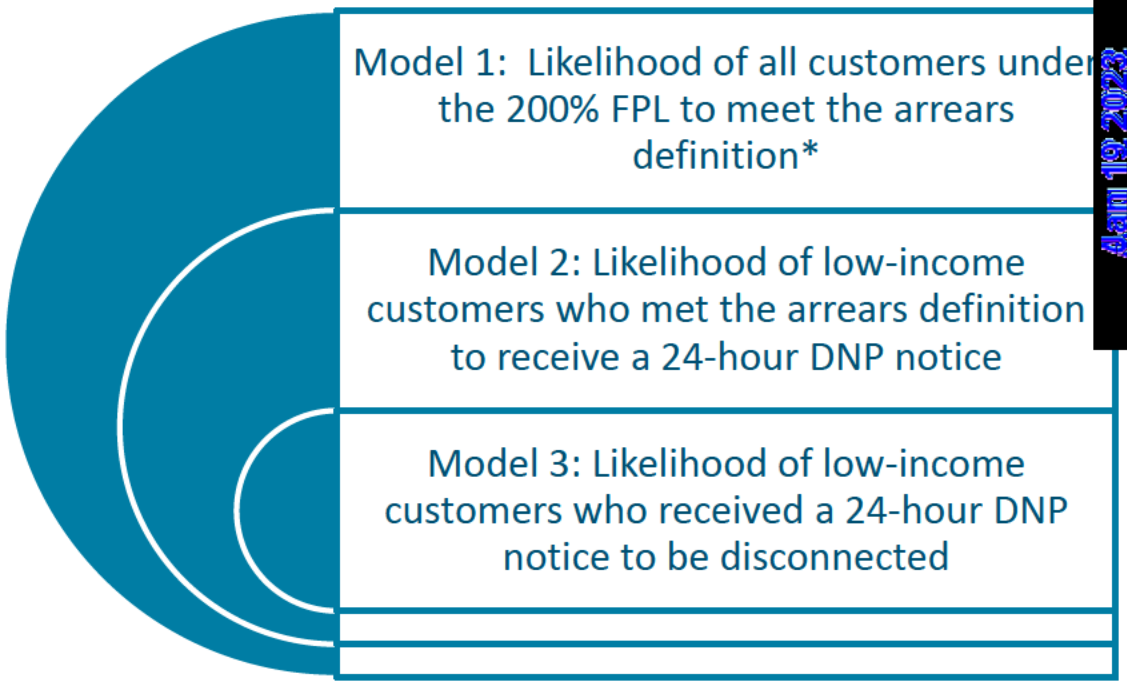
Understanding Model Results

- In order to enhance the descriptive analytics and better understand what is driving customers to incur an arrears or experience disconnected for non-pay, the collaborative agreed on creating statistical models
- Three logistic regression models were created to understand low-income customers (< 200% FPL) who meet the arrears definition, receive a 24-hour notice, and ultimately become disconnected for non-pay
- Comparing model effect sizes shows which attributes were more impactful (i.e., age vs race), as well as the likelihood of each segment within the attribute (i.e., 25-year-olds vs 55-year-olds)
  - This allows an understanding of the impact of each individual variable, holding all other variables constant that are in the model
  - Some key data points, like wealth, were not available and may show up in other variables that are correlated
- The "Wald Test" shows which categories have a statistically significant impact on a customer's ability to pay their bills
  - For categorical attributes like race, a p-value less than 0.05 indicates that the category's effect is significantly different from the baseline category's effect
  - For numerical attributes like age, a p-value less than 0.05 indicates that the attribute's effect is significantly different from 0



*~10% of the population received a 24-hour notice without meeting the arrears definition, but were still included in the first model as "meeting arrears definition"

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DUKE ENERGY

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Statistical Modeling: Arrears Definition

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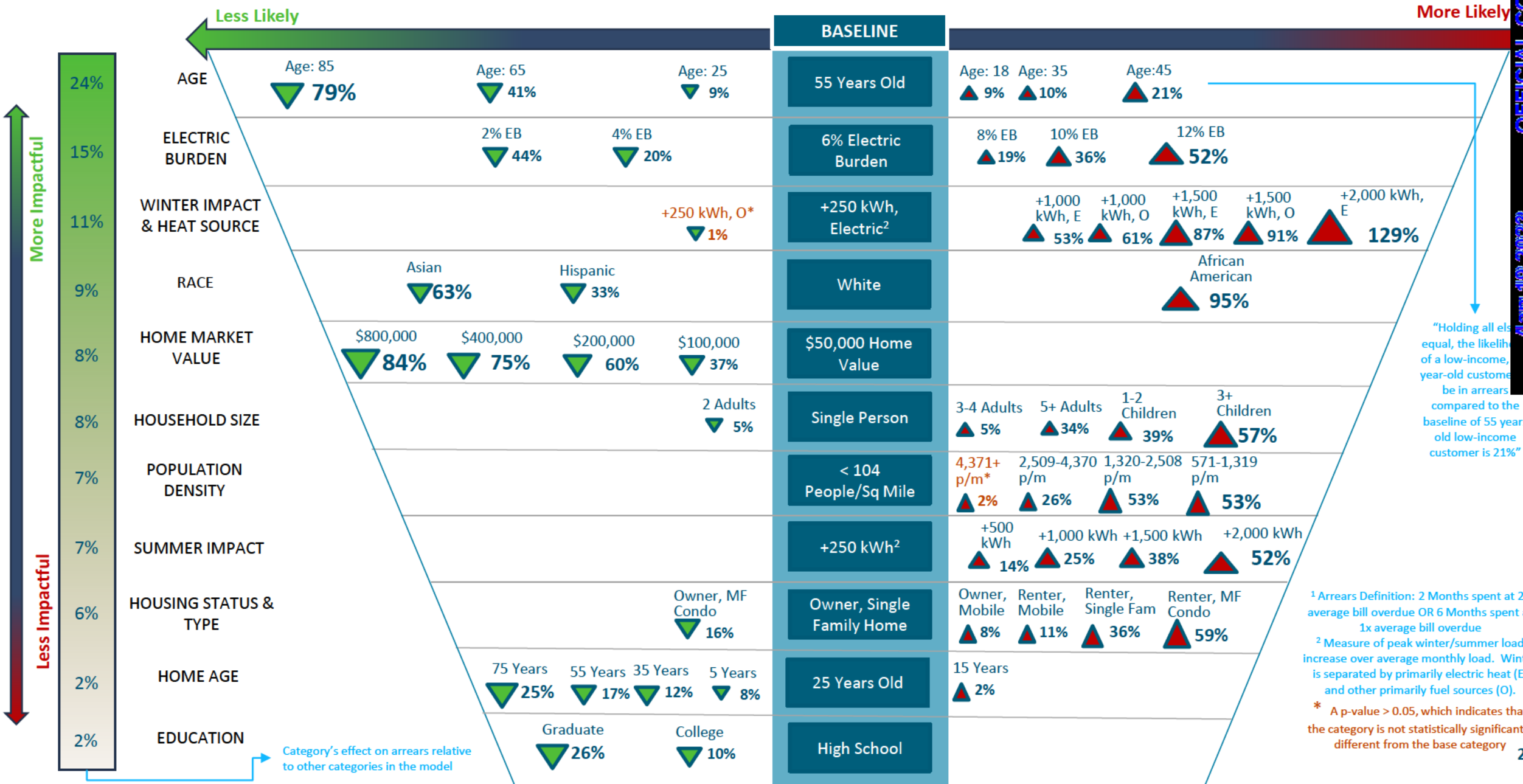

[1] Arrears Definition: 2 Months spent at 2x average bill overdue OR 6 Months spent at 1x average bill overdue

[2] Measure of peak winter/summer load increase over average monthly load. Winter is separated by primarily electric heat (E) and other primarily fuel sources (O).

* A p-value > 0.05, which indicates that the category is not statistically significantly different from the base category

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Statistical Modeling: 24-Hour DNP Notic

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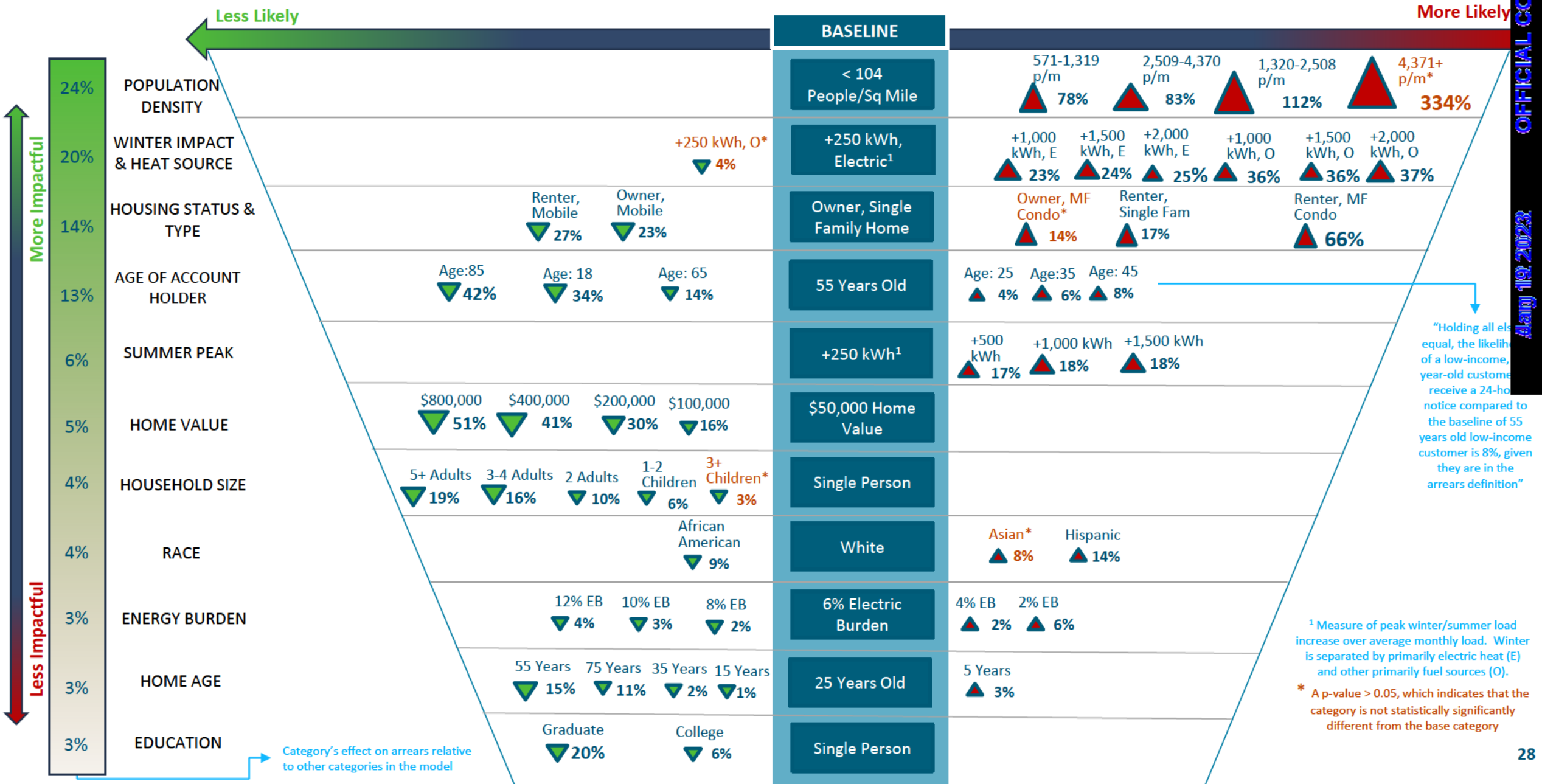

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Statistical Modeling: DN

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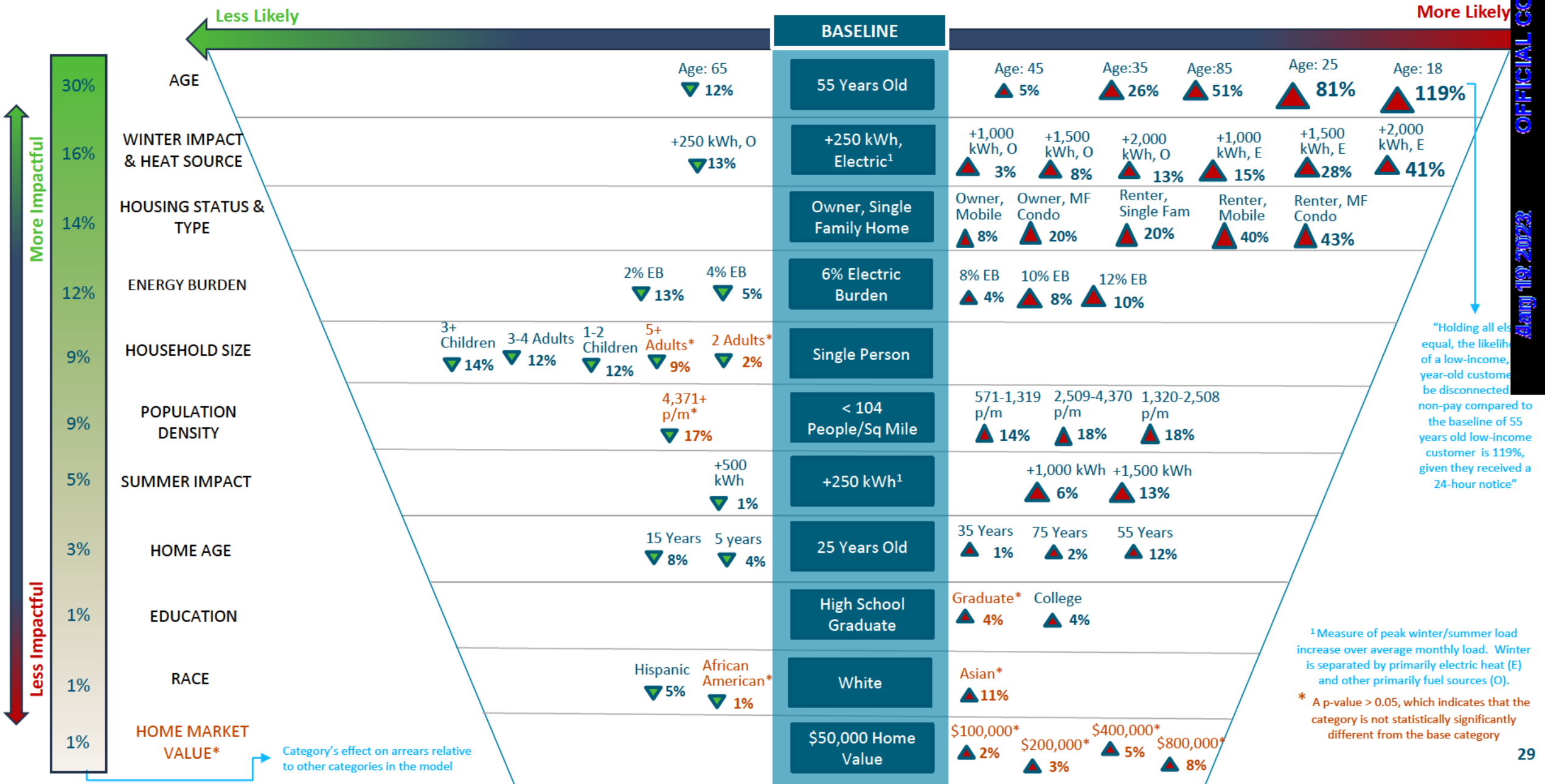

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Analysis by Housing Type, Housing Status, and Heating Source

Housing Type: Single Family or Multi-Family

Housing Status: Owner or Renter

Heating Source: Electric or Other Primary Fuel Source

Average Monthly Usage by Income for Housing Type, Housing Status, and Heating Source

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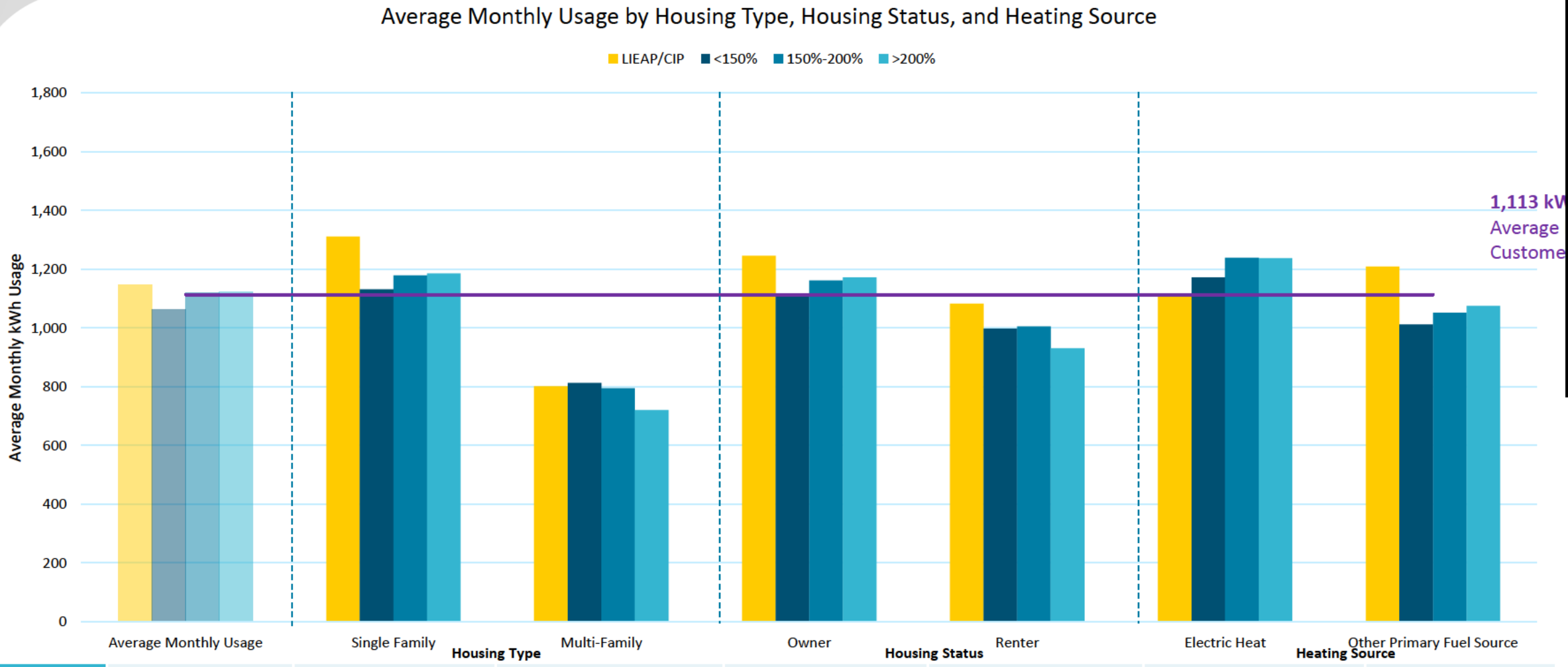

% Total Customers in Category*	98%	81%	13%	73%	25%	35%	44%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%

^The average line includes customers who could not be categorized, therefore there may be instances of all groups above average

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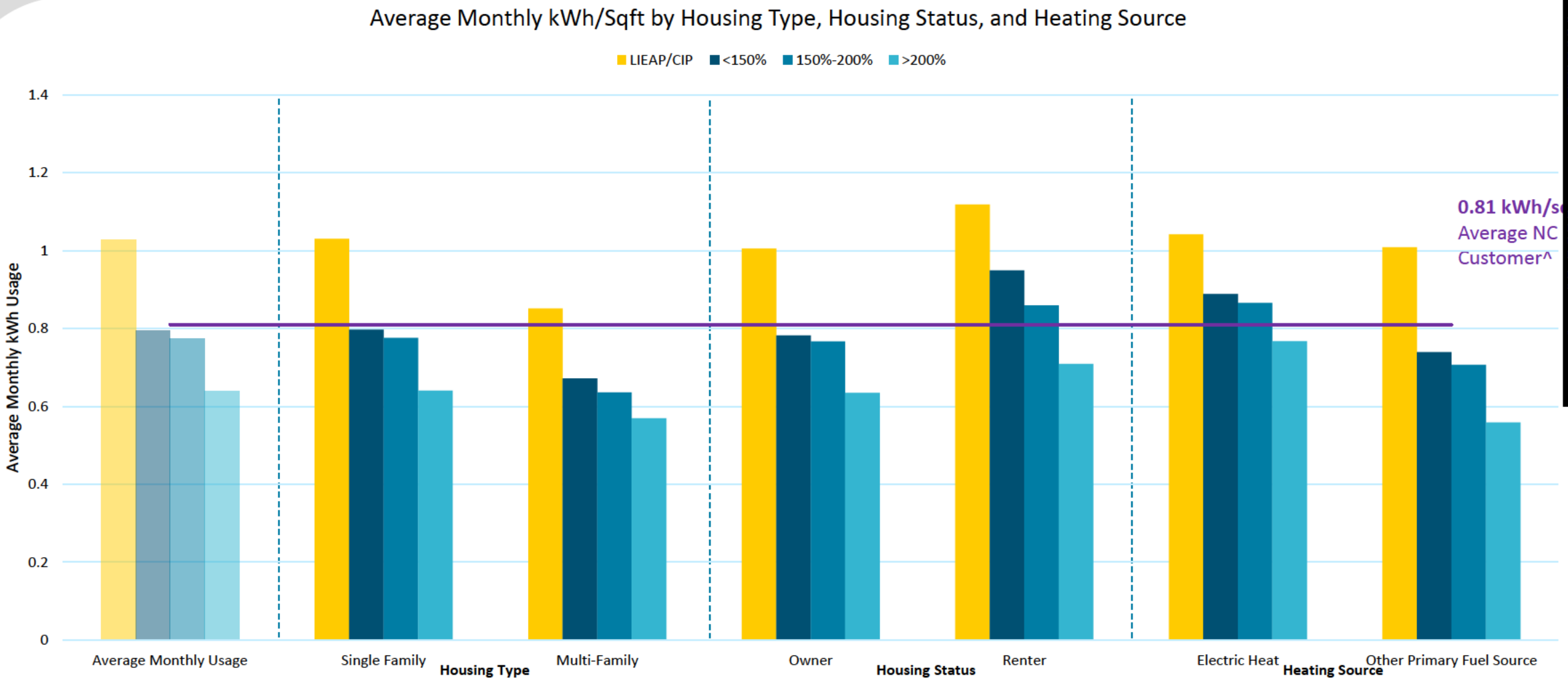
Average Monthly Usage per Square Foot by Income for Housing Type, Housing Status and Heating Source



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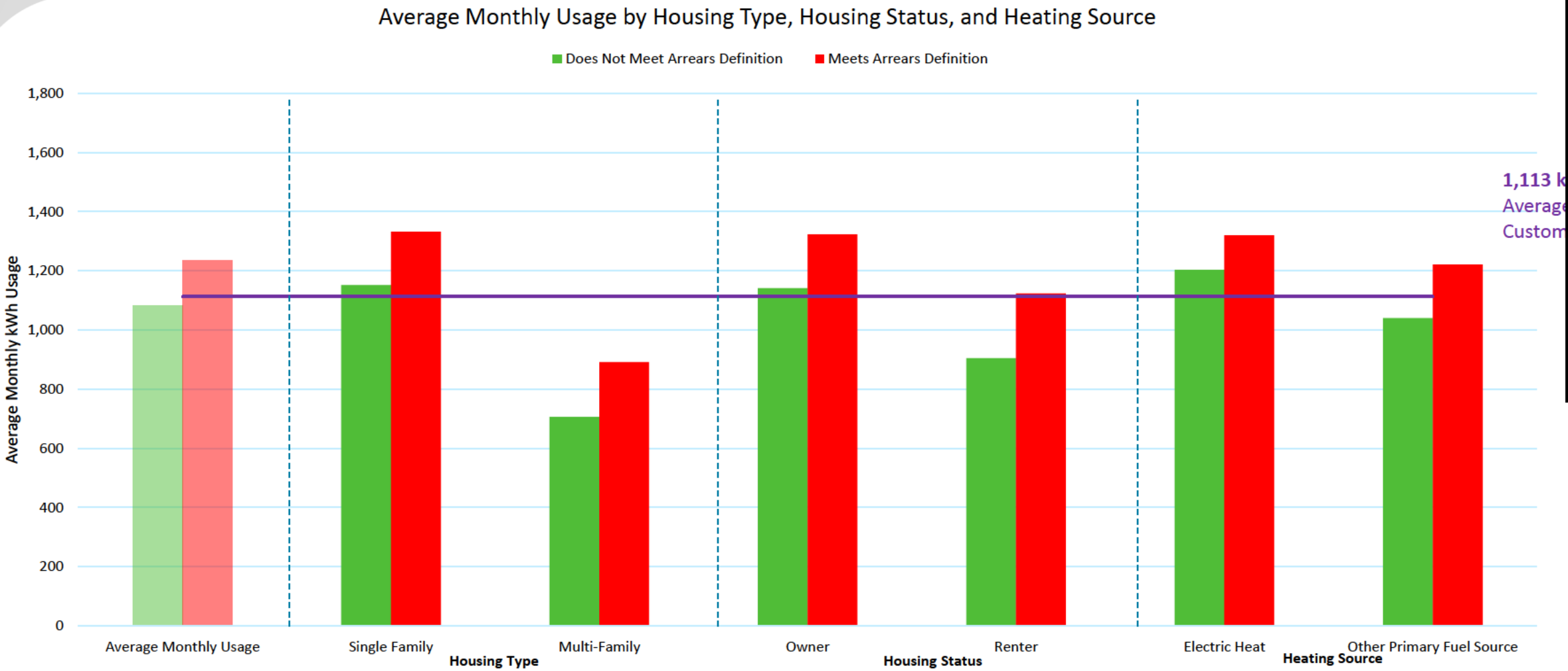
Average Monthly Usage by Arrearage Status for Housing Type, Housing Status, and Heating Source



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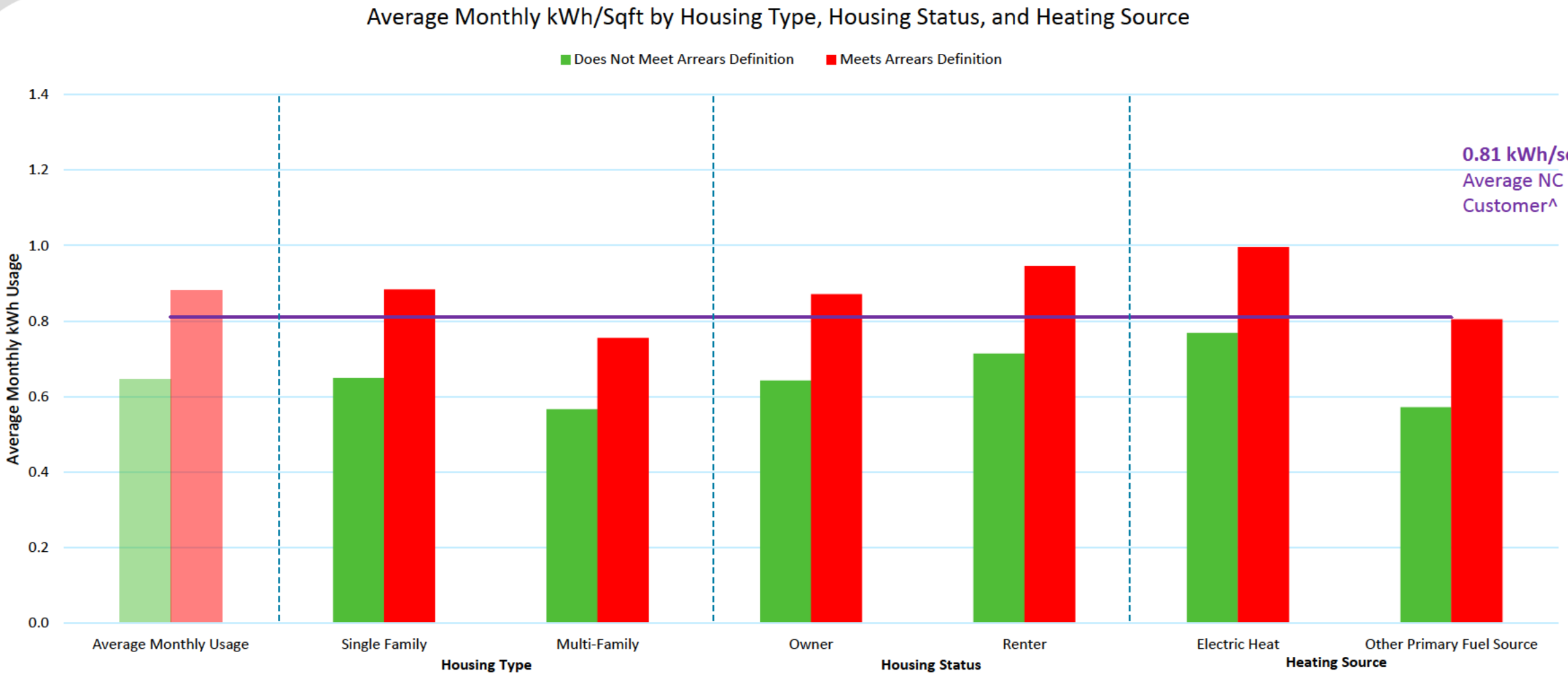

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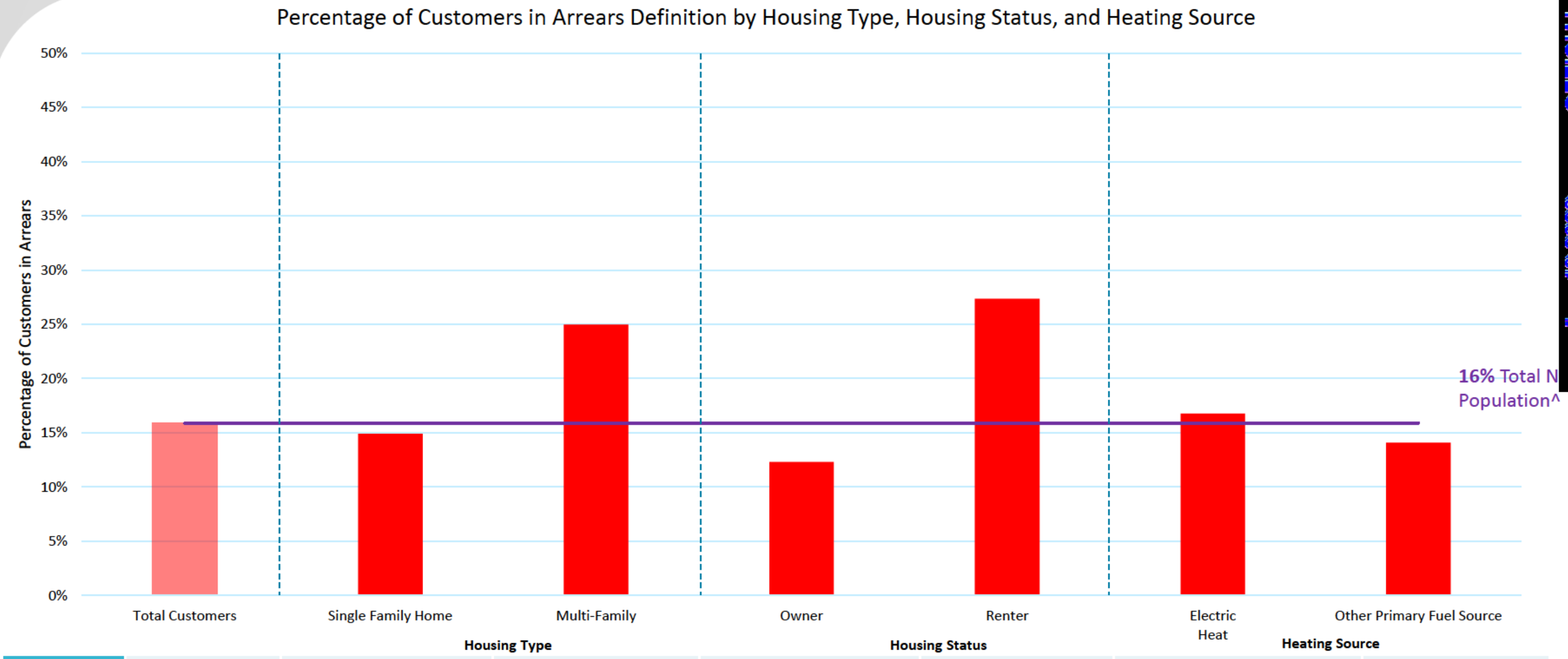
Percentage of Customers in Arrears Definition for Housing Type, Housing Status, and Heating Source



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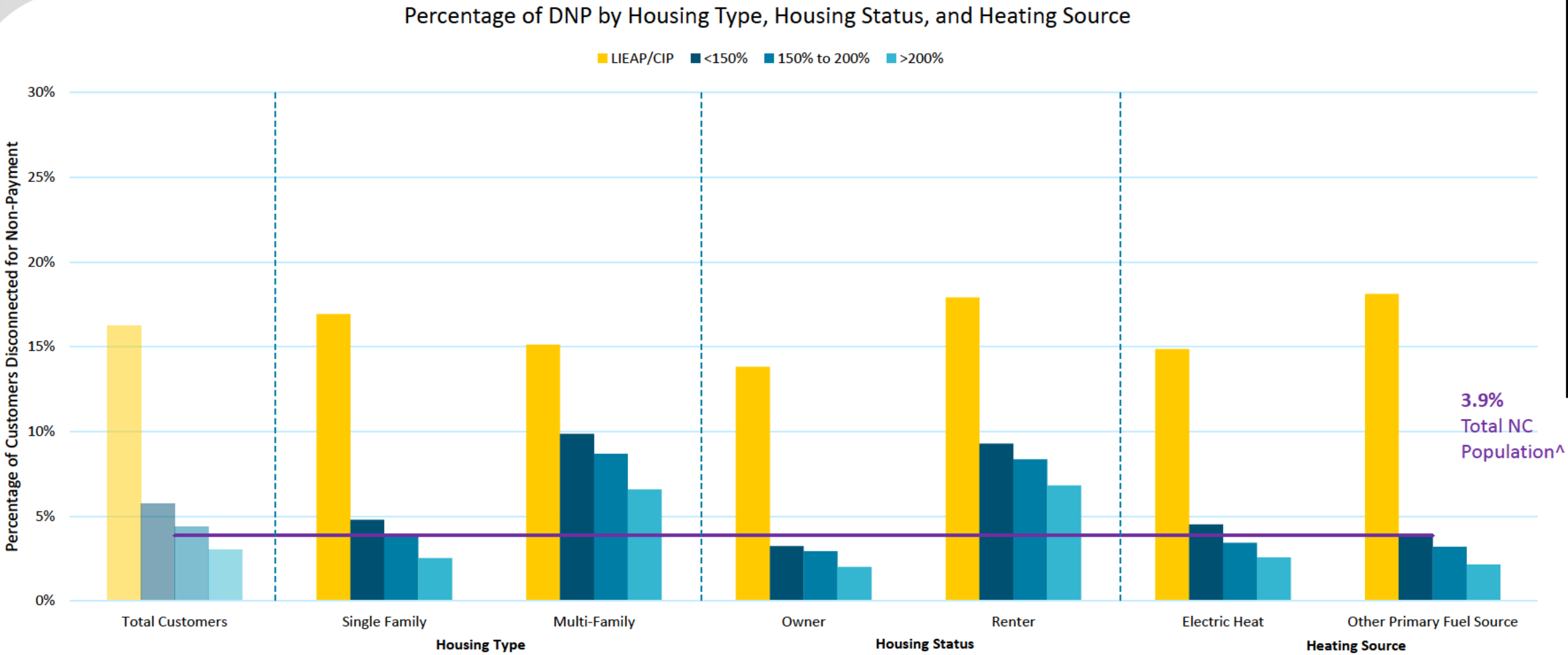
Percentage of DNP by Income for Housing Type, Housing Status, and Heating Source



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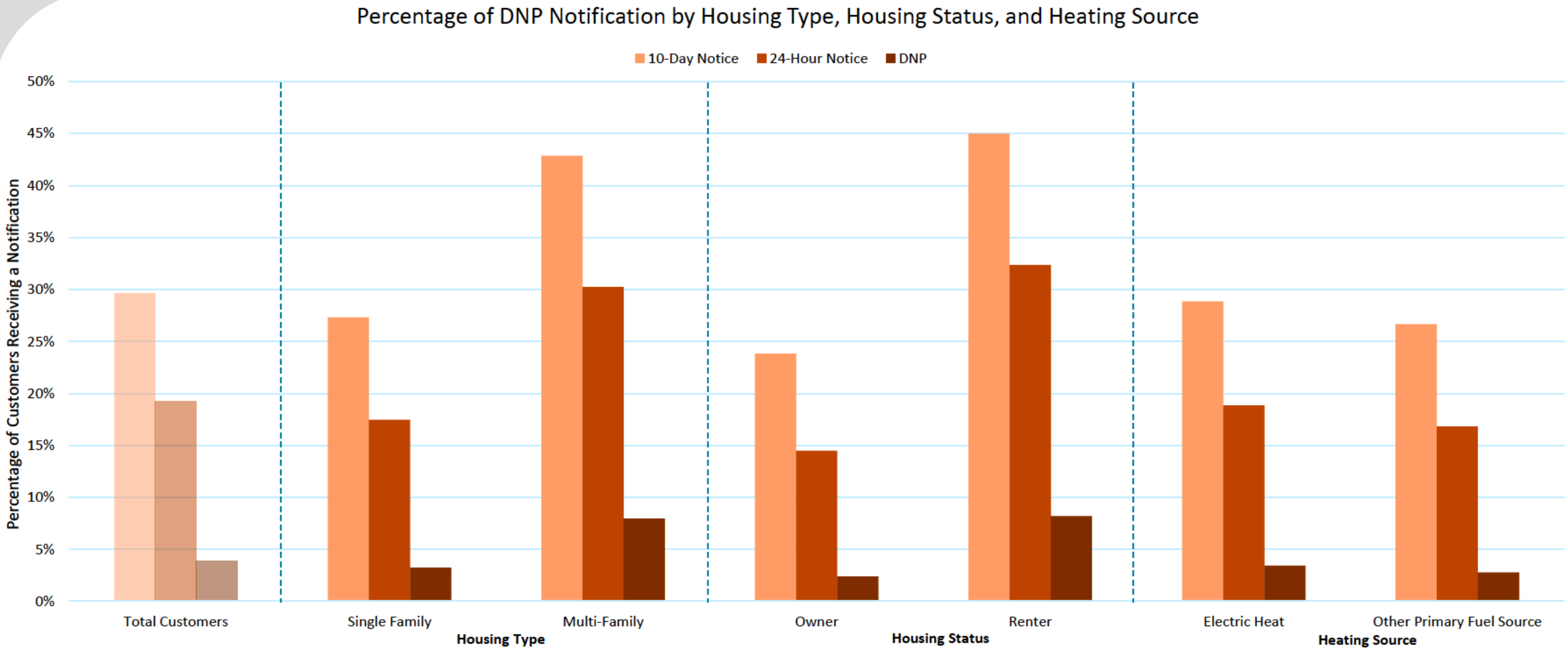
Percentage of DNP Notifications by Notification Type for Housing Type, Housing Status, and Heating Source



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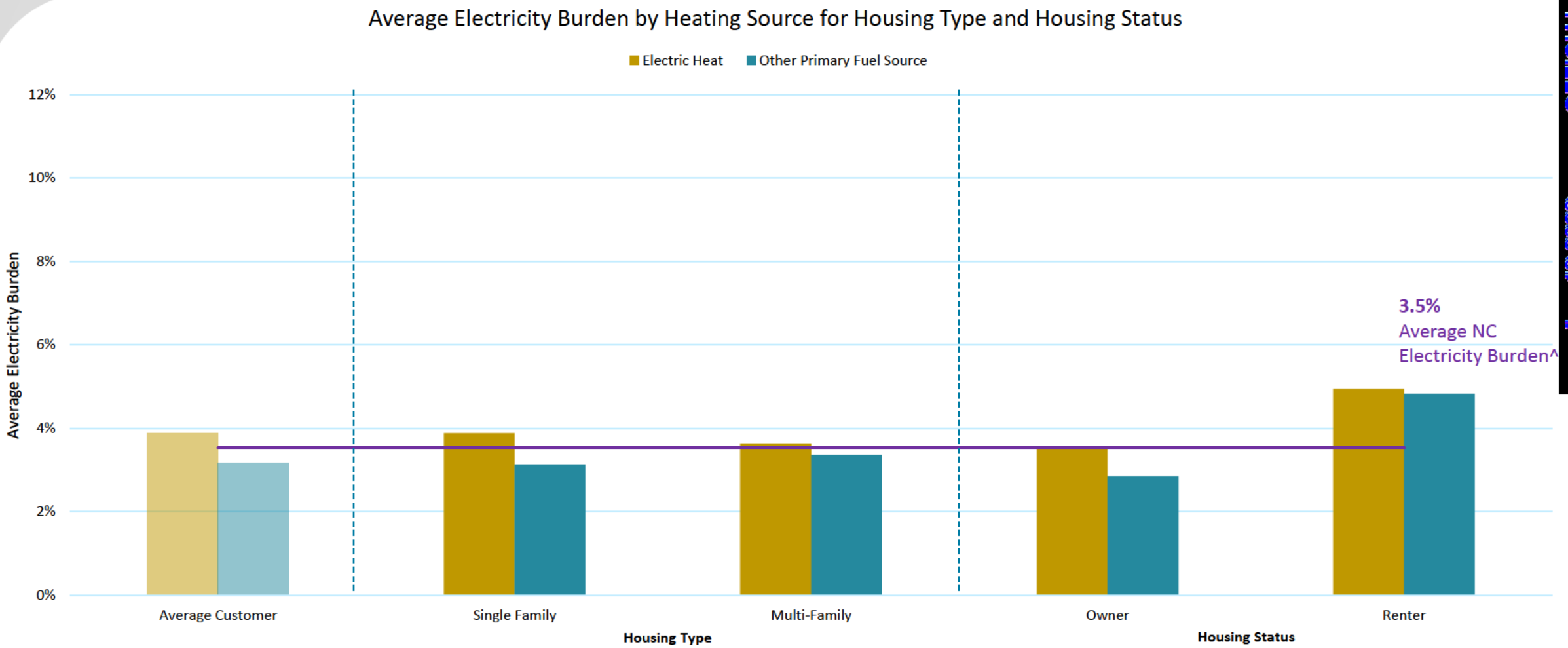
Average Electricity Burden by Heating Source for Housing Type and Housing Status



	Average Customer	Single Family	Multi-Family	Owner	Renter
% Total Customers in Category*	79%	81%	13%	73%	25%

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Income Level

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Total Numbers

	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
LIEAP/CIP	53,595	35,003	16,675	21,426	32,096	31,304	19,036
<150% FPL	385,339	288,707	73,114	226,014	159,325	137,088	160,977
150%-200% FPL	271,432	224,095	32,028	197,983	73,449	103,872	115,362
>200%	1,716,956	1,461,124	203,504	1,356,308	360,648	606,039	786,280
Total	2,427,322	2,008,929	325,321	1,801,731	625,518	878,303	1,081,655

Percentage of Customers in each Segment

	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
LIEAP/CIP	2%	1.4%	0.7%	0.9%	1.3%	1.3%	0.8%
<150% FPL	16%	11.9%	3.0%	9.3%	6.6%	5.6%	6.6%
150%-200% FPL	11%	9.2%	1.3%	8.2%	3.0%	4.3%	4.8%
>200%	71%	60.2%	8.4%	55.9%	14.9%	25.0%	32.4%

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Arrearage Status

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Total Numbers

	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
Meets Arrears Definition	395,204	299,654	81,170	221,791	171,042	147,315	152,792
Does not Meet Arrears Definition	2,089,823	1,709,275	244,151	1,579,940	454,476	731,760	931,129

Percentage of Customers in each Segment

	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
Meets Arrears Definition	15.9%	12.1%	3.3%	8.9%	6.9%	5.9%	6.1%
Does not Meet Arrears Definition	84.1%	68.8%	9.8%	63.6%	18.3%	29.4%	37.5%

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DUKE ENERGY

DNP

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Total Numbers	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
LIEAP/CIP	8,714	5,925	2,523	2,961	5,745	4,654	3,450
<150% FPL	22,109	13,844	7,211	7,319	14,790	6,191	6,160
150%-200% FPL	11,940	8,539	2,781	5,806	6,134	3,562	3,695
>200%	51,817	36,882	13,383	27,249	24,568	15,610	16,872
Total	96,020	65,190	25,898	43,335	51,237	30,017	30,177

Percentage of Customers in that Segment DNP (i.e., Percentage of Single Family customers that were DNP)	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
LIEAP/CIP	16.3%	16.9%	15.1%	13.8%	17.9%	14.9%	18.1%
<150% FPL	5.7%	4.8%	9.9%	3.2%	9.3%	4.5%	3.8%
150%-200% FPL	4.4%	3.8%	8.7%	2.9%	8.4%	3.4%	3.2%
>200%	3.0%	2.5%	6.6%	2.0%	6.8%	2.6%	2.1%

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DNP Notifications

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Total Numbers	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
Non-DNP/DLQ	1,765,215	1,460,374	185,828	1,372,290	344,113	625,729	795,541
10-Day Notice	719,816	548,554	139,493	429,439	281,405	253,345	288,379
24-Hour Notice	467,130	350,844	98,410	261,197	202,407	165,754	181,956
DNP	96,020	65,190	25,898	43,335	51,237	30,114	30,183

Percentage of Customers in that Segment Received a DNP Notification (i.e., Percentage of Single Family customers that received a 10-Day Notice)	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
Non-DNP/DLQ	72.7%	72.7%	57.1%	76.2%	55.0%	71.2%	73.5%
10-Day Notice	29.7%	27.3%	42.9%	23.8%	45.0%	28.8%	26.7%
24-Hour Notice	19.2%	17.5%	30.3%	14.5%	32.4%	18.9%	16.8%
DNP	3.9%	3.2%	8.0%	2.4%	8.2%	3.4%	2.8%

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Electricity Burden

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Total Numbers

	Total Customers	Single Family	Multi-Family	Owner	Renter	LIEAP/CIP	Non-LIEAP/CIP	Meets Arrears Definition	Does Not Mee Arrears Definition
Electric Heat	879,075	700,612	143,828	650,508	227,794	31,304	847,771	147,315	731,760
Other Primary Fuel Sources	1,083,921	996,522	45,025	903,247	178,406	19,036	1,064,885	152,792	931,129

Percentage of Customers in each Segment

	Total Customers	Single Family	Multi-Family	Owner	Renter	LIEAP/CIP	Non-LIEAP/CIP	Meets Arrears Definition	Does Not Meet Arrears Definition
Electric Heat	35.4%	28.2%	5.8%	26.2%	9.2%	1.3%	34.1%	5.9%	29.4%
Other Primary Fuel Sources	43.6%	40.1%	1.8%	36.3%	7.2%	0.8%	42.9%	6.1%	37.5%

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Analysis by Housing Location and Housing Value

Housing Location: City & Surrounding Area, Smaller Suburbs & Towns, Rural

Housing Value: <$100,000, $100,000-$199,999, $200,000-$299,999, $300,000-$499,999, $500,000+

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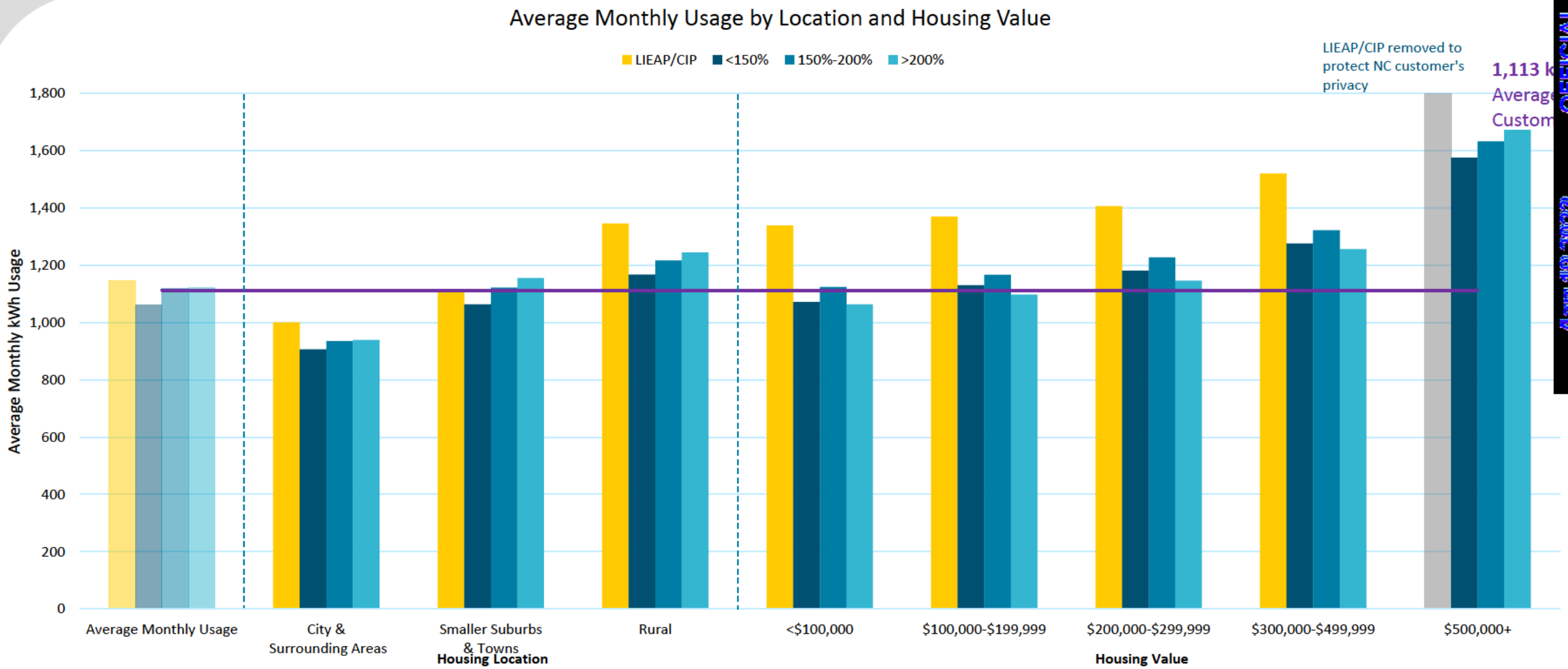
Average Monthly Usage by Income for Location and Housing Value



% Total Customers in Category*	98%	24%	49%	25%	7%	22%	15%	12%	5%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%

^The average line includes customers who could not be categorized, therefore there may be instances of all groups above average

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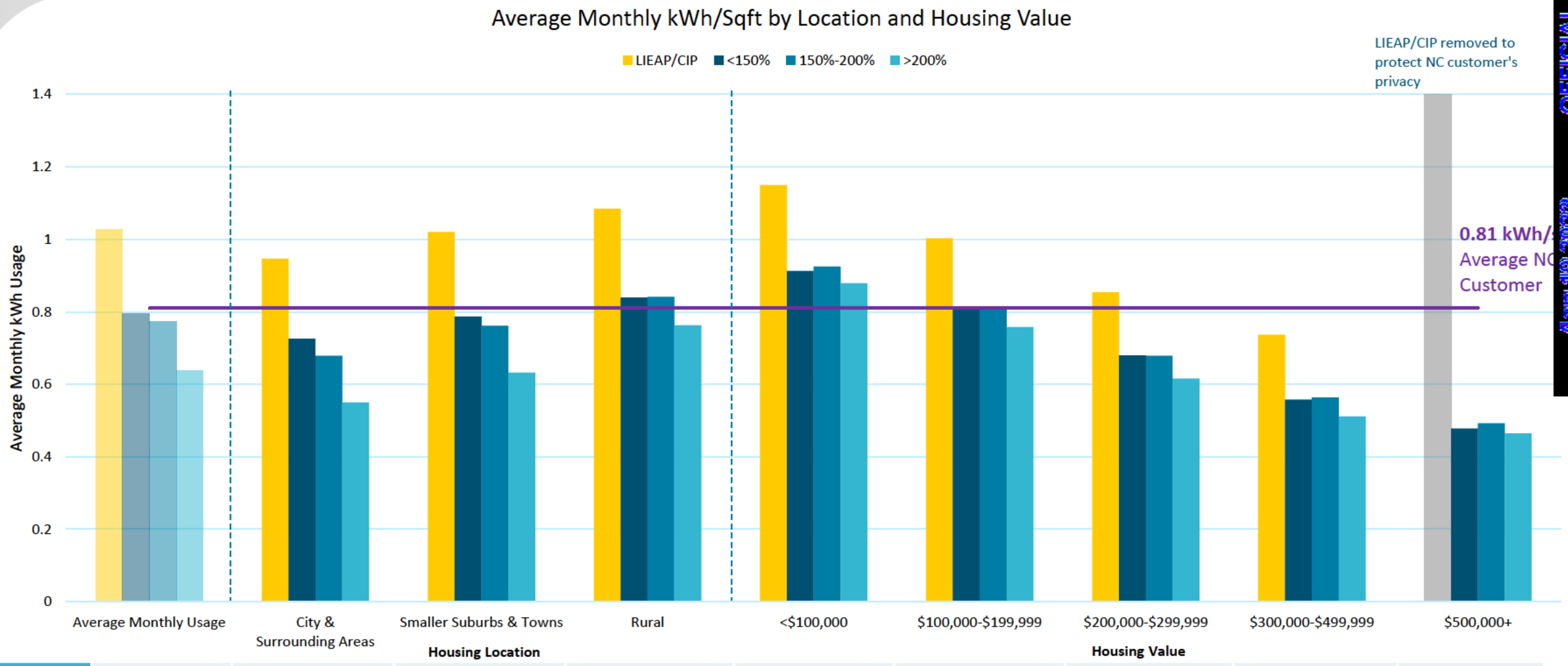
Average Monthly Usage per Square Foot by Income for Location and Housing Value



% Total Customers in Category*	98%	24%	49%	25%	7%	22%	15%	12%	5%

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Average Monthly Usage by Arrearage Status for Location and Housing Value

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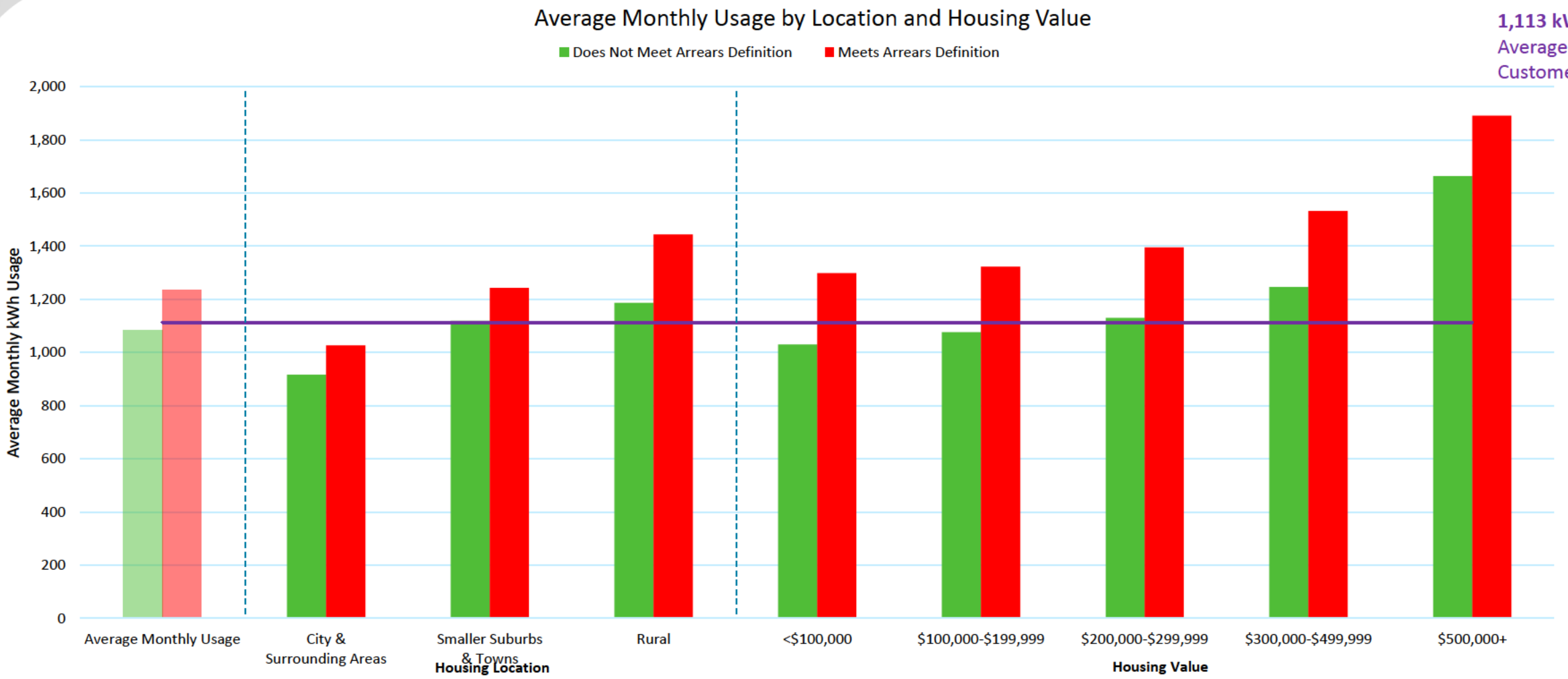

% Total Customers in Category*	100%	24%	49%	25%	7%	22%	15%	12%	5%

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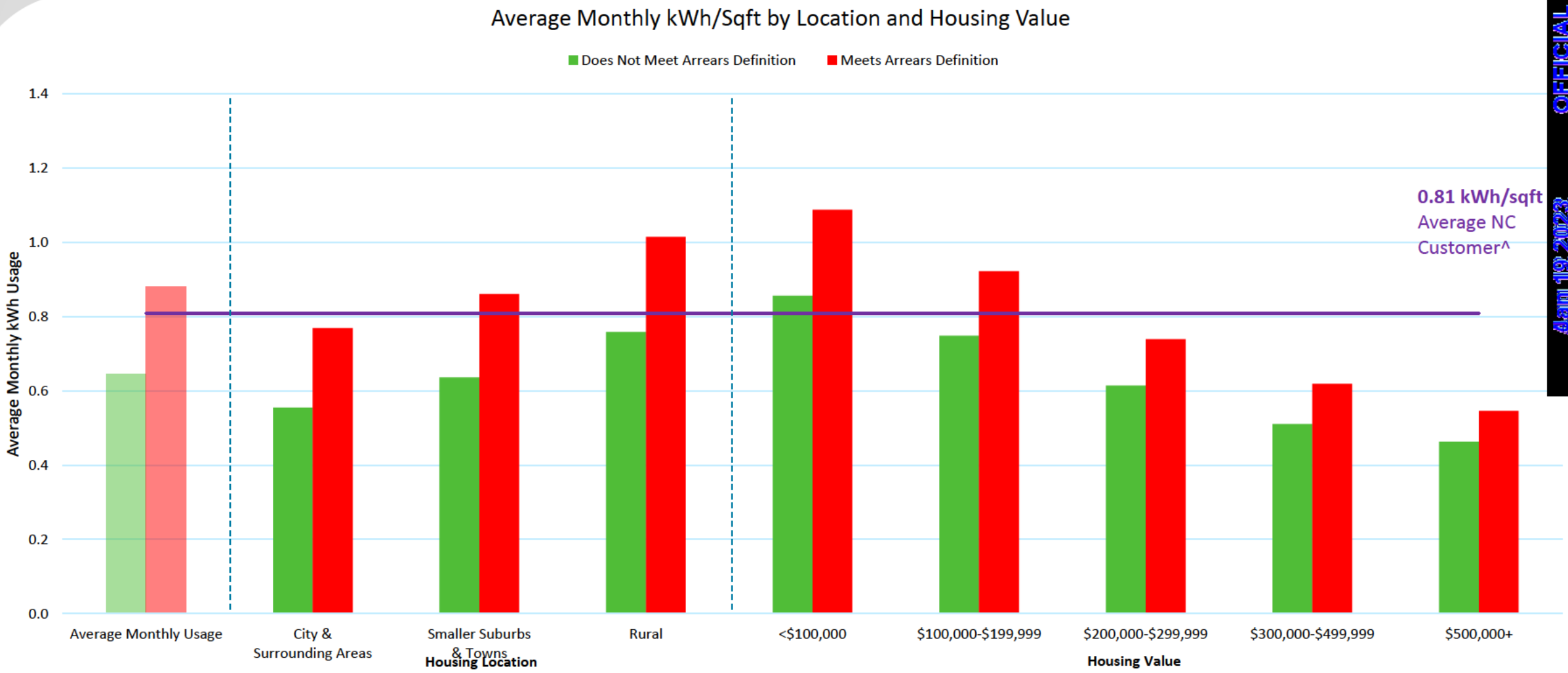
Average Monthly Usage per Square Foot by Arrearage Status for Location and Housing Value



% Total Customers in Category*	100%	24%	49%	25%	7%	22%	15%	12%	5%

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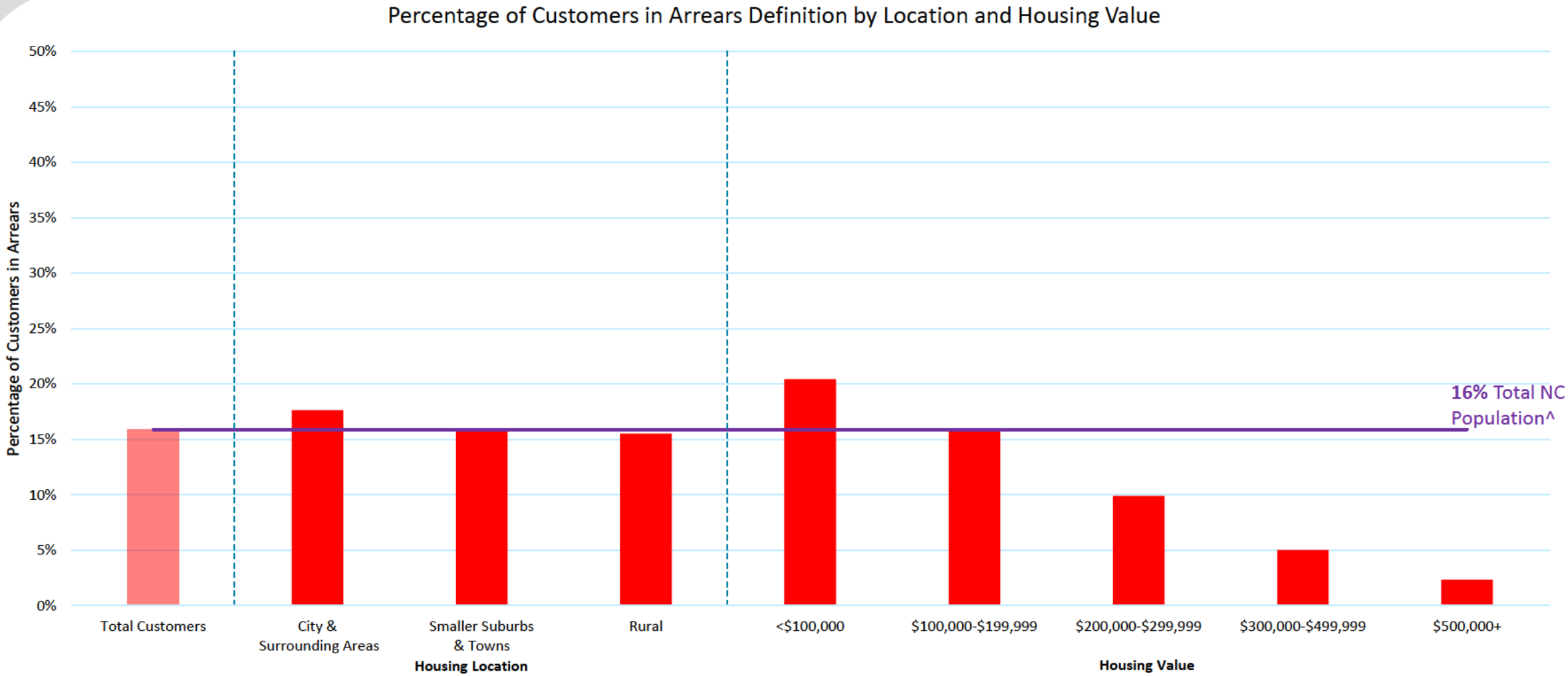
Percentage of Customers in Arrears Definition for Location and Housing Value



% Total Customers in Category*	100%	24%	49%	25%	7%	22%	15%	12%	5%

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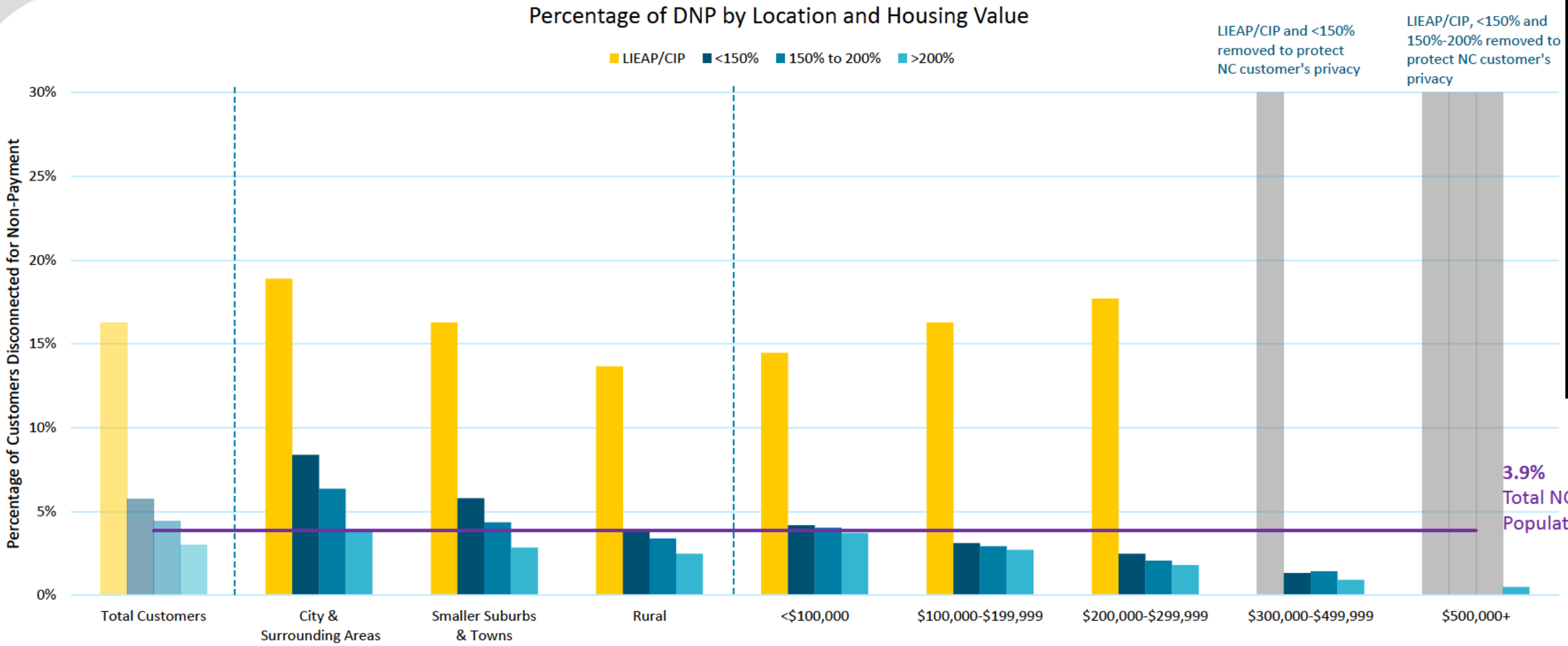
Percentage of DNP by Income for Location and Housing Value



% Total Customers in Category*	98%	24%	49%	25%	7%	22%	15%	12%	5%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%
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Percentage of DNP Notifications by Notification Type for Location and Housing Value

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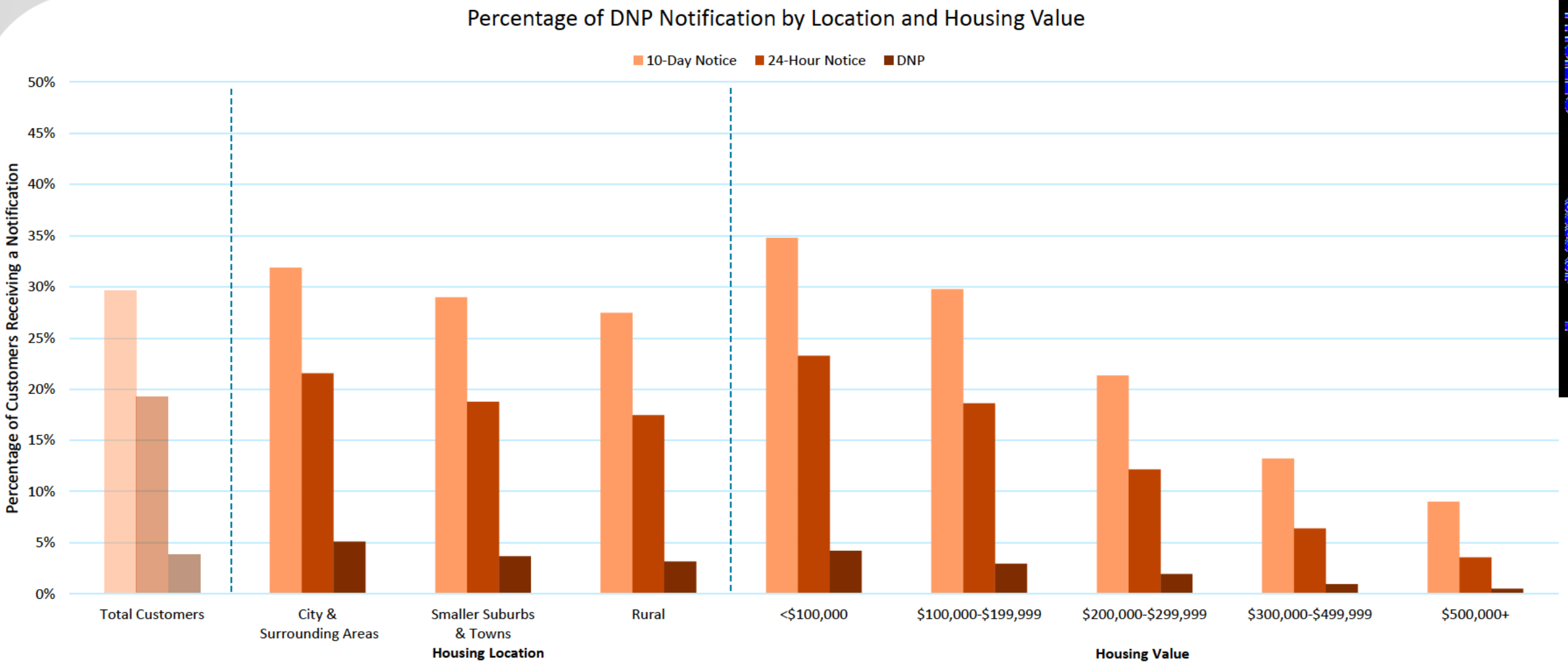

% Total Customers in Category*	98%	24%	49%	25%	7%	22%	15%	12%	5%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%

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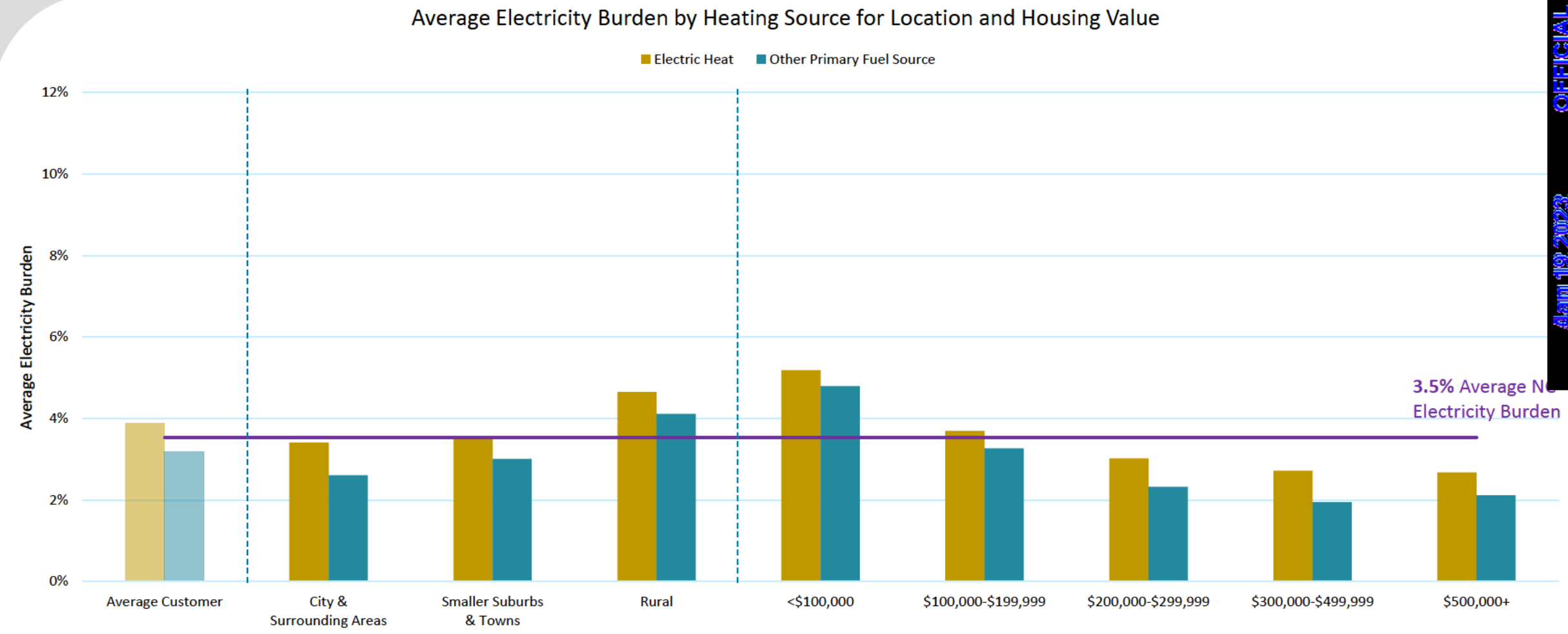
Average Electricity Burden by Heating Source for Location and Housing Value



	Average Customer	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
% Total Customers in Category*	79%	24%	49%	25%	7%	22%	15%	12%	5%

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Income Level

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Total Numbers

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
LIEAP/CIP	14,018	25,207	14,297	4,535	6,046	1,627	347	-
<150% FPL	87,157	166,037	132,145	51,337	80,182	27,323	12,596	3,458
150%-200% FPL	51,749	125,087	94,596	30,121	75,370	32,284	16,360	4,019
>200%	433,504	895,257	388,195	81,870	383,703	322,724	280,723	120,811
Total	586,428	1,211,588	629,233	167,863	545,301	383,958	310,026	-

Percentage of Customers in each Segment

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
LIEAP/CIP	0.6%	1.0%	0.6%	0.2%	0.2%	0.1%	0.0%	-
<150% FPL	3.6%	6.8%	5.4%	2.1%	3.3%	1.1%	0.5%	0.1%
150%-200% FPL	2.1%	5.2%	3.9%	1.2%	3.1%	1.3%	0.7%	0.2%
>200%	17.9%	36.9%	16.0%	3.4%	15.8%	13.3%	11.6%	5.0%

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Arrearage Status

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Total Numbers

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
Meets Arrears Definition	103,427	191,924	97,482	34,301	85,574	37,974	15,555	2,995
Does not Meet Arrears Definition	483,001	1,019,664	531,751	133,562	459,727	345,984	294,471	125,343

Percentage of Customers in each Segment

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
Meets Arrears Definition	4.2%	7.7%	3.9%	3.9%	3.4%	1.5%	0.6%	0.1%
Does not Meet Arrears Definition	19.4%	41.0%	21.4%	21.4%	18.5%	13.9%	11.8%	5.0%

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DUKE ENERGY

DNP

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Total Numbers

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
LIEAP/CIP	2,648	4,105	1,953	656	984	288	-	-
<150% FPL	7,312	9,625	5,172	2,147	2,497	678	168	-
150%-200% FPL	3,290	5,448	3,202	1,216	2,206	668	234	-
>200%	16,721	25,496	9,600	3,049	10,439	5,827	2565	603
Total	29,971	44,674	19,927	7,068	16,126	7,461	-	659

Percentage of Customers in that Segment DNP (i.e., Percentage of <$100,000 customers that were DNP)

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
LIEAP/CIP	18.9%	16.3%	13.7%	14.5%	16.3%	17.7%	17.6%	10.0%
<150% FPL	8.4%	5.8%	3.9%	4.2%	3.1%	2.5%	1.3%	0.9%
150%-200% FPL	6.4%	4.4%	3.4%	4.0%	2.9%	2.1%	1.4%	0.5%
>200%	3.9%	2.8%	2.5%	3.7%	2.7%	1.8%	0.9%	0.5%

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DNP Notifications

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Total Numbers

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
Non-DNP/DLQ	399,552	860,367	456,484	109,457	382,864	302,042	269,018	116,783
10-Day Notice	186,876	351,220	172,748	58,405	162,437	81,916	41,008	11,555
24-Hour Notice	126,384	227,356	109,864	39,066	101,501	46,705	19,807	4,580
DNP	29,971	44,674	19,927	7,068	16,126	7,461	-	659

Percentage of Customers in that Segment DNP Received a DNP Notification (i.e., Percentage of <$100,000 customers that received a 10-Day Notice)

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
Non-DNP/DLQ	68.1%	71.0%	72.5%	65.2%	70.2%	78.7%	86.8%	91.0%
10-Day Notice	31.9%	29.0%	27.5%	34.8%	29.8%	21.3%	13.2%	9.0%
24-Hour Notice	21.6%	18.8%	17.5%	23.3%	18.6%	12.2%	6.4%	3.6%
DNP	5.1%	3.7%	3.2%	4.2%	3.0%	1.9%	-	0.5%

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Electricity Burden

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Total Numbers

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
Electric Heat	157,915	437,836	282,551	58,703	229,745	138,982	86,332	24,943
Other Primary Fuel Sources	270,100	550,939	260,614	88,038	246,138	192,530	182,551	85,801

Percentage of Customers in each Segment

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
Electric Heat	6.4%	17.6%	11.4%	2.4%	9.2%	5.6%	3.5%	1.0%
Other Primary Fuel Sources	10.9%	22.2%	10.5%	3.5%	9.9%	7.7%	7.3%	3.5%

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Analysis by Race and Age of the Account Holder

Race: African American, Asian, Hispanic, White

Age of Account Holder: 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75+

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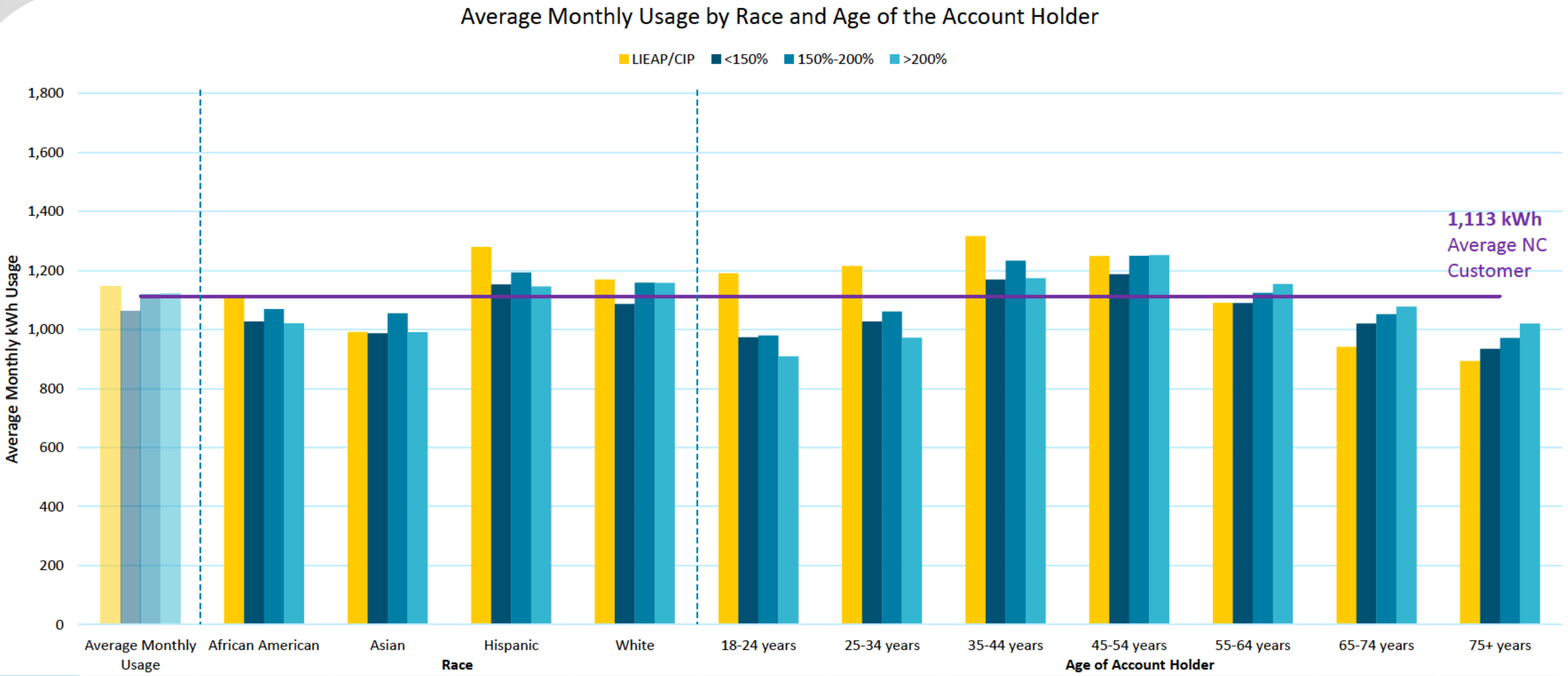
Average Monthly Usage by Income for Race and Age of the Account Holder



	Average Monthly Usage	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
% Total Customers in Category	98%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

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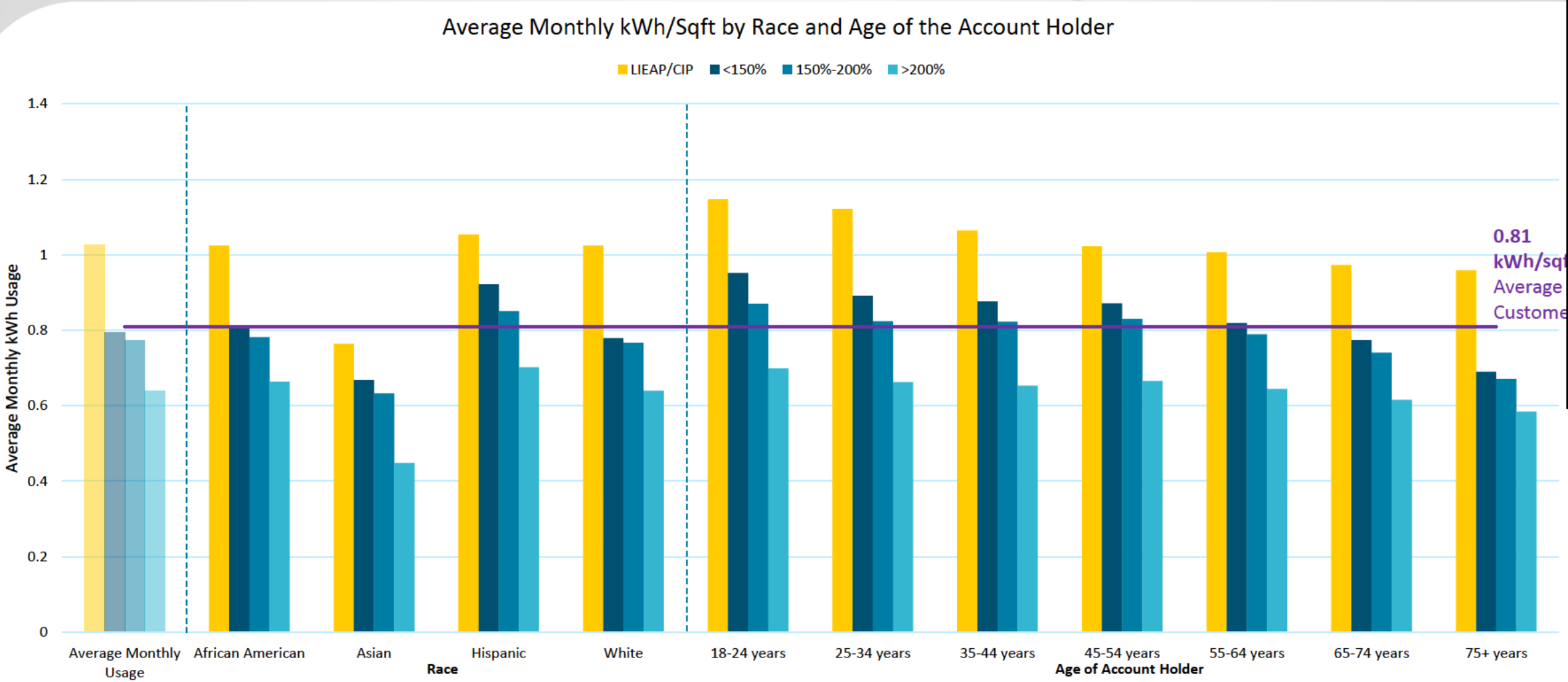
Average Monthly Usage per Square Foot by Income for Race and Age of the Account Holder



	Average Monthly Usage	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
% Total Customers in Category	98%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

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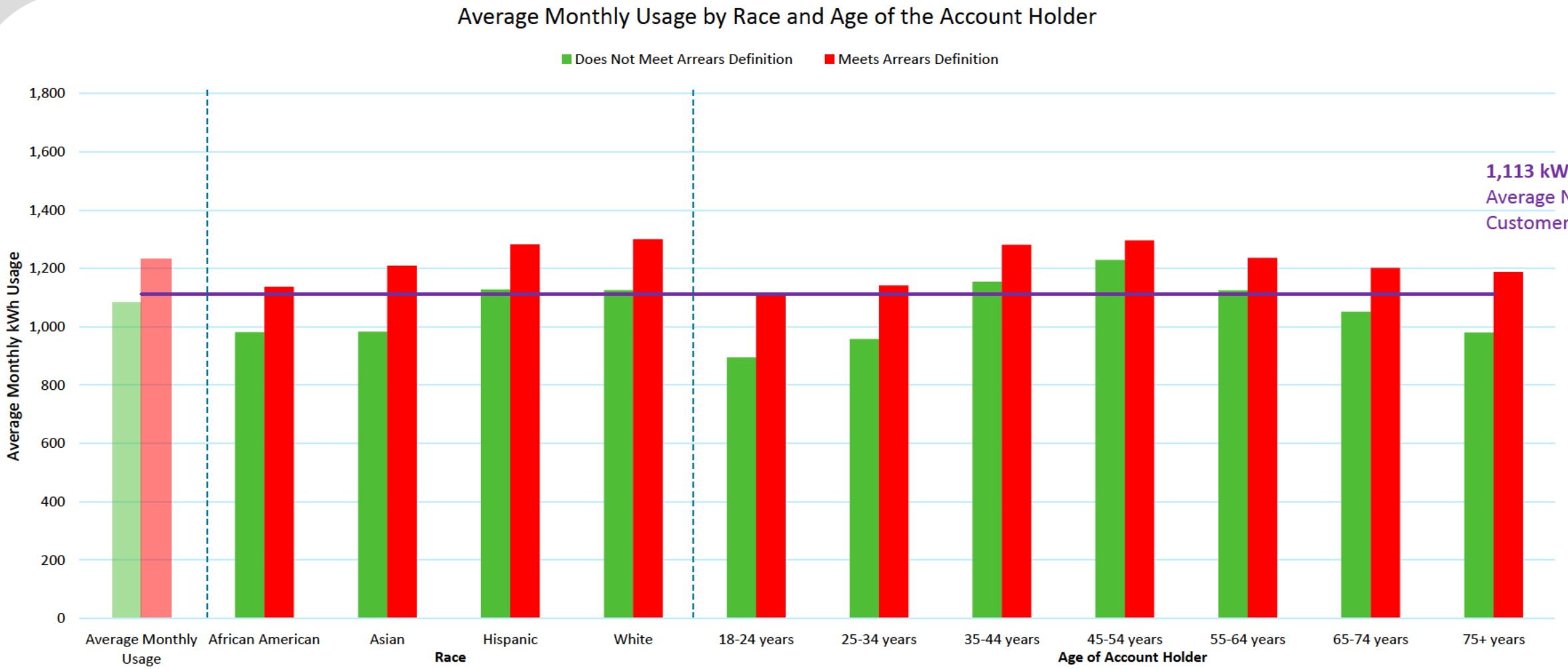
Average Monthly Usage by Arrearage Status for Race and Age of the Account Holder



	Average Monthly Usage	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
% Total Customers in Category	100%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

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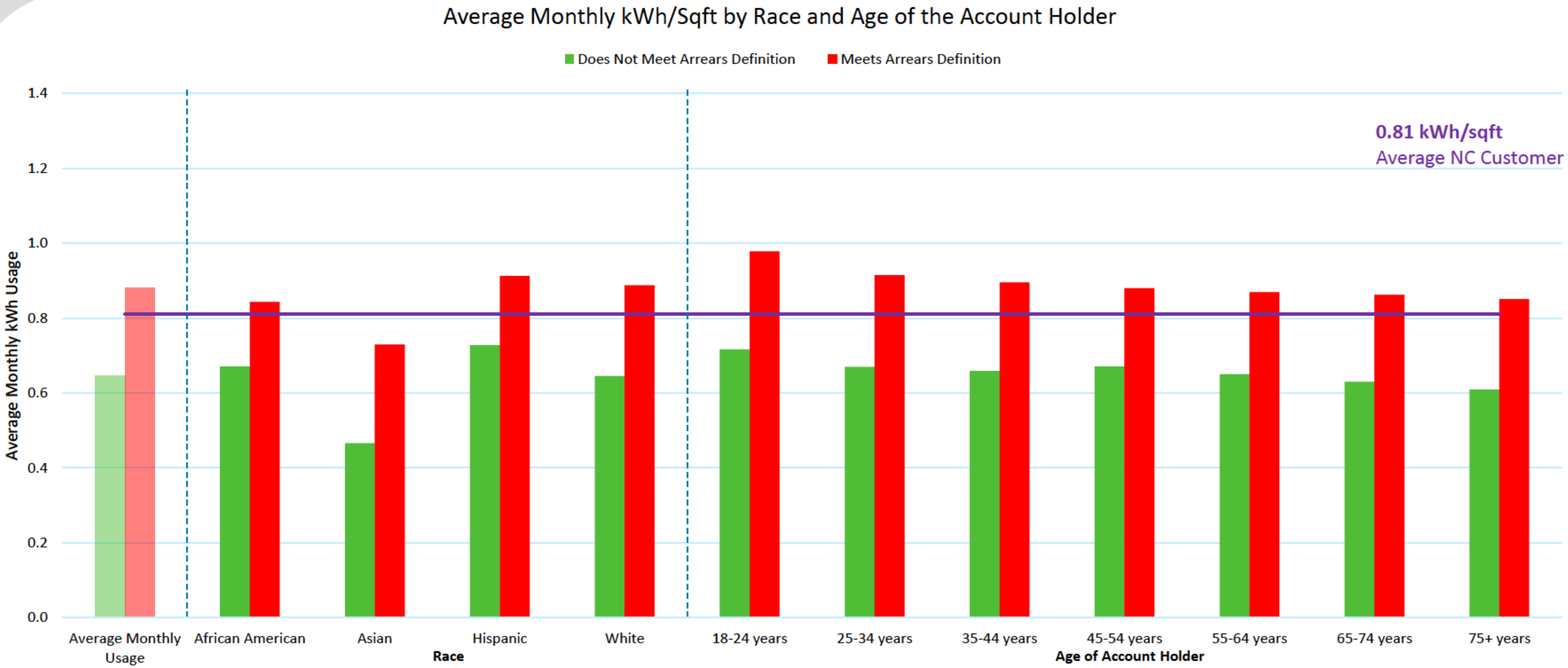
Average Monthly Usage per Square Foot by Arrearage Status for Race and Age of the Account Holder



	Average Monthly Usage	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
% Total Customers in Category	100%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%

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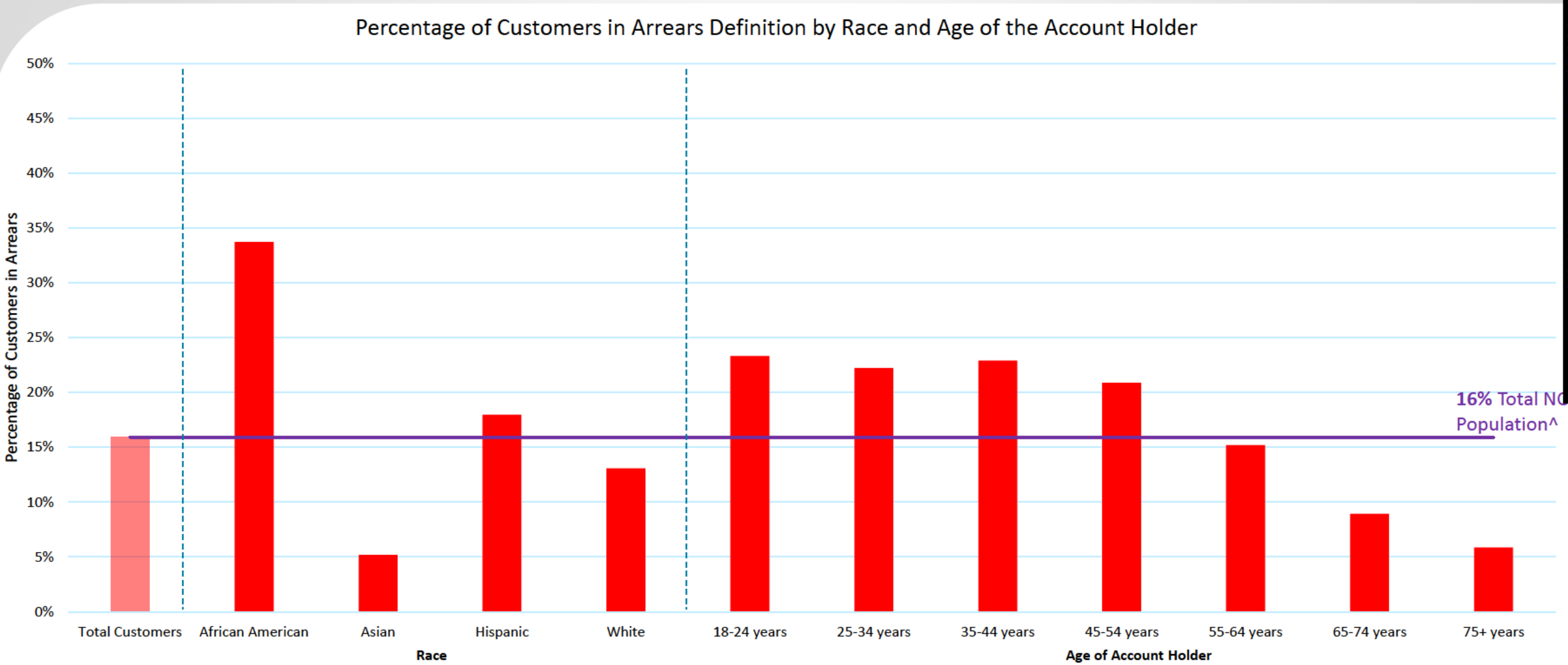
Percentage of Customers in Arrears Definition for Race and Age of the Account Holder



% Total Customers in Category	100%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%

^The total line includes customers who could not be categorized, therefore there may be instances of all groups above the total

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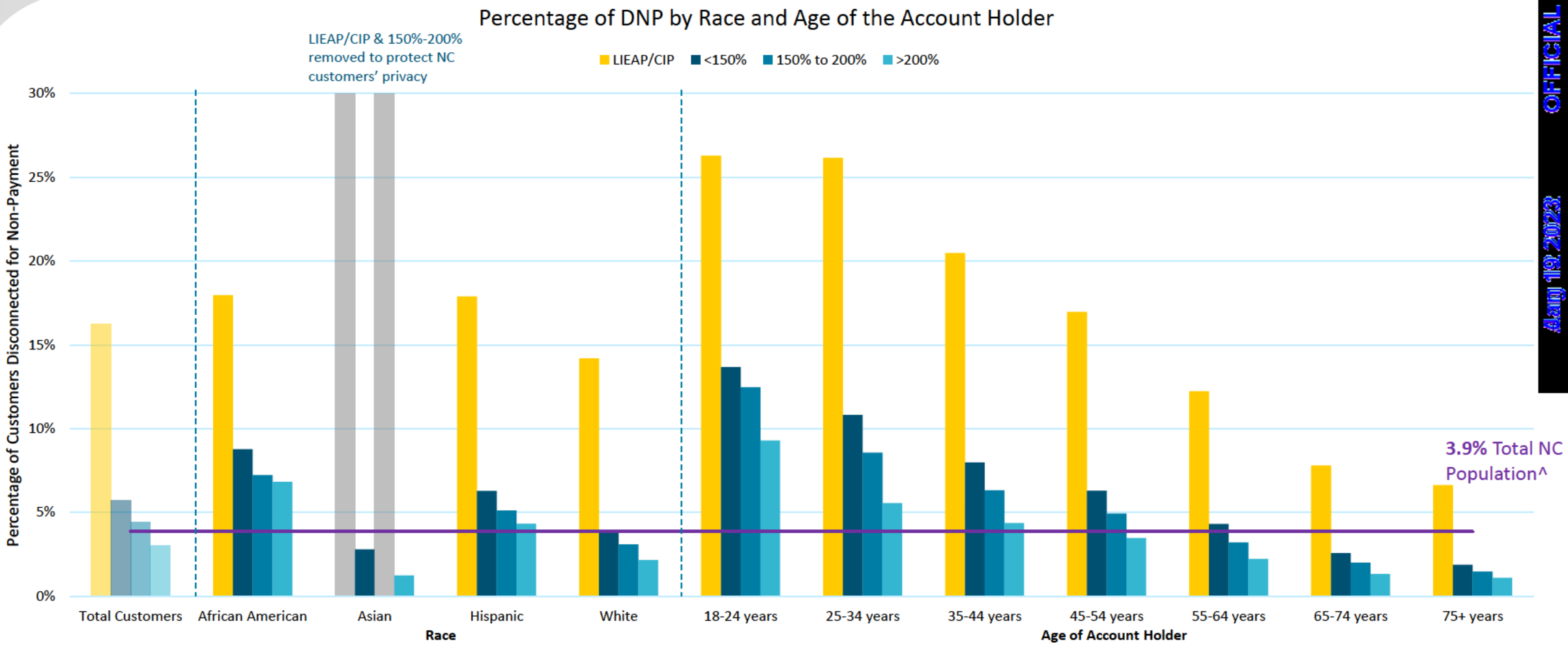
Percentage of DNP by Income for Race and Age of the Account Holder



	Total Customers	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
% Total Customers in Category	98%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%
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Percentage of DNP Notifications by Notification Type for Race and Age of the Account Holder

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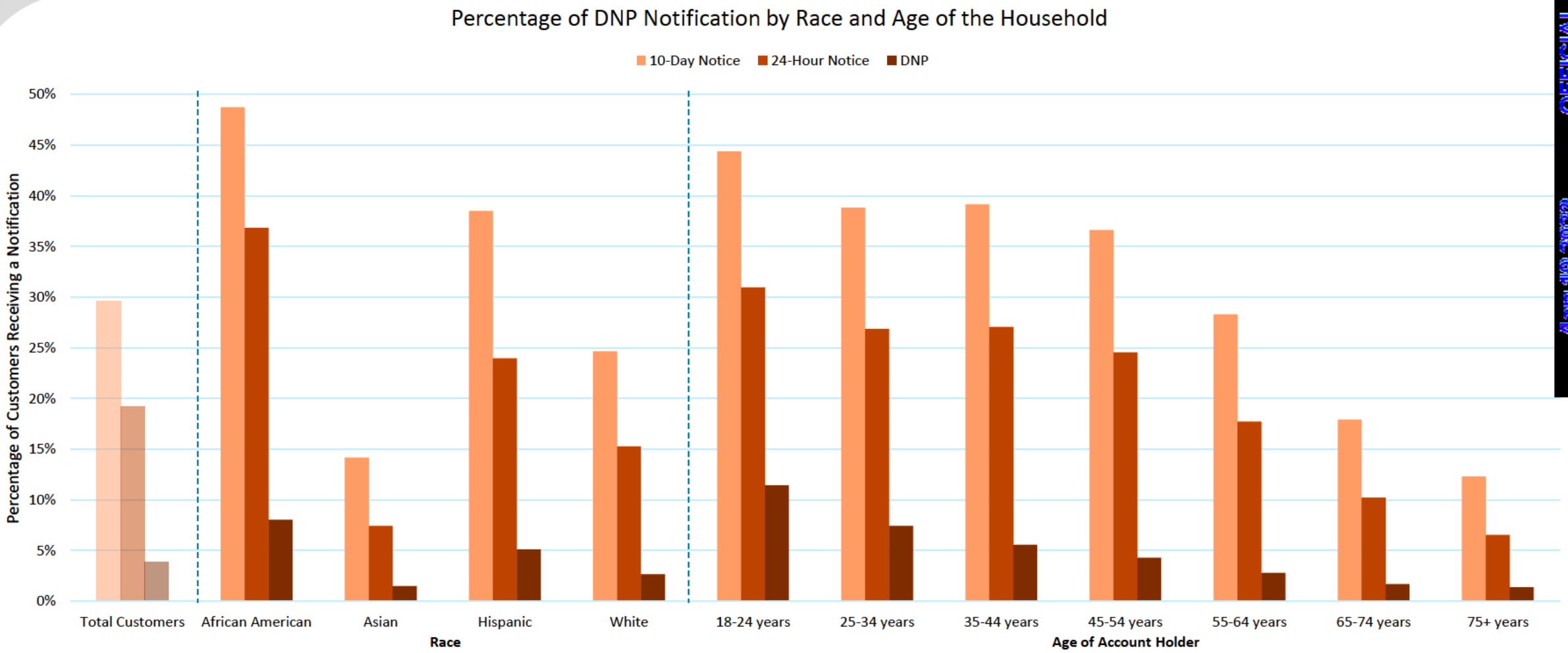

	Total Customers	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
% Total Customers in Category	98%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%

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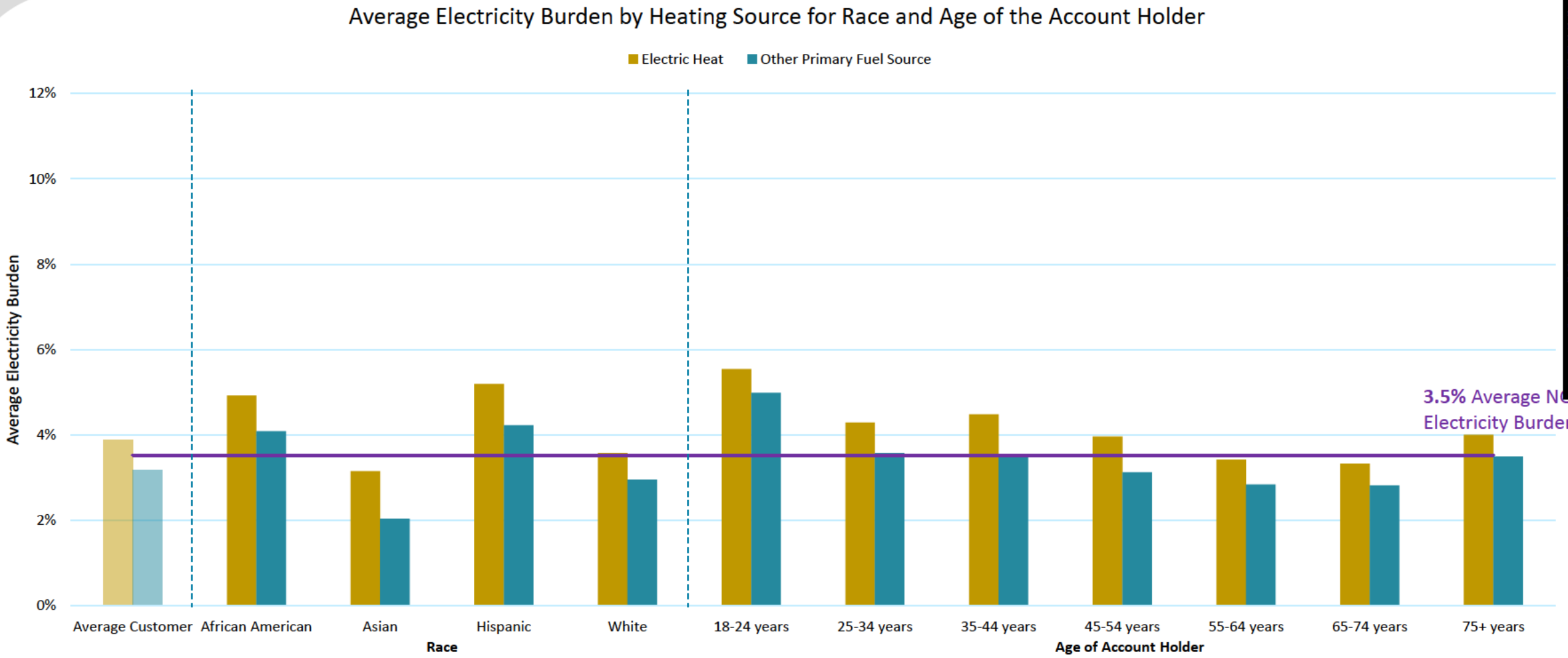
Average Electricity Burden by Heating Source for Race and Age of the Account Holder



% Total Customers in Category	79%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%
^The total line includes customers who could not be categorized, therefore there may be instances of all groups above the total

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Income Level

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Total Number of Customers in each Segment

	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
LIEAP/CIP	18,509	306	2,348	26,355	1,617	8,778	10,489	9,454	10,740	8,051	4,391
<150% FPL	59,739	5,272	26,773	239,271	14,945	53,015	62,326	63,061	59,109	53,766	78,031
150%-200% FPL	31,573	3,872	14,034	184,245	6,513	30,506	45,017	51,861	50,425	42,012	44,647
>200%	167,309	45,006	76,216	1,316,849	29,571	198,463	275,619	333,796	364,996	309,137	203,998
Total	277,130	54,456	119,371	1,766,720	52,646	290,762	393,451	458,172	485,270	412,966	331,067

Percentage of Customers in each Segment

	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
LIEAP/CIP	0.8%	0.0%	0.1%	1.1%	0.1%	0.4%	0.4%	0.4%	0.4%	0.3%	0.2%
<150% FPL	2.5%	0.2%	1.1%	9.9%	0.6%	2.2%	2.6%	2.6%	2.4%	2.2%	3.2%
150%-200% FPL	1.3%	0.2%	0.6%	7.6%	0.3%	1.3%	1.9%	2.1%	2.1%	1.7%	1.8%
>200%	6.9%	1.9%	3.1%	54.3%	1.2%	8.2%	11.4%	13.8%	15.0%	12.7%	8.4%

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Arrearage Status

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Total Numbers

	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
Meets Arrears Definition	93,473	2,819	21,424	230,942	12,274	64,618	90,117	95,648	73,717	36,793	19,404
Does not Meet Arrears Definition	183,657	51,637	97,947	1,535,778	40,372	226,144	303,334	362,525	411,553	376,175	311,664

Percentage of Customers in each Segment

	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
Meets Arrears Definition	3.8%	0.1%	0.9%	9.3%	0.5%	2.6%	3.6%	3.8%	3.0%	1.5%	0.8%
Does not Meet Arrears Definition	7.4%	2.1%	3.9%	61.8%	1.6%	9.1%	12.2%	14.6%	16.6%	15.1%	12.5%

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DNP

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Total Numbers

	African American	Asian	Hispanic	White	18-24 years old	25-34 years old	35-44 years old	45-54 years old	55-64 years old	65-74 years old	75+ years old
LIEAP/CIP	3,325	-	420	3,738	425	2,297	2,147	1,604	1,314	628	291
<150% FPL	5,236	147	1,682	9,302	2042	5,731	4,968	3,966	2,542	1,380	1,462
150%-200% FPL	2,283	-	717	5687	812	2,609	2,846	2,553	1,617	841	654
>200%	11,403	559	3,289	28,401	2,744	11,002	12,037	11,582	8,113	4,099	2,225
Total	22,247	817	6,108	47,128	6,023	21,639	21,998	19,705	13,586	6,948	4,632

Percentage of Customers in that Segment DNP (i.e., Percentage of 18-24 years old customers that were DNP)

	African American	Asian	Hispanic	White	18-24 years old	25-34 years old	35-44 years old	45-54 years old	55-64 years old	65-74 years old	75+ years old
LIEAP/CIP	18.0%	-	17.9%	14.2%	26.3%	26.2%	20.5%	17.0%	12.2%	7.8%	6.6%
<150% FPL	8.8%	2.8%	6.3%	3.9%	13.7%	10.8%	8.0%	6.3%	4.3%	2.6%	1.9%
150%-200% FPL	7.2%	-	5.1%	3.1%	12.5%	8.6%	6.3%	4.9%	3.2%	2.0%	1.5%
>200%	6.8%	1.2%	4.3%	2.2%	9.3%	5.5%	4.4%	3.5%	2.2%	1.3%	1.1%

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DNP Notifications

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Total Numbers

	African American	Asian	Hispanic	White	18-24 years old	25-34 years old	35-44 years old	45-54 years old	55-64 years old	65-74 years old	75+ years old
Non-DNP/DLQ	142,059	46,741	73,388	1,331,163	29,284	177,862	239,375	290,373	347,921	338,994	29,0276
10-Day Notice	135,071	7,715	45,983	435,555	23,362	112,900	154,076	167,800	137,349	73,974	40,790
24-Hour Notice	102,118	4,050	28,620	269,947	16,304	78,110	106,486	112,487	86,004	42,231	21,653
DNP	22,247	817	6108	47,128	6,023	21,639	21,998	19,705	13,586	6,948	4,632

Percentage of Customers in that Segment Received a DNP Notification (i.e., Percentage of 18-24 years old customers received a 10-Day Notice)

	African American	Asian	Hispanic	White	18-24 years old	25-34 years old	35-44 years old	45-54 years old	55-64 years old	65-74 years old	75+ years old
Non-DNP/DLQ	51.3%	85.8%	61.5%	75.3%	55.6%	61.2%	60.8%	63.4%	71.7%	82.1%	87.7%
10-Day Notice	48.7%	14.2%	38.5%	24.7%	44.4%	38.8%	39.2%	36.6%	28.3%	17.9%	12.3%
24-Hour Notice	36.8%	7.4%	24.0%	15.3%	31.0%	26.9%	27.1%	24.6%	17.7%	10.2%	6.5%
DNP	8.0%	1.5%	5.1%	2.7%	11.4%	7.4%	5.6%	4.3%	2.8%	1.7%	1.4%

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Electricity Burden

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Total Numbers

	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
Electric Heat	98,444	12,677	46,895	655,327	12,964	96,126	141,467	170,500	185,412	159,655	111,768
Other Primary Fuel Sources	116,682	32,401	52,363	823,332	7,998	84,361	165,190	215,166	234,875	202,810	169,324

Percentage of Customers in each Segment

	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
Electric Heat	4.0%	0.5%	1.9%	26.4%	0.5%	3.9%	5.7%	6.9%	7.5%	6.4%	4.5%
Other Primary Fuel Sources	4.7%	1.3%	2.1%	33.1%	0.3%	3.4%	6.6%	8.7%	9.5%	8.2%	6.8%

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Analysis by Number of People in the Household

Number of People in the Household: 1, 2, 3, 4, 5, 6, 7+

Average Monthly Usage by Income for Number of People in the Household

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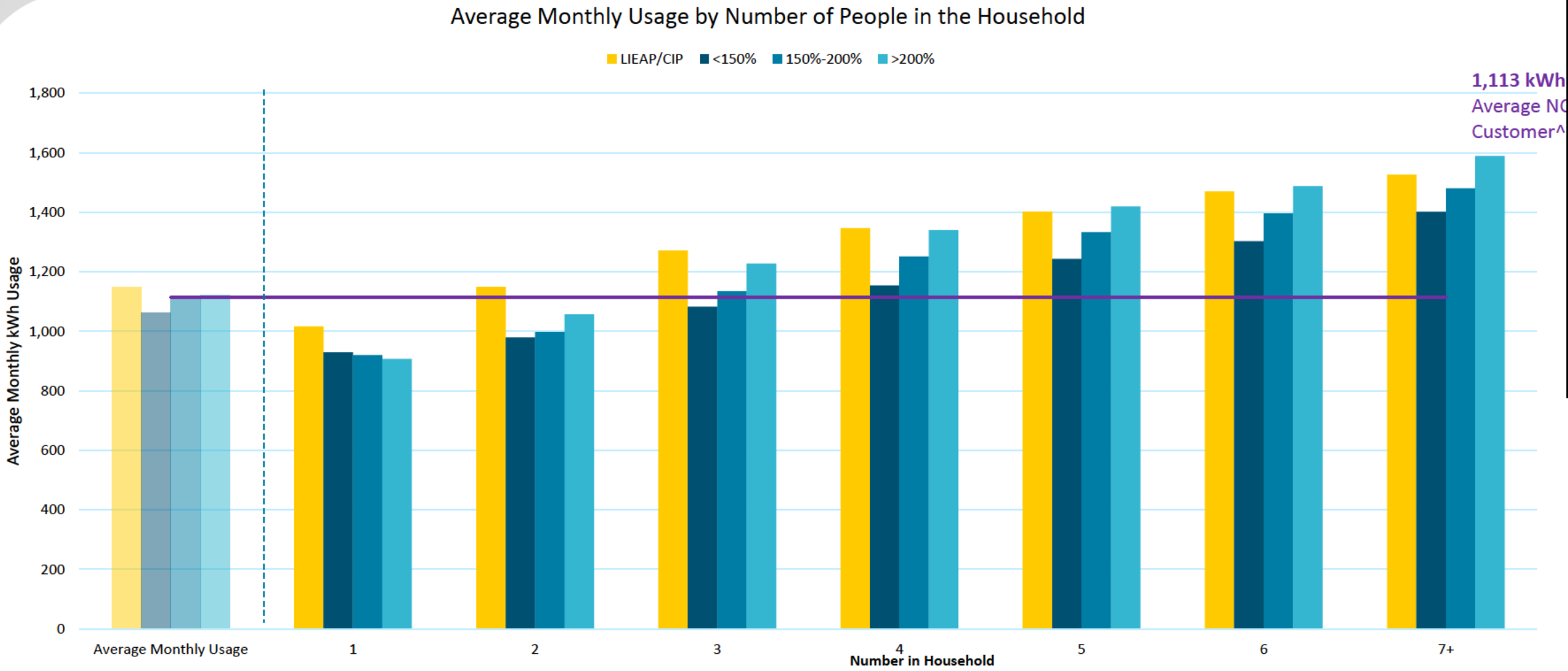

% Total Customers in Category*	98%	25%	29%	22%	12%	6%	3%	1%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%

^The average line includes customers who could not be categorized, therefore there may be instances of all groups above average

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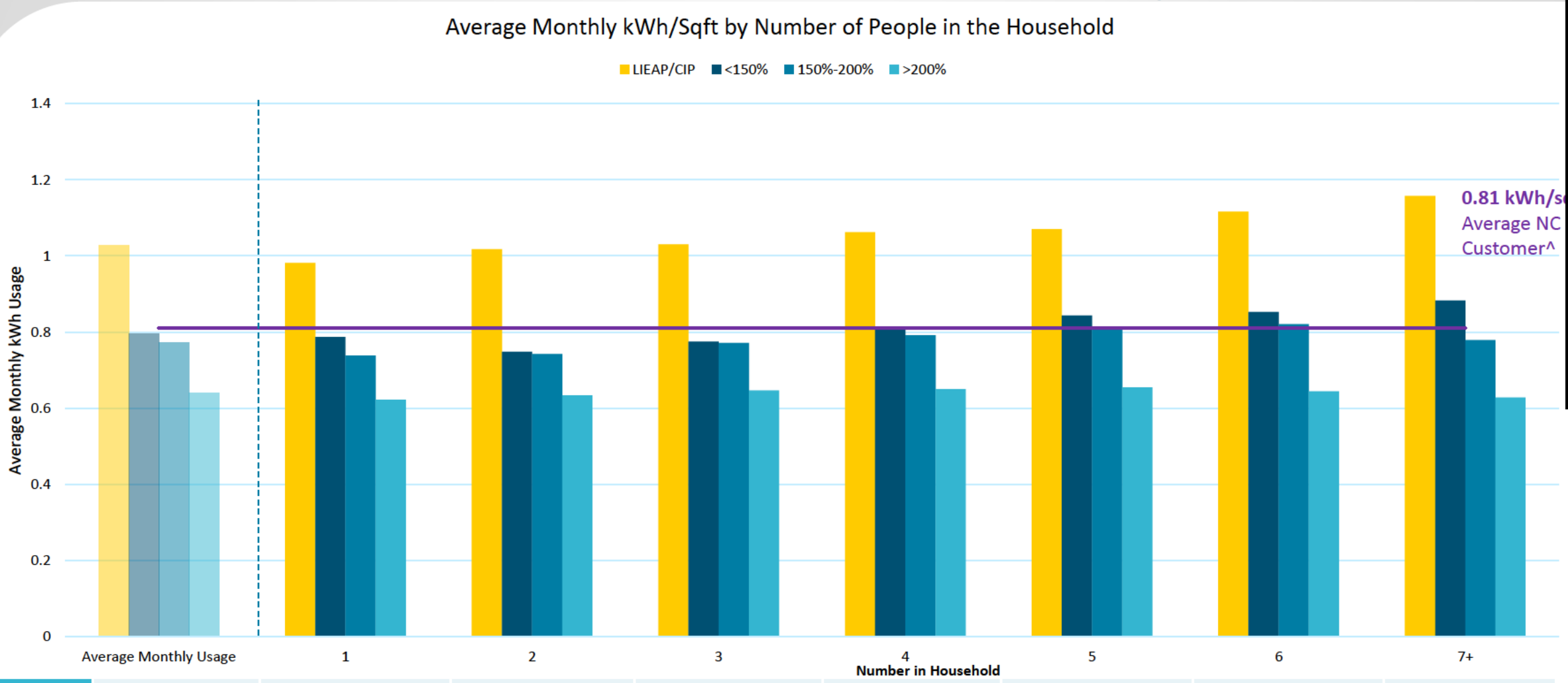
Average Monthly Usage per Square Foot by Income for Number of People in the Household



	Average Monthly Usage	1	2	3	4	5	6	7+
% Total Customers in Category*	98%	25%	29%	22%	12%	6%	3%	1%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%

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Average Monthly Usage by Arrearage Status for Number of People in the Household

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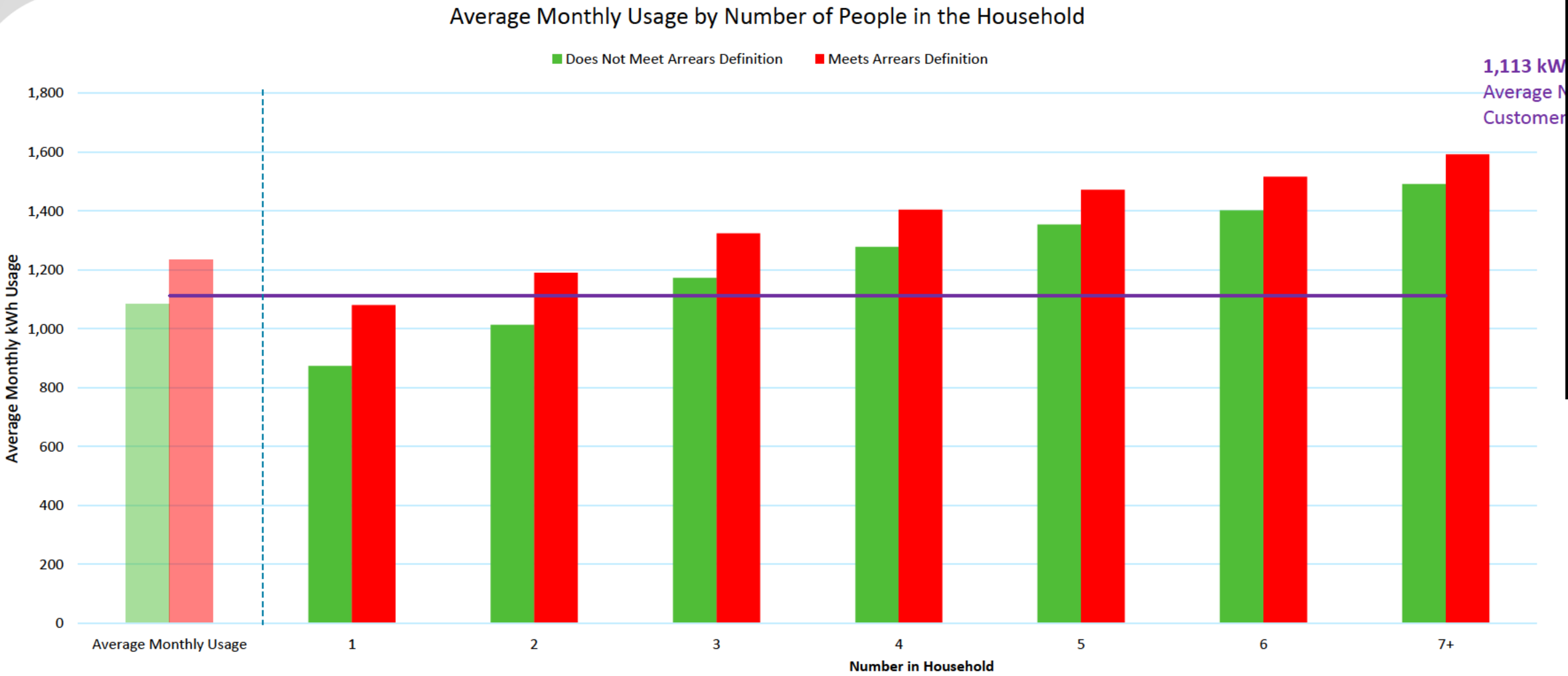

	Average Monthly Usage	1	2	3	4	5	6	7+
% Total Customers in Category*	100%	25%	29%	22%	12%	6%	3%	1%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%
^The average line includes customers who could not be categorized, therefore there may be instances of all groups above average

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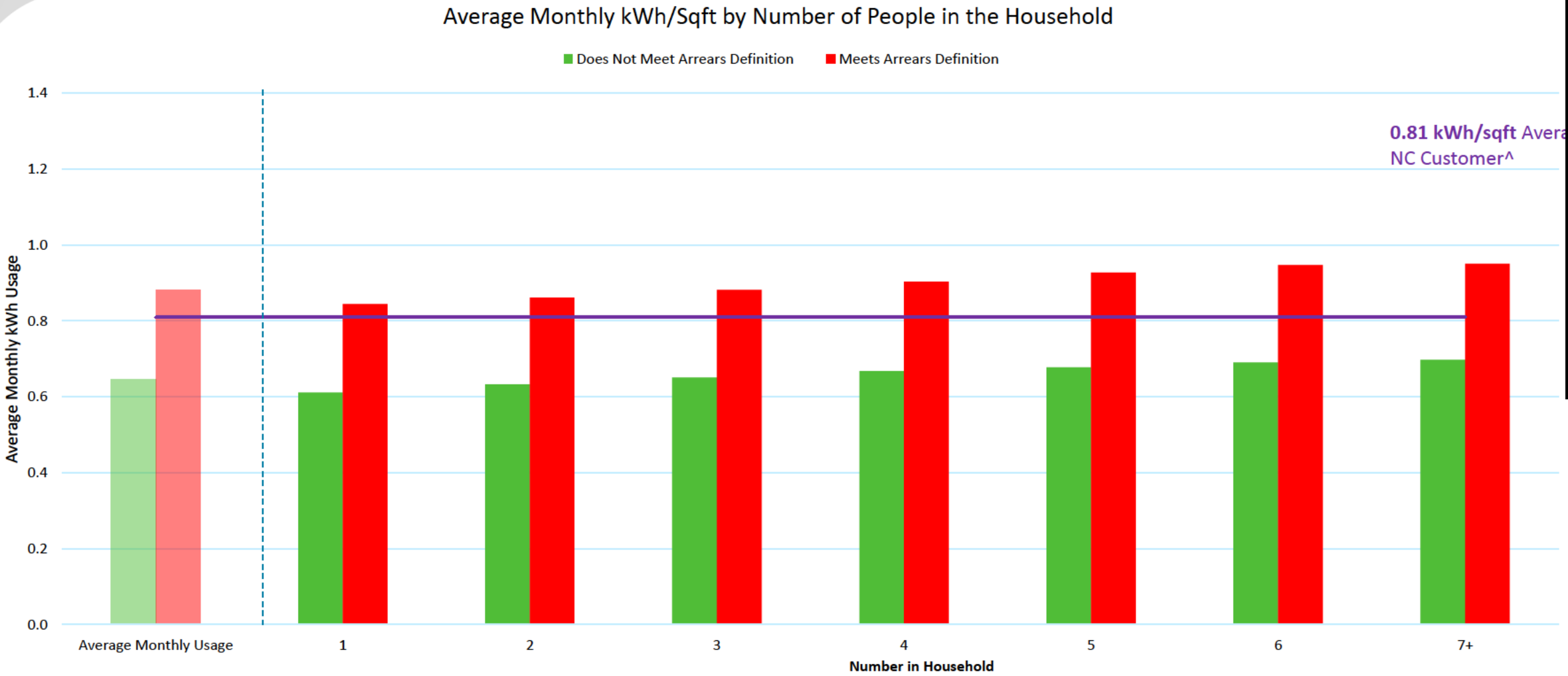
Average Monthly Usage per Square Foot by Arrearage Status or Number of People in the Household



% Total Customers in Category*	100%	25%	29%	22%	12%	6%	3%	1%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%

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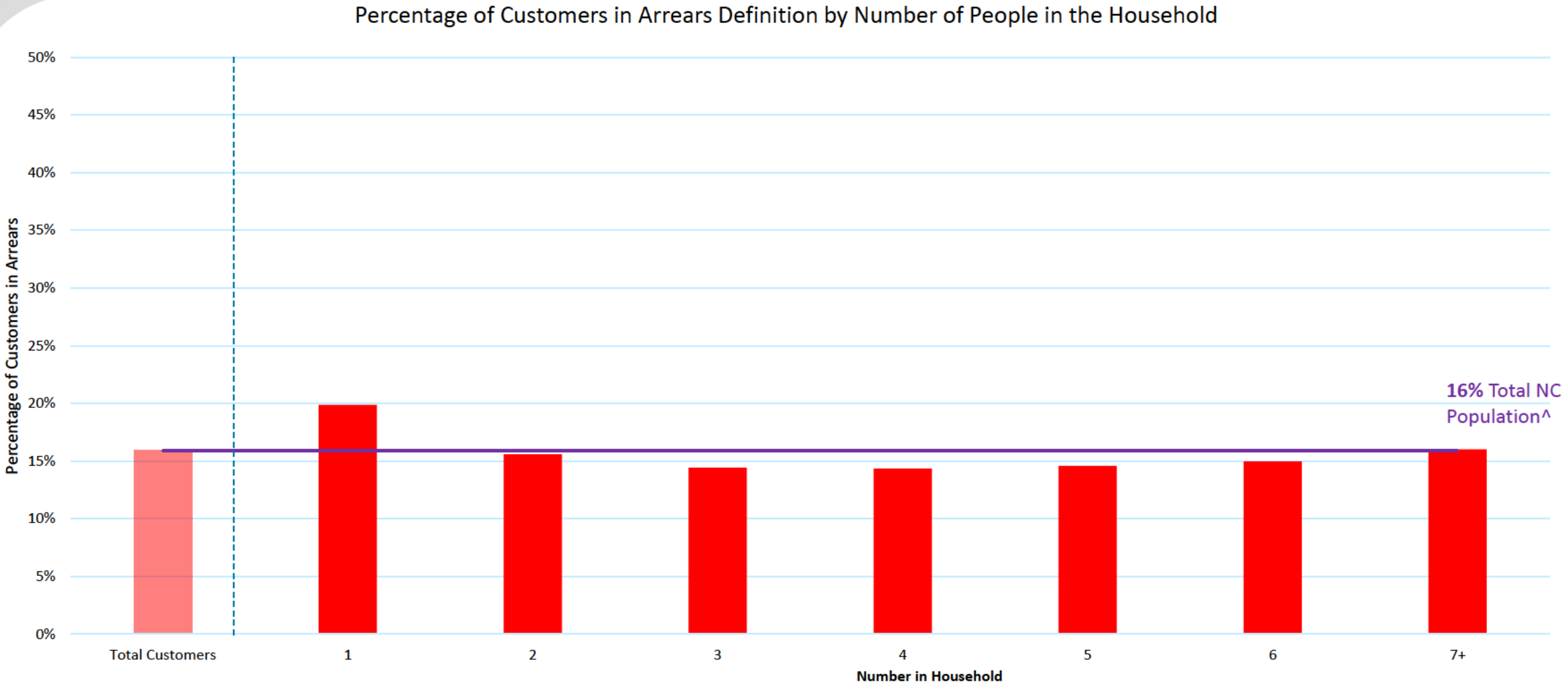
Percentage of Customers in Arrears Definition for Number of People in the Household



% Total Customers in Category*	100%	25%	29%	22%	12%	6%	3%	1%

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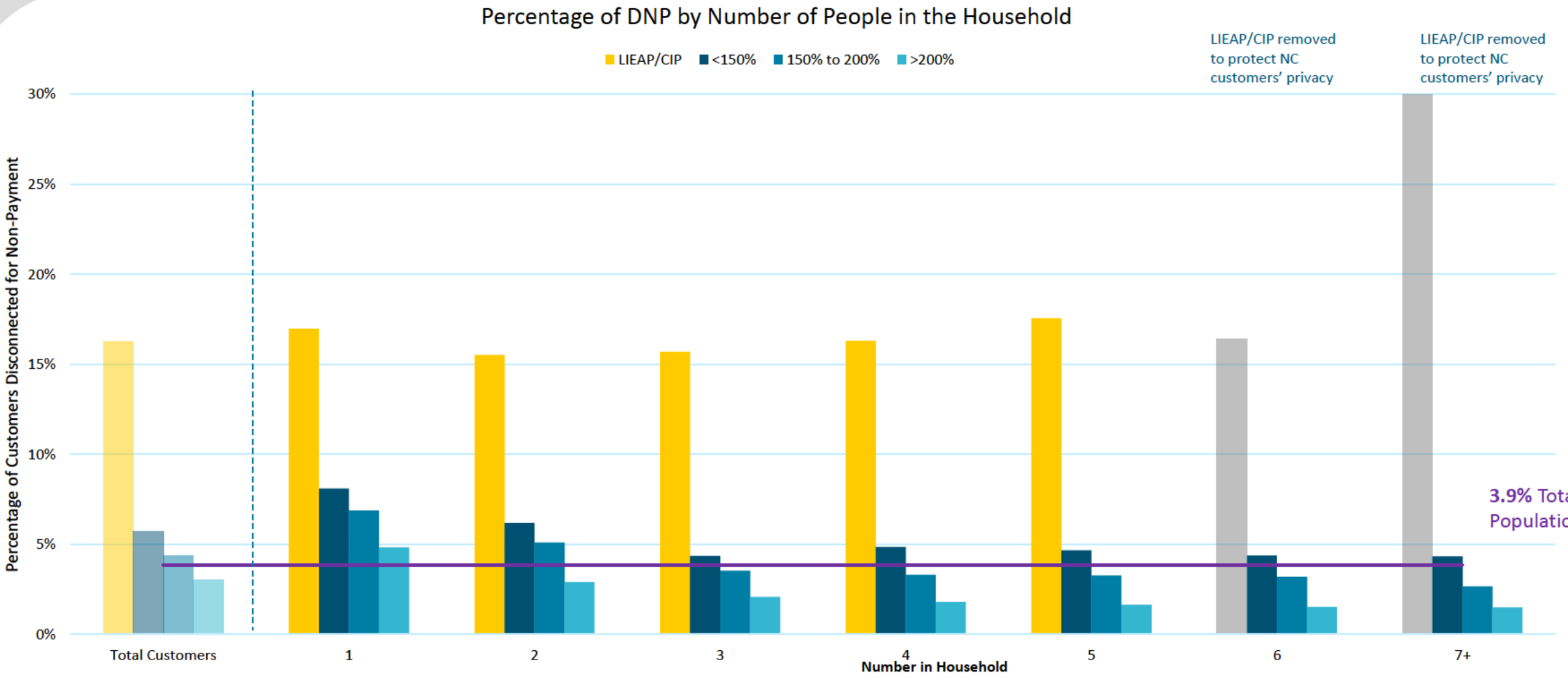
Percentage of DNP by Income for Number of People in the Household



% Total Customers in Category*	98%	25%	29%	22%	12%	6%	3%	1%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%
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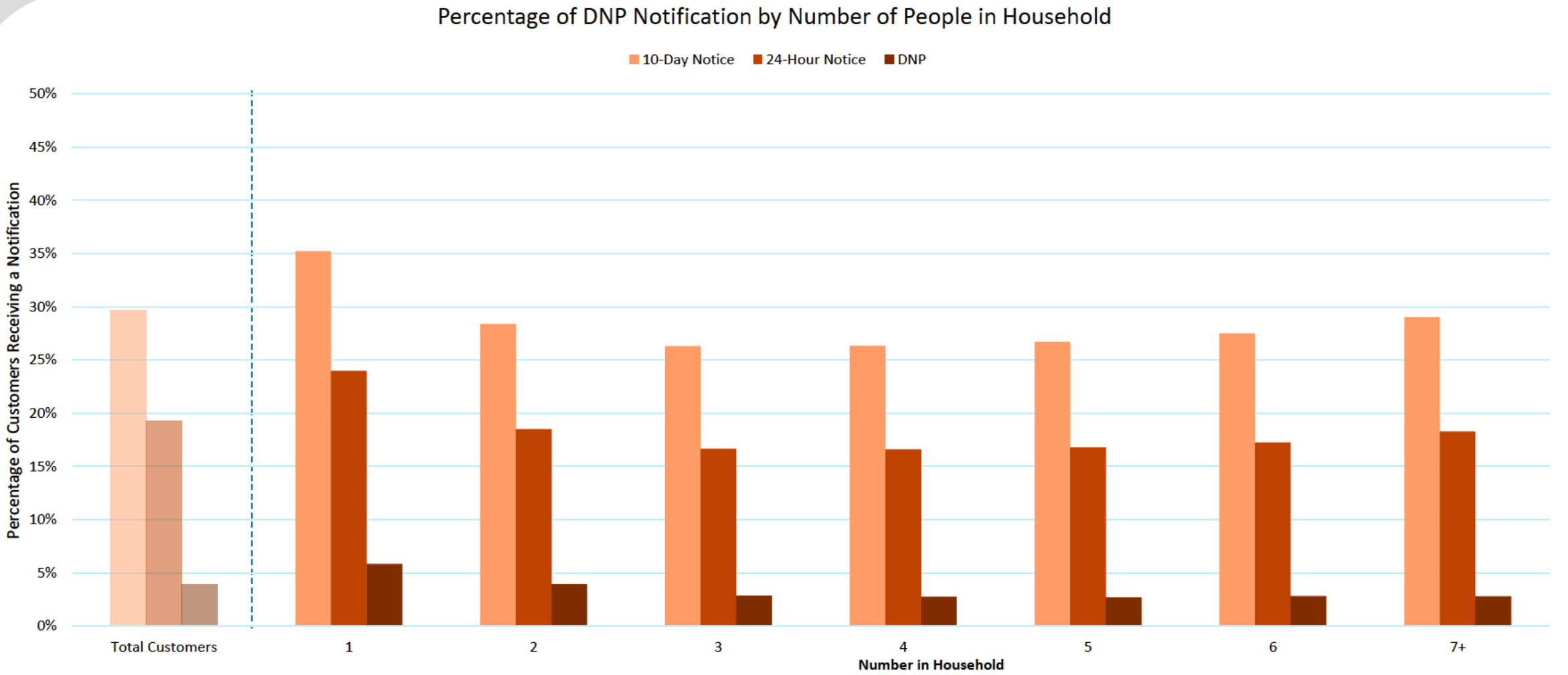
Percentage of DNP Notifications by Notification Type for Number of People in the Household



	Total Customers	1	2	3	4	5	6	7+
% Total Customers in Category*	98%	25%	29%	22%	12%	6%	3%	1%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%

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Average Electricity Burden by Heating Source for Number of People in the Household

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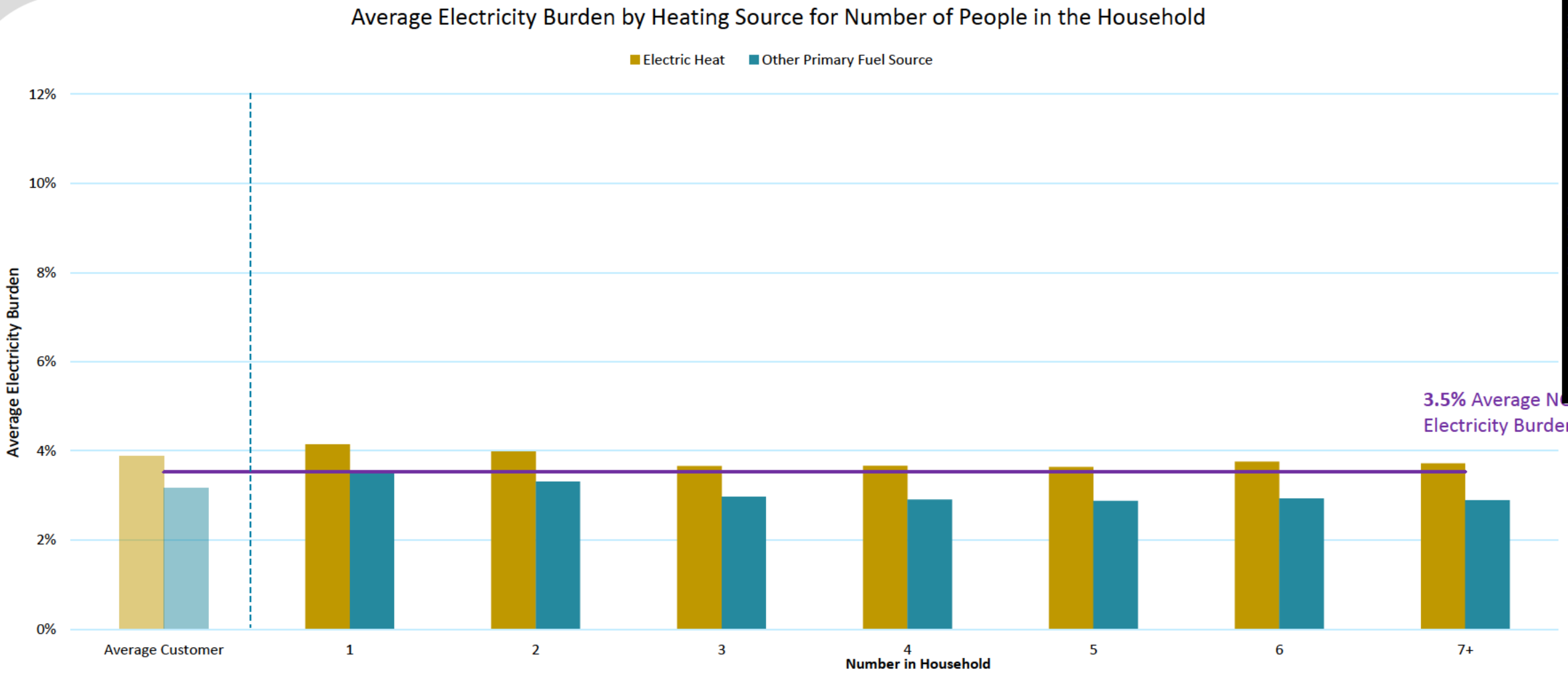

	Average Customer	1	2	3	4	5	6	7+
% Total Customers in Category*	79%	25%	29%	22%	12%	6%	3%	1%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%
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Income Level

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Total Numbers

	1	2	3	4	5	6	7+
LIEAP/CIP	21,430	16,234	8,759	3,955	1,805	865	474
<150% FPL	81,114	106,919	91,606	43,273	30,440	20,783	11,204
150%-200% FPL	37,590	85,572	55,531	55,592	20,083	9,074	7,990
>200%	475,987	506,518	390,254	193,028	95,313	38,548	17,308
Total	616,121	715,243	546,150	295,848	147,641	69,270	36,976

Percentage of Customers in each Segment

	1	2	3	4	5	6	7+
LIEAP/CIP	0.9%	0.7%	0.4%	0.2%	0.1%	0.0%	0.0%
<150% FPL	3.3%	4.4%	3.8%	1.8%	1.3%	0.9%	0.5%
150%-200% FPL	1.5%	3.5%	2.3%	2.3%	0.8%	0.4%	0.3%
>200%	19.6%	20.9%	16.1%	8.0%	3.9%	1.6%	0.7%

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Arrearage Status

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Total Numbers	1	2	3	4	5	6	7+
Meets Arrears Definition	122,457	111,342	78,781	42,469	21,501	10,363	5,920
Does not Meet Arrears Definition	493,664	603,901	467,369	253,379	126,140	58,907	31,056

Percentage of Customers in each Segment	1	2	3	4	5	6	7+
Meets Arrears Definition	4.9%	4.5%	3.2%	1.7%	0.9%	0.4%	0.2%
Does not Meet Arrears Definition	19.9%	24.3%	18.8%	10.2%	5.1%	2.4%	1.2%

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DNP

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Total Number of Customers in each Segment							
	1	2	3	4	5	6	7+
LIEAP/CIP	3,637	2,520	1,375	645	317	142	-
<150% FPL	6,578	6,616	3,993	2,104	1,420	912	486
150%-200% FPL	25,88	4,379	1,967	1,844	658	291	213
>200%	23,029	14,736	8,131	3,494	1,577	592	258
Total	358,32	28,251	15,466	8,087	3,972	1,937	-

Percentage of Customers in that Segment DNP (i.e., Percentage of 2 people household customers that were DNP)							
	1	2	3	4	5	6	7+
LIEAP/CIP	17.0%	15.5%	15.7%	16.3%	17.6%	16.4%	-
<150% FPL	8.1%	6.2%	4.4%	4.9%	4.7%	4.4%	4.3%
150%-200% FPL	6.9%	5.1%	3.5%	3.3%	3.3%	3.2%	2.7%
>200%	4.8%	2.9%	2.1%	1.8%	1.7%	1.5%	1.5%

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DNP Notifications

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Total Number of Customers in each Segment	1	2	3	4	5	6	7+
Non-DNP/DLQ	399,035	512,264	402,466	217,979	108,189	50,228	26,242
10-Day Notice	217,086	202,978	143,684	77,869	39,451	19,042	10,734
24-Hour Notice	147,737	132,337	90,940	49,098	24,785	11,950	6,757
DNP	35,832	28,251	15,466	8,087	3,972	1,937	-

Percentage of Customers in that Segment Received a DNP Notification (i.e., Percentage of 2 people household customers that received a 10-Day Notice)	1	2	3	4	5	6	7+
Non-DNP/DLQ	64.8%	71.6%	73.7%	73.7%	73.3%	72.5%	71.0%
10-Day Notice	35.2%	28.4%	26.3%	26.3%	26.7%	27.5%	29.0%
24-Hour Notice	24.0%	18.5%	16.7%	16.6%	16.8%	17.3%	18.3%
DNP	5.8%	3.9%	2.8%	2.7%	2.7%	2.8%	-

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Electricity Burden

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Total Numbers	1	2	3	4	5	6	7+
Electric Heat	222,442	254,231	198,759	109,163	54,727	25,528	13,452
Other Primary Fuel Source	227,146	314,288	265,199	146,943	74,321	34,974	18,782

Percentage of Customers in each Segment	1	2	3	4	5	6	7+
Electric Heat	9.0%	10.2%	8.0%	4.4%	2.2%	1.0%	0.5%
Other Primary Fuel Source	9.1%	12.6%	10.7%	5.9%	3.0%	1.4%	0.8%

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Analysis by Home Subcategory – Owner

Home Subcategory: Condo, Mobile Home, Multi-Family Miscellaneous, Single Family Dwelling, Unknown

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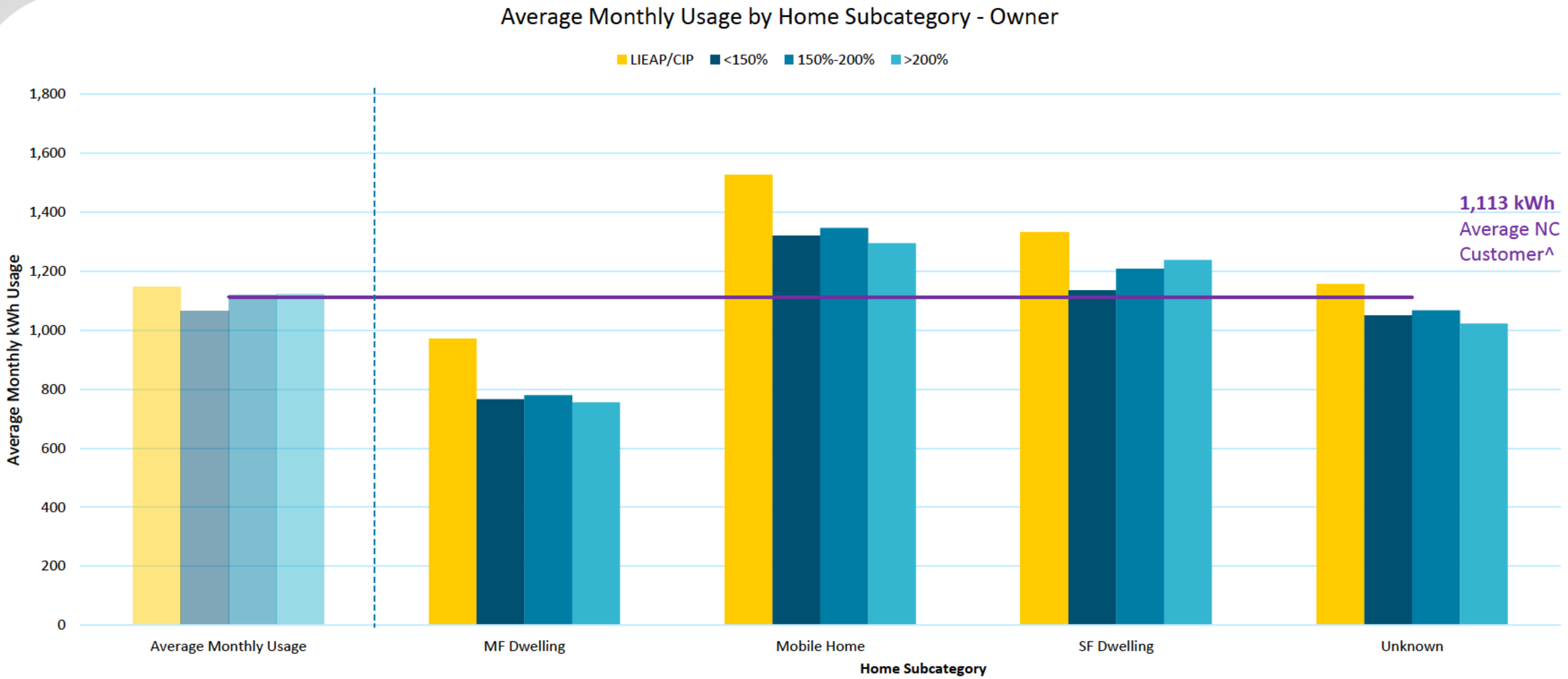
Average Monthly Usage by Income for Home Subcategory – Owner



	Average Monthly Usage	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	73%	3%	2%	51%	16%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%
^The average line includes customers who could not be categorized, therefore there may be instances of all groups above average

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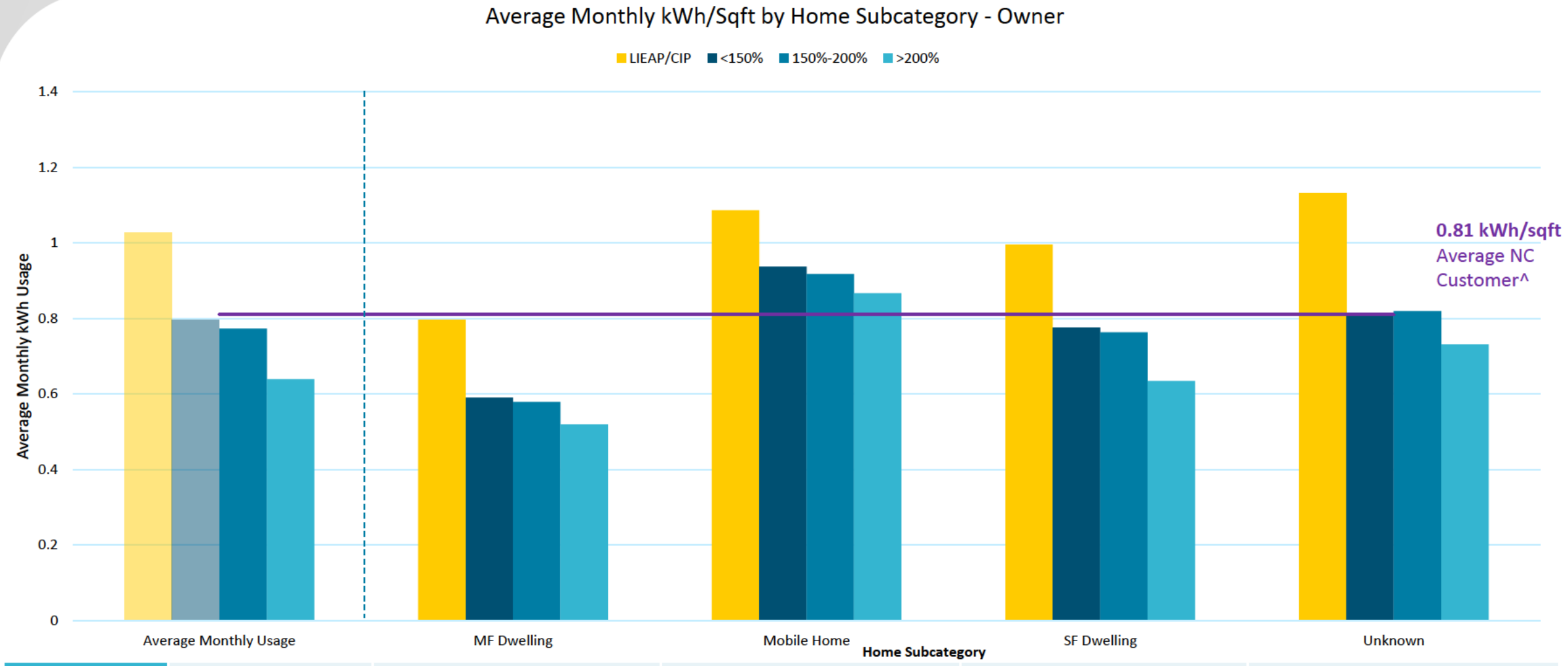
Average Monthly Usage per Square Foot by Income for Home Subcategory – Owner



	Average Monthly Usage	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	73%	3%	2%	51%	16%

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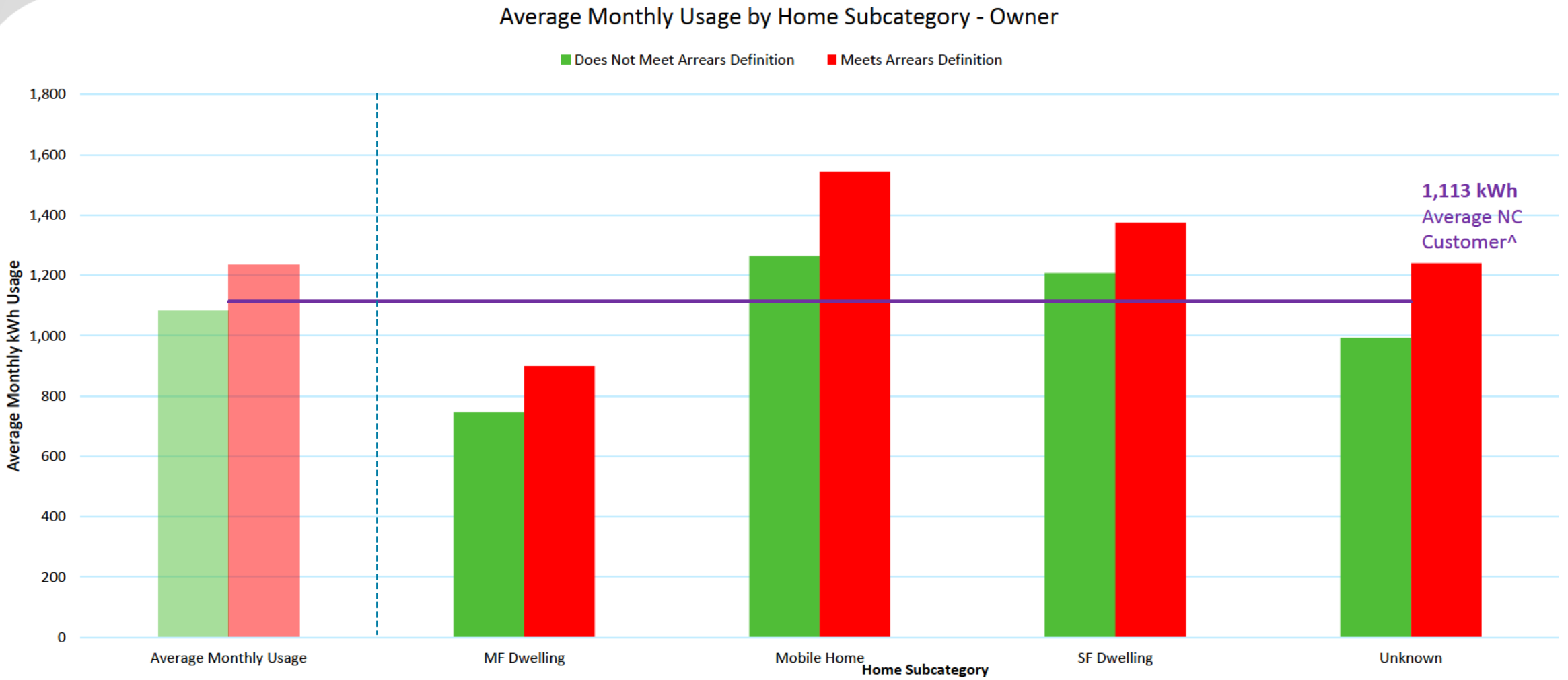
Average Monthly Usage by Arrearage Status for Home Subcategory - Owner



	Average Monthly Usage	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	73%	3%	2%	51%	16%

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Average Monthly Usage per Square Foot by Arrearage Status for Home Subcategory – Owner

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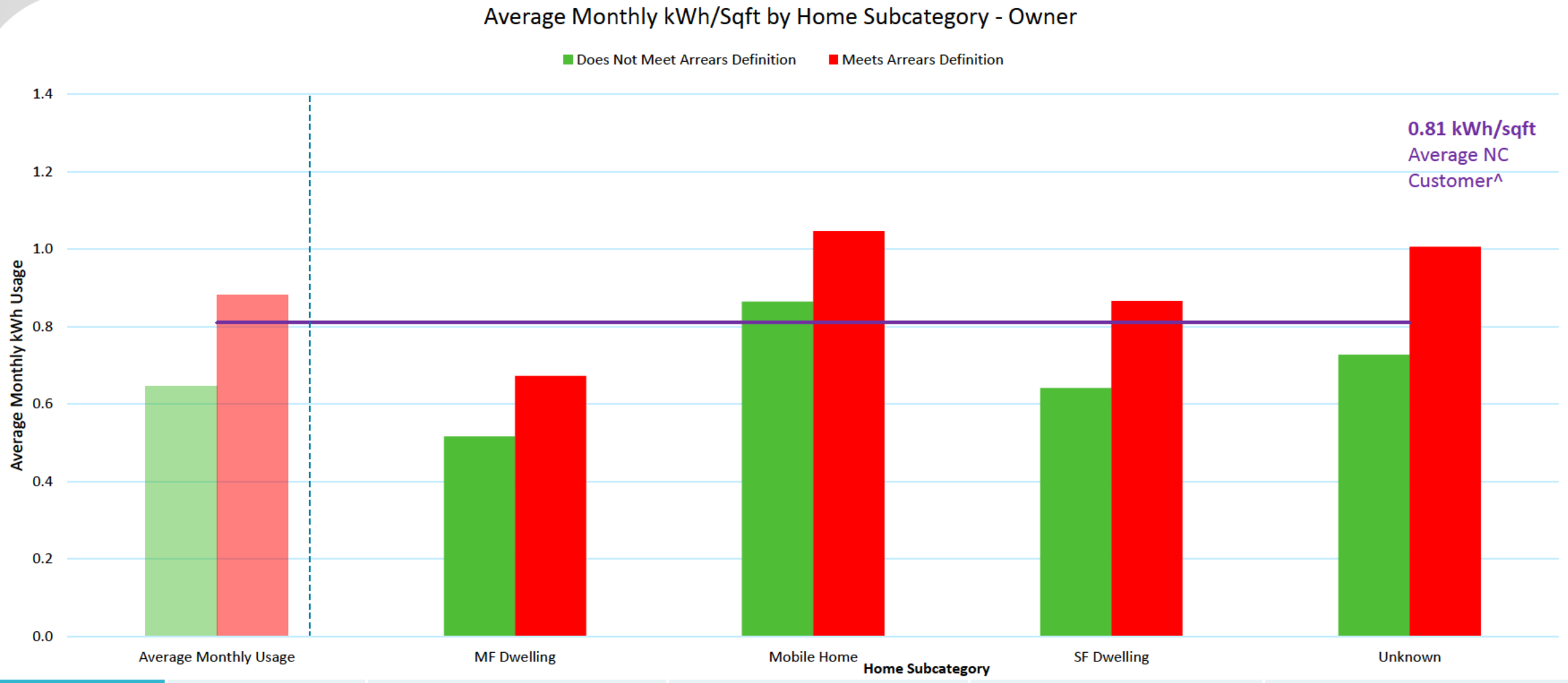

	Average Monthly Usage	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	73%	3%	2%	51%	16%

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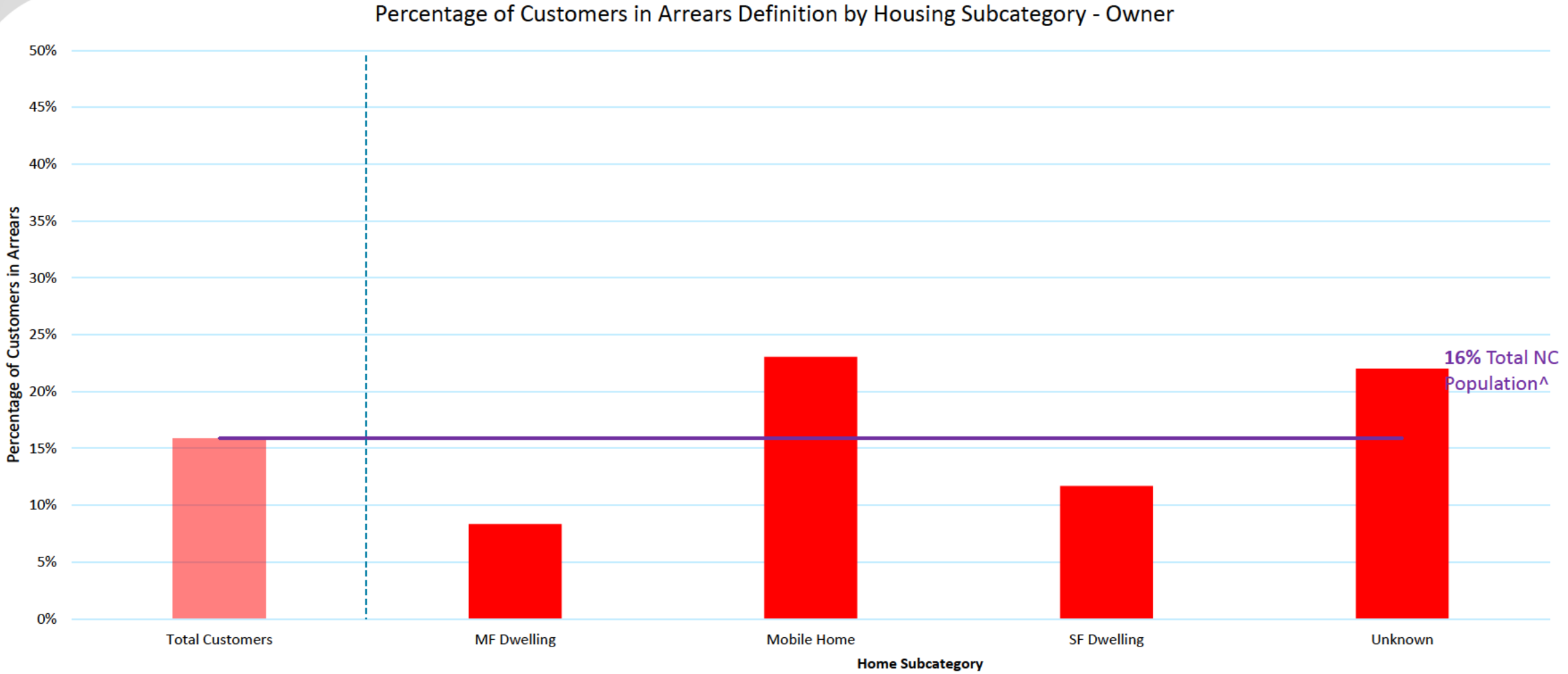
Percentage of Customers in Arrears Definition for Home Subcategory - Owner



	Total Customers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	73%	3%	2%	51%	16%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%
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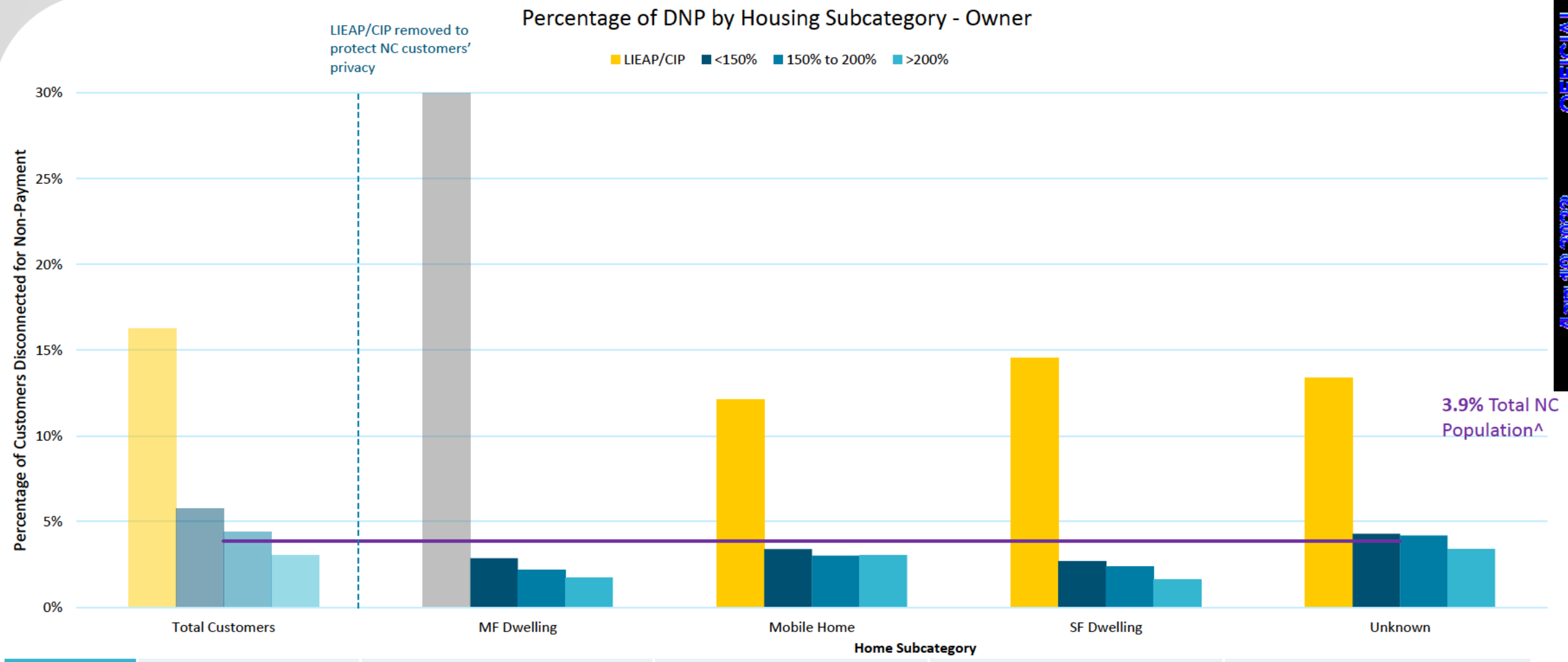
Percentage of DNP by Income for Home Subcategory – Owner



% Total Customers in Category*	73%	3%	2%	51%	16%

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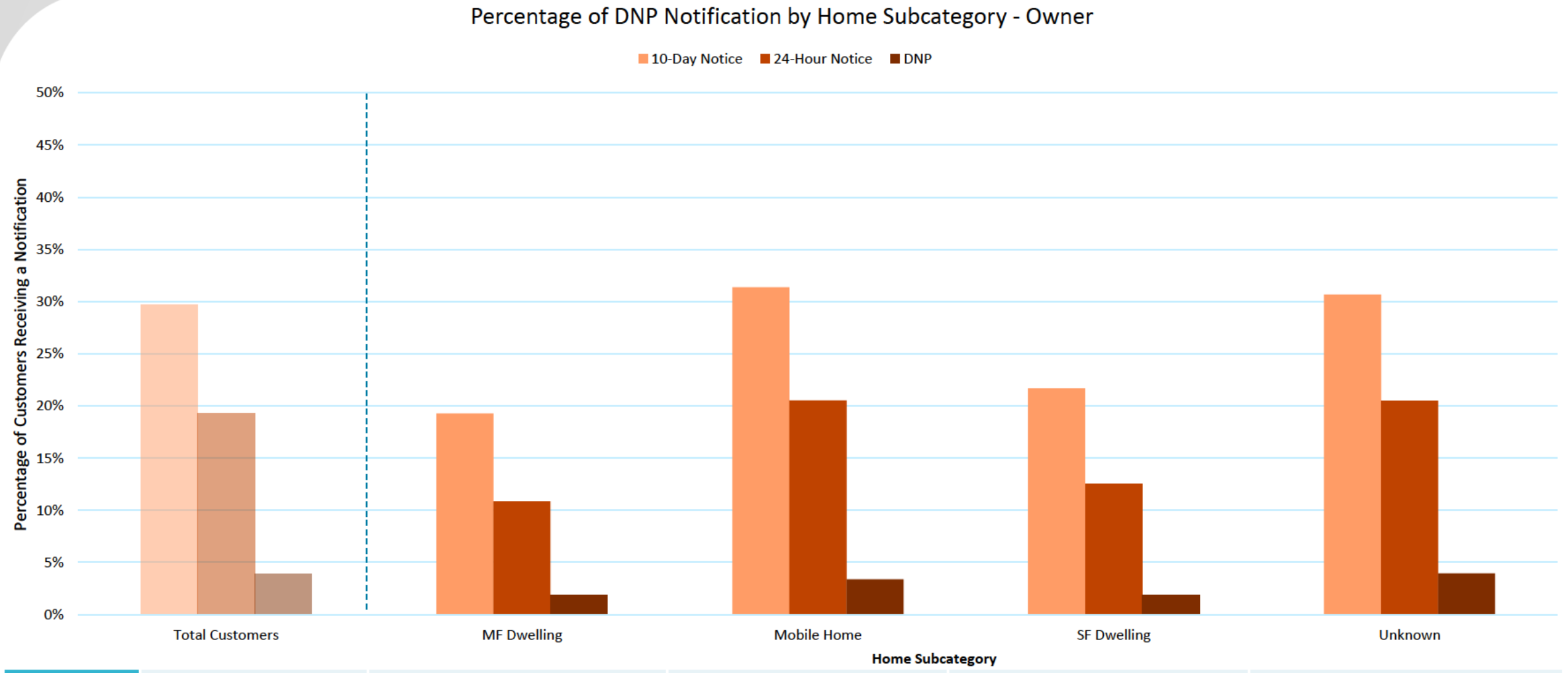
Percentage of DNP Notifications by Notification Type for Home Subcategory – Owner



	Total Customers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	73%	3%	2%	51%	16%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%

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Average Electricity Burden by Heating Source for Home Subcategory - Owner

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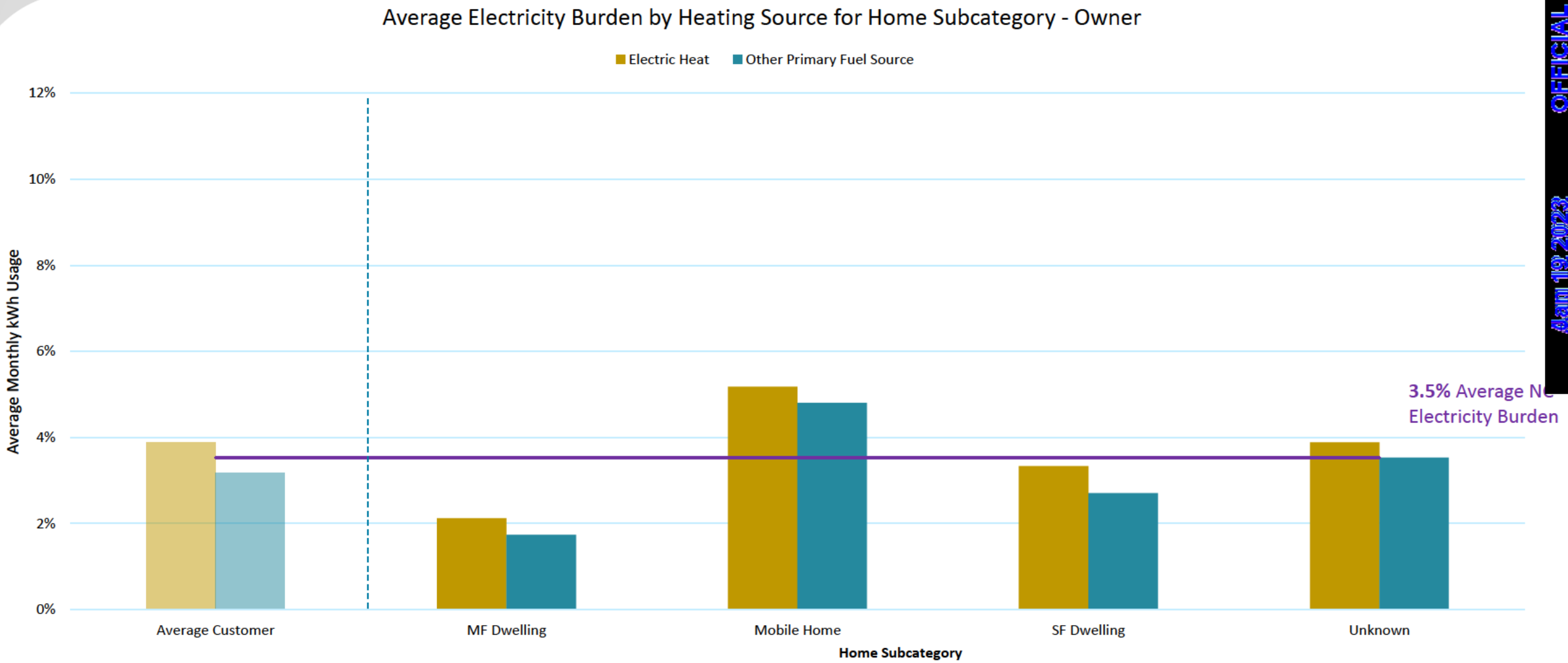

	Average Customer	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	79%	3%	2%	51%	16%

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Income Level

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Total Numbers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	311	1,495	8,025	11,595
<150% FPL	5,528	12,310	136,063	72,113
150%-200% FPL	5,840	9,063	126,367	56,713
>200%	71,915	28,665	990,264	265,464
Total	83,594	51,533	1,260,719	405,885

Percentage of Customers in each Segment	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	0.0%	0.1%	0.3%	0.5%
<150% FPL	0.2%	0.5%	5.6%	3.0%
150%-200% FPL	0.2%	0.4%	5.2%	2.3%
>200%	3.0%	1.2%	40.8%	10.9%

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Arrearage Status

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Total Numbers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Meets Arrears Definition	76,625	9,653	131,912	73,257
Does not Meet Arrears Definition	6,969	41,880	1,128,807	332,628

Percentage of Customers in each Segment	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Meets Arrears Definition	3.1%	0.4%	5.3%	2.9%
Does not Meet Arrears Definition	0.3%	1.7%	45.4%	13.4%

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DUKE ENERGY

DNP

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Aug 19 2023

Total Number of Customers in each Segment				
	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	-	181	1,167	1,554
<150% FPL	158	417	3,653	3,091
150%-200% FPL	126	273	3,027	2,380
>200%	1,252	876	16,086	9,035
Total	-	1,747	23,933	16,060

Percentage of Customers in that Segment DNP (i.e., Percentage of mobile homes that were DNP)				
	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	-	12.1%	14.5%	13.4%
<150% FPL	3%	3.4%	2.7%	4.3%
150%-200% FPL	2%	3.0%	2.4%	4.2%
>200%	2%	3.1%	1.6%	3.4%

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DNP Notifications

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Total Number of Customers in each Segment	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Non-DNP/DLQ	67,475	35,366	988,085	281,364
10-Day Notice	16,119	16,166	272,634	124,520
24-Hour Notice	9,098	10,578	158,271	83,250
DNP	-	1,747	23,933	16,060

Percentage of Customers in that Segment DNP Received a DNP Notification (i.e., Percentage of mobile homes that received 10-Day Notice)	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Non-DNP/DLQ	80.7%	68.6%	78.4%	69.3%
10-Day Notice	19.3%	31.4%	21.6%	30.7%
24-Hour Notice	10.9%	20.5%	12.6%	20.5%
DNP	-	3.4%	1.9%	4.0%

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Electricity Burden

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Total Numbers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Electric Heat	29,631	34,432	429,189	157,256
Other Primary Fuel Source	38,752	12,765	681,680	170,050

Percentage of Customers in each Segment	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Electric Heat	1.2%	1.4%	17.3%	6.3%
Other Primary Fuel Source	1.6%	0.5%	27.4%	6.8%

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Analysis by Home Subcategory – Renter

Home Subcategory: Condo, Mobile Home, Multi-Family Miscellaneous, Single Family Dwelling, Unknown

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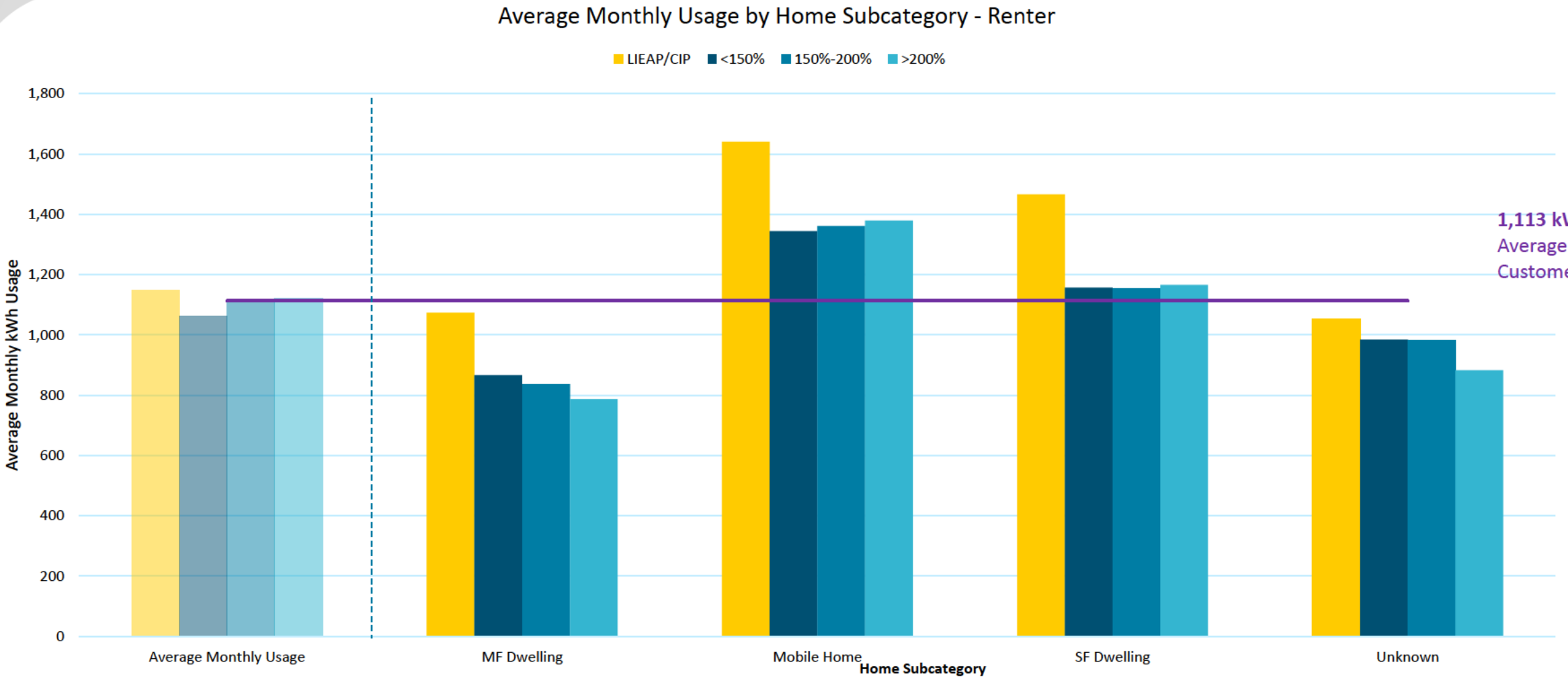
Average Monthly Usage by Income for Home Subcategory – Renter



	Average Monthly Usage	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	25%	0.5%	0.2%	3%	21%

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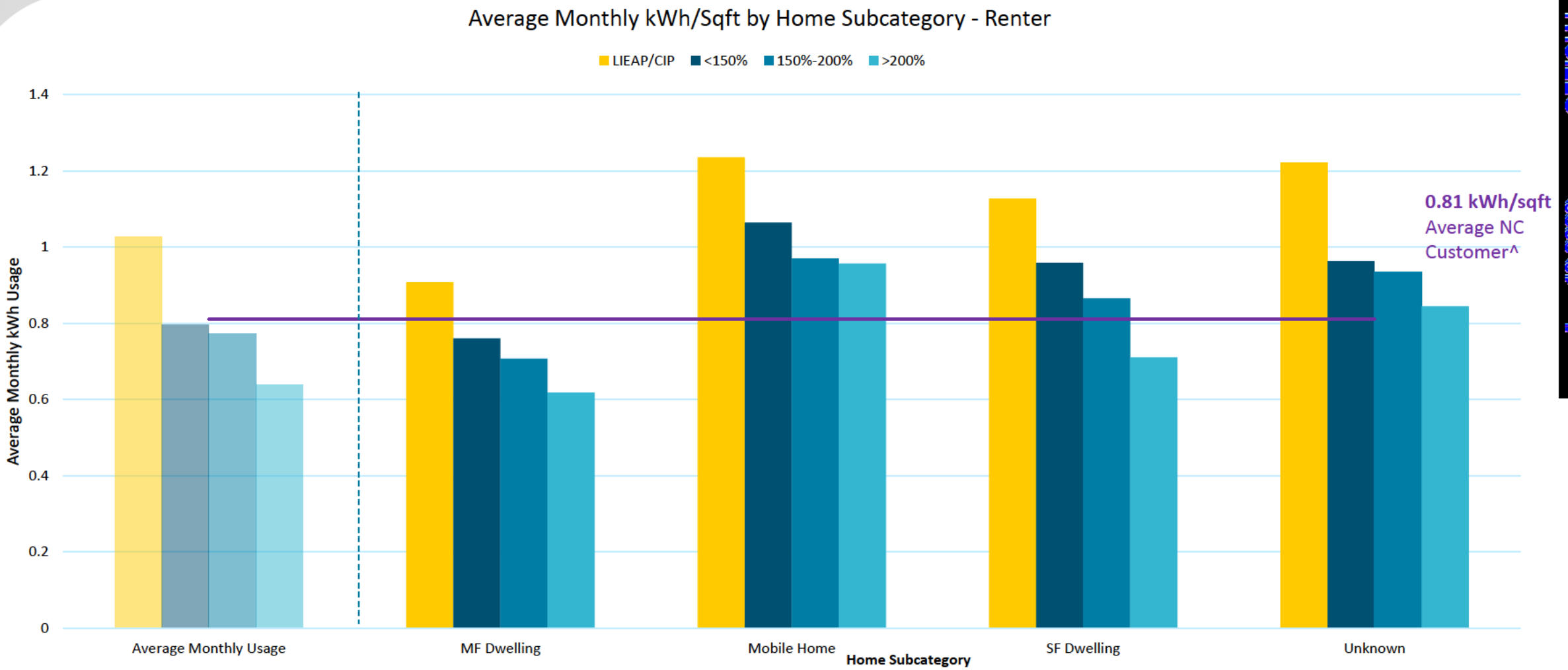
Average Monthly Usage per Square Foot by Income for Home Subcategory – Renter



	Average Monthly Usage	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	25%	0.5%	0.2%	3%	21%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%
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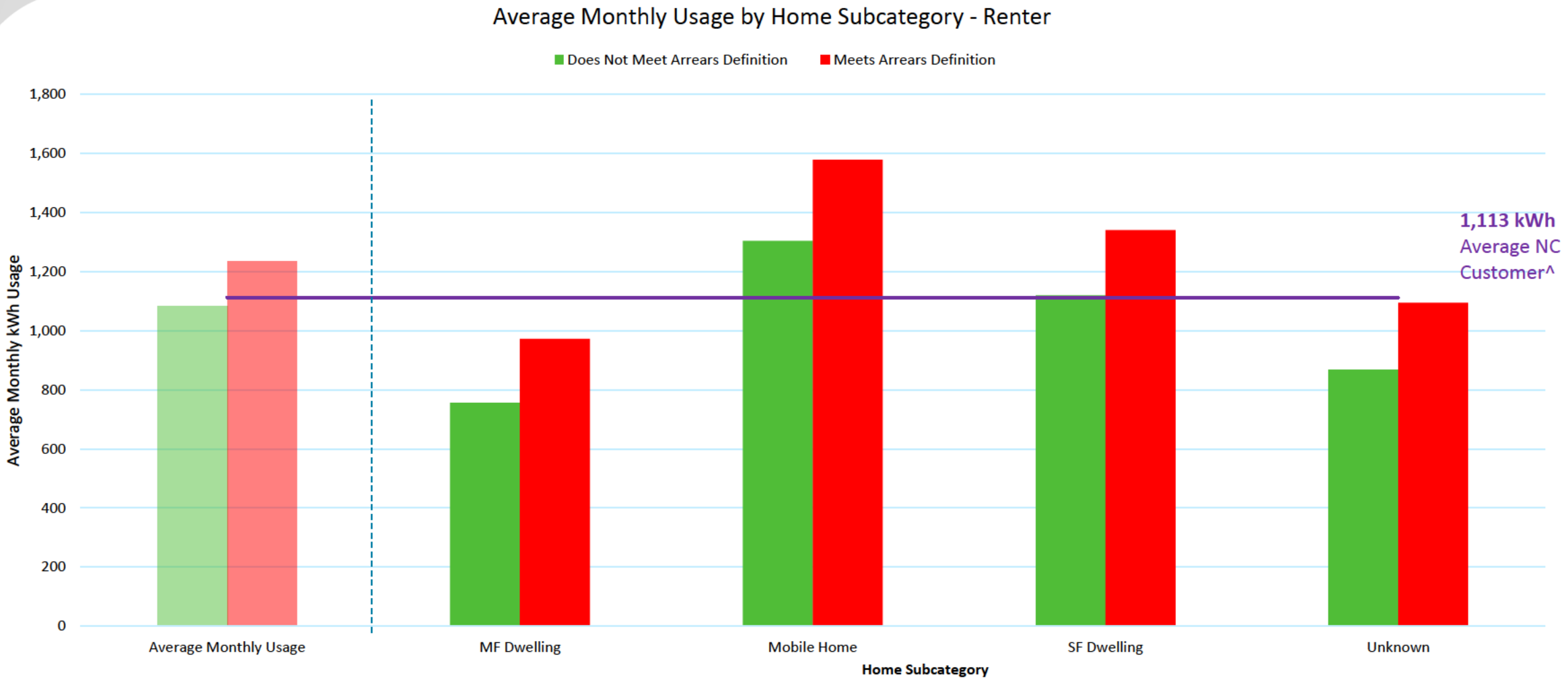
Average Monthly Usage by Arrearage Status for Home Subcategory - Renter



% Total Customers in Category*	25%	0.5%	0.2%	3%	21%

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Average Monthly Usage per Square Foot by Arrearage Status for Home Subcategory – Renter

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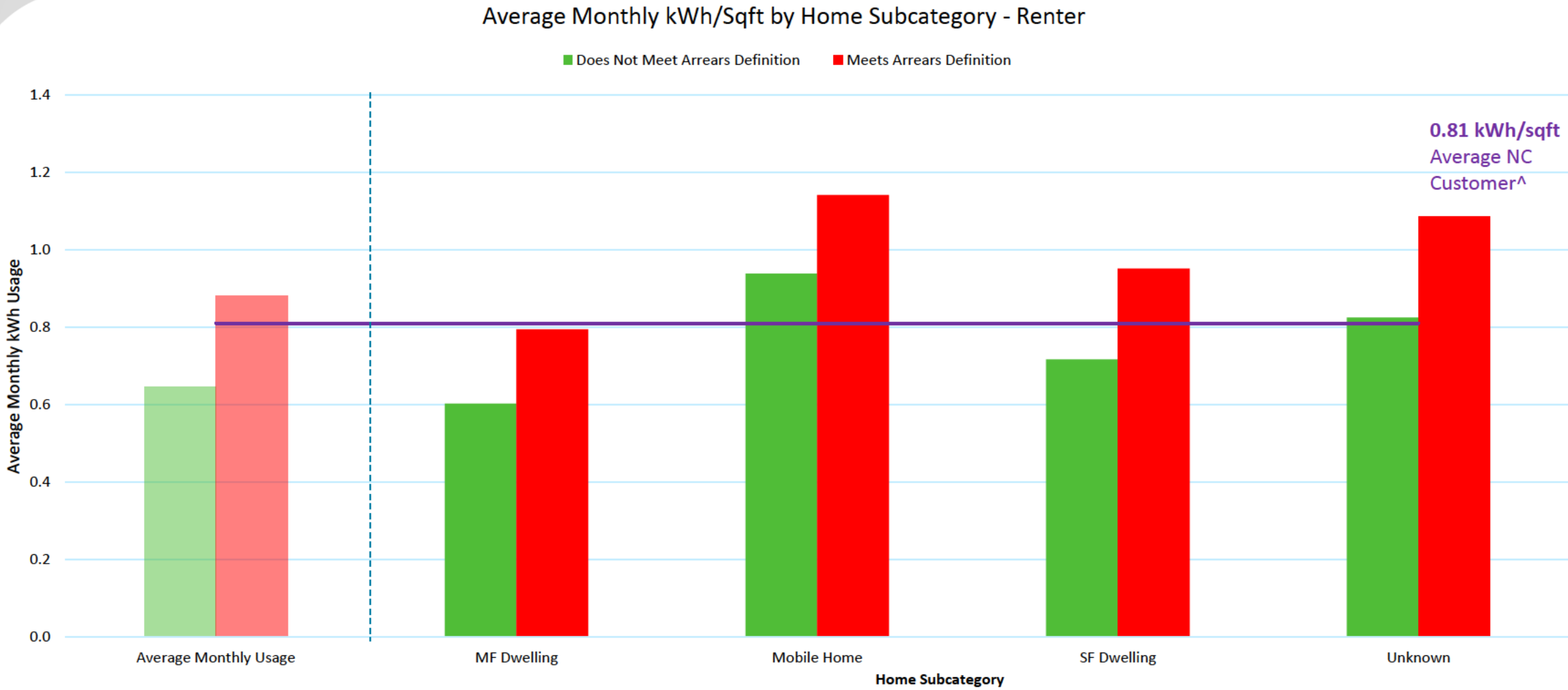

	Average Monthly Usage	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	25%	0.5%	0.2%	3%	21%

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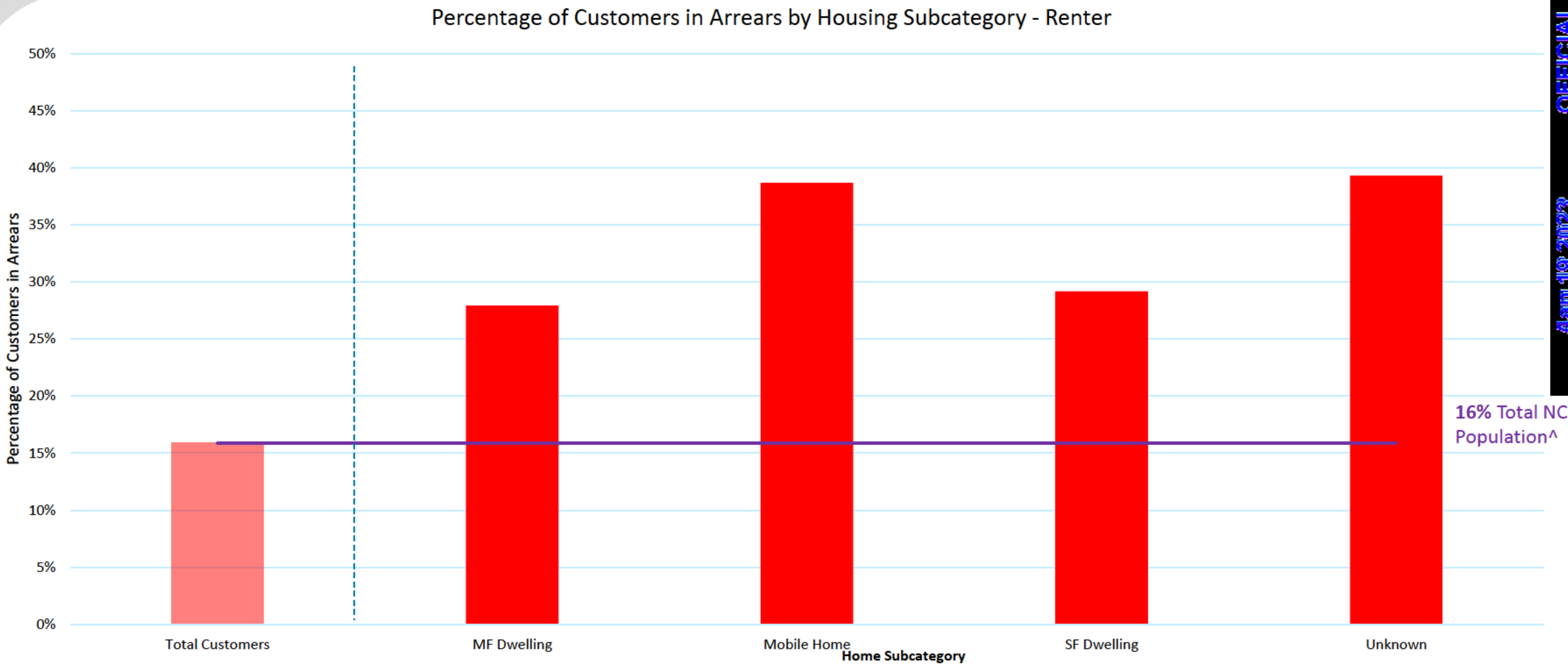
Percentage of Customers in Arrears Definition for Home Subcategory - Renter



	Total Customers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	25%	0.5%	0.2%	3%	21%

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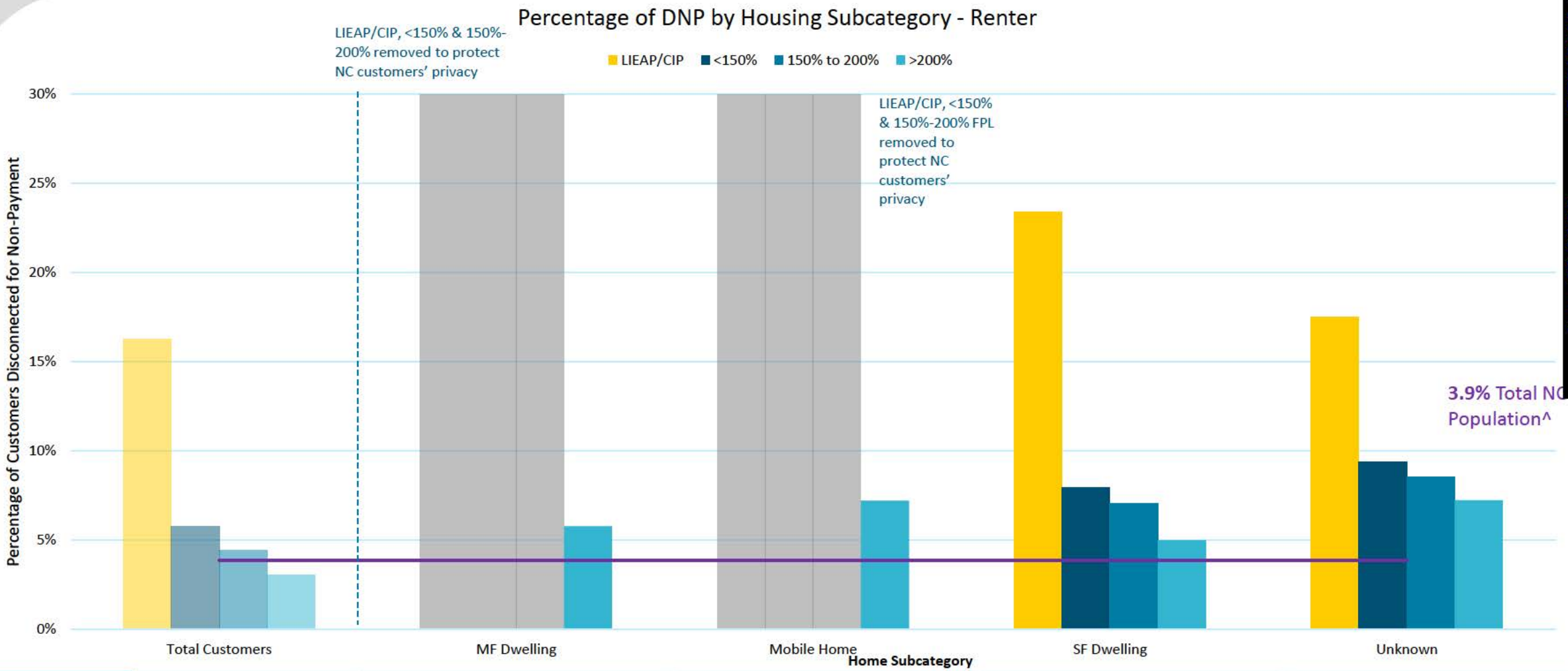
Percentage of DNP by Income for Home Subcategory – Renter



	Total Customers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	25%	0.5%	0.2%	3%	21%

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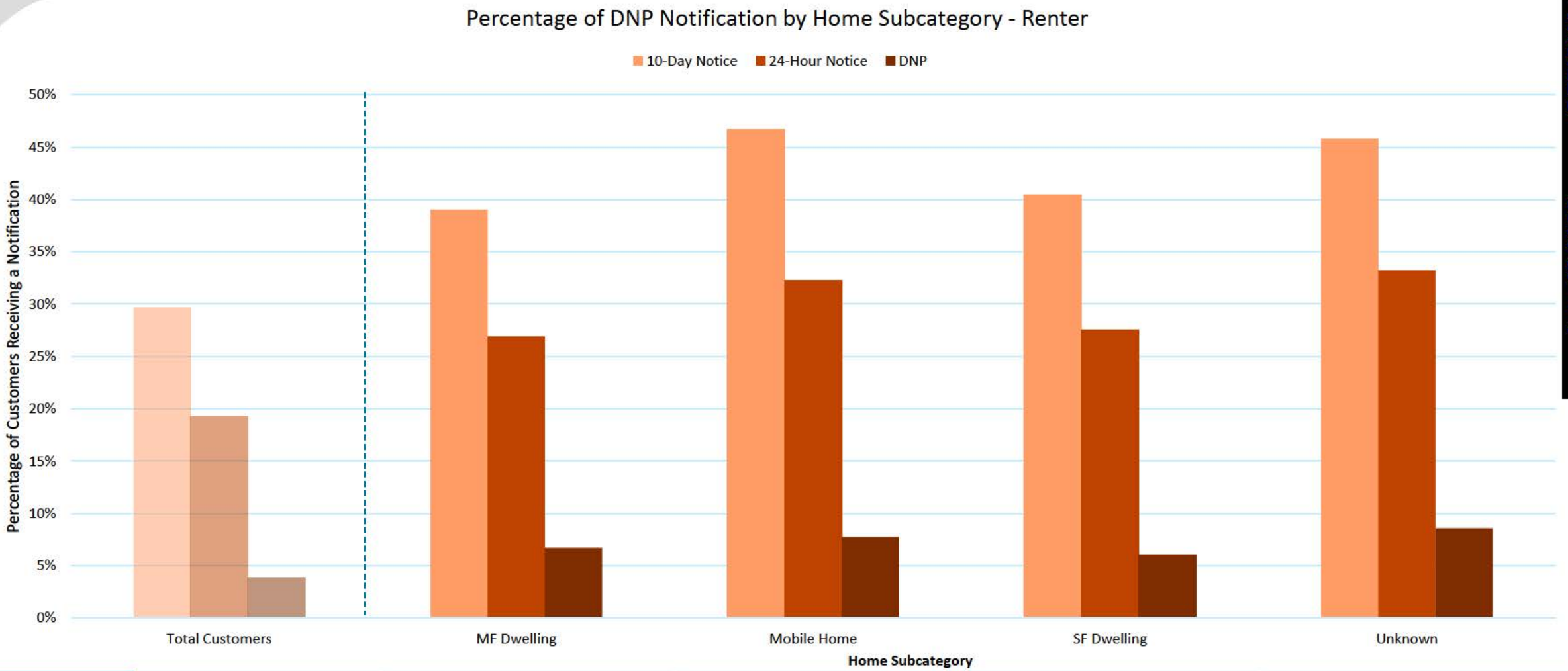
Percentage of DNP Notifications by Notification Type for Home Subcategory – Renter



	Total Customers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	25%	0.5%	0.2%	3%	21%

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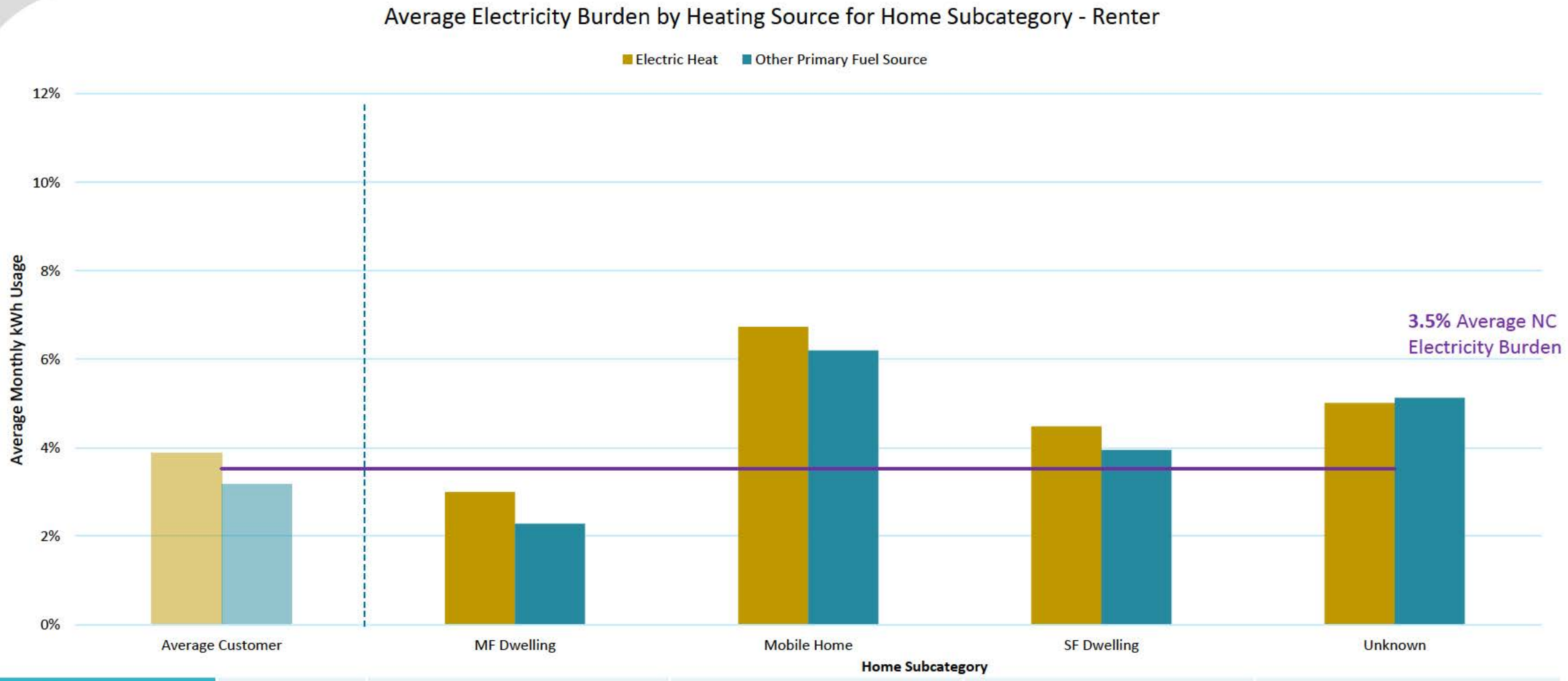
Average Electricity Burden by Heating Source for Home Subcategory - Renter



% Total Customers in Category*	79%	0.5%	0.2%	3%	21%

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Income Level

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Total Numbers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	231	244	1833	29,788
<150% FPL	1,165	1,089	11,208	145,863
150%-200% FPL	966	852	9103	62,528
>200%	9,785	2,806	60,355	287,702
Total	12,147	4,991	82,499	525,881

Percentage of Customers in each Segment	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	0.0%	0.0%	0.1%	1.2%
<150% FPL	0.0%	0.0%	0.5%	6.0%
150%-200% FPL	0.0%	0.0%	0.4%	2.6%
>200%	0.4%	0.1%	2.5%	11.9%

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Arrearage Status

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Total Numbers

	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Meets Arrears Definition	9,495	1,392	18,623	148,375
Does not Meet Arrears Definition	2,652	3,599	63,876	377,506

Percentage of Customers in each Segment

	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Meets Arrears Definition	0.4%	0.1%	0.7%	6.0%
Does not Meet Arrears Definition	0.1%	0.1%	2.6%	15.2%

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DUKE ENERGY

DNP

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Total Number of Customers in each Segment				
	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	-	-	429	5220
<150% FPL	-	-	888	13,716
150%-200% FPL	-	-	643	5,339
>200%	564	202	3,012	20,790
Total	814	386	4,972	45,065

Percentage of Customers in that Segment DNP (i.e., Percentage of mobile homes that were DNP)				
	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	-	-	23.4%	17.5%
<150% FPL	-	-	7.9%	9.4%
150%-200% FPL	-	-	7.1%	8.5%
>200%	6.0%	7.2%	5.0%	7.2%

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DNP Notifications

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Total Number of Customers in each Segment	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Non-DNP/DLQ	7,410	2,661	49,158	284,884
10-Day Notice	4,737	2,330	33,341	240,997
24-Hour Notice	3,268	1,610	22,757	174,772
DNP	814	386	4,972	45,065

Percentage of Customers in that Segment DNP Received a DNP Notification (i.e., Percentage of mobile homes that received a 10-Day Notice)	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Non-DNP/DLQ	61.0%	53.3%	59.6%	54.2%
10-Day Notice	39.0%	46.7%	40.4%	45.8%
24-Hour Notice	26.9%	32.3%	27.6%	33.2%
DNP	6.7%	7.7%	6.0%	8.6%

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Electricity Burden

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Total Numbers

	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Electric Heat	3,947	3,048	21,897	198,902
Other Primary Fuel Source	3,301	997	38,673	135,435

Percentage of Customers in each Segment

	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Electric Heat	0.2%	0.1%	0.9%	8.0%
Other Primary Fuel Source	0.1%	0.0%	1.6%	5.5%

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Analysis of Billing Data

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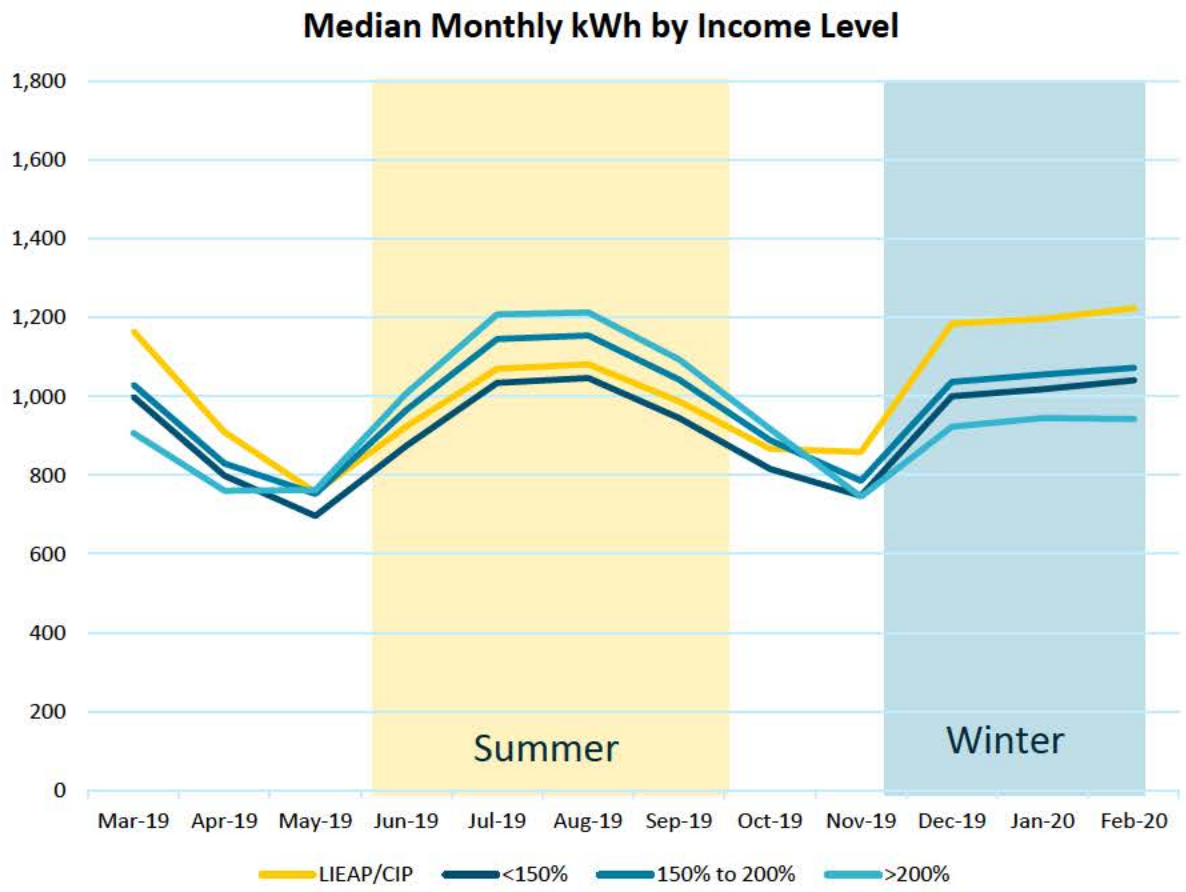
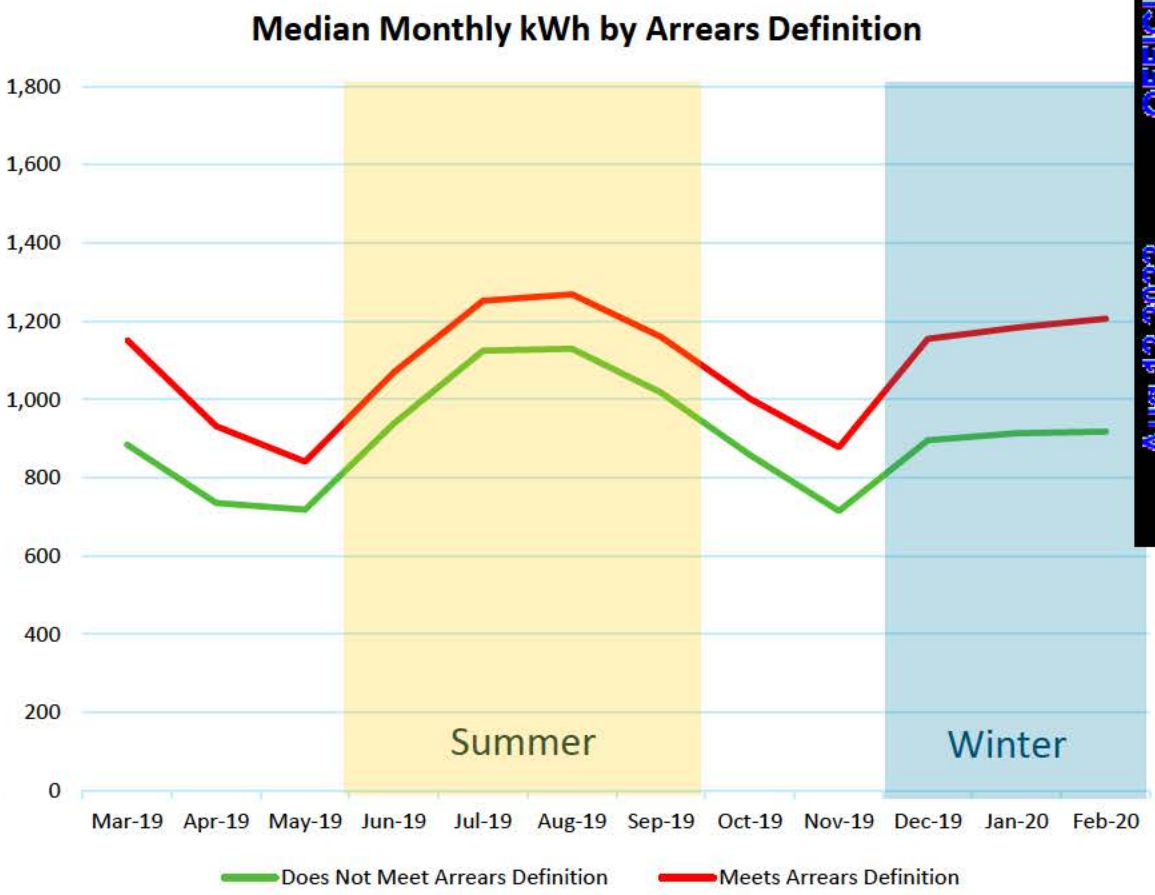
Median Monthly kWh





- Low-income & LIEAP/CIP customers use more energy in the winter, less in the summer
- Customers who meet the arrears definition use more kWh per month than other customers year-round

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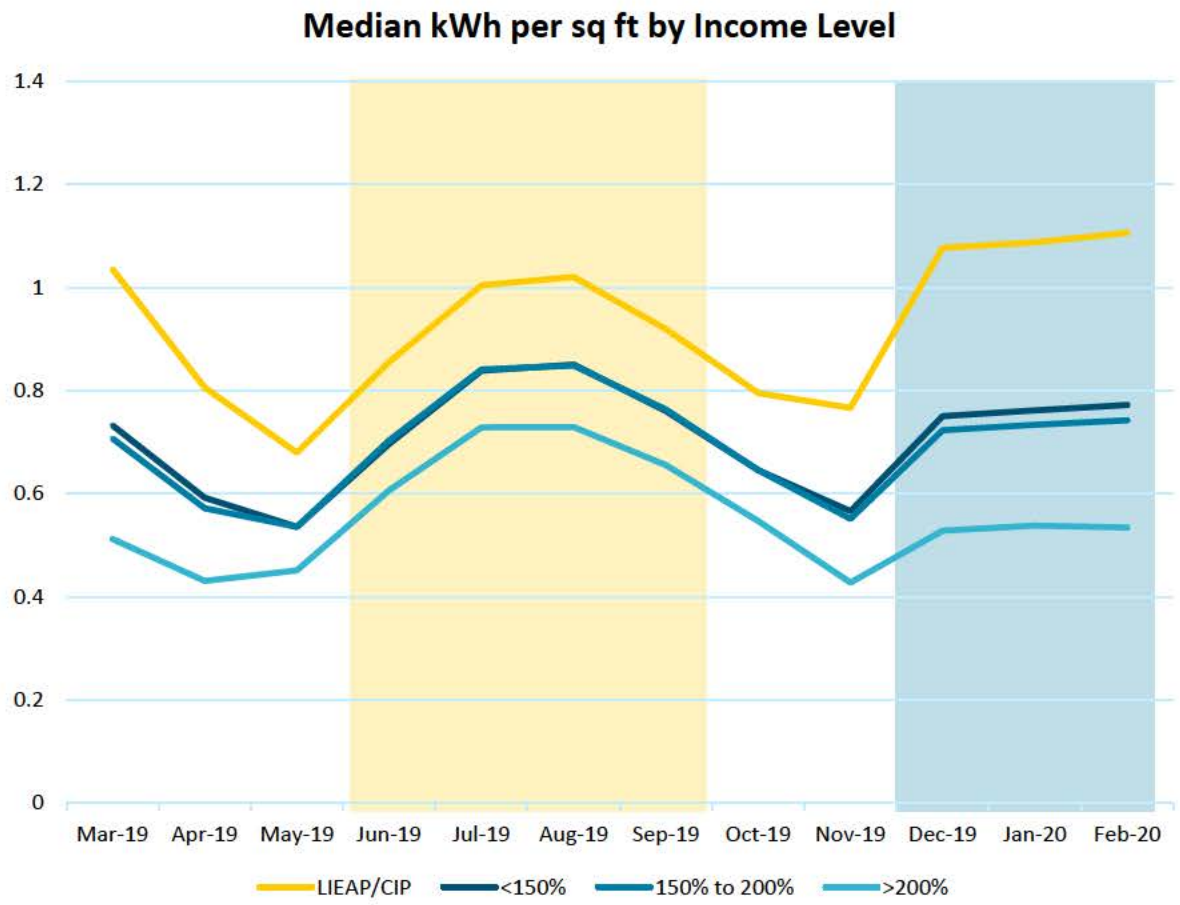
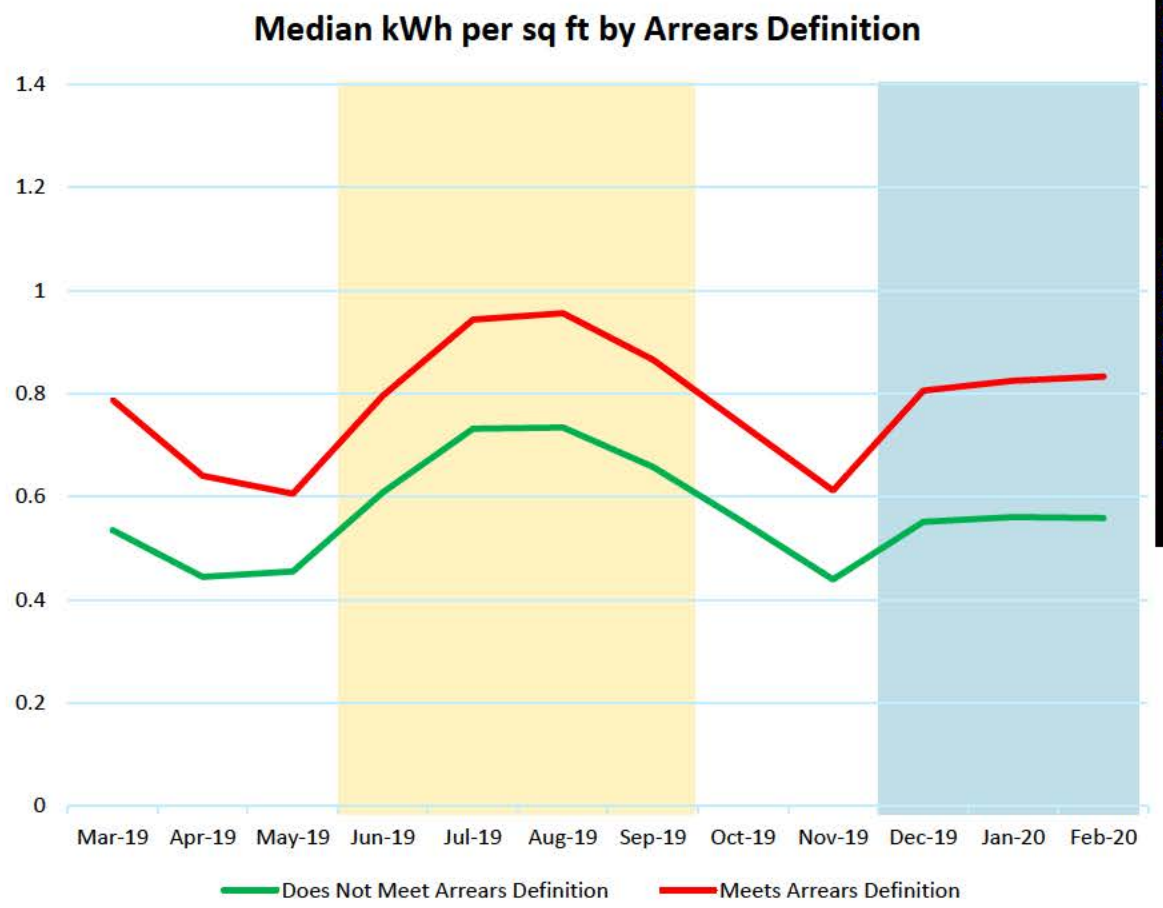
Median kWh per sq ft





- LIEAP/CIP customers use two times more electricity in winter months per square foot than customers above 200% FPL
- Customers who meet the arrears definition use 50% more electricity in peak winter months per square foot

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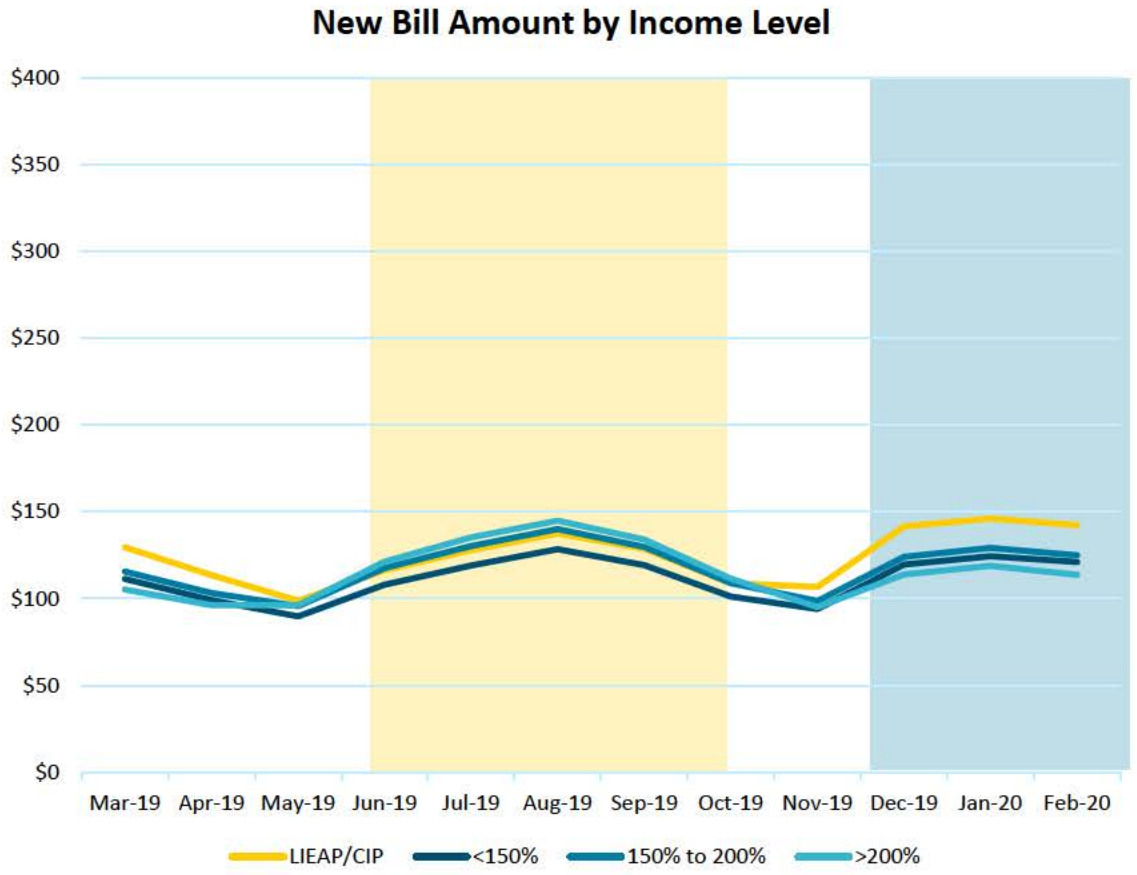
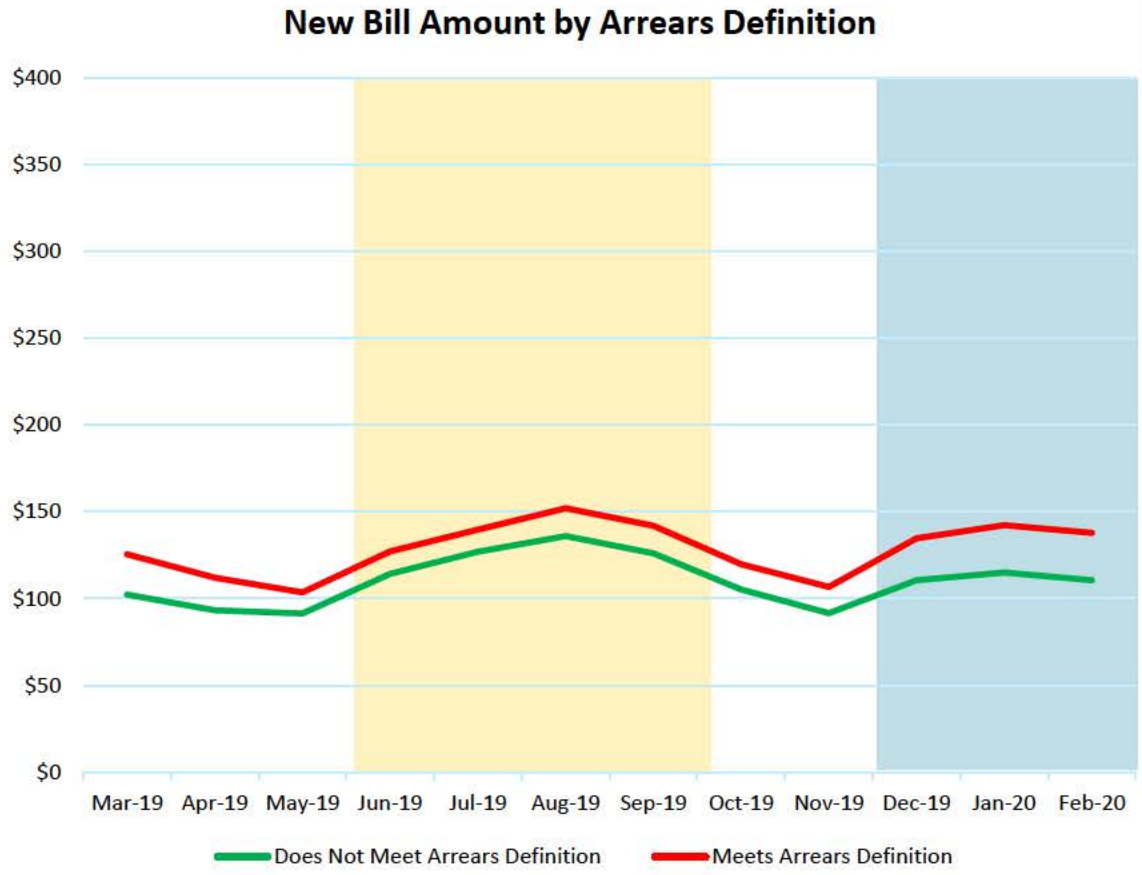
Median Monthly New Bills





- Directly correlated with kWh usage
- LIEAP/CIP customers have higher bills in the winter, lower in the summer
- Customers struggling with arrears have new charges that are 16% higher year-round and 23% higher in the winter

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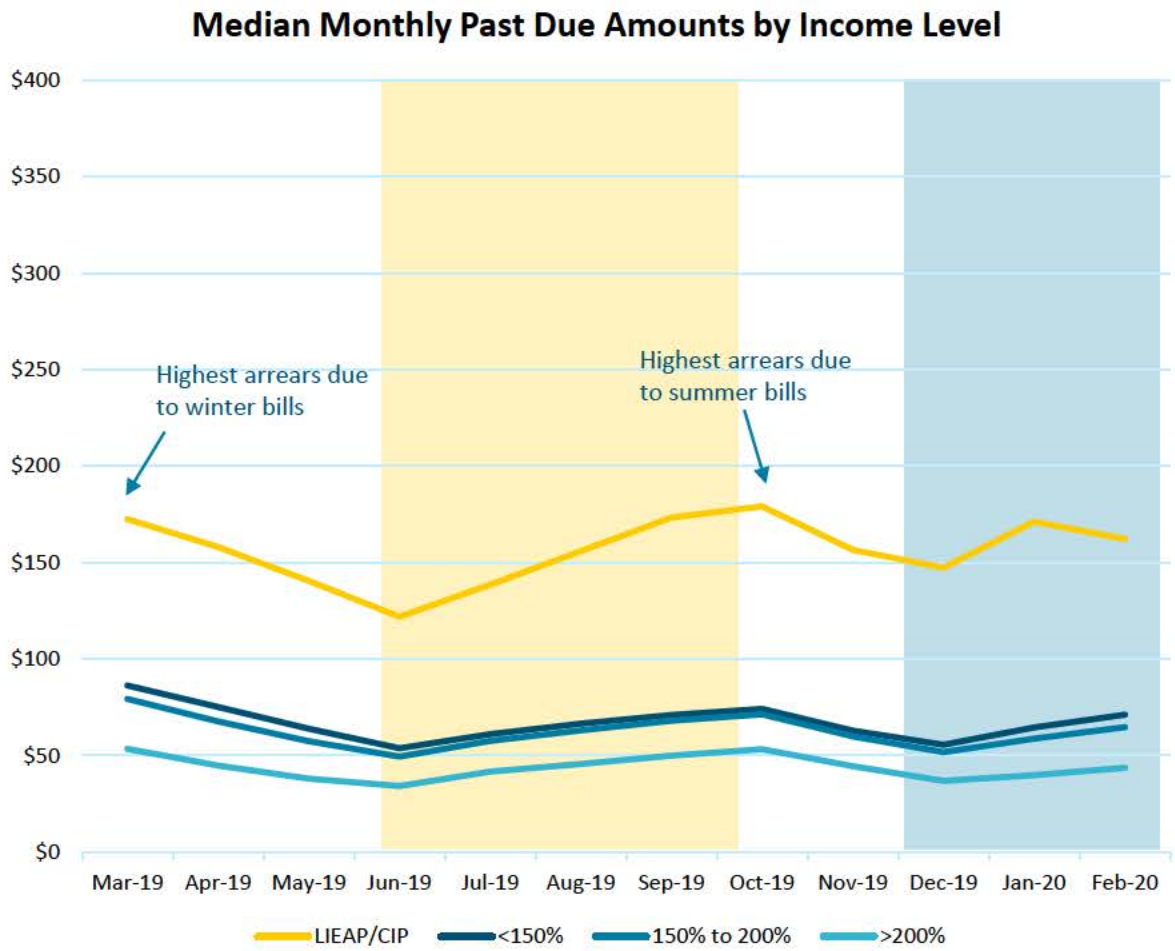
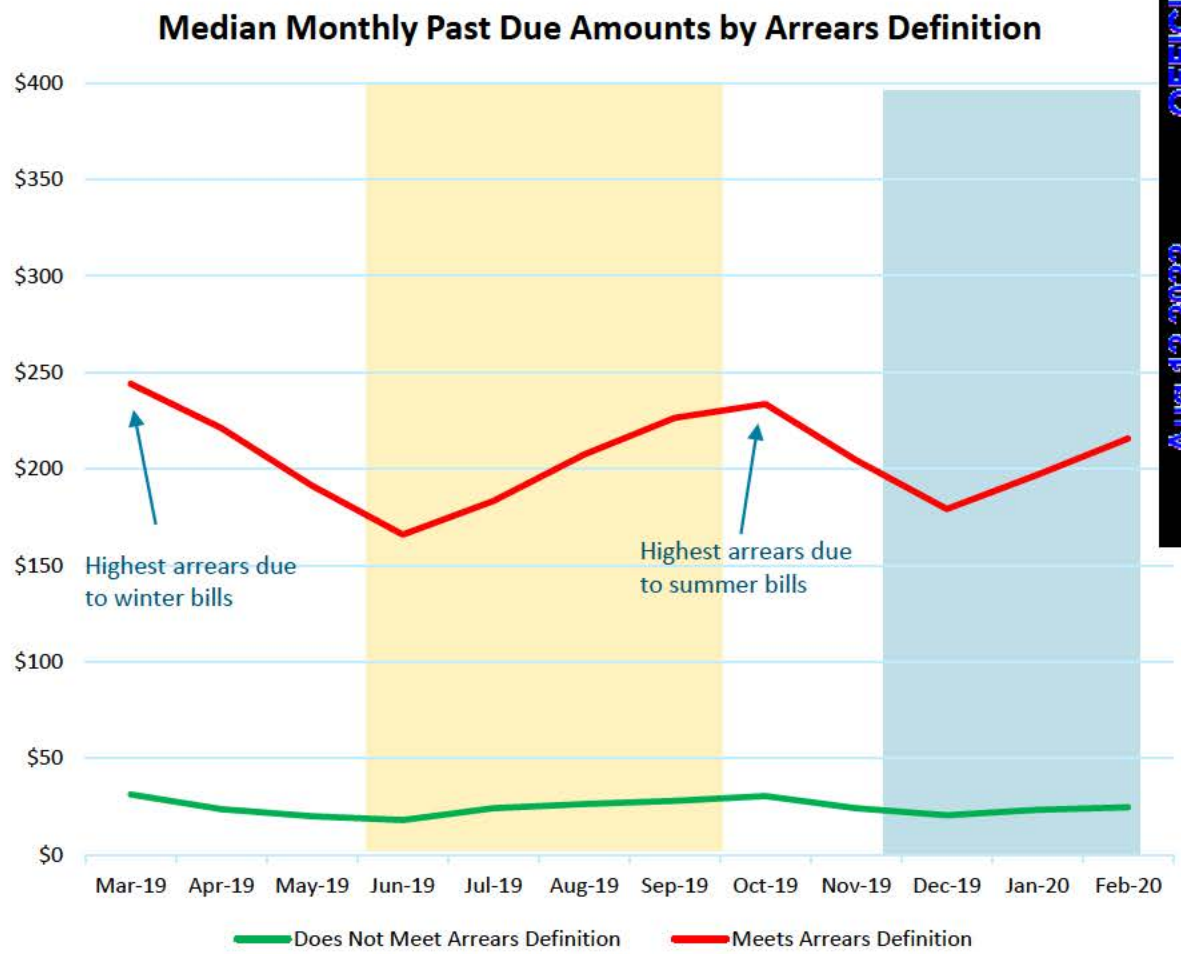
Median Monthly Past Due Amounts





- LIEAP/CIP customers owe 3 times more in arrears at the end of summer and winter than customers above 200% FPL
- Median summer and winter peaks in arrears are over $230 and occur at the end of each season for customers who meet the arrears definition

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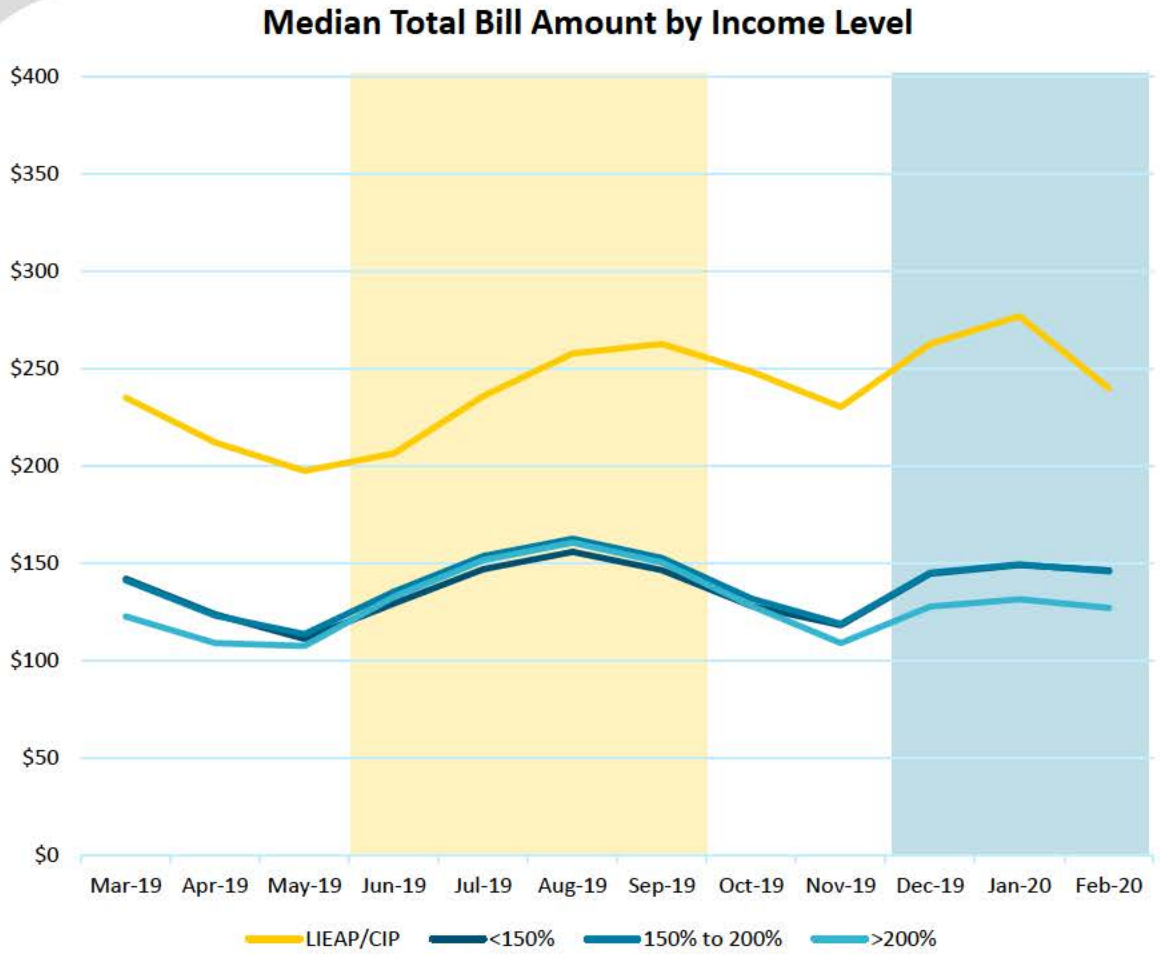
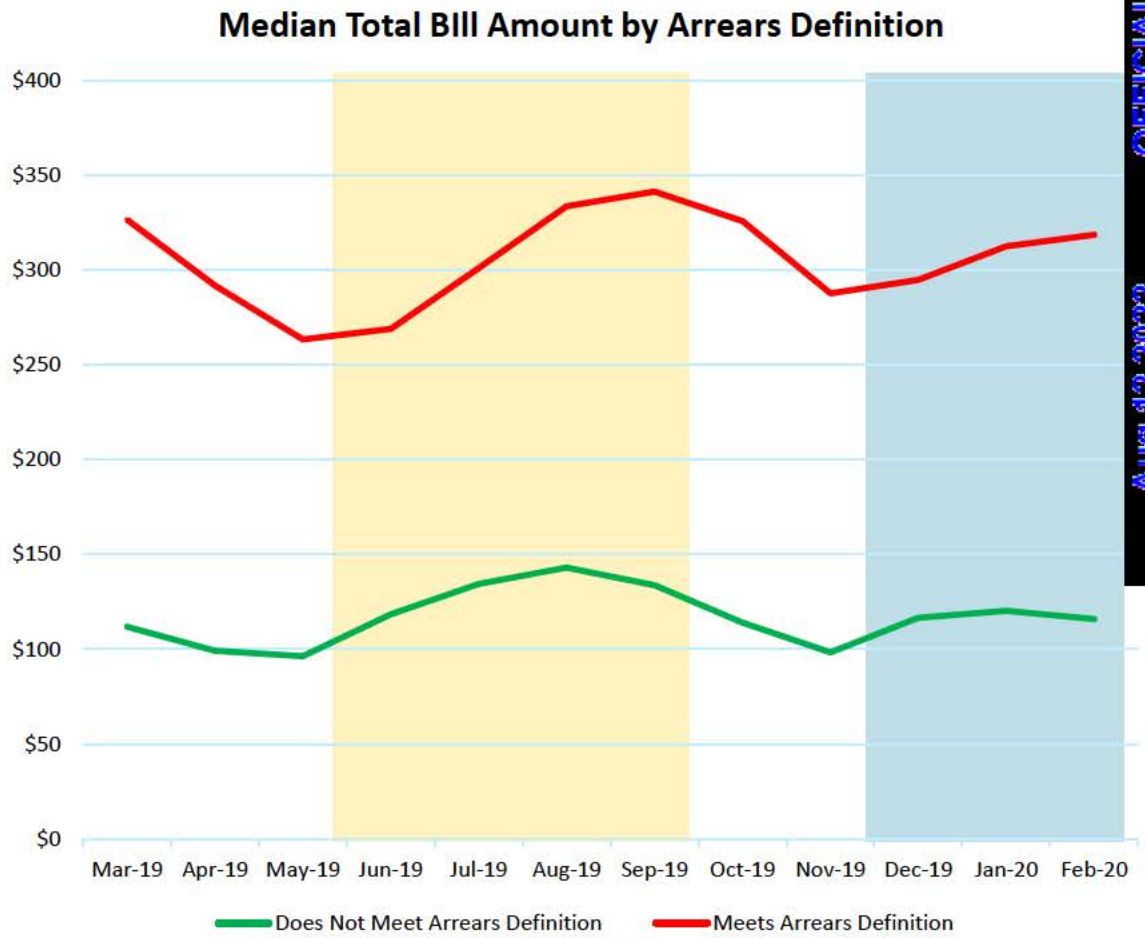
Median Total Monthly Bills





- LIEAP/CIP customers face a significantly higher total bill burden, particularly in the winter
- Non-LIEAP/CIP customers below 200% FPL do not appear to face a significantly higher total bill burden, especially in the summer
- Customers who meet the arrears definition have a total bill burden nearly 3 times that of non-arrears customers in peak winter months

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Analysis of Interval Data

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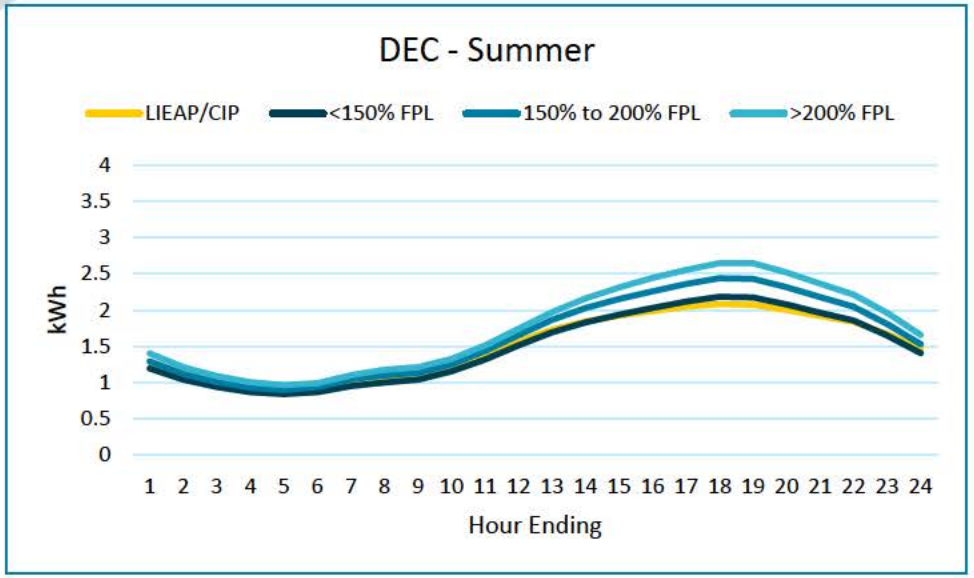
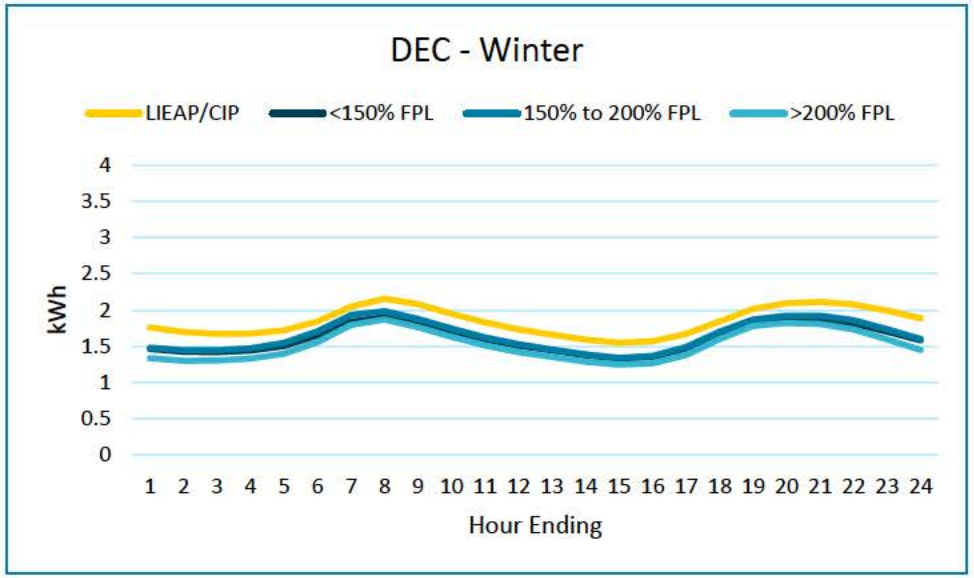
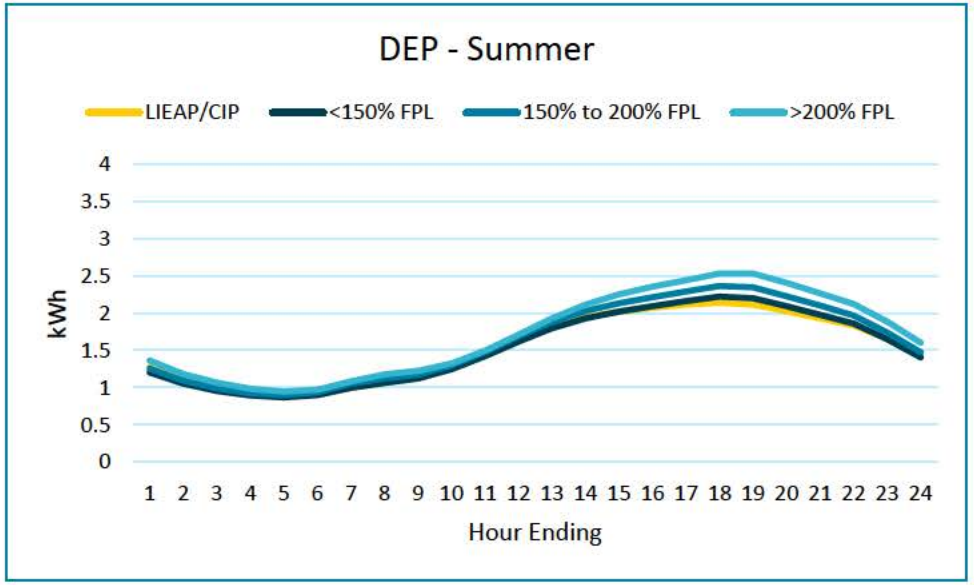
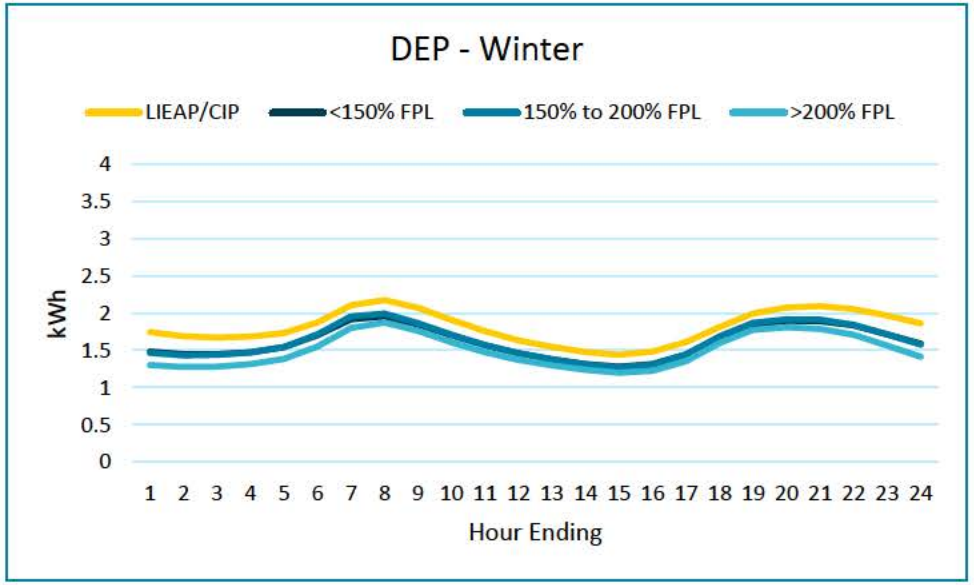
Average Weekday Load Shape by Season & Income Segmentation









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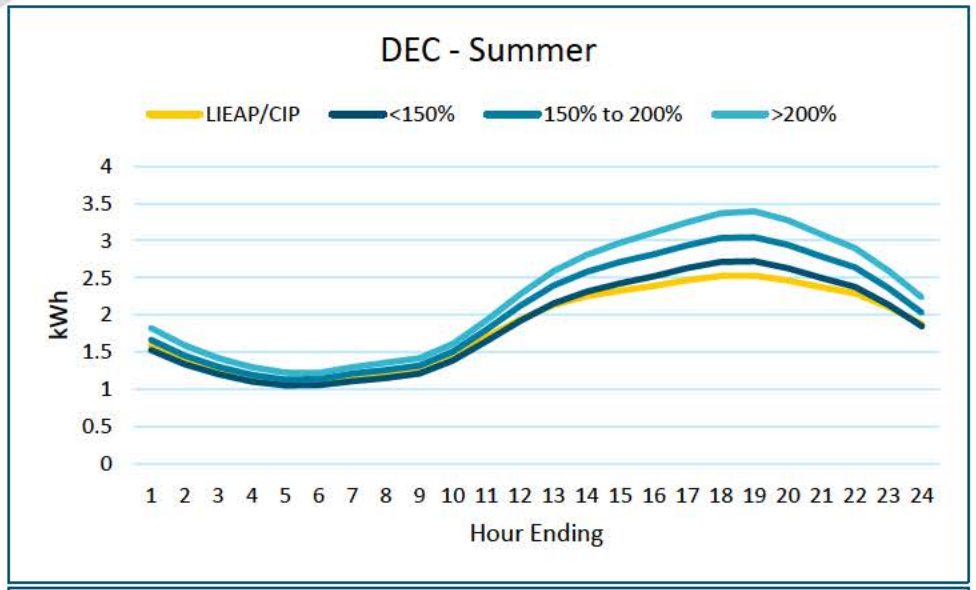
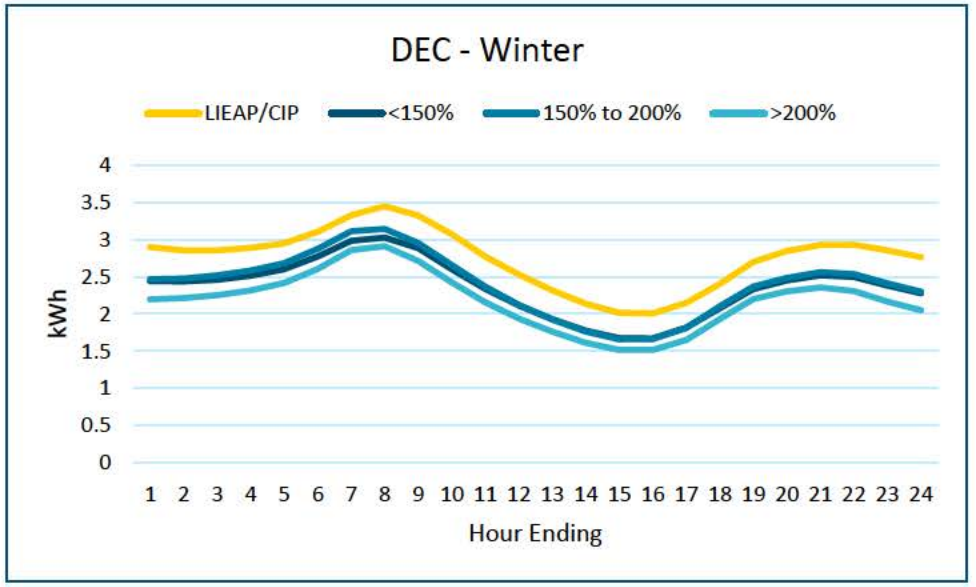
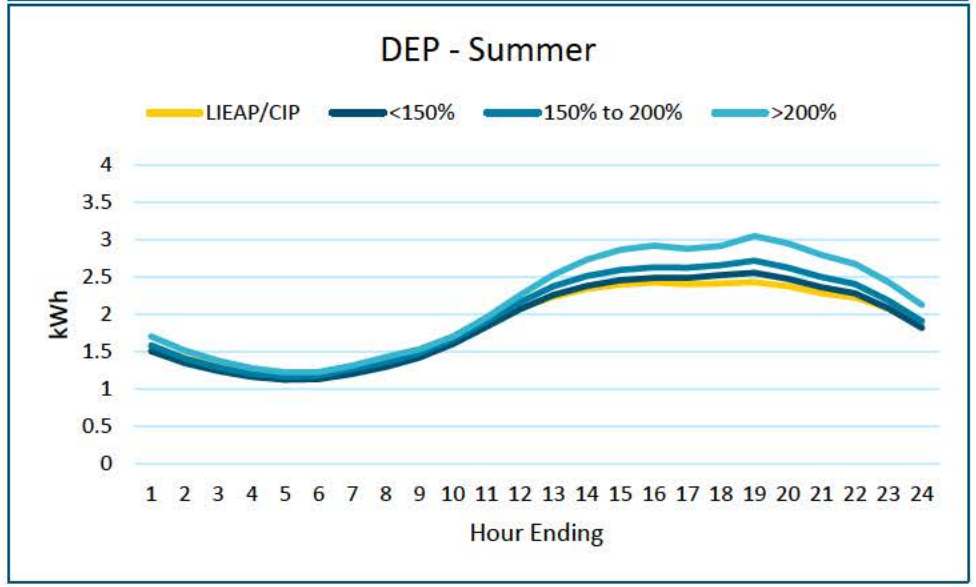
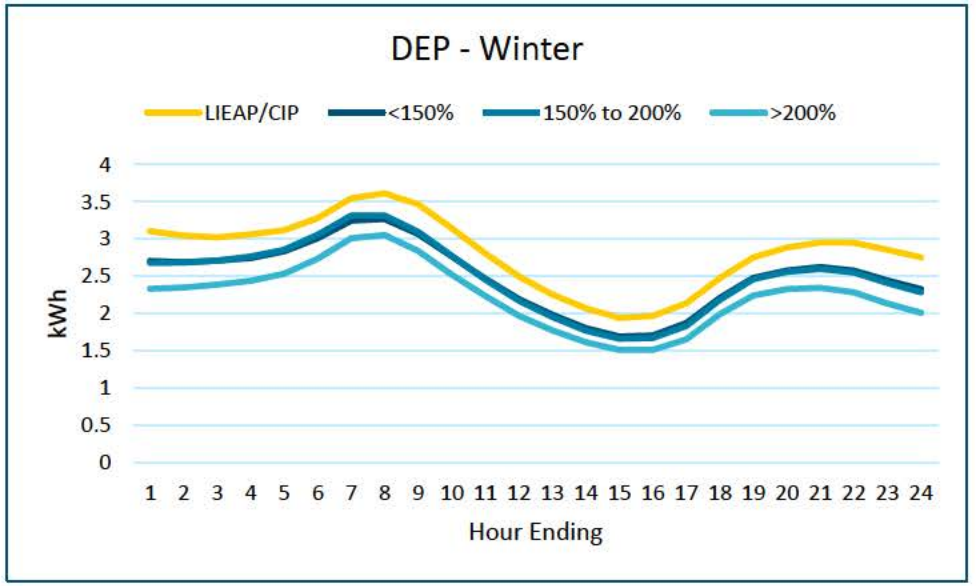
Peak Day Load Shape by Season & Income Segmentation









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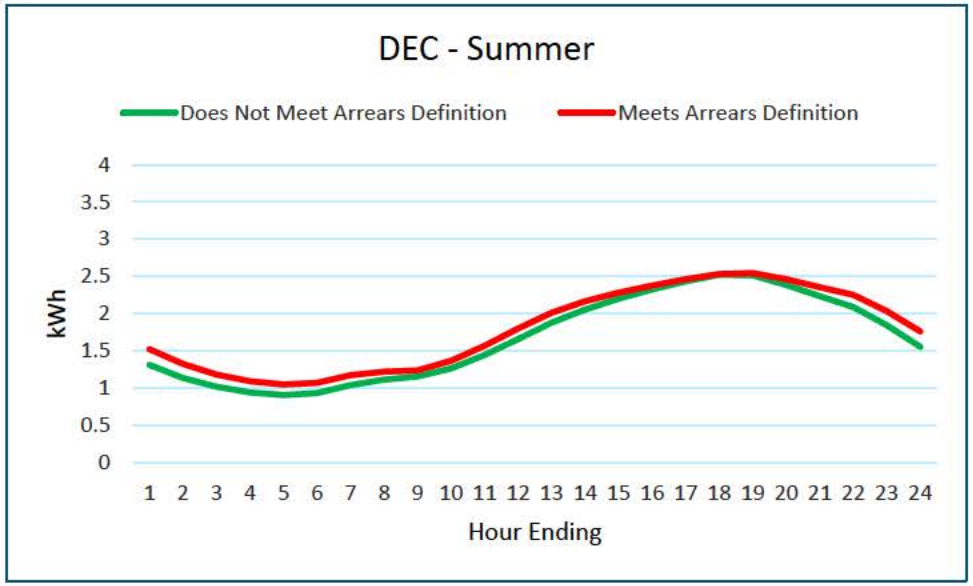
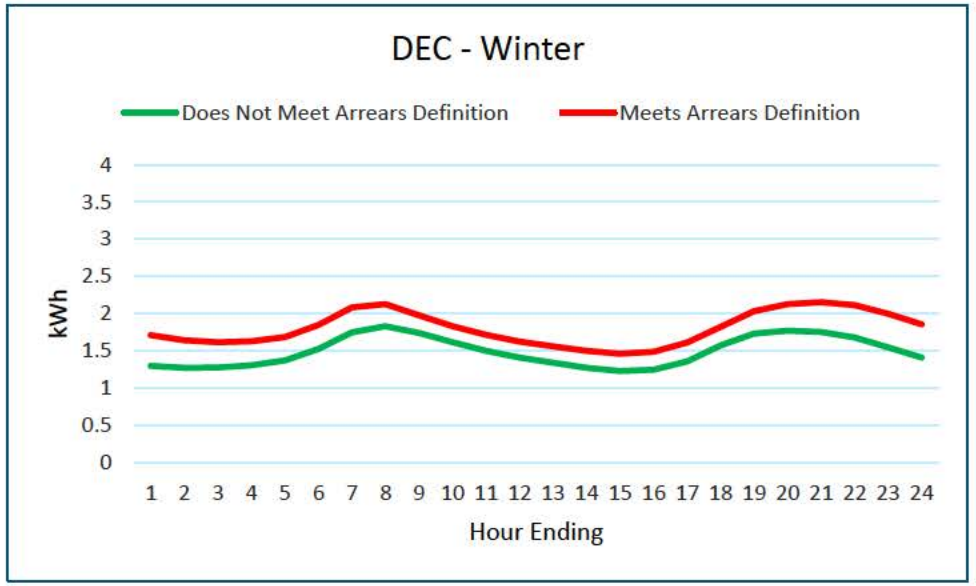
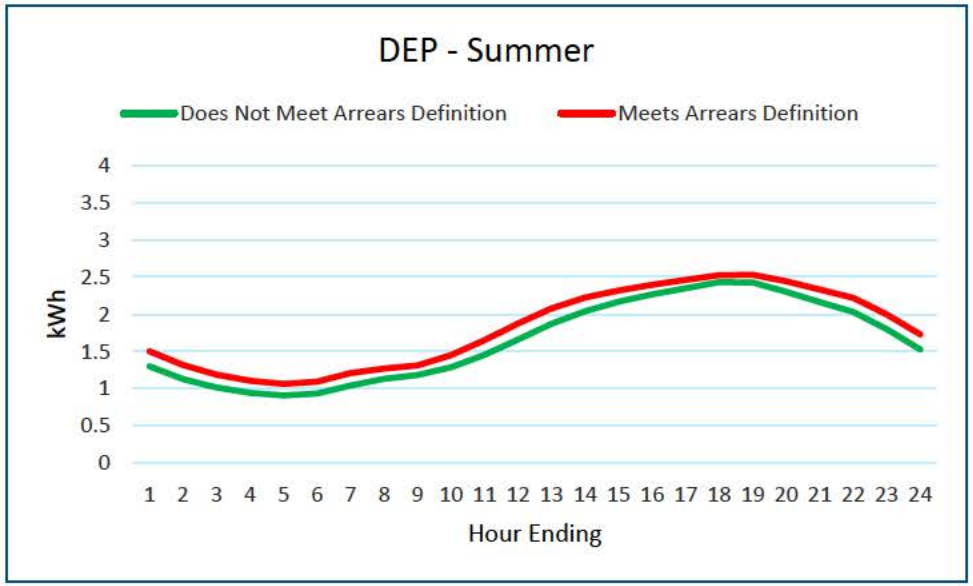
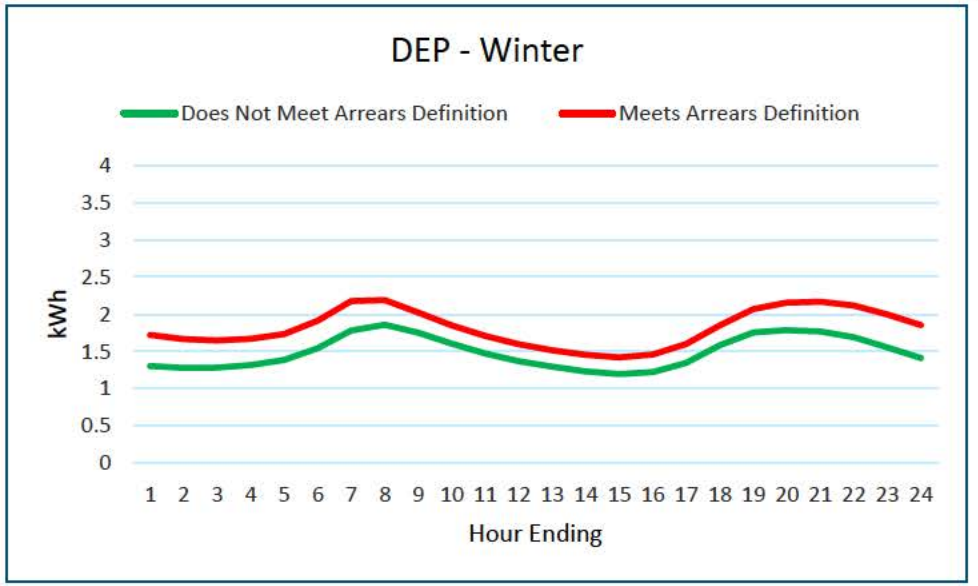
Average Weekday Load Shapes By Season & Arrearage Status









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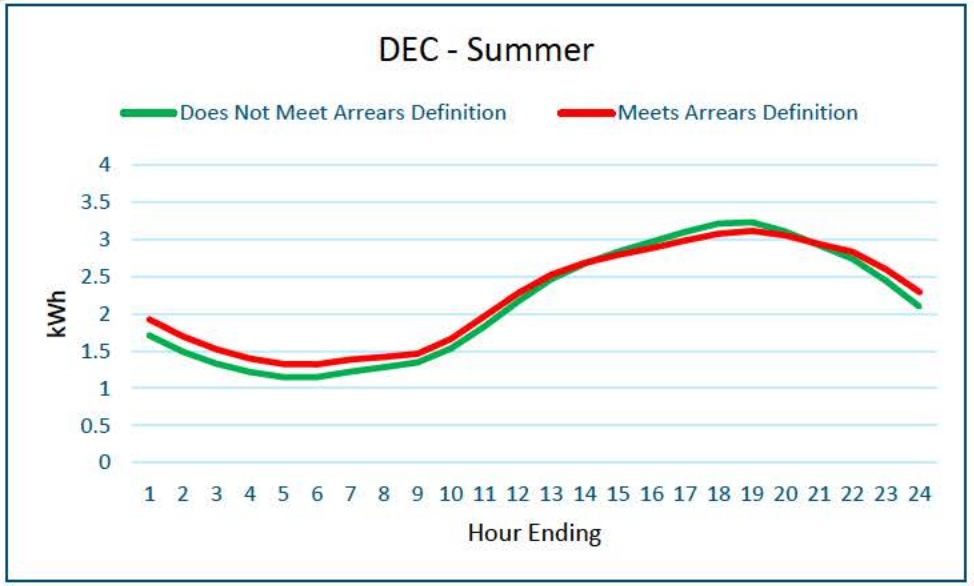
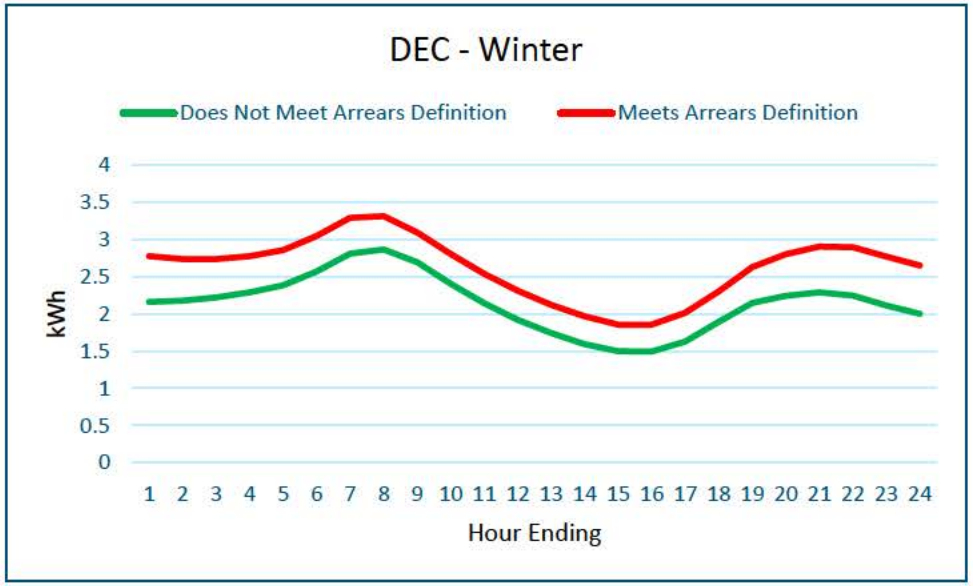
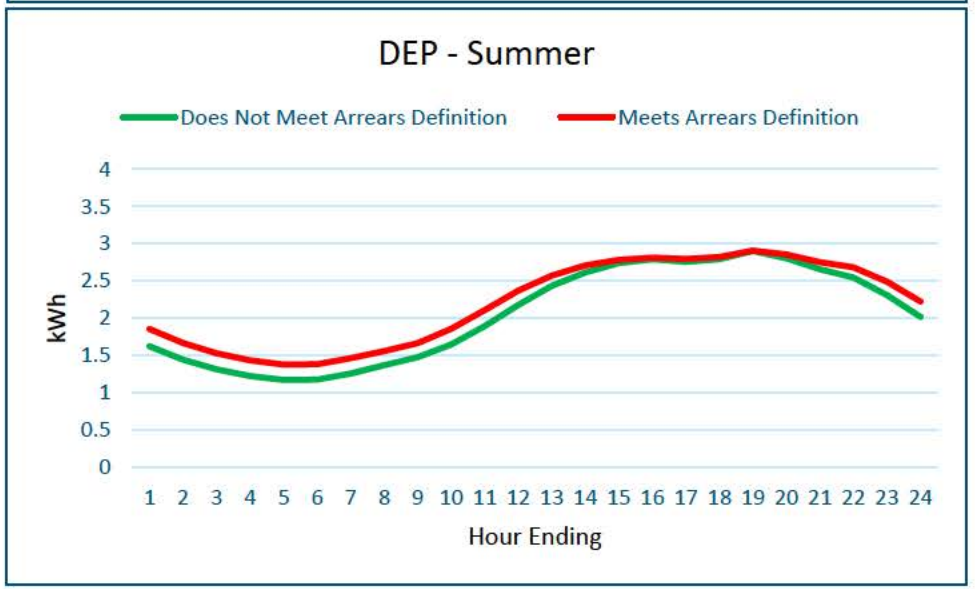
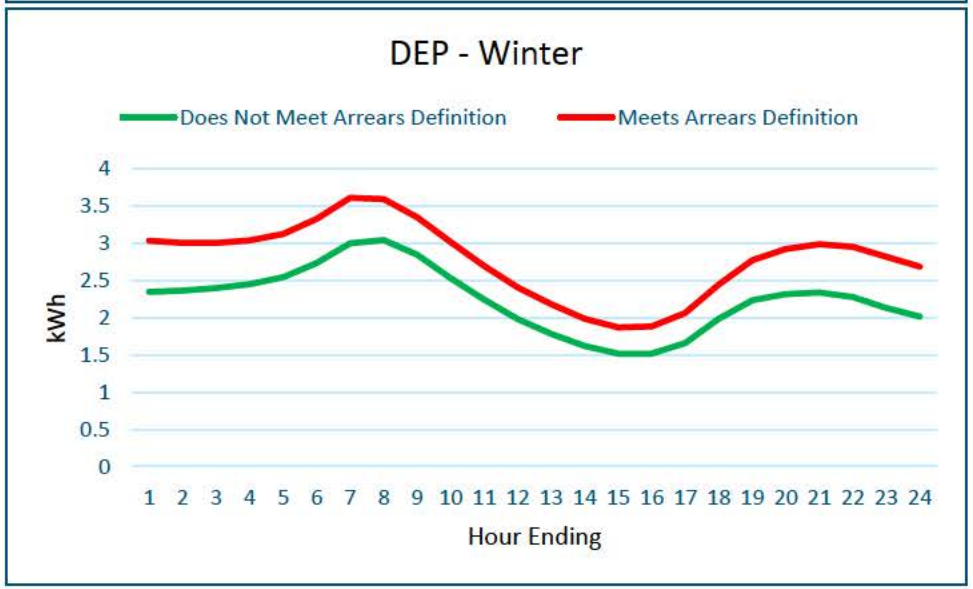
Peak Day Load Shapes by Season & Arrearage Status









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APPENDIX D – LIAC

ASSESSMENT

DOCKET NOS. E-7, SUB 1213; E-7, SUB 1214; E-7, SUB 1187; E-2, SUB 1219 AND E-2, SUB 1193

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Assessment of Customer Challenges Relating to Energy Affordability

Produced by Sub-Team A of the Low-Income Affordability Collaborative

June 10, 2022

Table of Contents

Sub-team A Members and Representation **2**

Team Objectives and Progress **3**

Assessment of Customer Challenges **4**

Between 700,000 and 900,000 residential customers are low-income 4

Between 390,000 and 490,000 residential customers met Duke Energy's "arrears definition" during the 2019/2020 analytical period 4

Energy intensity (kWh/square foot) is a driving factor in low-income affordability challenges, likely in part due to poor housing quality/efficiency 5

Low-income and "arrears struggling" households are much more likely to be disconnected for non-payment 6

Statistical Analytics **7**

Overview and Approach 7

Analytical Results: Arrears Definition 7

Analytical Results: 24-Hour DNP Notice 11

Analytical Results: Disconnection for Non-Pay 14

What are Some Conclusions to be Drawn from the Analytics? 17

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Team Objectives and Progress

As directed by the Orders issued by the North Carolina Utilities Commission ("NCUC" or "Commission") on March 31, 2021, in Docket No. E-7, Sub 1214, and on April 16, 2021, in Docket No. E-2, Sub 1219 ("Rate Case Orders"), the Low-Income Affordability Collaborative ("LIAC") was tasked, among other things, to prepare an assessment of current energy affordability challenges facing residential customers. The assessment should:

1. Provide an analysis of demographics of residential customers, including number of members per household, types of households (single- or multi-family), the age and racial makeup of households, household income data, and other data that would describe the types of residential customers the Company now serves. To the extent demographics vary significantly across the Company's service area, provide additional analysis of these demographic clusters.
2. Estimate the number of customers who live in households with incomes at or less than 150% of the Federal Poverty Level guidelines (sometimes referred to as "FPL" or "FPG"), and those whose incomes are at or less than 200% of the FPL.
3. For the different demographic groups identified as part of a. and b., provide an analysis of patterns and trends concerning energy usage, disconnections for nonpayment, payment delinquency histories, and account write offs due to uncollectibility.

Duke Energy Progress, LLC and Duke Energy Carolinas, LLC (the "Companies" or "Duke Energy") have provided a level of analysis on low-income customers that are without precedent in the Companies' history. The analysis represents customer data generated between March 1, 2019 through February 29, 2020 ("pre-Covid period") and serves as the primary basis for this Assessment of Customer Challenges Relating to Energy Affordability.

The Companies have presented data to LIAC members on the following customer segments: federal poverty level, arrearage status, Low Income Energy Assistance Program ("LIEAP")/Crisis Intervention Program ("CIP") participants, housing type (single vs. multi-family, mobile and manufactured), housing status (owner vs renter), heating source, location, housing value, race, age of the account holder, and number of people in the household. The demographic and housing data was purchased from a third party, Acxiom, as primarily a marketing data source. Within each of these segments, the Companies have provided data on average monthly kWh usage, kWh usage per square foot, customers meeting the Companies' definition of struggling with arrearages, electric energy burden, 10-day and 24-hour notifications of disconnection for non-payment, and disconnections for non-payment. In addition, Duke Energy provided analyses on customer segments by usage per month, average seasonal load shapes, and average peak day load shapes.

For the purposes of this assessment, we define the term "low-income" to mean residential customers with gross household incomes that are less than 200% of FPL.

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Assessment of Customer Challenges

Between 700,000 and 900,000 residential customers are low-income

The ability to afford basic needs and services, including energy bills, is directly related to household income. Customers identified as low-income[1] households, based on federal poverty guidelines, are likely to experience energy affordability challenges.

Per Duke Energy's analysis, 29% of residential accounts served by DEC and DEP qualify as low-income (see Table 1). This includes the 16% of accounts that fall under 150% of federal poverty guidelines that were not identified as recipients of LIEAP/CIP assistance, the 2% of accounts that were identified as receiving that assistance, and another 11% of accounts that fall within the 150-200% FPL range. Combined this amounts to approximately 710,000 of the 2.4 million households included in the analysis (using data from the pre-COVID period). However, assuming the percentage has not declined since February 2020, 29% of the Companies' currently reported NC residential customer base of 3.07 million[2] equates to 900,000 accounts qualifying as low-income.[3]

TABLE 1: Percent and number of Duke Energy (NC) residential customers qualifying as low-income

Category	% All Customers	No. Customers (2.37M)	No. Customers (3.07M)
LIEAP/CIP	2%	53,595	67,785
< 150% FPL	16%	385,339	487,365
150 - 200% FPL	11%	271,432	343,299
Total low-income	**29%**	**710,366**	**898,448**

Between 390,000 and 490,000 residential customers met Duke Energy's "arrears definition" during the 2019/2020 analytical period

In order to provide a unique supplemental look at electricity affordability and associated impacts for residential customers, the Duke Energy team developed an "arrears definition" that is not directly based on income, but rather on the frequency and depth to which certain customers find themselves late in paying their monthly electric bill and/or being significantly behind on their bill. For the purpose of the analyses Duke Energy defined "arrears struggling" customers as those who found themselves in an arrearage situation in which they (1) were behind on paying their average/regular bill amount for six or more months during the pre-COVID period **or** (2) were behind by twice the amount (or more) of their average bill for two or more months during that same pre-COVID period.

---

[1] The focus of the LIAC relates to affordability challenges faced by low-income customers. However, Duke Energy's "arrears definition" analysis shows that a significant number of non-low-income (greater than 200% FPL) customers also experience challenges with paying their bill.

[2] The 3.07 million residential includes all NC residential active accounts as of September 30, 2021 regardless of duration the account was active. In comparison, the 2.37 million residential accounts in the analysis reflect residential accounts active for the entire time frame from March 2019 through February 2020.

[3] September 2021 Arrearage Report. NCUC Docket M-100, Sub 158. https://starw1.ncuc.net/NCUC/page/docket-docs/PSC/DocketDetails.aspx?DocketId=66e14449-b407-4ac3-93eb-a417521e1269

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Per Duke's analysis, and as shown in Table 2, ~16% of the residential customer base (of the ~2.43 million customers included in the arrears analysis) met the arrears definition, amounting to 395,204 customers (*note: if this percentage was applied to the 3.07 million reported residential customers as of September 2021, the number of customers meeting the arrears definition would be approximately 490,000)*.

Of those, a combined 4.9% to 7.1% of Duke Energy residential customers in the <150% FPL and <200% FPL categories, respectively (including LIEAP/CIP) were also arrears struggling, amounting to 115,000 to 168,000 customers. Categories of customers where a higher-than-average proportion of customers met the arrears definition include low-income households, African American and Hispanic households, multi-family and rental households, mobile/manufactured homes, urban/city households, low-value housing (less than $100,000 property value), all-electric households, households where the age of the primary account holder was 54 years old or younger, and single-person households.

As explained below in this assessment, arrears struggling customers use more energy, have a higher energy intensity, and are disconnected at higher rates than non-arrears struggling customers. However, it is important to highlight that 57% of the customers in an arrears struggling situation do not meet the definition of low-income. While it can be expected that a large number of non-low-income customers also struggle with affording their bills, and that there is likely to be some proportionality between the percentages of arrears struggling and total customers (e.g., 29% of Duke Energy customers qualify as low-income while 71% do not), this is a finding that requires further discussion and consideration.

TABLE 2: Breakdown of "arrears struggling" customers by income category

	LIEAP/CIP	< 150% FPL	150-200%	200+% (+ unknown)	Total
Category as % of total customers	2%	16%	11%	70%	100%
No. of customers in category	53,595	385,339	271,432	1,716,956	2,427,322
% of category, "arrears struggling"	58%	22%	19%	13%	16%
No. of "arrears struggling"	31,340	83,741	52,350	225,410	392,841
"Arrears" as % of total customers	1.3%	3.4%	2.2%	9.3%	15.8%
Category as % of total "arrears struggling"	8.0%	21.3%	13.3%	57.4%	100.0%

Energy intensity (kWh/square foot) is a driving factor in low-income affordability challenges, likely in part due to poor housing quality/efficiency

Low-income households, specifically LIEAP/CIP recipients, and arrears struggling households have a much higher energy intensity (kilowatt-hours used per square foot of living space) than non-low-income customers (> 200% FPL), as do (1) rural households, (2) younger customers, (3) customers living in low-value housing, (4) multi-family & mobile/manufactured homes households, and (5) rental households.[4]

[4] Each of these categories of customers are more likely to reflect households occupied by lower-income customers.

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For instance, LIEAP/CIP recipient households have an energy intensity that is ~25% greater than other low-income households, and 60% greater than non-low-income households. Arrears struggling households use 25-35% more energy per square foot for all customer segments (housing, race, age, location, etc) analyzed for the purpose of this assessment. The higher energy intensity levels for each of the aforementioned categories is likely in part related to poor housing quality and lower energy efficiency, which in turn drive higher energy usage and bills. The statistical analysis further supports this, as discussed later in the assessment.

Additionally, the Companies' findings on seasonal usage for low-income and arrears struggling households indicate that higher usage and bills may be related to inefficient housing and heating and cooling systems. The analysis identified that low-income households use more energy in the winter and have higher winter bills, but arrears struggling use more energy year-round -- nearly 20% more in the summer and 30% more in the winter than non-arrears struggling households.

Other findings from the Companies' analysis highlight the interplay between income level, energy intensity, and energy usage:

- LIEAP/CIP recipient households experience an energy intensity that is 100% greater (double) than non-low-income households' in the winter and approximately 40% higher than non-low income households' in the summer.
- Other (non-LIEAP/CIP) low-income customer energy intensity is about 33% higher than non-low-income households in winter and 14% higher in the summer.
- Arrears struggling households use 50% more energy per square foot in the winter and 33% more in the summer than households that did not meet the arrears definition
- Arrears struggling customers have a ~160% higher total bill in peak winter months (133% higher in summer) than non-low-income households; for LIEAP/CIP customers, the bill differential is 100% and ~70% higher, respectively

Low-income and "arrears struggling" households are much more likely to be disconnected for non-payment

A number of low-income households in general struggle with their electricity bills, with those that received bill payment assistance (LIEAP/CIP) struggling the most and experiencing DNP[6] at a much higher rate (greater than 16.3% of all LIEAP/CIP recipients), in addition to having received assistance. For instance, low-income customers are two times more likely, and "arrears struggling" customers and LIEAP/CIP recipients nine to ten times more likely, to experience a DNP than non-low-income customers. Categories of customers that experience higher-than-average DNP's include the same categories as those for arrears struggling customers. Additionally, the lowest income (< 150% FPL) and arrears struggling households are disconnected at higher rates across all housing, geographical, home value, and racial categories.

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Statistical Analytics

Overview and Approach

To respond to the Commission's Rate Case Orders), a statistical model was developed by the Companies to assess a number of attributes impacting low-income customers. Three models were created: (1) Likelihood of low-income customers to meet the arrears definition; (2) Likelihood of low-income customers that receive a 24-hour disconnect notice; and (3) Likelihood of low-income customers to be disconnected given that they received a 24-hour DNP notice to be disconnected. Sub-team A identified areas where additional statistical analysis could potentially be helpful to expand on the descriptive analytics to support the objectives of the LIAC. Duke Energy committed to enhancing the analytics to support the affordability assessment. That analysis was presented in March 2022 in the NC Low Income Collaborative Analytics – Version 4 (Analytics) and is discussed below.

Three research questions were assessed using logistic regression techniques:

1. whether low-income customers are likely to be at-risk of: (i) meeting Duke Energy's arrears definition, (ii) at risk of receiving a 24-hour disconnect notice, or (iii) being disconnected after receiving a 24-hour disconnection notice (hereinafter referred to as the "arrears model");
2. whether low-income customers receive a 24-hour disconnect notice; and
3. whether low-income customers are disconnected given that they received a 24-hour DNP notice to be disconnected.

Logistic regression models are classification models that provide insight into questions dichotomous in nature (yes or no, 0 or 1, etc.) and are helpful for providing insight into the above questions. Each outcome (being in the at-risk group, receiving a 24-hour DNP notice, and being disconnected) is measured using a "0" for customers in the samples who do not meet each specific outcome and a "1" for those who did. The logistic regression models then assessed the relationship between each outcome and certain predictors, which included the same 11 attributes from the prior descriptive analysis: home value, electric burden, summer load, winter load and heat source, age of customer, age of home, race, household size, population density, housing status and type, and education.

The sample sizes for each model are as follows: 691,693 low-income customers were included in the arrears model; 215,574 were included in the 24-hour disconnection notice model; and 186,081 were included in the disconnection model. These numbers differ slightly from the totals in the descriptive analysis as some records had to be dropped during analysis given missing data for some of the variables. The modeling results are presented in Appendix A - Table 1 and discussed below.

Analytical Results: Arrears Definition

Figure 1 below and Model 1 of Appendix A - Table 1 present the results of the arrears definition model and show the likelihood that low-income customers either meet the arrears definition, receive a 24-hour DNP notification, or are disconnected from service based on the predictors. The following summarizes the relationship modeled between this outcome and each predictor compared to a baseline within each predictor (e.g., all age categories were compared to a baseline

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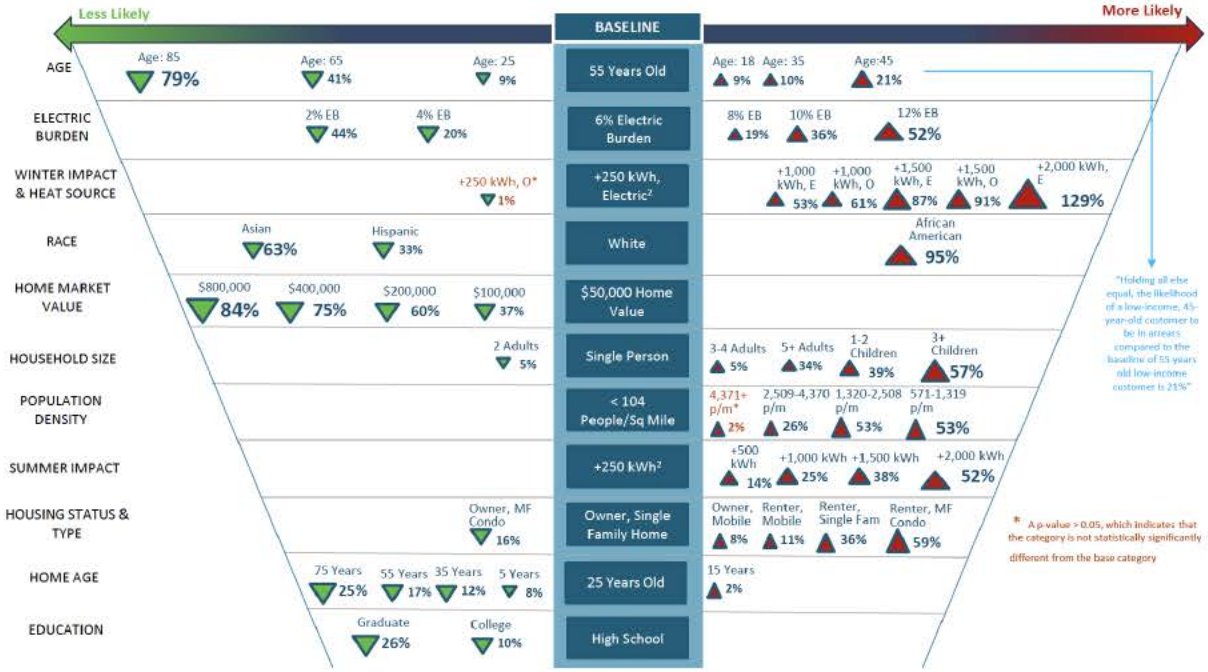
of 55 years old). Statistically insignificant results are included but are indicated in red and with an asterisk (*) in Figure 1. Statistically insignificant results are not bolded in Appendix A - Table 1.

In the discussion below, the results are grouped by similar categories with age, race, education and household size grouped under "Demographics," electric burden and energy intensity measures grouped under "Energy Use," and so on for other measures that capture an overall category of variables.

Figure 1. Arrears Model Results



Demographics

Age (Baseline: 55 years old): The results show that households where the primary account holder was 18, 35, and 45 years old[5] were more likely to meet the arrears model outcome than households where the primary account holder was 55 years old.

Those households where the primary account holder was 45 years old were 21% more likely than the baseline of 55 years old), followed by 35 years old (10% more likely) and 18 years old (9% more likely). Households where the primary account holder was 85-years old were 79% less likely to meet

[5] The relationship between age and our outcomes were found to be non-linear in the modeling. In other words, the underlying change in the relationship between age and the arrears model outcome does not stay constant over time and a straight line cannot be drawn through the points when the outcome and age are plotted. In order to allow this relationship to be more dynamic, the age variable enters into the model as a piecewise continuous measure, which gives results based on specific ages rather than a range of ages. Therefore, age is handled differently in the statistical analysis than it was in the descriptive analysis, where ranges/categories of age were used. The same approach is used for age of home and home value as well.

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the arrears definition than a 55-year old account holder, and 65-years old 41% less likely. Age 25-year households were 9% less likely.

Further analysis would be necessary to explore the pattern across younger households more deeply. Future areas of research might include exploring whether younger customers are less likely to have savings or other liquid assets to draw upon in order to pay their bills; whether they might be more likely to live in older, low-value or rental homes that are energy inefficient; and, finally, whether they might be more likely to overlook deadlines and/or be distracted by competing demands of work and family. .

Race (Baseline: white): Compared to white households, Asian and Hispanic households were much less likely (63% and 33%, respectively) to meet the arrears model definition. However, Black households were 95% more likely to meet the arrears definition, and thus, more likely to be within the samples for the following two models for 24-hour disconnection notice outcome and disconnection outcomes.

Education (baseline: high school degree): The results show that as the education level of an account holder increases, they are less likely to meet the arrears model definition. Since it is expected that they earn a higher salary, they are also more likely to be able to afford their electric bill. Those with a college degree were 10% less likely, and those with a graduate degree 26% less likely to meet the arrears model definition than those with only a high school diploma.

Household Size (baseline: single person household): The results show that once a household goes beyond 2 adults, the larger a household is the more likely it is to meet the arrears model definition. Households with 3 to 4 adults are only slightly more likely (5%) to meet the arrears model definition than a single-person household, but that likelihood increases to 34% more likely once there are 5 or more adults in a household. Adding children increases the likelihood of meeting the arrears model definition, with 1-2 children making the household 39% more likely to meet the arrears model definition and 3 or more children increasing that to 57% more likely.

Energy Use

To assess the role that energy intensity and electric burdens may have in influencing whether a household falls into arrears, the models included predictor variables that captured the electric burden in a household, the winter impact for households with electric heating, the winter impact for households with other types of heating, and the summer impact. All variables were included simultaneously in the model. Therefore, when looking at the results for electric burden, these results indicated the likelihood of a household meeting the arrears model definition after controlling for the intensity of use represented in the winter and summer impact measures.

Electric Burden (Baseline: 6% of gross household income): The results show that a higher electric bill burden corresponds to a higher likelihood of meeting Duke Energy's arrears model definition. At an 8% electric burden a household is 19% more likely to meet the arrears definition, 36% more likely with a 10% electric burden, and 52% more likely with a 12% electric burden. Conversely, lower electric burdens were associated with households being less likely to meet the arrears model definition: 20% less likely with a 4% electric burden and 44% less likely at a 2% electric burden. This result strongly suggests that lowering a household's electric burden below the 6% threshold can have a significant impact on electric bill affordability for low-income households.

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Winter Impact and Heat Source (Baseline: winter monthly energy use 250 kWh higher than average usage, and all-electric): The model shows that higher differences between average monthly usage in winter months and the overall annual average monthly usage result in a greater likelihood of meeting the arrears model definition. Compared to the baseline, all-electric homes using 1,000 kWh more electricity per month in winter are 53% more likely to meet the arrears model definition, while those using 1,500 kWh more are 87% more likely and at 2,000 kWh more are 129% more likely.

Households that use non-electric heating sources have a higher likelihood of meeting the arrears model definition, with those using 1,000 kWh more being 61% more likely and those using 1,500 kWh more being 91% more likely. In addition, because non-electric households are being compared at the same level of increased electricity usage (e.g. 1,000 kWh more on average in winter months) but are also paying for non-electric heating bills, which will add more strain on their ability to afford and pay their electric bill since heating the home would be the top priority[1].

It is notable that observed variations in winter energy use impact have a substantially higher influence over whether a household meets the arrears definition than do the variations analyzed for any other category. In part this makes sense because an average monthly usage that is 2,000 kWh higher in winter than on an annual basis results in a substantially higher electric bill each month during winter, which is difficult to afford for many low-income households. The results for this category strongly suggest that improving a household's energy efficiency through air sealing, insulation, and energy efficient heating systems could substantially reduce a household's likelihood of meeting the arrears definition.

Summer Impact (baseline: summer monthly energy use 250+ kWh higher than average usage): The results for summer impact reflect those for winter impact in that higher usage in summer months for cooling increases the likelihood of meeting the arrears definition. However, it is notable that the impact on the likelihood of meeting the arrears definition is substantially smaller in the Summer Impact category than in the Winter Impact category at the same variance level (e.g. 1,000 kWh).

House Attributes

The statistical analysis included measures for the value of a home, its age, and for housing tenure (renter or owner) by housing type (mobile home, single family home, multi-family home)[6]. Overall, the results show that when controlling for a home's value and age, owners are generally less likely than renters to meet the arrears model definition.

Home Market Value (baseline: $50,000): Higher value homes were substantially less likely to fall into arrears, with each additional $100,000 in value decreasing the likelihood by 15% on average. Homes valued between $100K to $199K were 37% less likely, between $200K to $299K 60% less likely, and so on. These results could be because these homes are more energy efficient compared to lower value homes, and thus result in higher value homes being less likely to meet the arrears definition. But the model also controlled for some elements of energy intensity, which may capture some of the variation in energy efficiency.

Home Age (baseline: 25 years old/since construction): In general, older homes in this analysis were less likely to meet the arrears definition. Although the results for home age may appear surprising at first given that many expect an older home to be less energy efficient, the model also includes a

[6] Age of home and home value enter the model as piecewise continuous measures to better capture non-linear relationships between the outcomes in the models and these predictors. See footnote 5 for further explanation.

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measure of home value as well as housing type and other measures that may capture energy intensity. Some of the impact of age may be captured by those variables. Other potential explanations include factors such as outdated building codes, the affordability of newer homes versus older homes, etc may also be influencing the outcome. Only homes at 15 years old were more likely to meet the arrears definition than the baseline, but only by 2%.

Housing Status and Type (baseline: owner-occupied, single-family home): Across all combinations, renters were more likely to meet the arrears model definition than owners. Renters living in multi-family condos had the greatest likelihood at 59% more likely than the baseline, while renters and owners of mobile homes, while still more likely than the baseline, had the smallest increases in likelihood at 11% and 8%, respectively. Owners of multi-family condos were 16% less likely to meet the arrears model definition.

Neighborhood Attributes

Population Density (baseline: less than 104 households or housing units/square mile): Finally, the model included a measure for population density to assess the relationship between the outcome of interest and how urban or rural a community is. The US Census Bureau considers an area to be "urban" if there are 420 or more housing units per square mile. The categories used in our modeling does not easily reflect this shift from urban to rural but the 104-570 housing units per square mile category can serve as a proxy. Those categories above the 104-570 category would be becoming increasingly more urban. Compared to a sparsely populated area with less than 104 houses per square mile, all other population densities showed a higher likelihood of a household meeting the arrears definition. There seems to be a tipping point, however, after an area reaches more than 2,500 housing units per square mile where the magnitude of the increase in the likelihood dips by 50% for the two highest density categories. A densely populated area with between 2,509 and 4,370 people per square mile was 26% more likely to meet the arrears definition than the baseline, while a density of 571 to 1,319 people per square mile was 53% more likely. And although the trend continued for even more densely populated areas, the result for the highest density was not statistically significant.

Analytical Results: 24-Hour DNP Notice

Under Commission Rules, the Companies are required to take a number of steps to notify customers that their service is eligible for termination for nonpayment prior to disconnection. One of those final steps requires the Companies to send a notice to the customer at least 24 hours in advance to a proposed disconnection for nonpayment (24-hour notice) before disconnecting a customer for non-payment. This analysis reviews the customers that receive the mandatory notices from the Companies, whether they are ultimately disconnected or not.

Figure 2. 24-hour Notification of Disconnection for Non-Payment

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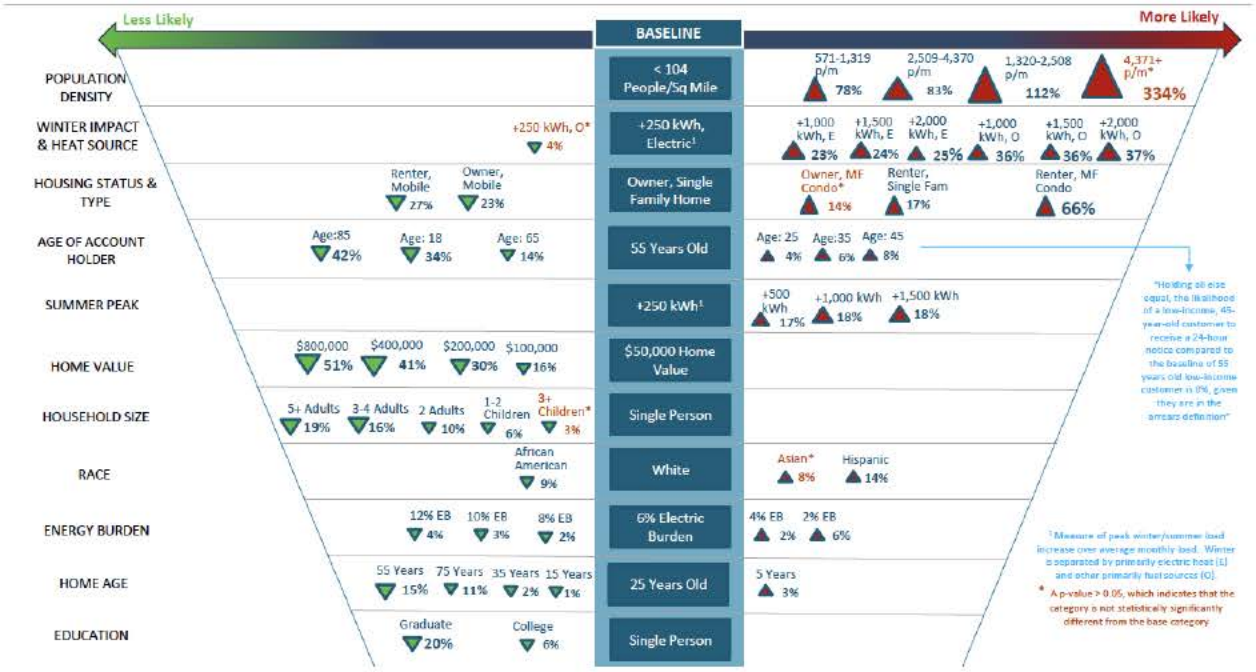

Figure 2 above presents the results showing the likelihood of those low-income customers who met the definition of arrears from the prior arrears model to receive a 24-Hour Notice for disconnection. The following summarizes the variation within the category based on a selected baseline.

Demographics

Age (baseline: 55 years old): Just as in the arrears model, account holders who were 85 years old led the way (42%) in being less likely to receive a notice and 65 year olds were also less likely (14%). Account holders who were 25, 35, and 45 years old were 4%, 6%, and 8%, respectively, more likely to receive notice. And, although they were more likely to meet the arrears model definition, 18 year olds were substantially less (34%) likely to receive a 24-hour notification. As mentioned in the arrears model section, there could be many reasons for this including limited savings or liquid assets, less efficient homes, and behavior around paying attention to their bills.

Race (baseline: white households): Although the arrears model showed that Hispanic households were 33% less likely to be in the group at risk of receiving a 24-hour notice, the results predicting the likelihood of receiving a notice given that a Hispanic household is at risk of receiving a notice show that Hispanic households were 14% more likely to receive a notice. The reverse pattern is present for Black households. Although Black households were 95% more likely to be in the at-risk group for receiving a notice, those who fell into the at risk category were 9% less likely to receive a notice. The results for Asian households were not significantly different from white households in receiving a notice.

Education (baseline: high school degree): The trend within the arrears model for age was present in the 24-hour notice model as well. Even once they are within the group at risk of receiving a 24-hour notice, account holders with a college or graduate degree were less likely (6% and 20% respectively) to receive a notice.

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Household Size (baseline: single person household): Although the arrears model showed that larger households were more likely to be at risk of falling behind (or meeting the arrears model definition), within the at risk group a larger household is less likely to receive a notice. Households with more adults are between 10% and 19% less likely. And, interestingly, households with children present were only 6% less likely to receive a notification when compared to the baseline and the results for more than 3 children were not found to be statistically significantly different from the single person households. This indicates that families with children are more likely to receive a notice than situations where multiple adults are present.

Energy Use

Electric Burden (baseline: 6% Electric Burden): The results for the 24-hour notice outcome show that households with lower electric burdens were more likely to receive a notice. Once again, it is important to remember that this result is conditional upon these households having met the definition for being in arrears that was operationalized in the previous model. So, the sample includes only those households who met the arrears definition. Those households in arrears with higher electric burdens were less likely to receive a notice. Deeper analysis would be needed to explore these findings but perhaps seasonal policies are proving protective for those with higher electric burdens.

Winter Impact & Heating Source (baseline: winter monthly energy use +250 kWh higher than average, and all electric): Among those households that meet the definition for being in arrears that were operationalized in the arrears model, increased winter usage above baseline consistently corresponded to higher likelihood of 24-hour notice. The range of increase was between 23% and 37% above baseline whereas a households increased winter usage increased the likelihood of meeting the arrears model definition in the arrears the range was 53% to 129% above baseline.

<u>As previously mentioned, the results for this category strongly suggest that improving a household's energy efficiency through air sealing, insulation, and energy efficient heating systems could substantially reduce a household's likelihood to receive a 24-hour DNP notice.</u>

Summer Impact (baseline: summer monthly energy use +250 kWh higher than average use): For households meeting the arrears model definition with higher summer usage of 500, 1,000, and 1,500 kWh, the households had virtually the same increased likelihood of receiving a notice of 17-18%.

House Attributes

Home Market Value (baseline: $50,000-$99,999): A consistent trend showed the larger the home value then the less likely that household is to receive a 24-hour notice. A $100,000 home was 16% less likely while a $800,000 home was 51% less likely.

Home Age (baseline: 25 years old/since construction): The range in this category was between 3% more likely for a 5 year old home and 15% less likely for a 55 year old home. Once again, these results are conditional upon the household meeting the definition of the positive outcome in the arrears model. In addition, the model controls for the home value and energy intensity measures, which may capture some of the energy inefficiencies that could be expected to be present in older homes.

Housing Status & Type (baseline: owner, single family home): Among those households meeting the arrears model definition, mobile home owners and renters were less likely (23% and 27%

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respectively) to receive a notice. Renters of single-family homes were 17% more likely and renters of multi-family condos were 66% more likely to receive notice above baseline.

Neighborhood Attributes

Population Density **(***baseline: <104 households or housing units per square mile)*: Density had a similar effect for households at risk of receiving a 24-hour notice. The general trend showed that higher population densities corresponded to increased likelihood of receiving a 24-Hour Notice. The baseline category and the 104-570 housing units per square mile most closely approximate rural areas. Households in the most sparsely populated area (the baseline) were 58% less likely to receive a notice than those in areas with 104-570 housing units. The highest density category was once again not significantly different from the baseline. But densities in between show an almost bell-shaped curve with 571-1319 housing units per being 78% more likely to receive a notice, between 1320-2508 housing units per square mile being 112% more likely, and between 2,509-4,370 housing units per square mile being 83% more likely.

Analytical Results: Disconnection for Non-Pay

Figure 3. Disconnection for Non-Pay Modeling Results

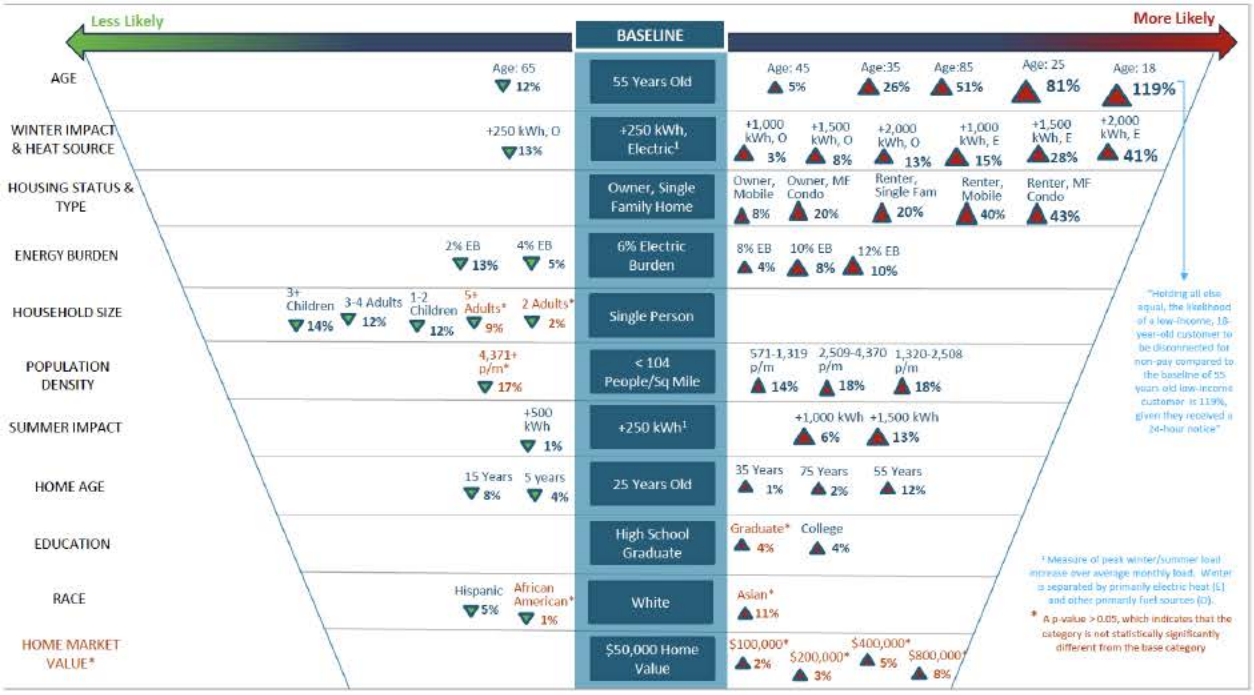

Figure 3 above presents the results showing the likelihood of low-income customers to be disconnected given that they received a 24-hour DNP notice to be disconnected. In other words, the sample for this model includes all of the low-income households that did receive a notice in the 24-hour DNP notification model discussed previously. The following summarizes the variation within the category, compared to a selected baseline.

Demographics

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Age (baseline: 55 years old): The DNP analysis generally shows that, with one exception (65 years old) all householders whose ages are reported were more likely to meet the arrears definition than the baseline household. Further,, the younger the household compared to the baseline, the more likely it was to meet the arrears definition. Those households where the primary account holder was 45 years old were only 5% more likely than the 55-year old category, followed by 35 years old (26% more likely), 85 years old (51% more likely), 25 years old (81% more likely) and 18 years old (119% more likely). The results for 25 year old account holders were found not to be statistically significantly different from the baseline.

Further analysis would be necessary to explore the factors driving the trend of younger households being more likely to experience a DNP. Once again, however, it is important to remember that the model attempts to isolate the relationship between age and the outcome and includes controls to account for many other factors that could lead to financial instability, including education, household size, race, etc.

Race (baseline: white households): Conditional on having received a 24-hour notice, Hispanic households were 5% less likely than white households to be disconnected. Results for Black and Asian account holders were found not statistically significantly different from the baseline.

Education (baseline: high school): While the arrears analysis found that the more education a household/account holder receives, the less likely they were to meet the arrears definition, the DNP analysis shows that higher education households (college) are more 4% more likely to be disconnected than households with high school education levels. Again though, the sample of account holders in the DNP model is based on being a low-income household that receives a 24-hour notice and the model controls for other sociodemographics. This result indicates that once a household is in arrears and has received notice, education level is no longer protective. The magnitude of the increased likelihood is small at 4% though. The results on the graduate education level were statistically insignificant.

Household Size (baseline: single person household): The models for the DNP analysis show that, conditional on having received a 24-hour notice, larger households are less likely to experience a disconnection for non-payment. Households with 3-4 adults were 12% less likely to be disconnected than 1-adult households and households with 1-2 children were 12% less likely and 3+ children 14% less likely to experience a DNP.

Energy Use

Electric Burden (baseline: 6% of gross household income): A higher electric bill burden corresponds to a higher likelihood of experiencing a disconnection for non-payment. With an 8% electric burden, a household is 4% more likely to be disconnected, 8% more likely with a 10% electric burden, and 10% more likely with a 12% electric burden.

Conversely, lower electric burdens result in households being less likely to be disconnected from service: a household is 5% less likely with a 4% electric burden and 2% less likely at a 2% electric burden. This result strongly suggests that lowering a household's electric burden below the 6% threshold can have a measurable impact on avoiding disconnections

Winter Impact and Heat Source (baseline: winter monthly energy use 250 kWh higher than average usage, and all electric): The DNP model shows that a higher difference between average monthly electricity usage in winter months and annual electricity usage, the greater the likelihood of

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experiencing a DNP. Compared to the baseline, all-electric homes that use 1,000 kWh more electricity per month in the winter are 53% more likely to meet the arrears definition, while those using 1,500 kWh more are 87% more likely and at 2,000 kWh more are 129% more likely.

Interestingly, conditional on having met the arrears model definition and the 24-hour notice model definitions, low-income households that use non-electric heating sources, while more likely to experience a DNP than the baseline, were substantially less likely than their all-electric counterparts. For instance, a household identified as using a non-electric primary heat source, but that used 1,000 more kWh per month in the winter than on an annual basis, was found to be only 3% more likely than the baseline to experience a DNP. However, an all-electric home at the same level of variance was 15% more likely to experience a DNP than the baseline. Those values for a home at the 2,000 kWh level were 13% and 41%, respectively. Further analysis would be necessary to explore this result more. Regardless, the results for this category strongly suggest that improving a household's energy efficiency through air sealing, insulation, and energy efficient heating systems could substantially reduce a household's likelihood of experiencing a DNP.

Summer Impact (baseline: summer monthly energy use 250+ kWh higher than average usage): The results for summer impact largely reflected those for winter impact in that higher usage in summer months for cooling increases the likelihood of being disconnected. The one exception is the 500 kWh category, the category closest to the baseline, which was 1% less likely to be disconnected. Given such a small magnitude in the impact of this category on the relationship to the outcome, the overall trend that higher summer impact increases the likelihood of a disconnection holds.

House Attributes

Home Market Value (baseline: $50,000-$99,999): The DNP analysis shows, conditional on having received a 24-hour notice, a low-income household is more likely to experience a disconnection. However, none of the results were found to be statistically significant. Therefore, there is little confidence that they are any different than the baseline households likelihood. This would suggest that once a household has received a 24-hour notice, home values have little explanatory value in predicting whether the household will experience a disconnection.

Home Age (baseline: 25 years old/since construction): Conditional on meeting the arrears model definition and receiving a 24-hour notice, low-income households living in older homes were more likely to experience disconnection than households living in homes built more recently. Households in homes constructed 5 years ago were 4% less likely to experience a disconnection and those in homes constructed 15 years ago they were 8% less likely. Households living in homes built 35 years ago were only 1% more likely to experience disconnection than the baseline home, while those in homes built 55 years ago were 12% more likely.

Housing Status and Type (baseline: owner, single-family home): The DNP model shows that being a renter results in a greater likelihood of experiencing a DNP than owners. The results for housing type were also the same, with the likelihood of a renter of a single-family home experiencing a DNP (20% greater than the baseline) being less than that of a mobile home (40%) or multi-family condo (43%). In other words, occupants of single family homes were less likely than occupants of mobile homes and multifamily condos to experience a DNP, regardless of whether the occupant owned or rented the home, and renters were more likely than owners to experience a DNP.

Neighborhood Attributes

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Population Density (baseline: less than 104 people/square mile): Compared to a sparsely populated area, all other population densities showed a higher likelihood of experiencing a DNP. However, there is no clear pattern in the results. However, it is notable that for arrears, households in the lowest population density (other than the baseline) were the most likely to meet the arrears definition compared to the baseline, while for DNP's they are the least likely.

What are Some Conclusions to be Drawn from the Analytics?

In general, most of our predictors had statistically significant impacts[7] on the likelihood of a low-income customer to meet Duke Energy's definition of arrears and/or being at risk of receiving a notice and being disconnected from service for non-payment. The key factors that both significantly predicted being in arrears and are issues programs and policies could mostly readily address were electric burden, winter impact, and summer impact. Reducing a household's winter impact seems to show the greatest potential for reducing the likelihood a household will fall into arrears, given that at even one category above the baseline households were 53% more likely to be in arrears and at three categories above, 129% more likely. Electric burden and summer impact were similar in the magnitude of their effects for groups above the baseline categories. But reducing a household's electric burden would presumably also address financial insecurity overall as it reduces the overall amount of income going towards electric bills. House attributes were also statistically significant at predicting being in arrears and suggest that focusing on renters overall across all types of homes could reduce the likelihood of households falling into arrears. Demographic and neighborhood characteristics were statistically significant in predicting being in the arrears category as well. These results may provide guidance for targeting outreach efforts to certain social groups, neighborhoods, and areas but it is difficult to identify patterns regarding age, home value, and age of home given that the variables showed non-linearity in the models. Race, education, and the size of a household were significant predictors as well and indicate that focusing on low-income customers living in households with children, low-income Black account holders, and low-income account holders with post-secondary education may reduce the likelihood a household falls into arrears.

Conditional, however, on falling into the arrears category, the predictors that show the most statistical and policy significance for affecting the likelihood a customer received a 24-hour notice of disconnection for non-payment were those related to energy use, with winter impact once again showing the greatest magnitude among the energy use categories. And, finally, for those households receiving a 24-hour notice, energy use and housing tenure were both statistically and practically significant. It appears that focusing on reducing usage in both winter and summer and/or focusing on renters generally would reduce the likelihood of disconnections once a household has received a notice. Reducing a household's electric burden would also reduce the likelihood of disconnections. We do note, however, that account holders with higher electric burdens were less likely to receive a 24-hour notice. More research would be needed to explore why this is, but households with high electric burdens may be making partial payments that postpone disconnection but do not bring their accounts fully up to date.

[7] As shown in the Analytics pages 27-29, a p-value > 0.05, indicates that the category is not statistically significantly different from the base category. Those categories are highlighted with a red asterisk. All other categories were statistically significantly different from the base category.

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These findings suggest that energy use factors are the critical factors to target in the design of interventions aiming to address electric affordability challenges for low-income customers. Reducing winter impact would be a promising target.

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Appendix A. Logistic Regression Modeling Results

			Model 1		Model 2		Model 3
			% Change in the Likelihood of Being in the At-Risk Group Among Those Who Fall Below 200% of the Fed Poverty Level		*% Change in the Likelihood of Receiving a 24-hour DNP Notice Among Those in the At-Risk Group*		*% Change in the Likelihood of Being Disconnected Among Those Receiving a 24-hour DNP Notice*
Demographics							
	Age						
		18 years	**9%**		**-34%**		**119%**
		25 years	**-9%**		**4%**		81%
		35 years	**10%**		**6%**		**26%**
		45 years	**21%**		**8%**		**5%**
		55 years	*----------Omitted as Baseline----------*				
		65 years	**-41%**		**-14%**		**-12%**
		85 years	**-79%**		**-42%**		**51%**
	Race						
		Black	**95%**		**-9%**		-1%
		Asian	**-63%**		8%		11%
		Hispanic	**-33%**		**14%**		**-5%**
		White	*----------Omitted as Baseline----------*				
	Education						
		High School	*----------Omitted as Baseline----------*				
		College	**-10%**		**-6%**		**4%**
		Graduate	**-26%**		**-20%**		4%
	Household Size						
		Single Adult	*----------Omitted as Baseline----------*				

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		2 Adults	**-5%**		**-10%**		-2%
		3-4 Adults	**5%**		**-16%**		**-12%**
		5+ Adults	**34%**		**-19%**		-9%
		1-2 Children	**39%**		**-6%**		**-12%**
		3+ Children	**57%**		-3%		**-14%**
Energy Use							
	Electric Burden						
		2%	**-44%**		**2%**		**-13%**
		4%	**-20%**		**4%**		**-5%**
		6%	----------*Omitted as Baseline*----------				
		8%	**19%**		**-2%**		**4%**
		10%	**36%**		**-3%**		**8%**
		12%	**52%**		**-4%**		**10%**
	Winter Impact by Heat Source						
		Electric					
		250-999 kWh	----------*Omitted as Baseline*----------				
		1000-1499 kWh	**53%**		**23%**		**15%**
		1500-1999 kWh	**87%**		**24%**		**28%**
		2000+ kWh	**129%**		**37%**		**41%**
		Other					
		250-999 kWh	-1%		-4%		**-13%**
		1000-1499 kWh	**61%**		**36%**		**3%**
		1500-1999 kWh	**91%**		**36%**		**8%**
		2000+ kWh			**37%**		**13%**
	Summer Impact						
		250-499 kWh	----------*Omitted as Baseline*----------				
		500-999 kWh	**14%**		**17%**		**-1%**
		1000-1499 kWh	**25%**		**18%**		**6%**

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		1500-1999 kWh	**38%**		**18%**		**13%**
		2000+ kWh	**52%**				
House Attributes							
	Home Value						
		$50000-99,999	----------*Omitted as Baseline*----------				
		$100,000-199,999	**-37%**		**-16%**		2%
		$200,000-399,999	**-60%**		**-30%**		3%
		$400,000-799,999	**-75%**		**-41%**		5%
		$800,000+	**-84%**		**-51%**		8%
	Age of Home						
		5 years			**3%**		**-4%**
		15 years	**2%**		**-1%**		**-8%**
		25 years	----------*Omitted as Baseline*----------				
		35 years	**-12%**		**-2%**		**1%**
		55 years	**-17%**		**-15%**		**12%**
		75 years	**-25%**		**-11%**		**2%**
	Housing Tenure by House Type						
		Owners					
		Mobile Home	**8%**		**-23%**		**8%**
		Single Family	----------*Omitted as Baseline*----------				
		Multi-Family/Condo	**-16%**		14%		**20%**
		Renters					
		Mobile Home	**11%**		**-27%**		**40%**
		Single Family	**36%**		**17%**		**20%**
		Multi-Family/Condo	**59%**		**66%**		**43%**
Neighborhood							
	Population Density (Count of households per square mile)						

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		Less than 104	----------*Omitted as Baseline*----------				
		104-570	**56%**		**58%**		**52%**
		571-1319	**53%**		**78%**		**14%**
		1320-2508	**53%**		**112%**		**18%**
		2,509-4370	**26%**		**83%**		**18%**
		4371+	2%		334%		-17%
Observations (No. of Customers in Sample)							
			691,693		215,574		186,081
Notes:							
The US Census Bureau considers an area to be "urban" if the population density is greater than 420 housing units per square mile. **Bold results** were statistically significant with a p-value of less than 0.05.							

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APPENDIX E – LIAC

LIAC WORKSHOP VIII

DOCKET NOS. E-7, SUB 1213; E-7, SUB 1214; E-7, SUB 1187; E-2, SUB 1219 AND E-2, SUB 1193

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Guidehouse

North Carolina

Low Income Affordability Collaborative

Workshop 8

June 9, 2022

Convened by

DUKE ENERGY.

Public Staff
North Carolina Utilities Commission

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Welcome

MACIE SHOUN
Workshop Facilitator

NNEOMMA NWOSU
Workshop Support

40-50 active LIAC participants

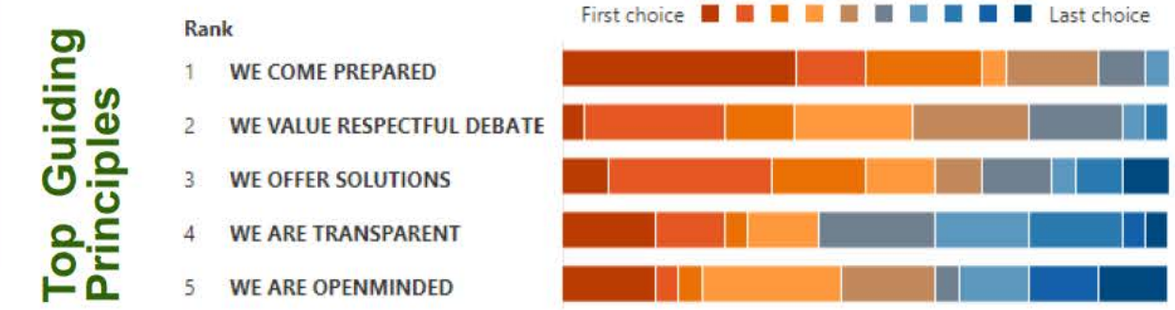
Organizational Representation

- Charitable / Social Aid
- Univ
- Trade Association or Interests Group
- Utility
- Government

4 LIAC subteams

A B C D

Top Guiding Principles



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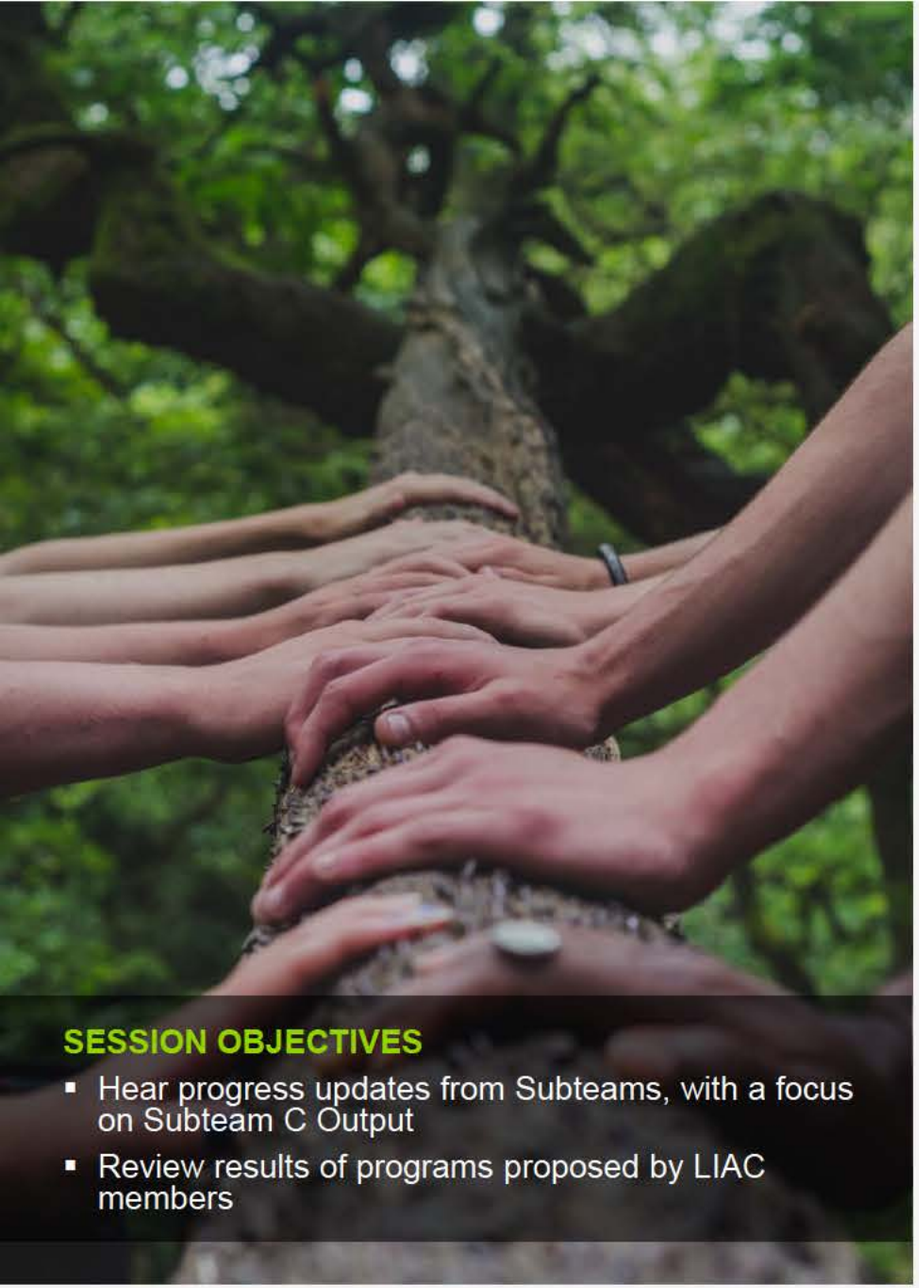
NC Low Income Collaborative

Agenda | June 9, 2022



SESSION OBJECTIVES

- Hear progress updates from Subteams, with a focus on Subteam C Output
- Review results of programs proposed by LIAC members

Workshop VIII: Recommendations & Proposal Assessment Results

	CONVENE		
PART I	Welcome, Safety & Agenda	*Guidehouse*	*60-75 min*
	Review of Subteam Updates and Outputs	*Guidehouse*	
	Dep Data Update Cross-subsidy Analysis Task 3b/C	*LIAC Subteam C*	
	Success Criteria and Metrics To Monitor Program Impact Task 3a	*LIAC Subteam C*	
	Funding Sources and Opportunities/ Challenges	*LIAC Subteam C*	
	BREAK		
PART II	Program Proposal Assessment Results	*Guidehouse*	*30-60 min*
	Round Table	*All (GH Facilitated)*	
	Wrap-up & Look Ahead	*Guidehouse*	
	ADJOURN		

Guidehouse | DUKE ENERGY. | Public Staff North Carolina Utilities Commission

LIAC Macro Timeline | *as of 6/2/2022*

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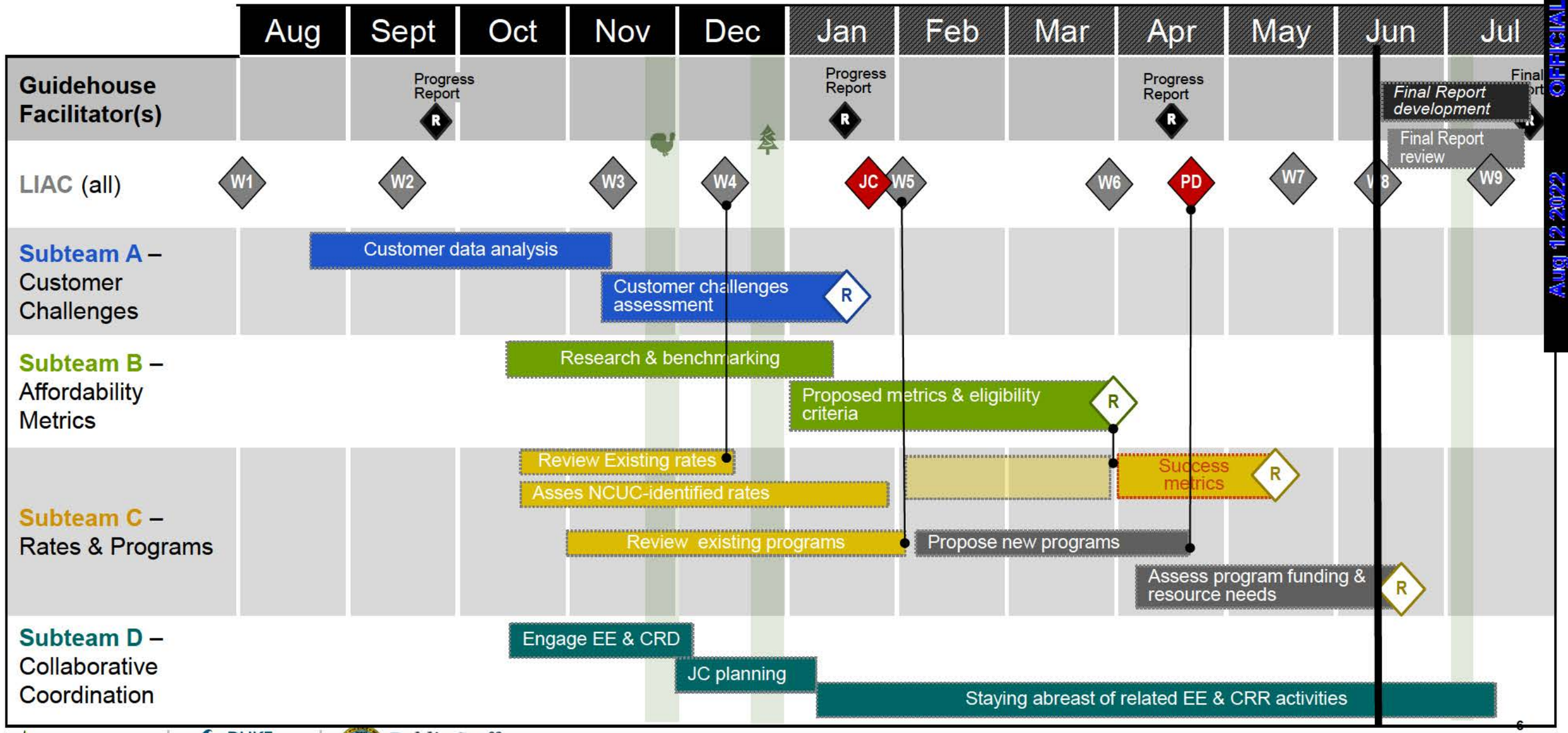
KEY
- W — Regular LIAC Workshop
- JC — Joint Collaborative Session
- RO — Subteam Readout
- PD — Program Proposal Pitch Day



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REVIEW OF SUBTEAM OUTPUTS AND UPDATES

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Key Subteam Activities

SUBTEAM A

Prepare an assessment of current affordability challenges facing residential customers

SUBTEAM B

Develop suggested metrics or definitions for "affordability"

SUBTEAM C

Investigate the strengths and weaknesses of existing rates, rate design, billing practices, customer assistance programs and energy efficiency programs in addressing affordability

SUBTEAM D

Stay abreast of and consider the ongoing work of the comprehensive rate design and the EE collaboratives as they each carry out their work

Docket No. E-7, Sub 1276
Harris Exhibit 1
Page 260 of 548

Subteam A Tasks

SUB-TEAM A
Customer Challenges

Prepare an assessment of current affordability challenges facing residential customers

1.a-1) Conduct demographic assessment of residential customers with: size of household, property type, household ages, household races, household incomes

1.a-2) Characterize demographics in clusters (where possible)

1.b-1) Estimate the number of customers who are at or less than 150% of federal poverty guidelines

1.b-2) Estimate the number of customers who are at or less than 200% of federal poverty guidelines

1.b-3*) Consider if there are any other low-income thresholds to include

1.c-1) Provide an analysis of patterns and trends for energy usage

1.c-2) Provide an analysis of patterns and trends for non-pay disconnections

1.c-3) Provide an analysis of patterns and trends for payment delinquency histories

1.c-4) Provide an analysis of patterns and trends for account write-offs due to uncollectability

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Docket No. E-7, Sub 1276
Harris Exhibit 1
Page 261 of 548

Subteam A Recap of Completed Tasks

SUB-TEAM A Customer Challenges			
Task	**Work Product**	**Date Shared with/Sent to LIAC**	**Date Discussed with LIAC**
1.a-1) Conduct demographic assessment of residential customers with: size of household, property type, household ages, household races, household incomes 1.a-2) Characterize demographics in clusters (where possible) 1.b-1) Estimate the number of customers who are at or less than 150% of federal poverty guidelines 1.b-2) Estimate the number of customers who are at or less than 200% of federal poverty guidelines 1.b-3*) Consider if there are any other low-income thresholds to include 1.c-1) Provide an analysis of patterns and trends for energy usage 1.c-2) Provide an analysis of patterns and trends for non-pay disconnections 1.c-3) Provide an analysis of patterns and trends for payment delinquency histories 1.c-4) Provide an analysis of patterns and trends for account write-offs due to uncollectability	Version 4 Analytics (Final)	March 28, 2022 via Email	March 31, 2022 at Workshop 6

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Subteam B Tasks

SUB-TEAM B Affordability Metrics
Develop metrics or definition for "affordability" *(in the context of the Duke Energy's provision of service in NC)*
2.a-1) Research how "affordability" is defined and applied in other jurisdictions (specifically by vertically integrated IOUs) [Explore trends in affordability] 2.b-1) Determine eligibility criteria to be used for affordability programs

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Subteam B Recap of Completed Tasks

SUB-TEAM B Affordability Metrics			
Task	**Work Product**	**Date Shared with/Sent to LIAC**	**Date Discussed with LIAC**
2.a-1) Research how "affordability" is defined and applied in other jurisdictions (specifically by vertically integrated IOUs) [Explore trends in affordability]	**Affordability Principles** – Subteam B LIAC Presentation	March 31, 2022, at Workshop 6	
2.b-1) Determine eligibility criteria to be used for affordability programs	**Low-income Program Eligibility Analysis** – Subteam B LIAC Presentation		
2. c-1) Develop suggested metrics for affordability in context of Company's provisions of service in its North Carolina service territory	Similar workstream as of Subteam C. LIAC members agreed to address metrics for affordability program in Subteam C workstream		