APPRAISER CERTIFICATION BOARD

August 13, 2024

Agenda Item 4

Meeting Minutes

APPRAISER CERTIFICATION BOARD

MEETING MINUTES

Via Zoom

May 14, 2024
10:30 a.m.

Members Present:
Jayme Jacobs, Chair
Sorin Popa
Jana Seddon
Lorna Quisenberry
Chris Sarman
Richard Ewell

1. Public Comment
   Written public comment was received prior to the meeting. No additional comments were made.

2. Introductions of members and staff.

   Vice Chair Sorin Popa opened the meeting. Chair Jayme Jacobs joined the meeting at 10:48 a.m. Member Jana Seddon left the meeting at 10:55 a.m.

3. **Review and Consideration for Approval of the November 9, 2023, Appraiser Certification Board Meeting Minutes (for possible action).**

   Member Lorna Quisenberry moved to approve the minutes of November 9, 2023. Member Chris Sarman seconded the motion. The Board approved the minutes as presented.

4. **Review and Consideration for Approval of Continuing Education Credit Hours Reviewed by the Department of Taxation (for possible action).**

   a) **WGU – Managerial Accounting, 36 Hours**
   Member Sorin Popa motioned to approve. Member Lorna Quisenberry seconded the motion. Member Richard Ewell opposed. The Board approved the class.

   b) **EMU – Principles of Macroeconomics, 36 Hours**
   Member Chris Sarman motioned to approve. Member Sorin Popa seconded. Member Richard Ewell opposed. The Board approved the class.

   c) **EMU – Principles of Economics, 36 Hours**
   Member Lorna Quisenberry motioned to approve. Member Chris Sarman seconded. Member Richard Ewell opposed. The Board approved the class.

   d) **EMU – Business Statistics I, 36 Hours**
   Member Chris Sarman motioned to approve. Member Sorin Popa seconded. Member Richard Ewell opposed. The Board approved the class.

   e) **UNR – Intro to Economics, 36 Hours**
   Member Lorna Quisenberry motioned to approve. Member Chris Sarman seconded. Member Richard Ewell opposed. The Board approved the class.

   f) **BOE - California – Basic Appraisal, 34 Hours**
   g) **MCKISS – 2020-2021 National USPAP Course, 15 Hours**
   h) **MCKISS – Expert Witness for Commercial Appraisers, 15 Hours**
   i) **MCKISS – Advanced Residential Applications & Case Studies, 15 Hours**
   j) **MCKISS – Residential Report Writing and Case Studies, 15 Hours**

Member Lorna Quisenberry motioned to approve items f thru j. Member Jana Seddon seconded. The Board unanimously approved the classes.

k) EMU - Principles of Finance, 36 Hours
Member Lorna Quisenberry motioned to approve. Member Chris Sarman seconded. Member Richard Ewell opposed. The Board approved the class.

5. Review and Consideration of Continuing Education Credit Hours (for possible action).

a) MCKISS – Residential Property Measurement and ANSI Z765, 4 Hours
Member Chris Sarman motioned to approve. Member Lorna Quisenberry seconded. The Board approved the class.

b) EMU – Financial Statement Analysis, 36 Hours
Member Lorna Quisenberry motioned to approve. Member Sorin Popa seconded. Member Richard Ewell opposed. The Board approved the class.

c) MCKISS – Valuation of Residential Green Buildings, 4 Hours
Member Lorna Quisenberry motioned to approve. Member Chris Sarman seconded. The Board unanimously approved the class.

d) UP – Skills for Professional Development, 36 Hours
Member Lorna Quisenberry motioned to deny. Member Richard Ewell seconded. The Board unanimously denied the class.

e) UP – Economics for Business, 36 Hours
Member Lorna Quisenberry motioned to approve. Member Chris Sarman seconded. Member Richard Ewell opposed. The Board approved the class.

f) ACEI - Appraising Energy Efficient Residential Properties, 8 Hours
Member Richard Ewell motioned to approve. Member Chris Sarman seconded; The Board unanimously approved the class.

g) WGU – Quantitative Analysis of Business, 36 Hours
Member Chris Sarman motioned to approve. Member Sorin Popa seconded. Member Richard Ewell opposed. The Board approved the class.

h) WGU – Principles of Finance, 36 Hours
Member Lorna Quisenberry motioned to approve. Member Chris Sarman Seconded. Member Richard Ewell opposed. The Board approved the class.

i) BOE California – Residential Appraisal Procedures, 21 Hours
Member Richard Ewell motioned to approve. Member Lorna Quisenberry seconded. The Board unanimously approved the class.

j) MCKISS – Statistics, Modeling and Finance, 15 Hours
Member Lorna Quisenberry motioned to approve. Member Chris Sarman Seconded. Member Richard Ewell opposed. The Board approved the class.

k) NAA – Marshall & Swift Commercial & Residential Cost Course, 32 Hours
Member Chris Sarman motioned to approve. Member Richard Ewell seconded. The Board unanimously approved the class.

l) EMU – Principles of Financial Acct, 36 Hours
Member Lorna Quisenberry motioned to approve. Member Chris Sarman seconded. Member Richard Ewell opposed. The Board approved the class.

m) EMU – Principles of Managerial Acct, 36 Hours
Member Chris Sarman motioned to approve. Member Sorin Popa seconded. Member Richard Ewell opposed. The Board approved the class.

n) UP – Financial Analysis 1, 36 Hours

Member Chris Sarman motioned to approve. Member Lorna Quisenberry seconded. Member Richard Ewell opposed. The Board approved the class.

o) **UP – Financial Analysis 2, 36 Hours**
Member Chris Sarman Motioned to approve. Member Lorna Quisenberry seconded. Member Richard Ewell opposed. The Board approved the class.

p) **IAAO – Making Marijuana Personal, 1.5 Hours**
Member Richard Ewell motioned to approve. Member Lorna Quisenberry seconded. The Board unanimously approved the class.

q) **EMU – Economic Analysis for Business, 36 Hours**
Member Lorna Quisenberry motioned to approve. Member Sorin Popa seconded. Member Richard Ewell opposed. The Board approved the class.

r) **BOE - California – Replacement Cost Estimating of Residential Structures, 21 Hours**
Member Richard Ewell motioned to approve. Member Sorin Popa seconded. The Board unanimously approved the class.

s) **NREI – What Would You Do? Questions of Ethical Integrity, 3 Hours**
Member Lorna Quisenberry motioned to deny. Member Richard Ewell seconded. Member Jayme Jacobs opposed. The Board denied the class.

t) **UP – Employment Law, 36 Hours**
Member Chris Sarman motioned to deny. Member Lorna Quisenberry seconded. The Board unanimously denied the class.

u) **UP – Management Theory, Practice, and Application, 36 Hours**
Member Chris Sarman motioned to deny. Member Lorna Quisenberry seconded. The Board unanimously denied the class.

v) **UP – Organizational Behavior, 36 Hours**
Member Chris Sarman motioned to deny. Member Lorna Quisenberry seconded. The Board unanimously denied the class.

w) **MCKISS – Avoiding Mortgage Fraud for Appraisers, 7 Hours**
Member Lorna Quisenberry motioned to approve. Member Sorin Popa seconded. The Board unanimously approved the class.

x) **BOE California – Time Value of Money - Six Functions of a Dollar, 8 Hours**
Member Richard Ewell motioned to approve. Member Sorin Popa seconded. Member Lorna Quisenberry opposed. The Board approved the class.

y) **NREI - 80th Nevada Legislative Update, 3 Hours**
Member Lorna Quisenberry motioned to deny. Member Richard Ewell seconded. Member Jayme Jacobs opposed. The Board denied the class.

z) **WNC – Elementary Algebra, 36 Hours**
Member Chris Sarman motioned to approve. Member Lorna Quisenberry seconded. The Board unanimously approved this class with item aa.

aa) **WNC – Intermediate Algebra, 36 Hour**
Approved with item z in a batch.

bb) **NREI - What Every Licensee Should Know About Fair Housing, 3 Hours**
Member Richard Ewell motioned to deny. Member Lorna Quisenberry seconded. Members Jayme Jacobs and Chris Sarman opposed. The Board denied the class.

cc) **NREI – What Every Real Estate Agent Needs to Know About Mortgage Financing, 3 Hours**
Member Chris Sarman motioned to approve. Member Sorin Popa seconded. Members Richard Ewell and Lorna Quisenberry opposed. The Board approved the class.

dd) **MCKISS – Supervisor Trainee Course, 4 Hours**

Member Lorna Quisenberry motioned to deny. Member Richard Ewell seconded. The Board unanimously denied the class.

ee) MCKISS – Divorce and Estate Appraisals, 4 Hours
Member Richard Ewell motioned to deny. Member Chris Sarman seconded. The Board unanimously denied the class.

ff) MCKISS – Fair Housing, Bias and Discrimination, 4 Hours
Member Chris Sarman motioned to approve. Member Sorin Popa seconded. Members Richard Ewell and Lorna Quisenberry opposed. The Board approved the class.

6. Briefing to and from Appraiser Certification Board and Department Staff (for discussion only).

- Update on Exams
  The exams have been reviewed by board members and they will be doing a soft rewrite.
- Testing Dates
  The next testing date will be in June, but no specific date or location has been scheduled yet. Another date will be scheduled for the fall conference during the week of September 9th.
- Board Members Appointments
  Jeffrey Mitchell with the Department of Taxation noted three members are appointed by the Nevada Assessors Association, and three are appointed by the Nevada Tax Commission. Member Chris Sarman's term expires on September 30, 2024. All other members expire in 2025.
- Appraiser Hours
  Hector Sepulveda with the Department of Taxation stated there are thirteen appraisers still needing hours.

Member Chris Sarman inquired about carrying over hours to the next milestone if there is a surplus. Jeffrey Mitchell will work on a memo to help address the concerns of the Board.

7. Schedule Date and Review Agenda Topics for the Next Appraiser Certification Board Meeting (for possible action).
The Board will appoint a new chair and vice chair at the next meeting.

The Board will discuss forming a subcommittee to review classes to be deactivated.

Christina Griffith with the Department of Taxation suggested August 8, 2024 for the next tentative meeting date, noting a poll will be sent to members if needed.

8. Public Comment
There was no public comment.

9. Adjournment.
Meeting adjourned.

APPRAISER CERTIFICATION BOARD

August 13, 2024

Agenda Item 5

(a) AI-General Appraiser Sales Comparison Approach

Nevada Department of Taxation

Property Tax Appraiser Continuing Education
New Course Application

Return this form to:
Division of Local Government Services
3850 Arrowhead Dr., 2nd Floor
Carson City, Nevada 89706

Please Print or Type:

COURSE INFORMATION (A person who wishes to receive contact hours for a course of continuing education that has not been previously approved, must apply for such approval.)

NAME OF REQUESTER	TITLE
[redacted]	Personal Property Appraiser

TITLE OF COURSE
General Appraiser Sales Comparison Approach

VENDOR/PROVIDER
Appraisal Institute

1. Course Summary:
This course provides an in-depth look at this valuation analysis method. It begins with detailed discussions of property comparability, techniques used to gather and verify data for a subject property, and use of this data in selecting appropriate comparable properties and neighborhoods for analysis in the approach. You'll explore ways to sort and analyze data an effectively apply certain statistical analysis tools.

2. What are the hours of instruction? Onlice Course. 27 hours.

3. What is the completion date? 6/5/2024

SUBJECT CLASSIFICATION - CHECK ALL THAT APPLY

- ☐ Mass Appraisal Concepts and Applications
- ☐ IAAO Standards
- ■ Residential, Commercial/Industrial Appraisal
- ☐ Unitary/Centrally Assessed Property Appraisal
- ☐ Legal Documents (Deeds, Titles, Leases, etc.)
- ☐ Nevada Statutes or Regulation, Appraisal or Assessment Standards
- ☐ College or Professional Level Accounting, Finance, Statistics or Other Appraisal Subjects
- ☐ GIS, Mapping, CAMA
- ■ Laws Relating to Real Estate, Water or Mining
- ☐ Professional Ethics
- ■ Other

If other, please describe why the course is applicable to appraisal and/or property tax.
Being a Personal Property appraiser, this course was hugely helpful and educational for me learning real property appraisal skills that I will use in my future when I obatin my real property certification.

REQUIRED MATERIALS TO BE SUBMITTED WITH APPLICATION INCLUDE:
- ■ Detailed Course Outline
- ■ Syllabus or Course Material

SIGNATURE

[redacted] 6/10/2024

Requestor Signature *Date*

For Department Use Only

NUMBER OF CREDIT HOURS GRANTED	NUMBER OF CREDIT HOURS APPEARING ON TRANSCRIPT	MILESTONE APPLIED TO	TOTAL HOURS FOR THIS MILESTONE

Verified by:

▶ _____ _____ _____
Division of Local Government Services *Title* *Date*

General Appraiser Sales Comparison Approach

Course Description

This course provides an in-depth look at this valuation analysis method. It begins with detailed discussions of property comparability, techniques used to gather and verify data for a subject property, and use of this data in selecting appropriate comparable properties and neighborhoods for analysis in the approach. You'll explore ways to sort and analyze data and effectively apply certain statistical analysis tools. Quantitative and qualitative analysis of comparable sales using units and elements of comparison is approached through detailed practice problems, case studies, and lecture.

Course Objectives

- Identify and organize pertinent market data for the sales comparison approach.
- Identify techniques used for data collection, selection, and verification.
- Apply quantitative and qualitative techniques to analyze comparable sales.
- Perform meaningful reconciliation including qualitative analysis in the sales comparison approach.
- Use a financial calculator to adjust for cash equivalency.
- Identify ways to use grouped data analysis, sensitivity analysis, scenario analysis, and trend analysis in supporting adjustments.

Appraisal Institute®

GENERAL APPRAISER SALES COMPARISON APPROACH

Online Syllabus

Module 1: Steps for Applying the Sales Comparison Approach
Module 2: Units of Comparison
Module 3: Elements of Comparison
Module 4: Data Collection and Comparable Selection
Module 5: Verification
Module 6: Case Study - Data Selection Exercise on an Industrial Property
Module 7: Adjustments and Analytical Techniques
Module 8: Introduction to Qualitative Analysis
Module 9: Case Study - Industrial Property
Module 10: Introduction to Quantitative Analysis and Adjustment Derivation Techniques
Module 11: Special Considerations for Quantitative Analysis
Module 12: Adjustment Derivation Techniques – Part 1
Module 13: Adjustment Derivation Techniques – Part 2
Module 14: Supportive Quantitative Analysis Techniques
Module 15: Practice Problems in Applying Quantitative Analysis Techniques
Module 16: Case Study - Apartment Property
Module 17: Case Study - Quantitative and Qualitative Analysis
Module 18: Reconciliation and Consistency Issues

OFFICIAL ACADEMIC RECORD for APPRAISERS - NEVADA

This document certifies that

[redacted]

Douglas County Assessor's Office
PO Box 218
Minden, NV 89423

has attended this Appraisal Institute program

General Appraiser Sales Comparison Approach

(NV Program License Number: CE.0009598-A, expires 10/31/2024)

online on 06/05/2024.

IDECC Expiration Date: 06/01/2025

Attendance Hours: 27.0

The Nevada Commission of Appraisers Board has approved this program for 27.0 course hours

Attendance was 100%.

Verified by Elizabeth A. Conner on June 5, 2024

Elizabeth A. Conner
Senior Manager, Classroom Education Delivery and State Certification

I certify under penalty of perjury that the above information is true and correct.

Appraisal Institute

Nevada Department of Taxation

Request for Continuing Education Credit or Addition to Transcript

Return this form to:
Division of Local Government Services
1550 College Parkway
Carson City, Nevada 89706

Please Print or Type:

CONTACT INFORMATION

NAME OF REQUESTOR	TITLE
[redacted]	Personal Property Appraiser
[redacted]	
MAILING ADDRESS (STREET ADDRESS OR PO BOX) [redacted]	EMAIL ADDRESS [redacted]

CITY	STATE	ZIP CODE	DAYTIME PHONE	ALTERNATE PHONE	FAX NUMBER
[redacted]			[redacted]	( )	( )

COURSE(S) YOU WANT ADDED TO YOUR TRANSCRIPT (If there is not enough space below, please attach a list.)

COURSE TITLE	CREDIT HOURS
General Appraiser Sales Comparison Approach	27
COURSE PROVIDER	DATE TAKEN
Appraisal Institute	6/5/24
COURSE TITLE	CREDIT HOURS
COURSE PROVIDER	DATE TAKEN
COURSE TITLE	CREDIT HOURS
COURSE PROVIDER	DATE TAKEN
COURSE TITLE	CREDIT HOURS
COURSE PROVIDER	DATE TAKEN

PLEASE ATTACH THE CERTIFICATE OF COMPLETION (If the certificate of completion is not attached or previously provided to the Department, your request cannot be granted.)

Have you ever taken this course before? Yes ☐ No ☑
If yes, which course and when? _____

SIGNATURE

▶ [redacted] _____ 6/5/24
Requ... Date

For Department Use Only

NUMBER OF CREDIT HOURS GRANTED	NUMBER OF CREDIT HOURS APPEARING ON TRANSCRIPT	MILESTONE APPLIED TO	TOTAL HOURS FOR THIS MILESTONE

Verified by:

▶ _____ _____ _____
Division of Local Government Services | Title | Date

Form NVTT-LGS-5
Rev. 11/2022

APPRAISER CERTIFICATION BOARD

August 13, 2024

Agenda Item 5

(b) IAAO-27th GIS Valuation Technologies Conference

Nevada Department of Taxation

Property Tax Appraiser Continuing Education
New Course Application

Return this form to:
Division of Local Government Services
3850 Arrowhead Dr., 2nd Floor
Carson City, Nevada 89706

Please Print or Type:

COURSE INFORMATION (A person who wishes to receive contact hours for a course of continuing education that has not been previously approved, must apply for such approval.)

NAME OF REQUESTER	TITLE
[redacted]	[redacted]

TITLE OF COURSE
27th GIS Valuation Technologies Conference

VENDOR/PROVIDER
URISA & IAAO

1. Course Summary:

Program features three concurrent education tracks offering 24 sessions, 2 general sessions, and 8 workshops. The three tracks include:
1) Modeling and Valuation Considerations, 2) GIS Technologies and 3) Leadership Development and Policy.

2. What are the hours of instruction? 22 Hours

3. What is the completion date? April 8-11, 2024

SUBJECT CLASSIFICATION - CHECK ALL THAT APPLY

- ☒ **Mass Appraisal Concepts and Applications**
- ☐ **IAAO Standards**
- ☒ **Residential, Commercial/Industrial Appraisal**
- ☐ **Unitary/Centrally Assessed Property Appraisal**
- ☐ **Legal Documents (Deeds, Titles, Leases, etc.)**
- ☐ **Nevada Statutes or Regulation, Appraisal or Assessment Standards**
- ☐ **College or Professional Level Accounting, Finance, Statistics or Other Appraisal Subjects**
- ☒ **GIS, Mapping, CAMA**
- ☐ **Laws Relating to Real Estate, Water or Mining**
- ☐ **Professional Ethics**
- ☒ **Other**

If other, please describe why the course is applicable to appraisal and/or property tax.

REQUIRED MATERIALS TO BE SUBMITTED WITH APPLICATION INCLUDE:

- ☒ **Detailed Course Outline**
- ☒ **Syllabus or Course Material**

SIGN

▶ [redacted] [redacted]
Requestor

For Department Use Only

NUMBER OF CREDIT HOURS GRANTED	NUMBER OF CREDIT HOURS APPEARING ON TRANSCRIPT	MILESTONE APPLIED TO	TOTAL HOURS FOR THIS MILESTONE

Verified by:

▶ _____ _____ _____
Division of Local Government Services *Title* *Date*

ACB 10

LGS-T004
V2023.2

Place an "X" in the cell corresponding to the session(s) attended.
I certify that I attended the following education sessions during the conference dates shown on this document.

IAAO & URISA 2024 GIS Valuation Technologies Conference

Monday, April 8, 2024

Sessions	8:00am-5:00pm	1:00pm-5:00pm
GIS Program Management (Full-Day Workshop)	8.0 ☐	
Using ArcGIS Dashboards and Experience Builder to Build Responsive and Powerful Dashboards (Full-Day Workshop)	8.0 ☐	
Strategic and Operational Planning (Full-Day Workshop)	8.0 ☐	
Updating CAMA Systems with Regression-based AVMs: Considerations for Office Leadership (Half-Day Workshop)		4.0 ☑

Tuesday, April 9, 2024

Sessions	8:30am-10:00pm	10:30am-12:00pm	2:00pm-3:30pm	4:00pm-5:00pm
Welcome & Keynote Address	0.0 ☐			
GIS 101 - Today's GIS for Assessors		1.5 ☐		
Insights on Analytics, Technology, and Assessing Energy Efficiency		1.5 ☐		
Disruptive Opportunities		1.5 ☑		
Local Government Data Sharing and Transparency: Bridging the Gap for Modern Information Access			1.5 ☐	
Harvesting Fairness: AVM's, Agriculture, and Equity			1.5 ☐	
Unlocking Excellence and Telling Your Story			1.5 ☑	
City of Philadelphia - Enterprise GIS and Data Collection Using AI and ML				1.0 ☐
Tooele County's AVM Transition Success				1.0 ☑
Management, Leadership, and Innovation				1.0 ☐

Wednesday, April 10, 2024

Sessions	9:00am-10:00am	10:30am-12:00pm	2:30pm-3:30pm	3:45pm-4:45pm
Approaches to Statewide Parcel Management	1.0 ☐			
Quantifying Bias in Vertical Inequity Detection Methods	1.0 ☐			
Bias in the Appeal Process	1.0 ☑			
Optimizing Tax Administration with GIS, Dashboards, and Business Intelligence		1.5 ☑		
Exploring Real Estate Dynamics: Navigating Cycles, Mapping Markets, and Land Conservation		1.5 ☐		
Identifying, Analyzing, and Correcting Racial and Social Bias in Assessments		1.5 ☐		
GIS for Assessment Professionals			1.0 ☑	
Don't Go Chasing Sales			1.0 ☐	
Writing Effective RFPs			1.0 ☐	
ArcGIS Pro Tasks and Python: Streamlining Parcel Workflow Reports				1.0 ☐
Harnessing Geospatial Data and Price Indices in Serbia				1.0 ☐
Changing the Office Culture				1.0 ☑

Thursday, April 11, 2024		
Sessions	**9:00am-10:30am**	**1:00pm-5:00pm**
Navigating the Challenges and Celebrating the Successes of GIS Modernization	1.5 ☐	
Unlocking the "Magic" of AI in Property Valuation	1.5 ☐	
Effectively Managing Teams	1.5 ☐	
How To Use Large Language Models in GIS and Valuation Workflows (Half-Day Workshop)		4.0 ☐
Parcel Mapping in ArcGIS Pro (Half-Day Workshop)		4.0 ☐
Mastering Market Segmentation: A Comprehensive Workshop on Tools, Techniques, and Strategies (Half-Day Workshop)		4.0 ☑
Converting SPSS Regression Models to Python Regression Models using Jupyter Notebook (Half-Day Workshop)		4.0 ☐

Course outlines / Descriptions:

Updating CAMA Systems with Regression-based AVMs: Considerations for Office Leadership (Afternoon Half-Day Workshop)
Monday, April 8, 2024 1:00 - 5:00 PM
Instructors: *Paul Bidanset, Founder/Researcher, Center for Appraisal Research and Technology*
Peadar Davis, Senior Lecturer, Ulster University, Belfast, UK

A recent study conducted by the Lincoln Institute of Land Policy and the IAAO surveyed assessors on their office's use of regression-based AVMs. The study's findings corroborated those of academic research: such models typically allow assessors to achieve more uniform valuations with better accuracy and efficiency. While workshops, presentations, and publications on AVMs are effective tools for teaching technical methodologies, managerial considerations (planning, scheduling, resource allocation, staffing, etc.) for augmenting current office procedures, workflows, and software systems do not receive as much discussion or instruction.

This workshop is tailored to a non-technical audience leadership audience (managers, directors, supervisors, etc.) who would be responsible for planning, implementing, and overseeing AVM implementation for revaluations. The following areas will be addressed:

- Required Staffing
- Required Software
- Cost/budget Ranges
- Timeline and Scheduling Requirements
- Project Management
- Public Relations

Discussions and questions will be used to promote an interactive classroom approach. Participants will be encouraged to present questions from their own jurisdictions for independent thought, critical thinking, and topic reinforcements.

Disruptive Opportunities

Tuesday April 9, 2024 10:30am - 12:00pm EDT
Symphony III

Representatives from different states will examine how increases in residential real estate values across the country have resulted in large increases in property taxes in specific sectors that result in shifts in the overall tax burden and discusses possible solutions and legislative redress. Then learn about the legislative changes that required the assessment team in Tippecanoe County to adopt an entirely new business process for valuation of one class of property. Learn about the planning, implementation and public information aspects of the project, and the tools that were developed to accomplish the tasks. What could have been a disruptive event pivoted to an opportunity to deliver better service.

- Tax Shift: Little Reasons Behind A Big Problem
  Jake Parkinson, Assessor Coordinator, Valuebase, Austin, TX
- Legislative Changes: End of the World or Opportunity?
  Aaron Zernack, IN Level 2 Assessor/Appraiser, Valuation Specialist, Tippecanoe County Government, Lafayette, IN
  Jacki Vance-Kuss, IN Level 3 Assessor/Appraiser, Senior Deputy, Tippecanoe County Government, Lafayette, IN

Unlocking Excellence and Telling Your Story

Tuesday April 9, 2024 2:00pm - 3:30pm EDT
Symphony III

Mass Appraisal modelers are responsible for developing and using statistical models to analyze and value real property. While it is important to have strong technical skills and an understanding of statistics and real estate appraisal, it is also essential for Mass Appraisal modelers to be able to communicate their work effectively to a variety of audiences. Then learn about Richmond County (best known for hosting the Masters Tournament) and the need for a solution for increasing efficiency, better management of data, and improving data quality. Hear about the high-level implementation of a plan and solution for achieving these objectives.

The Importance of Good Communication as a Mass Appraiser Modeler
Jimmy Williams, MSc, CPE, Supervisor of Mass Appraisal, Philadelphia Office of Property Assessment, Philadelphia, PA

Unlocking Efficiency and Excellence: Augusta, Georgia's Journey to Modernize and Streamline Data Collection and Appraisal Management
Scott Rountree, Chief Appraiser, Augusta-Richmond Board of Assessors, Augusta, GA
Daniel Anderson, VP, Practice Leader, Data Cloud Solutions, a Woolpert Company

Tooele County's AVM Transition Success

Tuesday April 9, 2024 4:00pm - 5:00pm EDT
Symphony II

In this session, Tooele County shares its journey of transitioning away from the cost approach for property assessment in their vast and sparsely populated region. They discuss the decision to utilize Automated Valuation Model (AVM) values, redraw neighborhood boundaries with regression, and evaluate vertical equity, highlighting substantial improvements in valuation accuracy and equity achieved at a fraction of the cost of a full-time employee.

- Small County Quits Cost Approach: A How-To Guide & Why
  Jake Parkinson, Assessor Coordinator, Valuebase, Austin, TX

Bias in the Appeal Process

Wednesday April 10, 2024 9:00am - 10:00am EDT
Symphony III

Appeal bias is an important topic for many jurisdictions. Mecklenburg county presents a recent study of appeal rates viewed from a demographic perspective and the resulting plans to address bias.

- Appeal Bias
  Brad Fowler, RES, AAS, Deputy Assessor, Mecklenburg County, Charlotte, NC

Optimizing Tax Administration with GIS, Dashboards, and Business Intelligence

Wednesday April 10, 2024 10:30am - 12:00pm EDT
Symphony I

This session explores how to harness the full potential of GIS for visualizing big data, streamlining business processes, and transforming oversight using dashboards and business intelligence.

- User's Guide to Making the Most out of Dashboards
  Bindi Shakya, Msc, Mass Appraisal Modeler/Analyst, City of Philadelphia, OPA, Philadelphia, PA
- Using Business Intelligence software to Guide our Oversight into the Appeal and Objection Process
  Pim Hessing, Data Analyst, Netherlands Council for Real Estate Assessment, The Hague, Netherlands
  Luc Hermans, Data Scientist, Netherlands Council for Real Estate Assessment, The Hague, Netherlands

GIS for Assessment Professionals

Wednesday April 10, 2024 2:30pm - 3:30pm EDT
Symphony I

Evolving technological opportunities much include best practices in step with integration to help GIS users with efficiency and effectiveness.

- *Lauren Voelker, Senior Solutions Engineer, Esri, St. Louis, MO*

Changing the Office Culture

Wednesday April 10, 2024 3:45pm - 4:45pm EDT
Symphony III

Staff turnover, transition in leadership, and developing new office culture are often concurrent problems. This session presents tips and tricks for avoiding pitfalls and for effectively changing multigenerational office culture.

- Through the Transition: Conquering the Challenges of New Leadership
  Danny Hagen, IAAO-P, Assessor, Skagit County, Mount Vernon, WA
  Annette DeVoe, IAAO-P, Chief Deputy Assessor, Skagit County, Mount Vernon, WA

Mastering Market Segmentation: A Comprehensive Workshop on Tools, Techniques, and Strategies (Afternoon Half-Day Workshop)

Thursday April 11, 2024 1:00pm - 5:00pm EDT
Symphony III

Mastering Market Segmentation: A Comprehensive Workshop on Tools, Techniques, and Strategies (Afternoon Half-Day Workshop)
Thursday, April 11, 2024 - 1:00 - 5:00 PM
Instructors: *Paul Bidanset, Founder/Researcher, Center for Appraisal Research and Technology*
Daniel Fasteen, Ph.D., Senior Research Scientist, Tyler Technologies, Inc.

In today's ever-evolving valuation technology landscape, understanding how to effectively segment markets is crucial for success in using all valuation approaches. This workshop is designed to equip you with the knowledge and tools you need to excel in this critical aspect of analysis.

Unlock Market Segmentation Techniques and Tools: Delve into a comprehensive array of tools, algorithms, and methods employed by industry professionals to segment markets successfully. Whether you are new to market segmentation or looking to refine your skills, our workshop promises to empower you with the expertise you need. We will guide you through the utilization of market segmentation tools using ESRI, R, and Python. From basic clustering techniques to sophisticated forest tree algorithms and advanced interpolation methods, you will gain a comprehensive understanding of these powerful tools.
Hands-On, Interactive Experience: This workshop is not just about theory; it is about practical application. Attendees will have the opportunity to actively participate and apply what they learn. To facilitate this, we will provide you with a dataset to work on. If you have access to ArcGIS Pro or R, you can follow along in real time.

Have a Say in What You Learn: We value your input! If you have specific tools or methodologies you would like to see discussed during the session, we encourage you to submit your suggestions to daniel.fasteen@tylertech.com. This workshop is all about catering to your needs and interests.

Join us to explore the world of market segmentation analysis, gain hands-on experience, and discover how to leverage cutting-edge tools and techniques for understanding your data. Don't miss this opportunity to take your market analysis skills to the next level!

APPRAISER CERTIFICATION BOARD

August 13, 2024

Agenda Item 5

(c) Team Consulting-Valuation of Renewable Energy

Nevada Department of Taxation

Property Tax Appraiser Continuing Education
New Course Application

Return this form to:
Division of Local Government Services
3850 Arrowhead Dr., 2nd Floor
Carson City, Nevada 89706

Please Print or Type:

COURSE INFORMATION (A person who wishes to receive contact hours for a course of continuing education that has not been previously approved, must apply for such approval.)

NAME OF REQUESTER	TITLE
[redacted]	REAL PROPERTY APPRAISER II

TITLE OF COURSE
WEBINAR- VALUATION OF RENEWABLE ENERGY

VENDOR/PROVIDER
BRAD ELDRIDGE. MAI,CAE TEAM CONSULTING, LLC ; WEBINAR; VALUATION OFRENEWABLE ENERGY

1. Course Summary:

Identify the various types of Renewable Energy, Know how to list renewable Energy Facilities on the Tax Roll, Recognize valuation issues
Apply appropriate research and analysis,Estimate value with the three approaches to value

2. What are the hours of instruction? 2

3. What is the completion date? MAY 30,2024

SUBJECT CLASSIFICATION - CHECK ALL THAT APPLY

- ☐ **Mass Appraisal Concepts and Applications**
- ☐ **IAAO Standards**
- ☒ **Residential, Commercial/Industrial Appraisal**
- ☐ **Unitary/Centrally Assessed Property Appraisal**
- ☐ **Legal Documents (Deeds, Titles, Leases, etc.)**
- ☒ **Nevada Statutes or Regulation, Appraisal or Assessment Standards**
- ☐ **College or Professional Level Accounting, Finance, Statistics or Other Appraisal Subjects**
- ☐ **GIS, Mapping, CAMA**
- ☐ **Laws Relating to Real Estate, Water or Mining**
- ☐ **Professional Ethics**
- ☒ **Other**

If other, please describe why the course is applicable to appraisal and/or property tax.

HERE IN PAHRUMP WE HAVE SOLAR FIELDS Overall, integrating renewable energy knowledge into real property appraisals ensures THAT appraisers accurately reflect the evolving market trends and the true value of sustainable properties. SOLAR TYPICALLY HAVE HIGHER MARKET VALUE

REQUIRED MATERIALS TO BE SUBMITTED WITH APPLICATION INCLUDE:

- ☐ **Detailed Course Outline**
- ☒ **Syllabus or Course Material**

[redacted] 6/11/24
Date

For Department Use Only

NUMBER OF CREDIT HOURS GRANTED	NUMBER OF CREDIT HOURS APPEARING ON TRANSCRIPT	MILESTONE APPLIED TO	TOTAL HOURS FOR THIS MILESTONE

Verified by:

▶ _____ _____ _____
Division of Local Government Services | Title | Date

1

Instructor

Brad Eldridge, MAI, CAE

County Appraiser

Douglas County, Lawrence, Kansas

IAAO Senior Instructor

Team Consulting

785-550-0945 / eldridge.brad@gmail.com

2

Workshop Objectives

- Be aware of guidance from USPAP
- Identify the various types of Renewable Energy
- Know how to list renewable Energy Facilities on the Tax Roll

3

Workshop Objectives

- Recognize valuation issues
- Apply appropriate research and analysis
- Estimate value with the three approaches to value

4

USPAP Review

Section 2

TEAM Consulting LLC 5

5

Common Themes in USPAP

- Public trust
- Competency
- Not performing an assignment with bias
- Avoiding gross negligence
- Having opinions that are supported by data, information, and analysis
- Documenting and communicating the work performed

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6

COMPETENCY

No one is completely useless.

They can always serve as a bad example.

7

USPAP – Definitions

REAL PROPERTY

An identified parcel or tract of land, including improvements, if any.

BUSINESS ENTERPRISE

An entity pursuing an economic activity.

INTANGIBLE PROPERTY (INTANGIBLE ASSETS)

Nonphysical assets, including but not limited to franchises, trademarks, patents, copyrights, goodwill, equities, securities, and contracts as distinguished from physical assets such as facilities and equipment.

8

USPAP – Definitions

PERSONAL PROPERTY

Any tangible or intangible article that is subject to ownership and not classified as real property, including identifiable tangible objects that are considered by the general public as being "personal," such as furnishings, artwork, antiques, gems and jewelry, collectibles, machinery and equipment;

and

intangible property that is created and stored electronically such as plans for installation art, choreography, emails, or designs for digital tokens.

9

USPAP: Advisory Opinion 33 (AO-33)
Discounted Cash Flow (DCF) analysis

- DCF analysis is regarded as one of the best methods of replicating steps taken by investors
- DCF analysis requires the appraiser to make rational and supportable assumptions
- DCF analysis is often applied in developing value opinions in concert with one or more other approaches
- In certain circumstances it may be the most credible method to solve the valuation problem

10

Types of Renewable Energy

Section 3

11

What is Renewable Energy?

- Renewable energy is energy from sources that are **naturally replenishing,** but flow-limited
- Renewable resources are **virtually inexhaustible in duration,** but limited in the amount of energy that is available per unit of time

12

Types of Renewable Energy

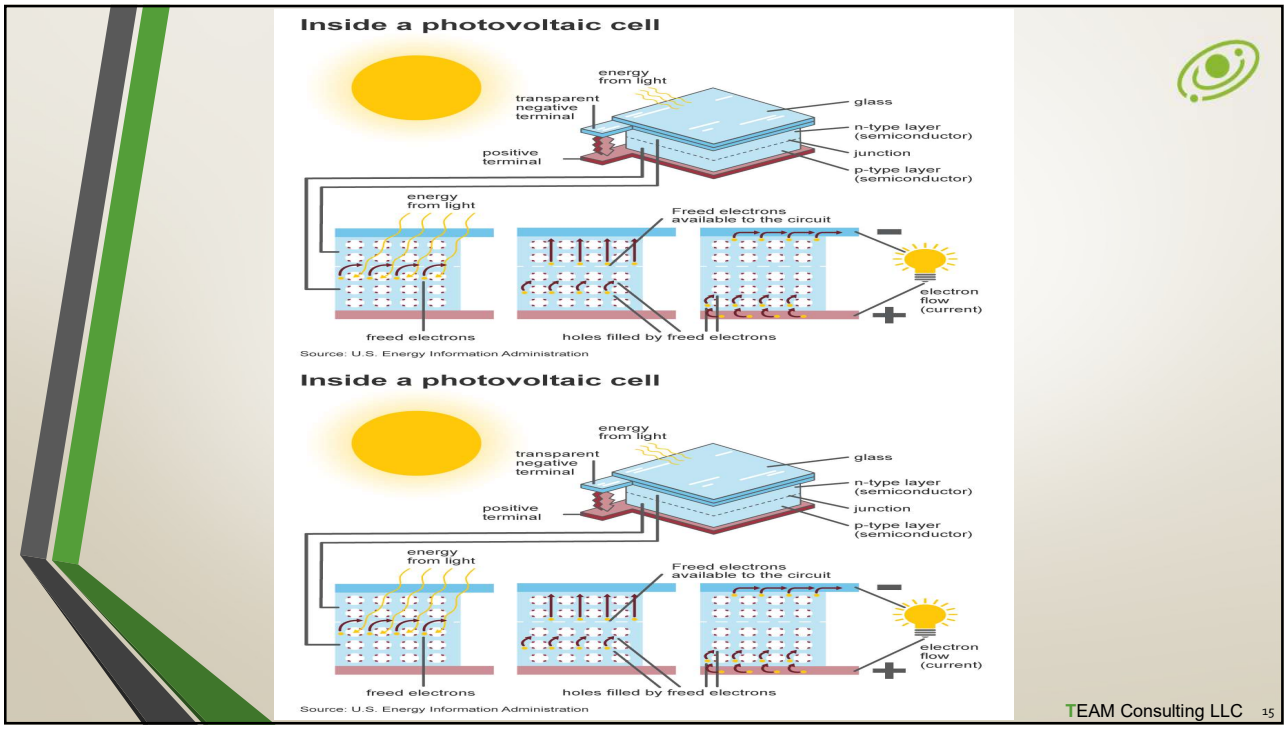
- Solar
- Wind
- Geothermal
- Hydropower
- Biomass

13

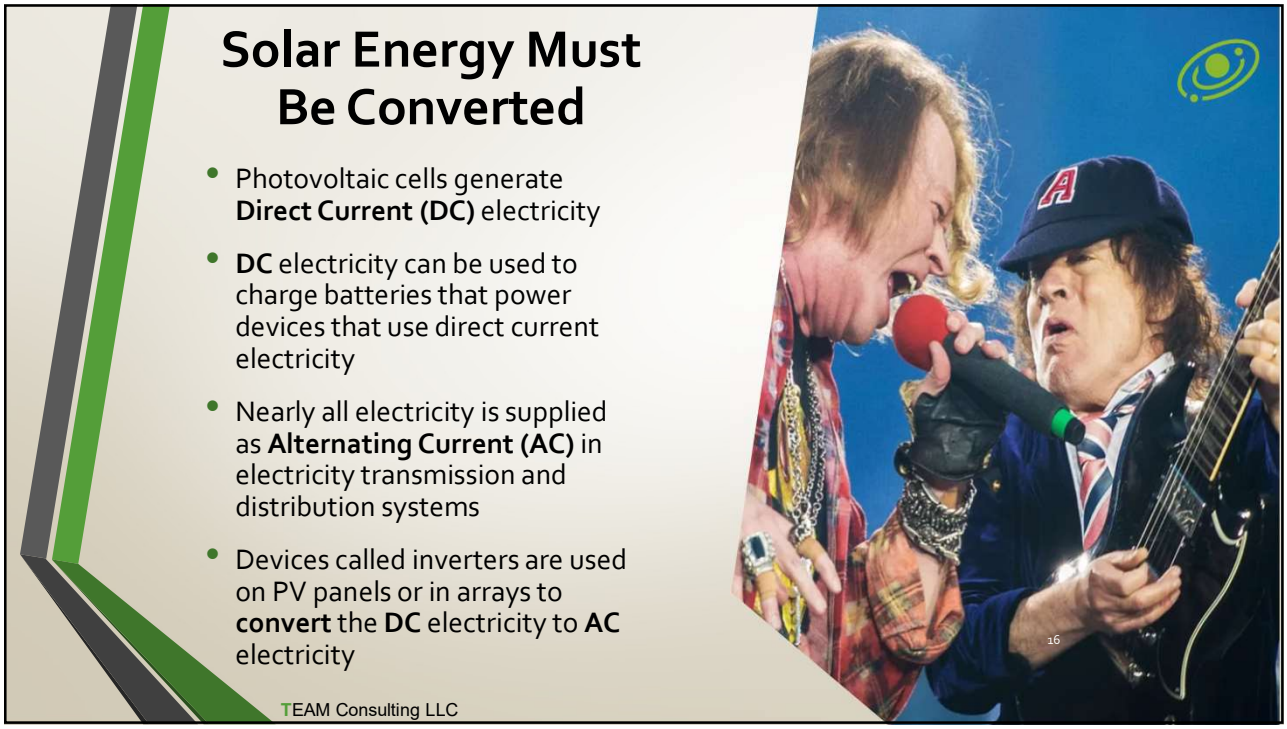
Solar Photovoltaic Systems

- Solar photovoltaic (PV) devices, or solar cells, convert sunlight directly into electricity
- Larger solar cells are grouped in PV panels, and PV panels are connected in arrays that can produce electricity for an entire house
- Some PV power plants have large arrays that cover many acres to produce electricity for thousands of homes
- Most common type of solar energy generation

14


Inside a photovoltaic cell
energy from light
transparent negative terminal
glass
n-type layer (semiconductor)
junction
p-type layer (semiconductor)
positive terminal
energy from light
Freed electrons available to the circuit
electron flow (current)
freed electrons
holes filled by freed electrons
Source: U.S. Energy Information Administration
Inside a photovoltaic cell
energy from light
transparent negative terminal
glass
n-type layer (semiconductor)
junction
p-type layer (semiconductor)
positive terminal
energy from light
Freed electrons available to the circuit
electron flow (current)
freed electrons
holes filled by freed electrons
Source: U.S. Energy Information Administration
TEAM Consulting LLC 15

15


Solar Energy Must Be Converted
Photovoltaic cells generate **Direct Current (DC)** electricity
DC electricity can be used to charge batteries that power devices that use direct current electricity
Nearly all electricity is supplied as **Alternating Current (AC)** in electricity transmission and distribution systems
Devices called inverters are used on PV panels or in arrays to **convert** the **DC** electricity to **AC** electricity
16
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16

Solar Plant Classification

Utility-Scale Power Plants

- > 1,000 kilowatts (kW) (or one megawatt [MW]) of electricity generation capacity
- 70% of all solar power generation

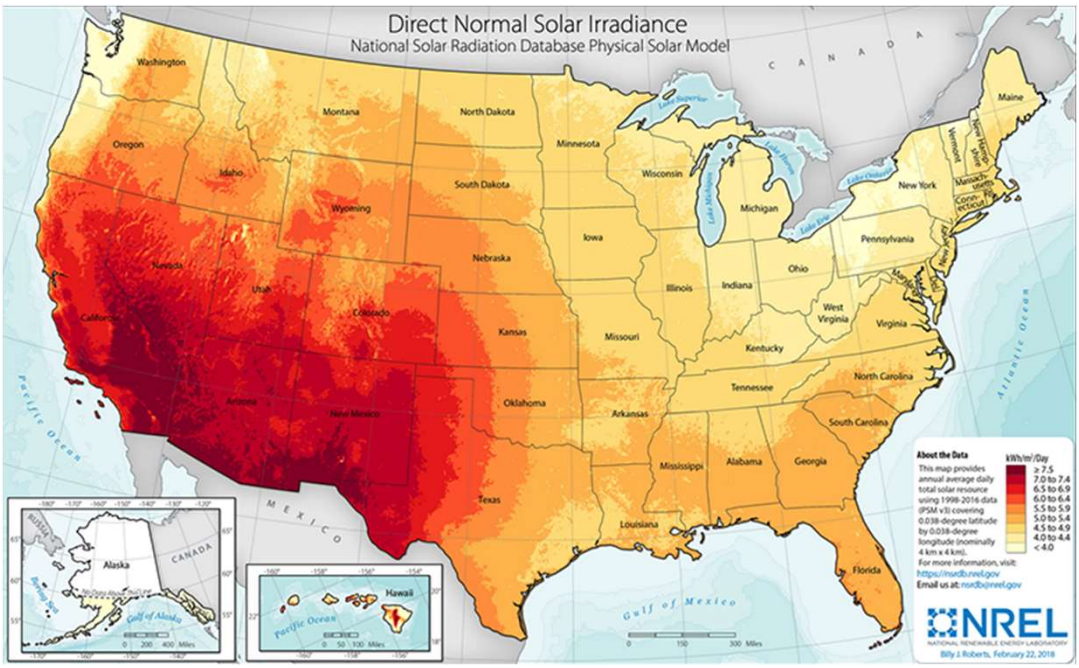
Small-Scale PV Systems

- < 1,000 kilowatts (kW) (or one MW) capacity
- 29% of all solar power generation

Utility-Scale Solar Thermal-Electric Power Plants

- 1% of all solar power generation

17

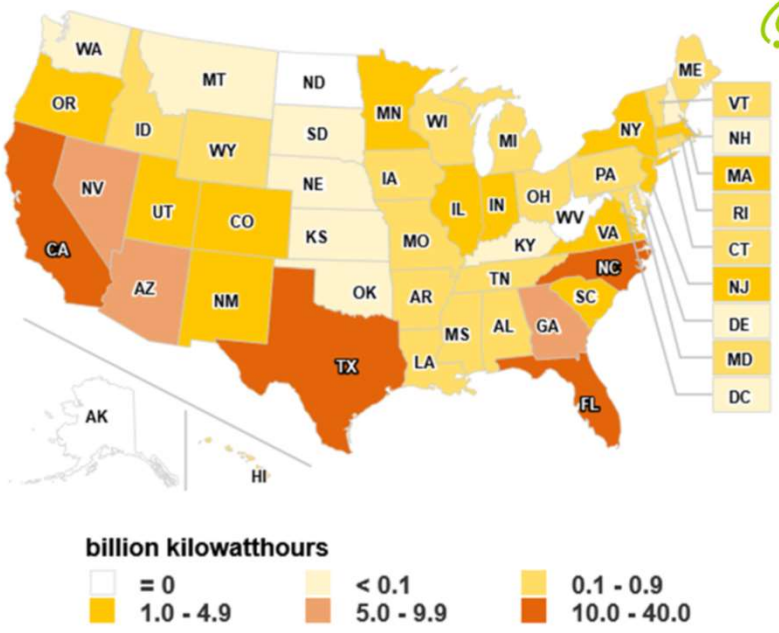


Source: Annual Energy Outlook 2023, U.S. Dept of Energy

18

18

Utility-Scale Solar Electricity Generation by State (2022)

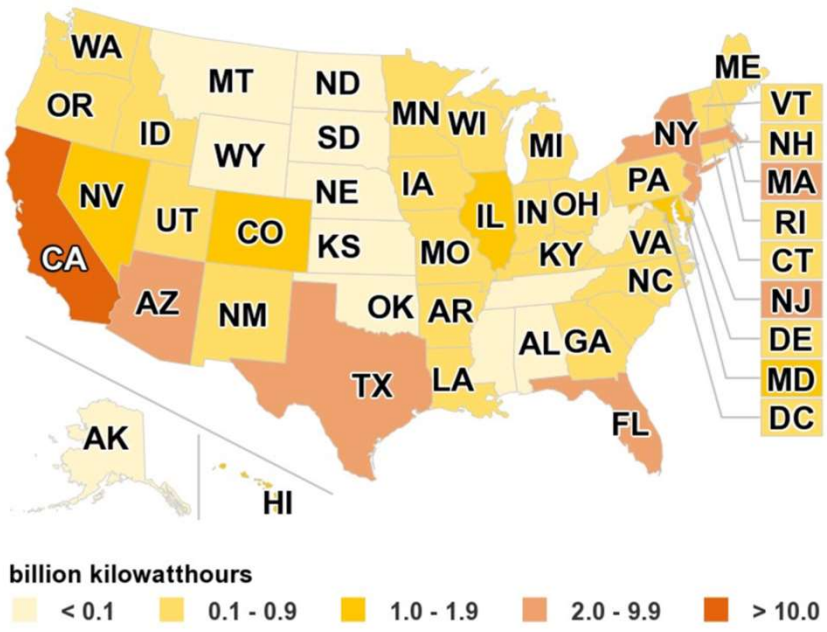


Source: Annual Energy Outlook 2023, U.S. Dept of Energy

19

19

Small-Scale Solar Electricity Generation by State (2022)

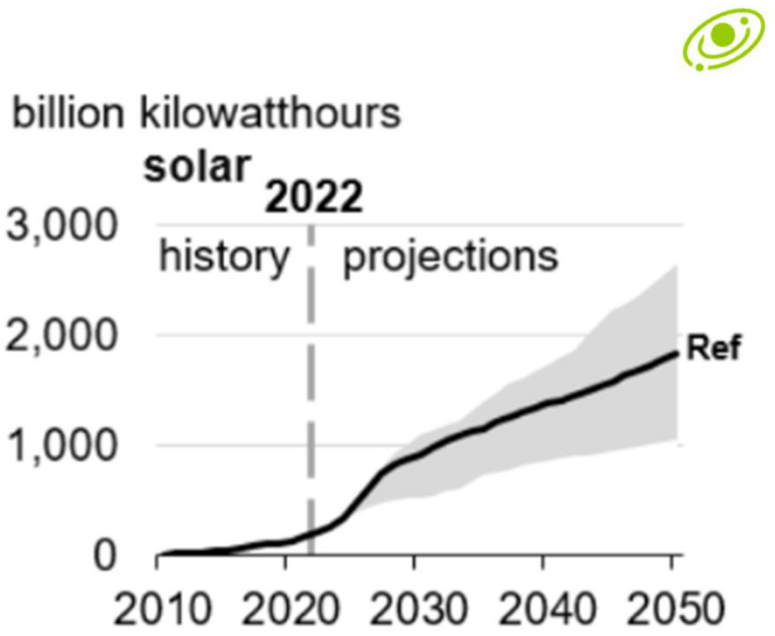


Source: Annual Energy Outlook 2023, U.S. Dept of Energy

20

20

U.S. Solar Electricity Generation



Source: Annual Energy Outlook 2023, U.S. Dept of Energy

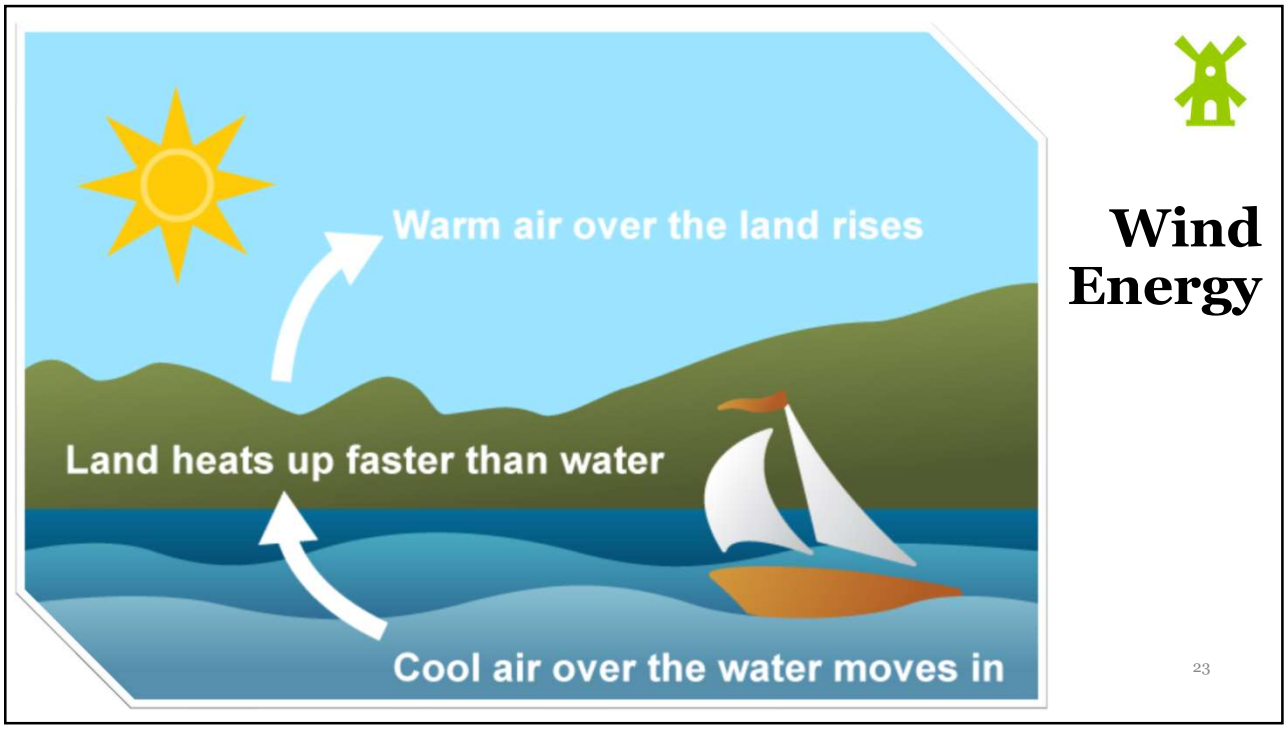
21

21

Wind Energy

- Wind is caused by uneven heating of the earth's surface by the sun
- Because the earth's surface is made up of different types of land and water, the earth absorbs the sun's heat at different rates
- One example of this uneven heating is the daily wind cycle

22



23

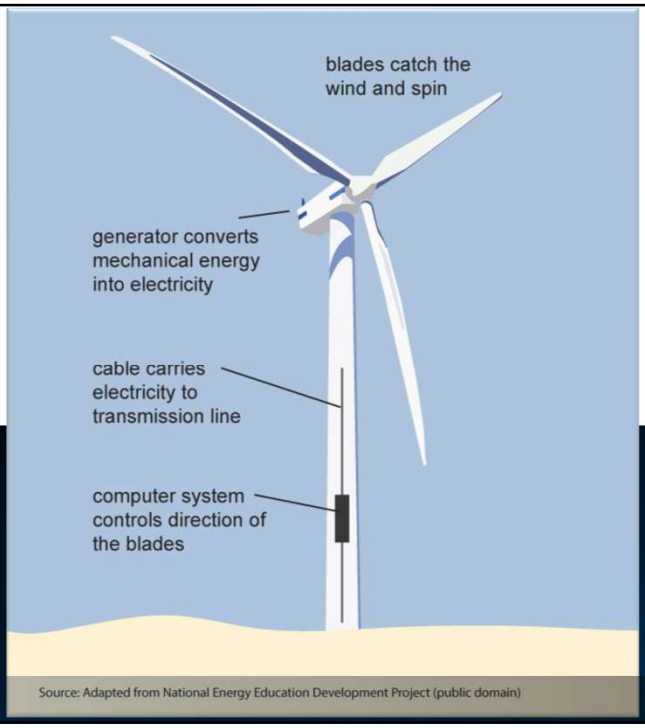
Wind Energy

- Wind turbines use blades to collect the wind's kinetic energy
- Wind flows over the blades creating lift (similar to the effect on airplane wings), which causes the blades to turn
- The blades are connected to a drive shaft that turns an electric generator, which produces (generates) electricity

24

Wind Energy:

Horizontal-Axis Wind Turbine



25

25

Energy Classification & Requirements

Utility-Scale Power Plants

> 1,000 kilowatts (kW) (or one MW) capacity

Small-Scale PV Systems

< 1,000 kilowatts (kW) (or one MW) capacity

Minimum Wind Speeds

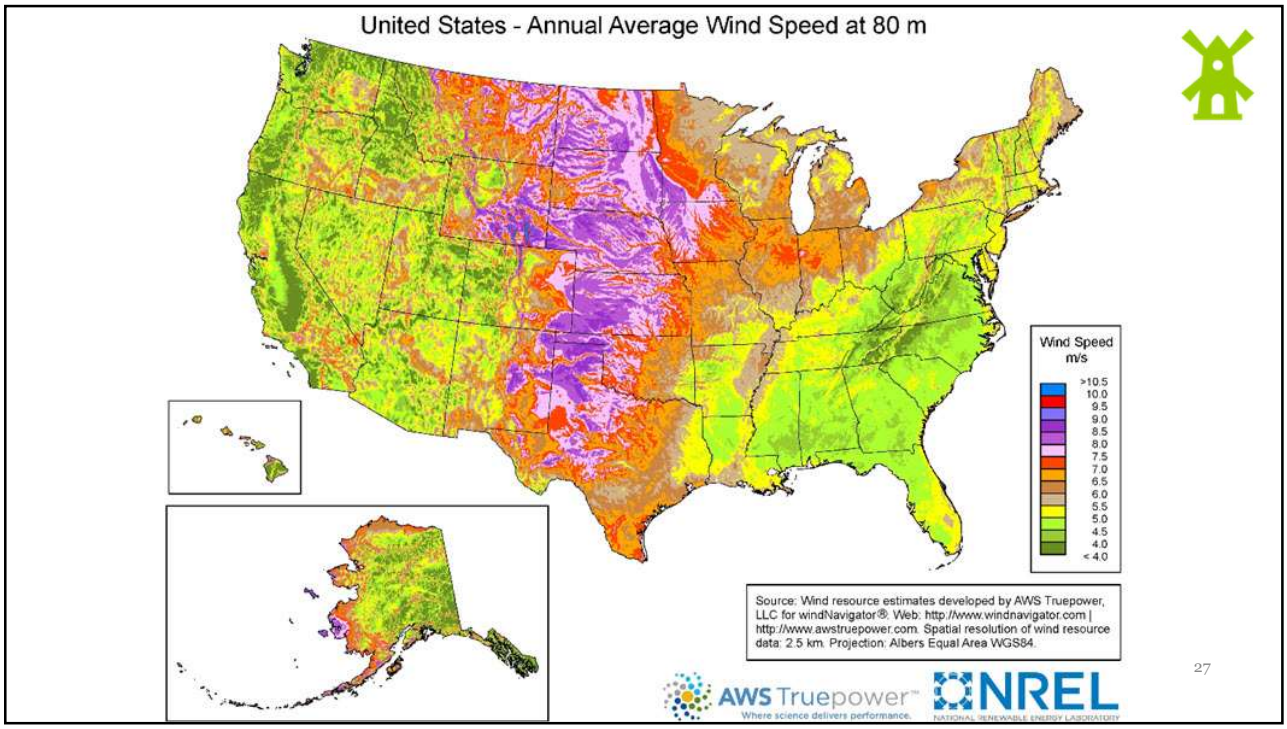
9 MPH for small wind turbines

13 MPH for utility-scale turbines

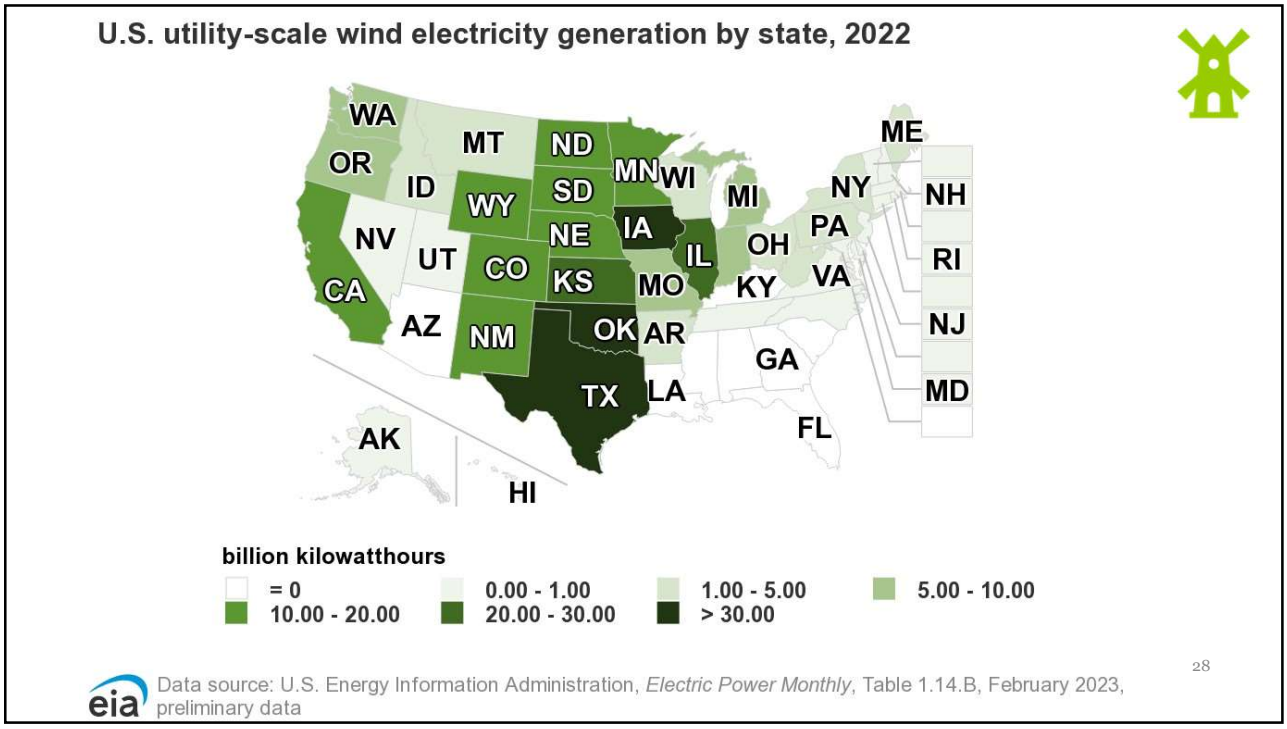
Tower Height

500-900' for large wind turbines

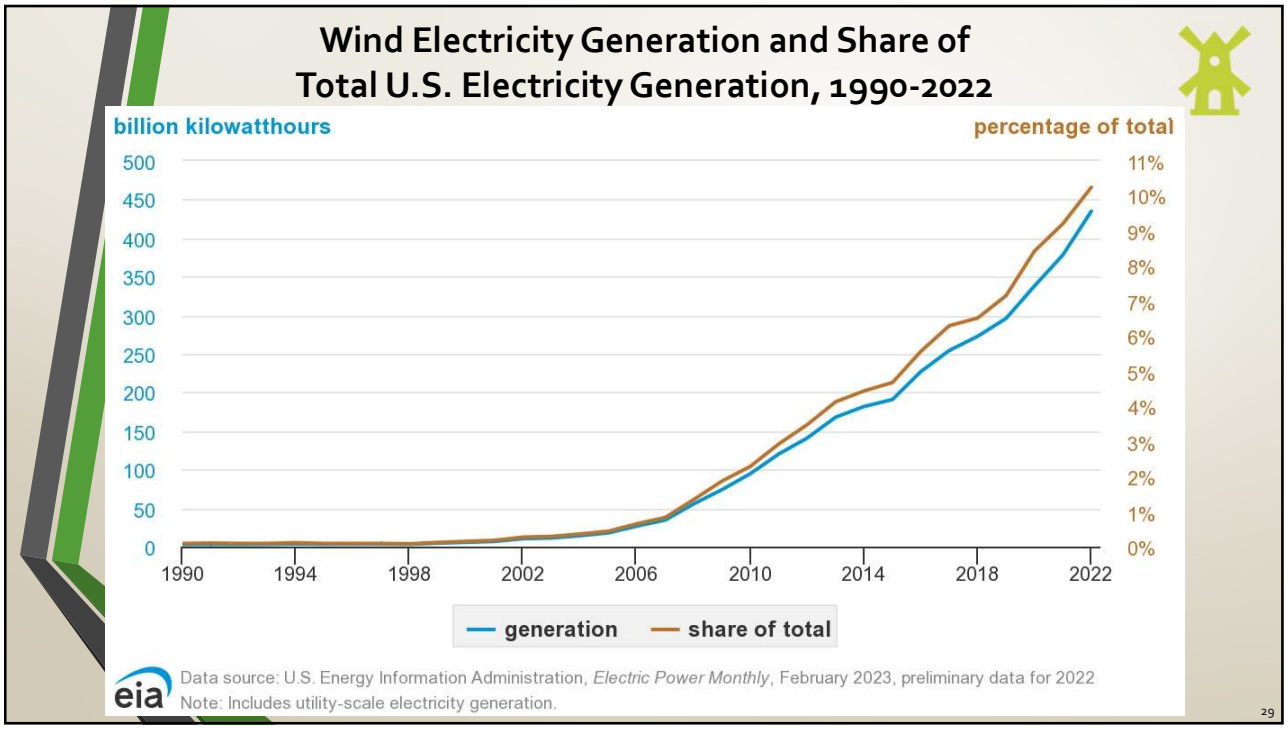
26


United States - Annual Average Wind Speed at 80 m
Wind Speed
m/s
>10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
< 4.0
Source: Wind resource estimates developed by AWS Truepower, LLC for windNavigator®. Web: http://www.windnavigator.com | http://www.awstruepower.com. Spatial resolution of wind resource data: 2.5 km. Projection: Albers Equal Area WGS84.
AWS Truepower
Where science delivers performance.
NREL
NATIONAL RENEWABLE ENERGY LABORATORY
27

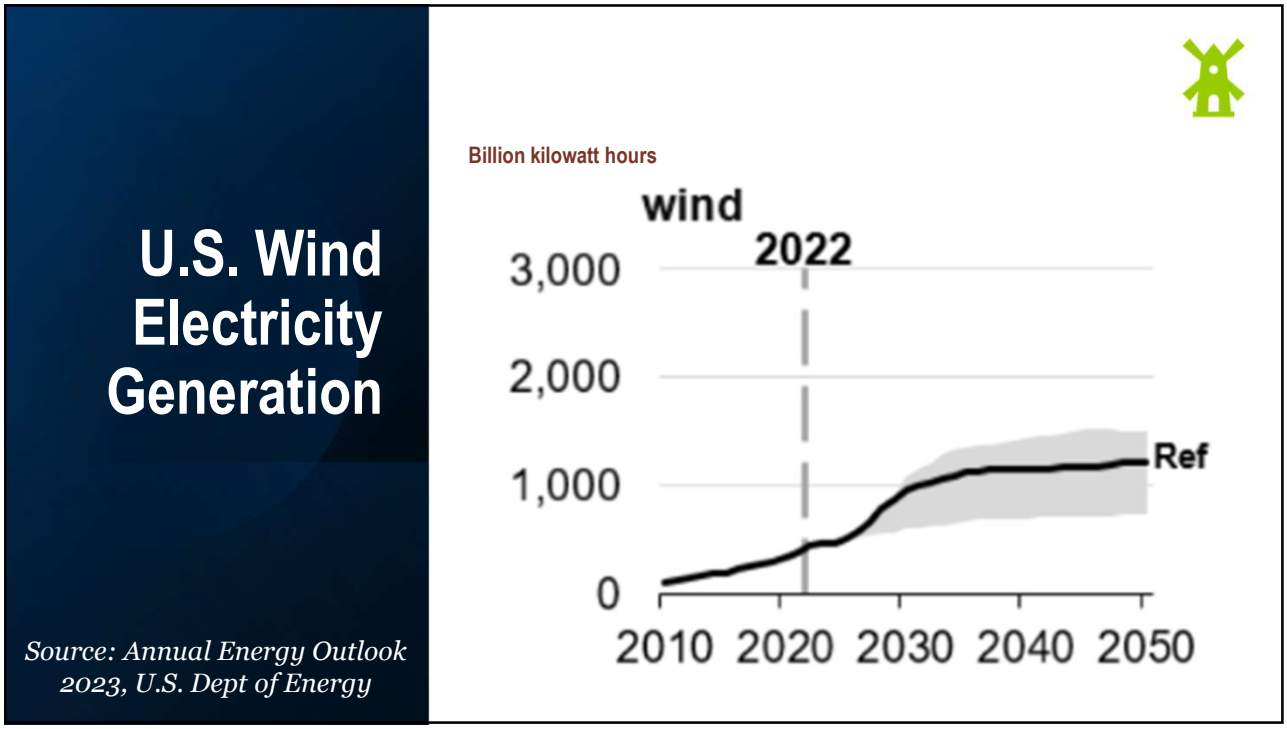
27


U.S. utility-scale wind electricity generation by state, 2022
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MI
OH
KY
TN
MS
AL
GA
FL
SC
NC
VA
WV
PA
NY
ME
NH
RI
NJ
MD
AK
HI
billion kilowatthours
= 0
0.00 - 1.00
1.00 - 5.00
5.00 - 10.00
10.00 - 20.00
20.00 - 30.00
> 30.00
28
eia
Data source: U.S. Energy Information Administration, *Electric Power Monthly*, Table 1.14.B, February 2023, preliminary data

28


Wind Electricity Generation and Share of Total U.S. Electricity Generation, 1990-2022
billion kilowatthours
percentage of total
500
450
400
350
300
250
200
150
100
50
0
11%
10%
9%
8%
7%
6%
5%
4%
3%
2%
1%
0%
1990
1994
1998
2002
2006
2010
2014
2018
2022
generation
share of total
eia
Data source: U.S. Energy Information Administration, Electric Power Monthly, February 2023, preliminary data for 2022
Note: Includes utility-scale electricity generation.
29

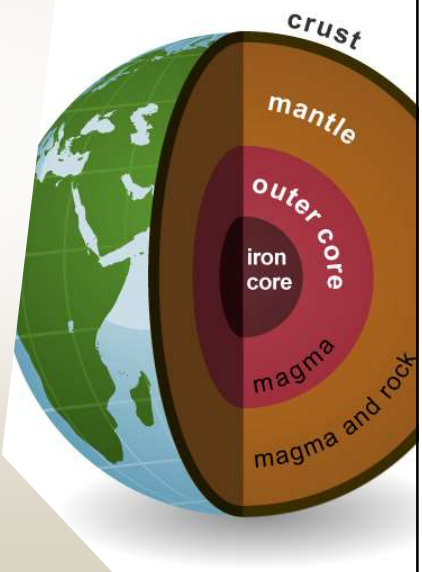
29


U.S. Wind Electricity Generation
Source: Annual Energy Outlook 2023, U.S. Dept of Energy
Billion kilowatt hours
wind
2022
3,000
2,000
1,000
0
Ref
2010
2020
2030
2040
2050

30

Geothermal Energy

- Geothermal energy is heat within the earth
- Inner iron core is 10,800° F
- Mantle is 392° F near the crust and 7,230° F near the outer core boundary
- Can use heat for bathing, for heating buildings, and for generating electricity

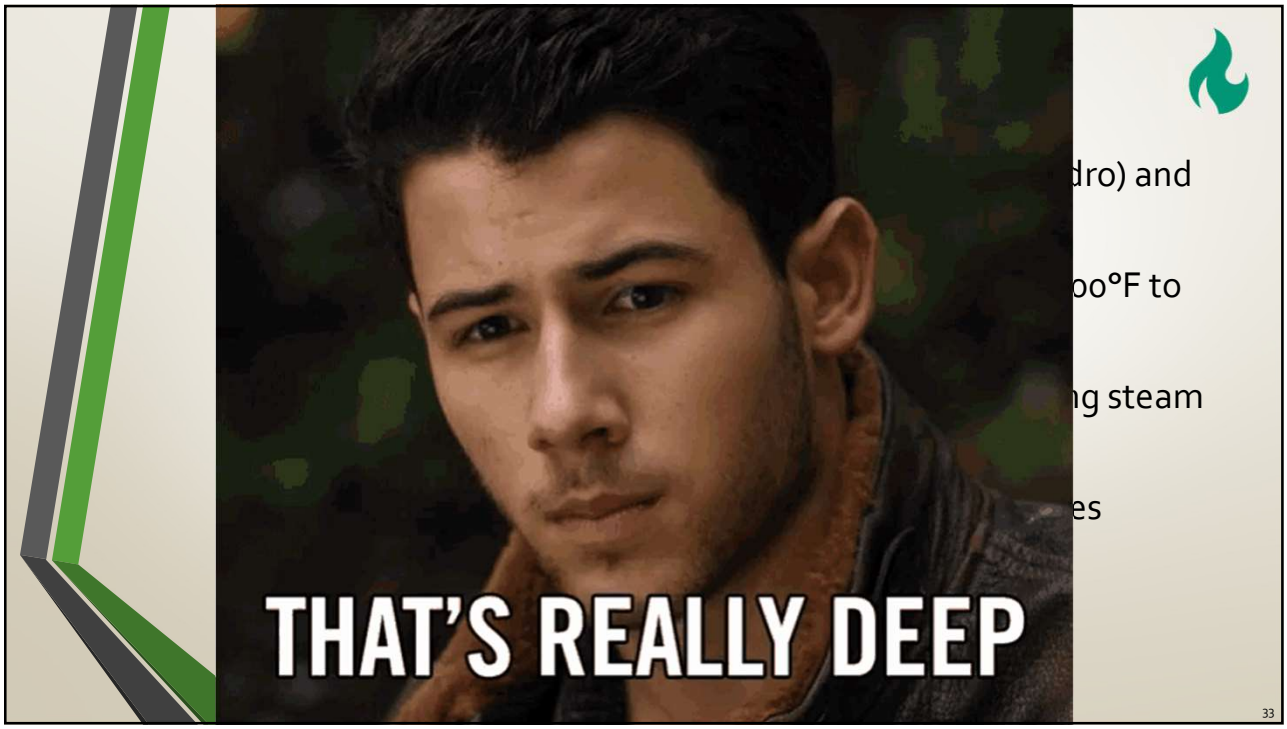


31

Geothermal Power Plants

- Use hydrothermal resources that have both water (hydro) and heat (thermal)
- Require high-temperature hydrothermal resources—300°F to 700° F
- Obtained by drilling wells into the earth and then piping steam or hot water to the surface
- The hot water or steam powers a turbine that generates electricity
- Some geothermal wells are as much as 2 miles deep

32



dro) and

oo°F to

g steam

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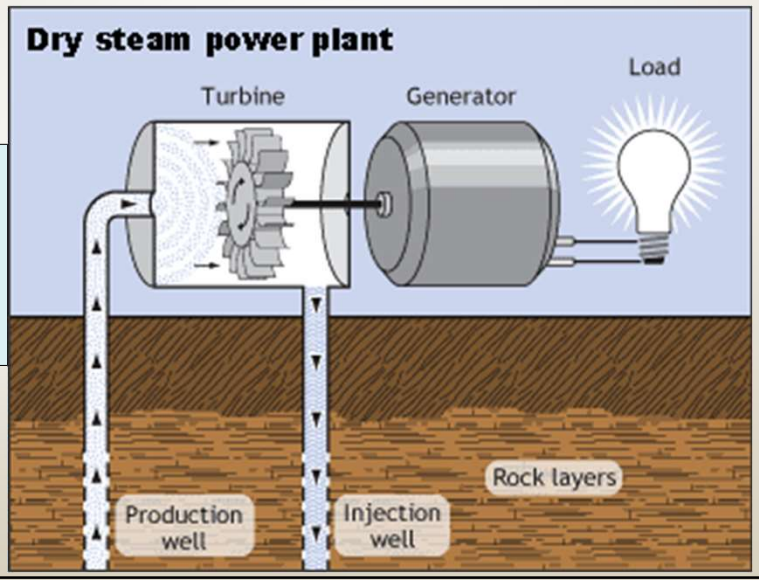
3 Types of Geothermal Power Plants

Dry Steam Plants use steam directly from a geothermal reservoir to turn generator turbines



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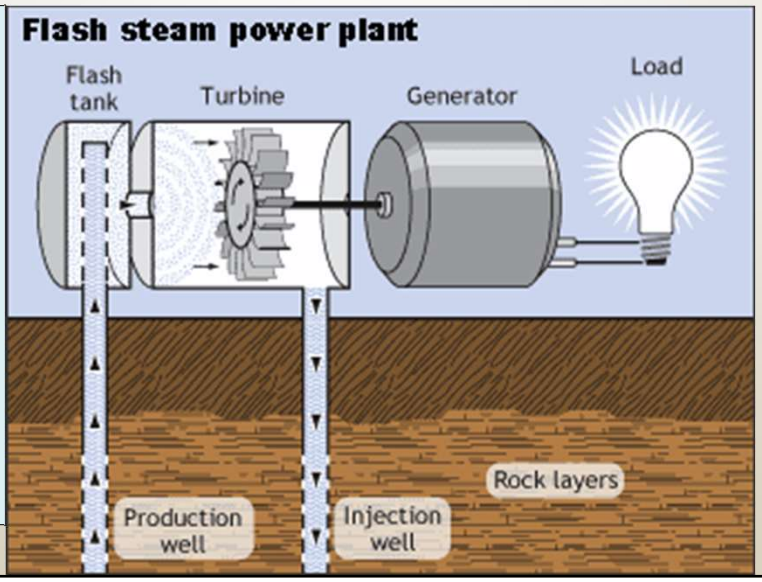
34

34

3 Types of Geothermal Power Plants

Flash Steam Plants take high-pressure hot water from deep inside the earth and convert it to steam that drives generator turbines. When the steam cools, it condenses to water and is injected back into the ground to be used again. Most geothermal power plants are flash steam plants.



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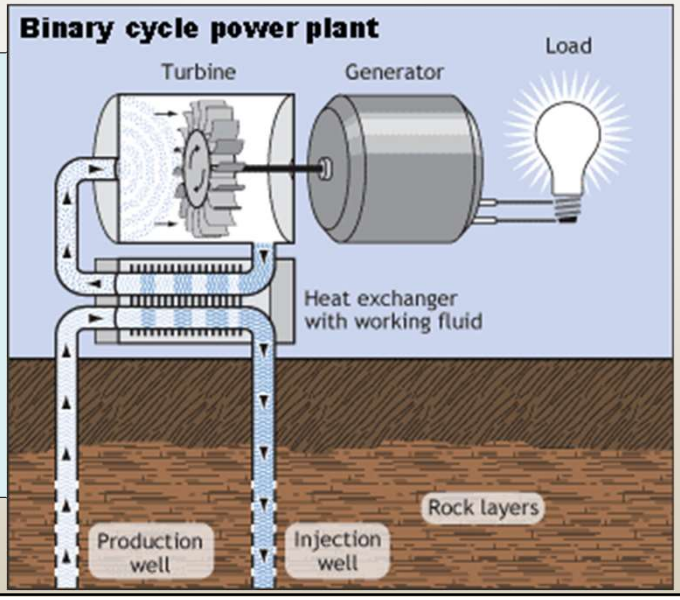
35

3 Types of Geothermal Power Plants

Binary-Cycle Power Plants transfer the heat from geothermal hot water to another liquid. The heat causes the second liquid to turn to steam, and the steam drives a generator turbine.



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36

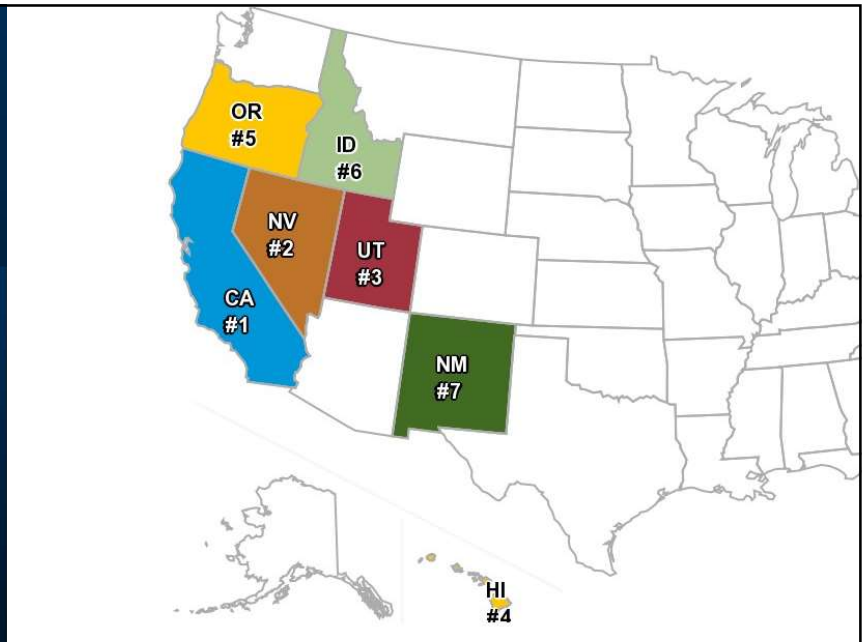
36

Geothermal Electricity Generation

- Geothermal power plants are generally built where geothermal reservoirs are located
- Within a mile or two of the earth's surface
- Most of the geothermal reservoirs are in the Western U.S.
- The U.S. leads the world in geothermal energy production

37

State Rankings for Geothermal Energy

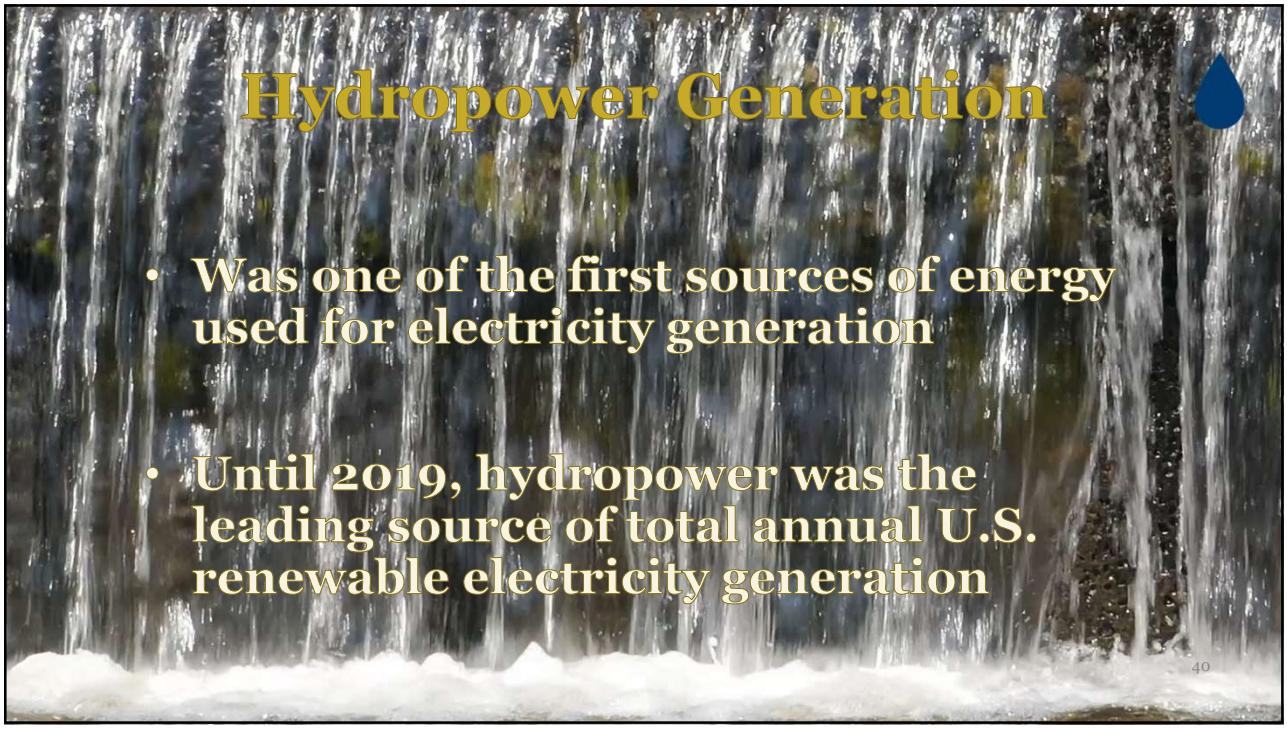


eia Data source: U.S. Energy Information Administration, *Electric Power Monthl*
preliminary data

38


The Top 12 States To Live In
Indicated By Yellow
Washington
Oregon
California
Idaho
Montana
Wyoming
Nevada
Utah
Colorado
Arizona
New Mexico
North Dakota
South Dakota
Nebraska
Kansas
Oklahoma
Texas
Minnesota
Iowa
Missouri
Arkansas
Louisiana
Wisconsin
Illinois
Michigan
Indiana
Ohio
Kentucky
Tennessee
Mississippi
Alabama
Georgia
Florida
South Carolina
North Carolina
Virginia
West Virginia
Pennsylvania
New York
Vermont
Maine
New Hampshire
Massachusetts
Rhode Island
Connecticut
New Jersey
Delaware
Washington D.C.
Maryland
Alaska
Hawaii
0 400 km
0 400 km
0 500 km

39


Hydropower Generation
• Was one of the first sources of energy used for electricity generation
• Until 2019, hydropower was the leading source of total annual U.S. renewable electricity generation
40

40

Hydropower Generation

The water cycle has three steps:

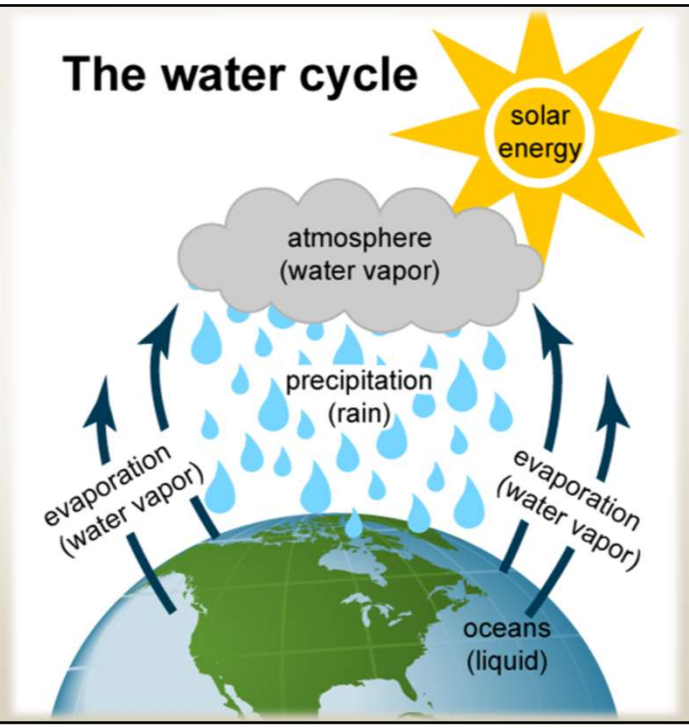
1) Solar energy heats water on the surface of rivers, lakes, and oceans, which causes the water to evaporate

2) Water vapor condenses into clouds and falls as precipitation—rain and snow.

3) Precipitation collects in streams and rivers, which empty into oceans and lakes, where it evaporates and begins the cycle again.

41

Hydropower Generation



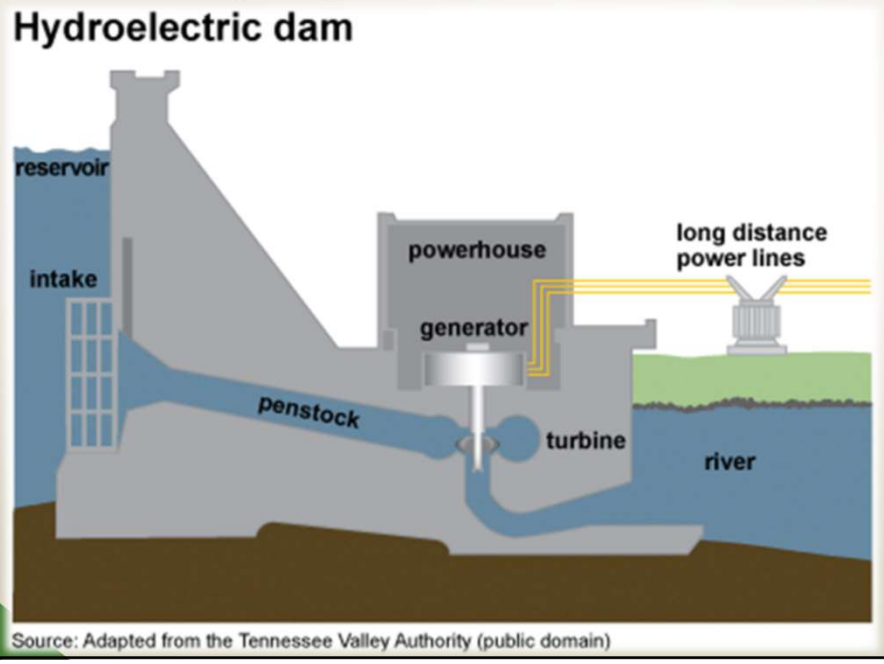
42

Hydropower Generation

- The volume of the water flow and the change in elevation—or ***fall***, and often referred to as ***head***—from one point to another determine the amount of available energy in moving water
- The greater the water flow and the higher the head, the more electricity a hydropower plant can produce
- Water flows through a pipe, or ***penstock***, then pushes against and turns blades in a turbine that spin to power a generator to produce electricity

43

Hydropower Generation



44

Conventional Hydroelectric Facilities

Run-of-the-River Systems

- The force of the river's current applies pressure on a turbine
- May have a *weir* in the water course to divert water flow to hydro turbines

Storage Systems

- Water accumulates in reservoirs created by dams on streams and rivers
- Is released through hydro turbines as needed to generate electricity
- Most U.S. hydropower facilities have dams and storage reservoirs

45

45

Pumped-Storage Hydropower Facilities

- Water is pumped from a water source up to a storage reservoir at a higher elevation
- The water is released from the upper reservoir to power hydro turbines located below the upper reservoir
- Pumped-storage hydroelectric systems generally use more electricity to pump water to the upper water storage reservoirs than they produce with the stored water
- Therefore, pumped-storage facilities have net negative electricity generation balances

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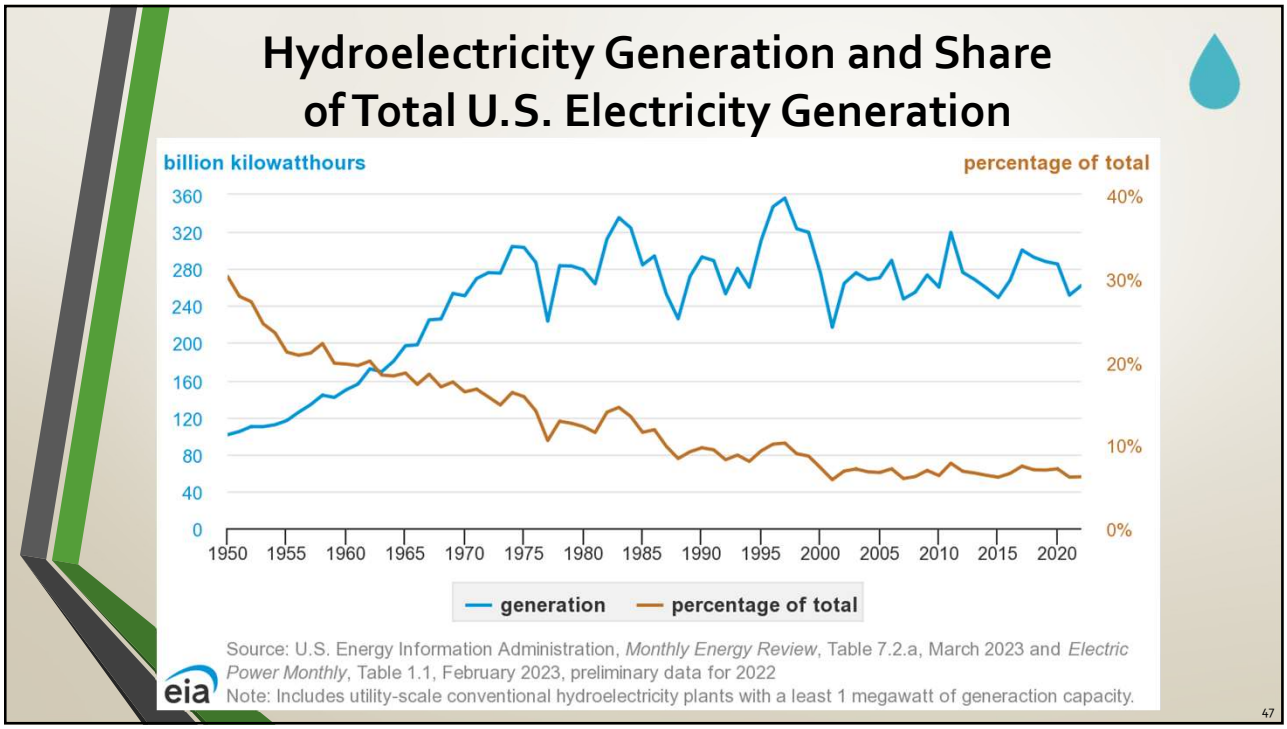
46

46


Hydroelectricity Generation and Share of Total U.S. Electricity Generation
billion kilowatthours
percentage of total
360
320
280
240
200
160
120
80
40
0
40%
30%
20%
10%
0%
1950 1955 1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010 2015 2020
generation
percentage of total
Source: U.S. Energy Information Administration, Monthly Energy Review, Table 7.2.a, March 2023 and Electric Power Monthly, Table 1.1, February 2023, preliminary data for 2022
Note: Includes utility-scale conventional hydroelectricity plants with a least 1 megawatt of generaction capacity.
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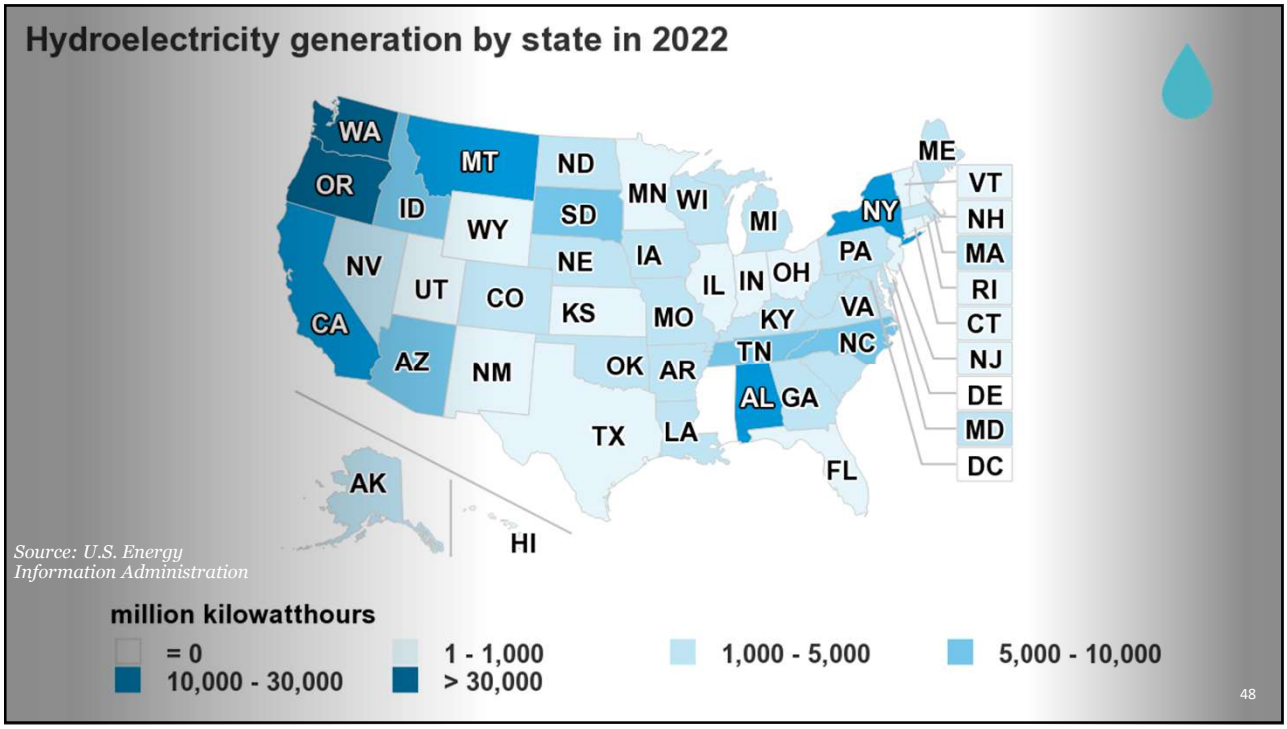
47


Hydroelectricity generation by state in 2022
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MI
IN
OH
KY
TN
MS
AL
GA
FL
SC
NC
VA
PA
NY
ME
VT
NH
MA
RI
CT
NJ
DE
MD
DC
AK
HI
Source: U.S. Energy Information Administration
million kilowatthours
= 0
1 - 1,000
1,000 - 5,000
5,000 - 10,000
10,000 - 30,000
> 30,000
48

48

Biomass Energy

- Biomass is renewable organic material that comes from plants and animals
- Biomass was the largest source of total annual U.S. energy consumption until the **mid-1800s**
- Biomass contains stored chemical energy from the sun, then plants produce biomass through photosynthesis
- Biomass can be **burned directly** for heat or **converted to renewable liquid and gaseous fuels** through various processes

49

Photosynthesis

In the process of photosynthesis, plants convert radiant energy from the sun into chemical energy in the form of glucose—or sugar.

(water)		(carbon dioxide)		(sunlight)		(glucose)		(oxygen)
$6\,H_2O$	+	$6\,CO_2$	+	radiant energy	→	$C_6H_{12}O_6$	+	$6\,O_2$

Biomass Energy

50

Biomass Energy Sources

Wood and Wood Processing Wastes

Wood pellets, lumber and furniture mill sawdust and waste, and black liquor from pulp and paper mills

Agricultural Crops and Waste Materials

Corn, soybeans, sugar cane, switchgrass, woody plants, and algae, and crop and food processing residues, mostly to produce biofuels

Biogenic Materials in Municipal Solid Waste

Paper, cotton, and wool products, and food, yard, and wood wastes

Animal Manure and Human Sewage

For producing **biogas/renewable natural gas**

51

Are We Ready for Mr. Fusion?

52

Converting Biomass to Energy

Direct Combustion
(burning) to produce heat

Thermochemical Conversion
to produce solid, gaseous, and liquid fuels

Chemical Conversion
to produce liquid fuels

Biological Conversion
to produce liquid and gaseous fuels

53

53

Anaerobic Digesters at the Lincoln, Nebraska Wastewater-Treatment Facility

54

54

Anaerobic Digesters at a Dairy Farm (Michigan)

55

55

U.S. Biomass Energy Use by Consuming Sector in 2021

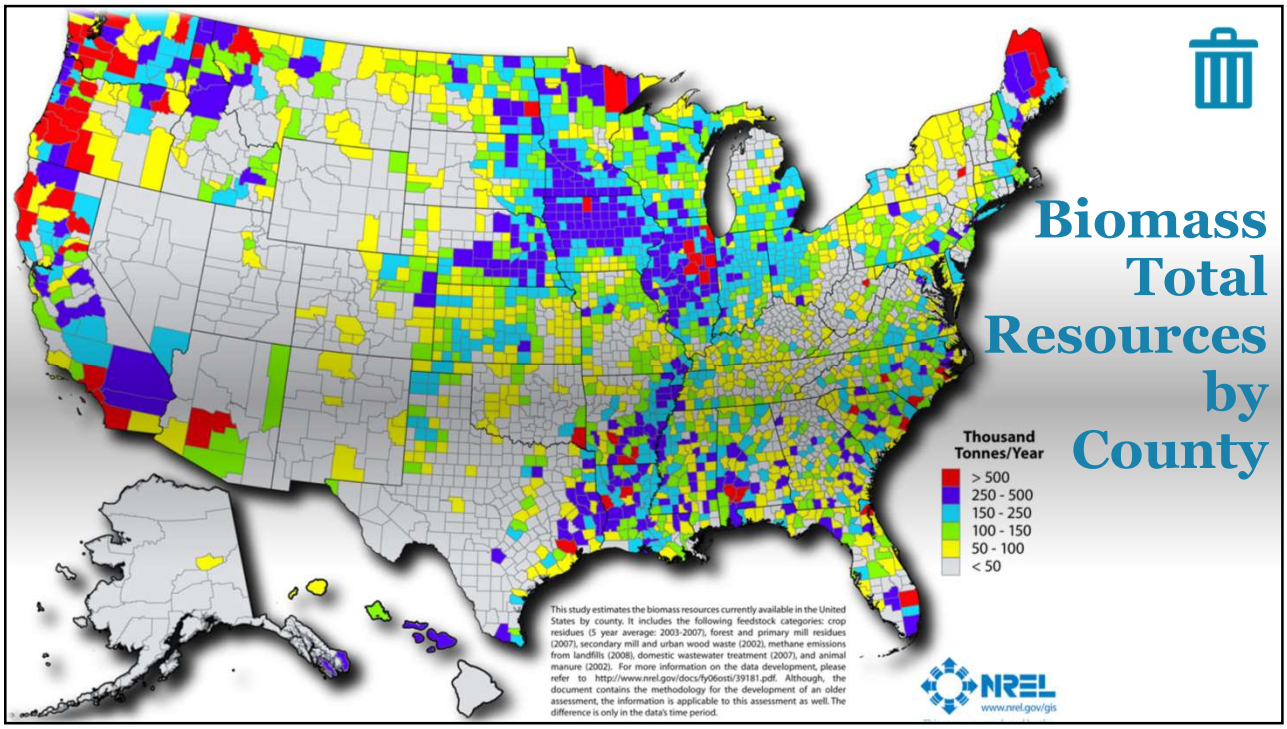
Btu
British Thermal Unit

TBtu
One Trillion (1,000,000,000,000) British Thermal Units

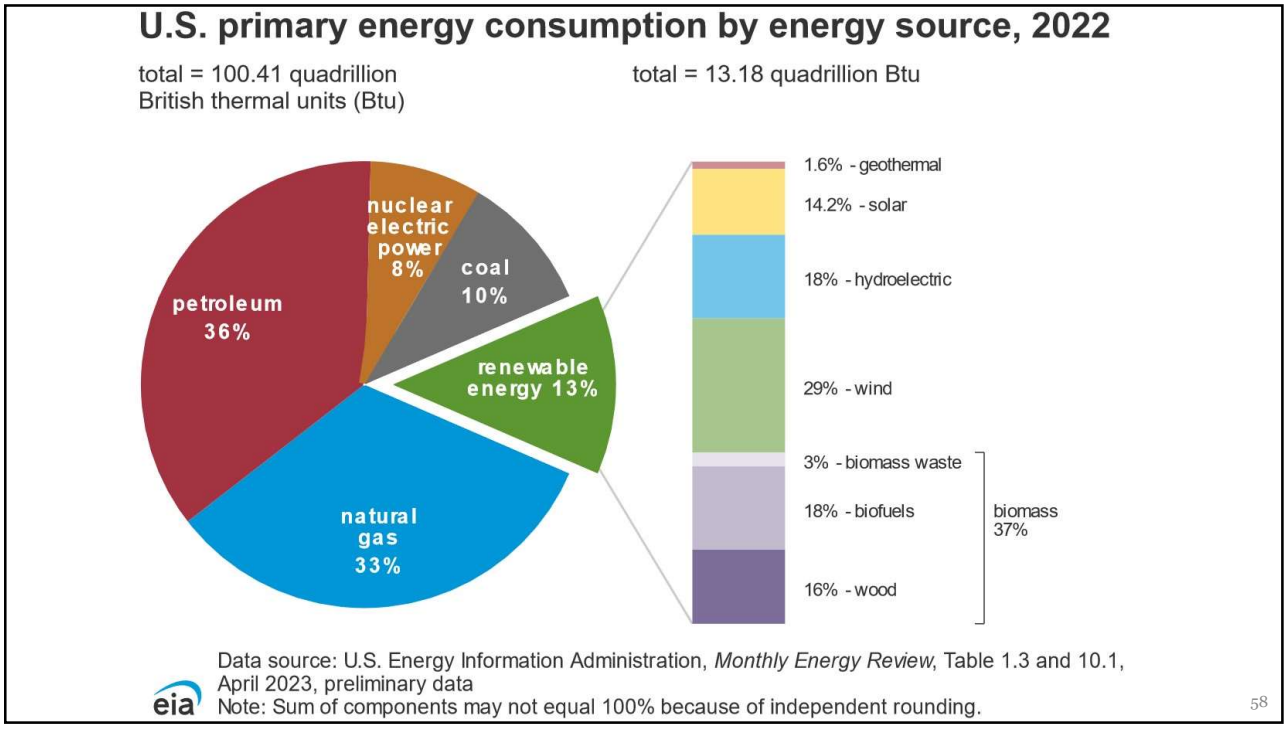
- **48%** Industrial—2,313 TBtu
- **31%** Transportation—1,477 TBtu
- **10%** Residential—464 TBtu
- **9%** Electric power—435 TBtu
- **3%** Commercial—147 TBtu

56

56

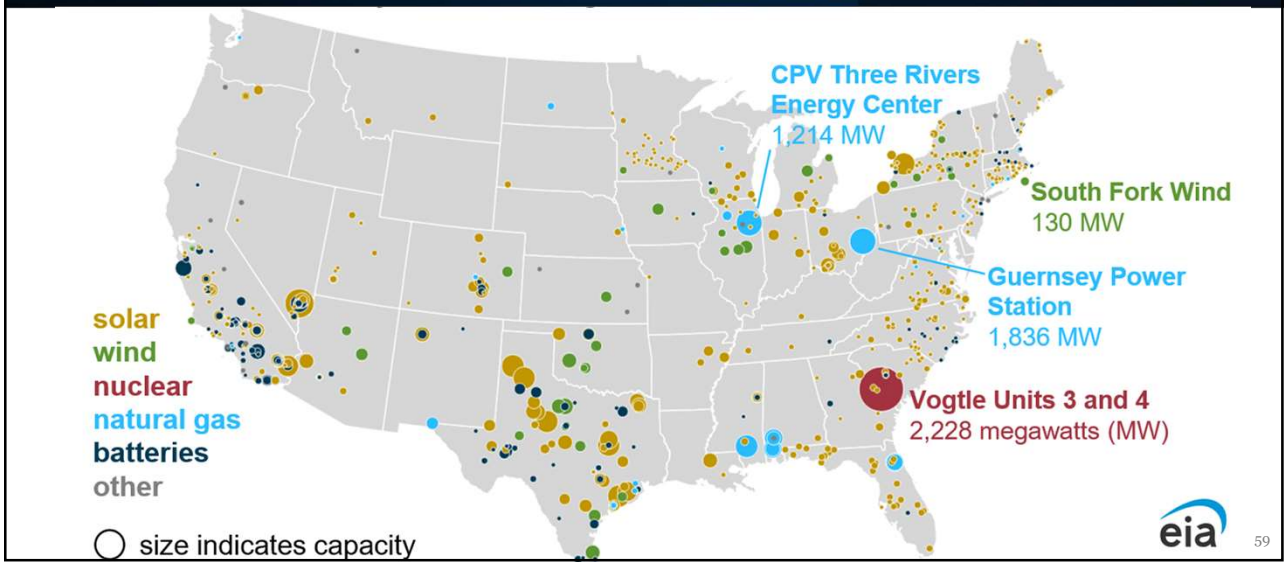

Biomass Total Resources by County
Thousand Tonnes/Year
> 500
250 - 500
150 - 250
100 - 150
50 - 100
< 50
This study estimates the biomass resources currently available in the United States by county. It includes the following feedstock categories: crop residues (5 year average: 2003-2007), forest and primary mill residues (2007), secondary mill and urban wood waste (2002), methane emissions from landfills (2008), domestic wastewater treatment (2007), and animal manure (2002). For more information on the data development, please refer to http://www.nrel.gov/docs/fy06osti/39181.pdf. Although, the document contains the methodology for the development of an older assessment, the information is applicable to this assessment as well. The difference is only in the data's time period.
NREL
www.nrel.gov/gis

57


U.S. primary energy consumption by energy source, 2022
total = 100.41 quadrillion British thermal units (Btu)
total = 13.18 quadrillion Btu
petroleum 36%
nuclear electric power 8%
coal 10%
renewable energy 13%
natural gas 33%
1.6% - geothermal
14.2% - solar
18% - hydroelectric
29% - wind
3% - biomass waste
18% - biofuels
16% - wood
biomass 37%
Data source: U.S. Energy Information Administration, Monthly Energy Review, Table 1.3 and 10.1, April 2023, preliminary data
Note: Sum of components may not equal 100% because of independent rounding.
eia
58

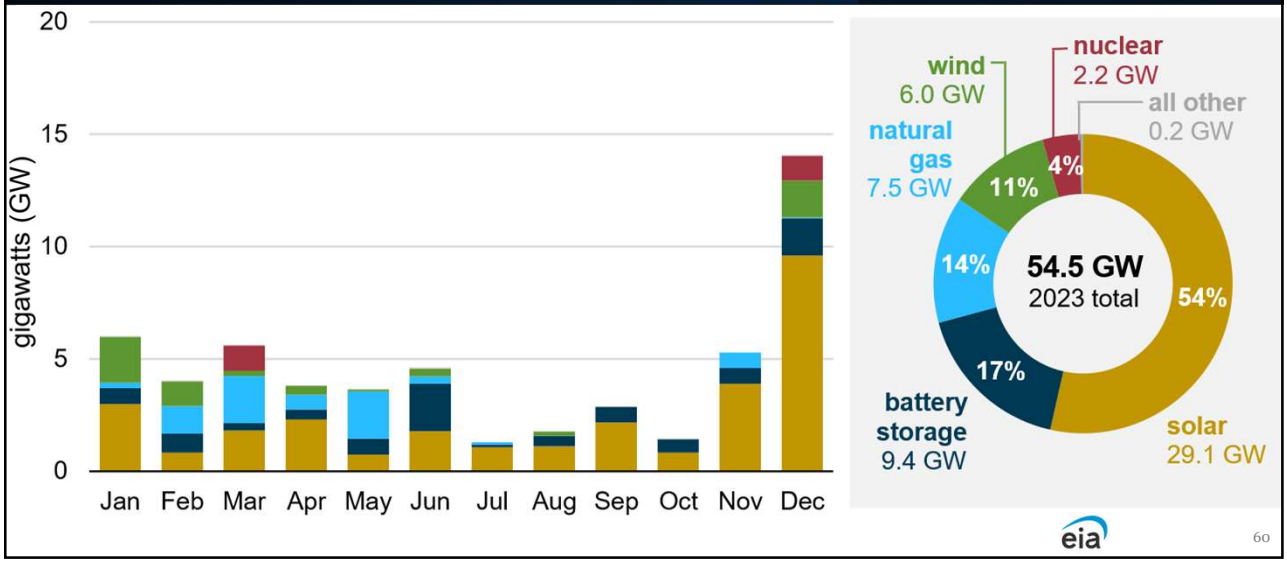
58

Planned 2023 U.S. Utility-Scale Electric Generation Additions



59

Planned 2023 U.S. Utility-Scale Electric Generation Capacity Additions



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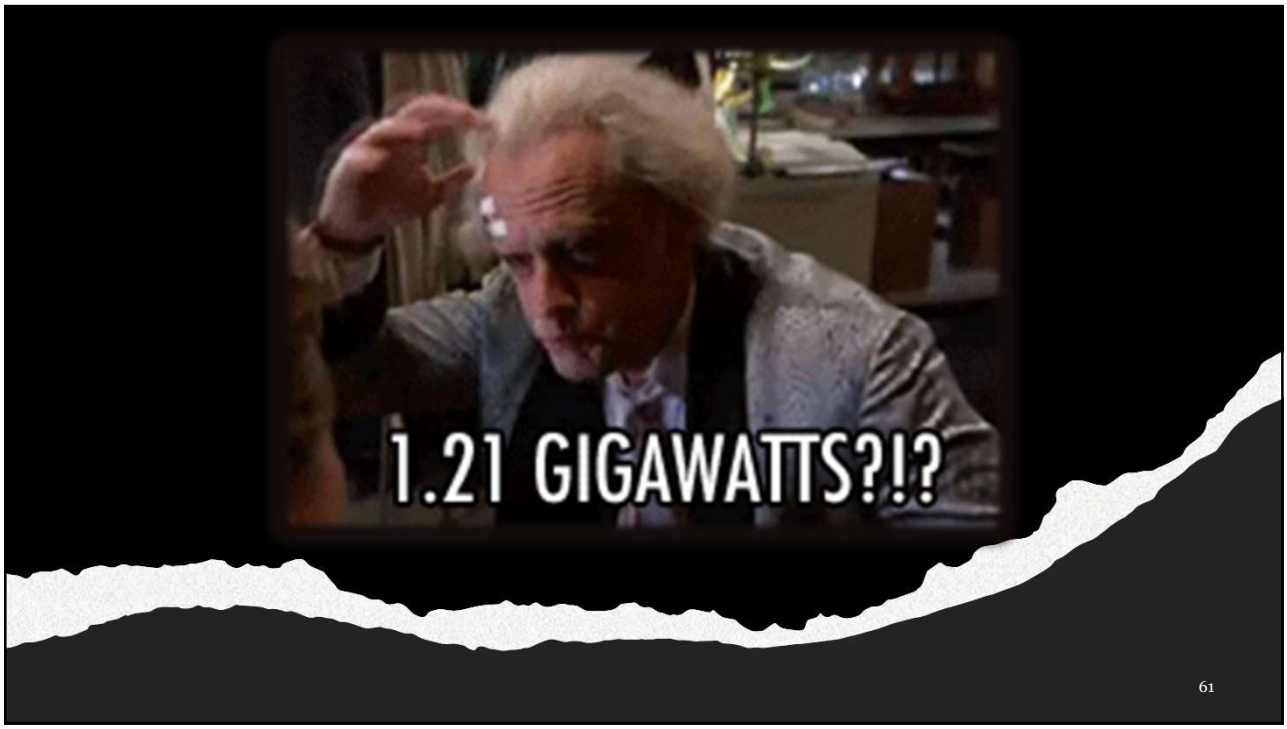

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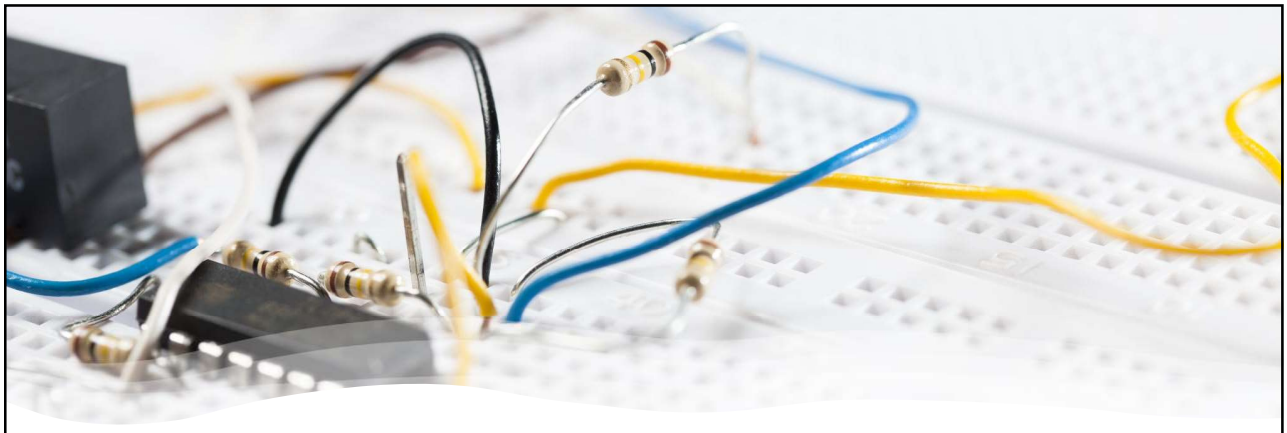


Knowledge Checkpoint

How much electricity must be generated for a facility to be *Utility Scale*?

62

62

Listing Renewable Energy Facilities on the Tax Roll

Section 4

63

Listing Renewable Energy Facilities on the Tax Roll

Common Issues

- Is it **locally** assessed or **state** assessed?
- Where do I get the information?
- Can my CAMA system properly list the information?

64

Listing Renewable Energy Facilities on the Tax Roll

Wind Energy

- Project Name
- Megawatt Rating (MW)
- Wind Turbine Count
- Manufacturer
- In-Service Year

65

Listing Renewable Energy Facilities on the Tax Roll

Wind Energy

- Project Cost
- Taxable Status (Exempt / Non-Exempt)
  - Exempt for a period of time
  - Eligible for tax roll after exempt period
- Payment In Liu Of Taxes? (PILOT)

66

Listing Renewable Energy Facilities on the Tax Roll

Solar Energy

- Project Name
- Megawatt Rating (MW)
- Solar Panel Count
- Manufacturer
- In-Service Year

67

Listing Renewable Energy Facilities on the Tax Roll

Solar Energy – Cost Section

- Racking Equipment Cost
- Solar Inverter Cost
- Monitoring Equipment Cost
- Solar Panel Cost
- Solar Battery Cost

68

Listing Renewable Energy Facilities on the Tax Roll

Solar Energy – Assessment

- Taxable Status (Exempt / Non-Exempt)
  - Exempt for a period of time
  - Eligible for tax roll after exempt period
- Payment In Liu Of Taxes? (PILOT)

69

Listing Renewable Energy Facilities on the Tax Roll

Assessment

- State may have a qualification to exclude sale of electricity at wholesale only or has no retail customers
- Most wind farms are excluded from the public utility definition
- Supporting land may qualify for Commercial classification (versus Ag, etc)

70

Valuation Issues

Section 5

71

Development Incentives

- Incentives help offset high development costs
- When incentives are in place, it typically means the project would not be financially feasible without them
- Cost may not equal value due to external obsolescence
- Database of State Incentives for Renewables & Efficiency

www.dsireusa.org

72

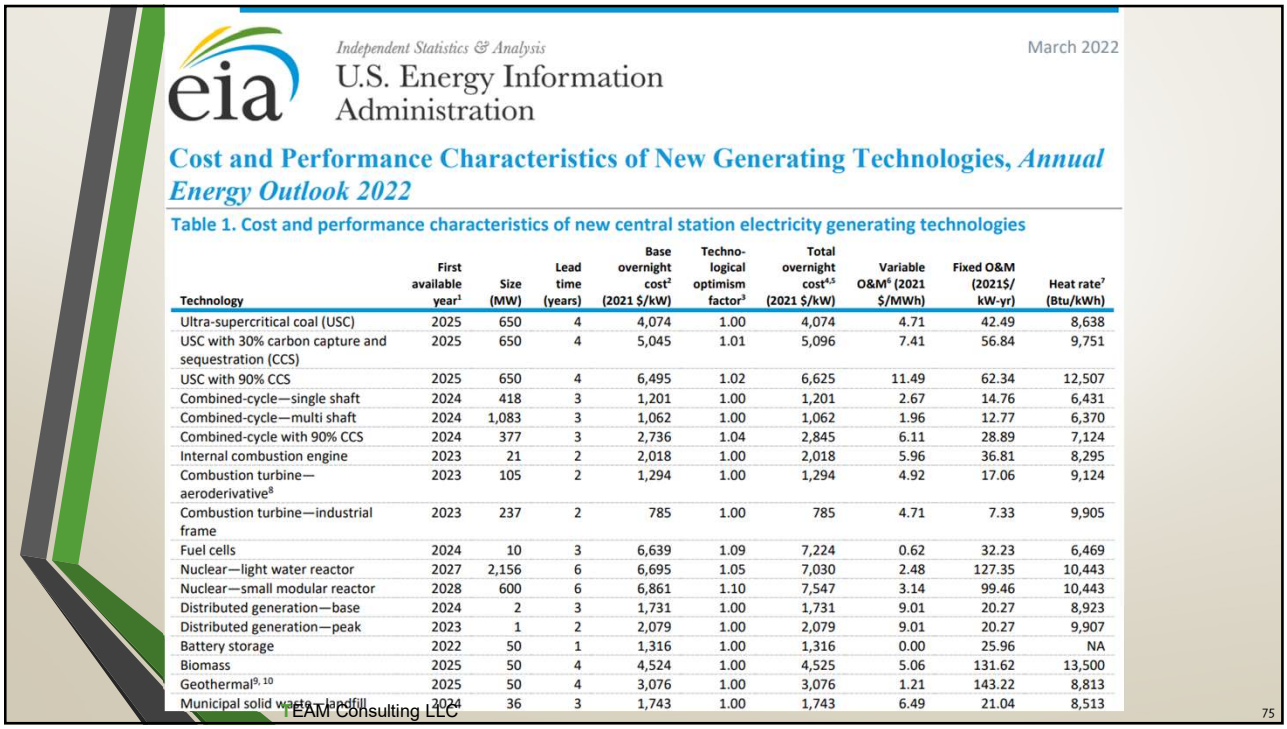
73

Replacement Cost New

Sources

- Actual cost from developer
- U.S. Energy Information Administration (EIA)
  - **Cost and Performance Characteristics of New Generating Technologies, Annual Energy Outlook 2022**
    - Base cost by type ***before*** regional cost factors
    - Cost by Type of Technology by **Region**

74



Independent Statistics & Analysis

U.S. Energy Information Administration

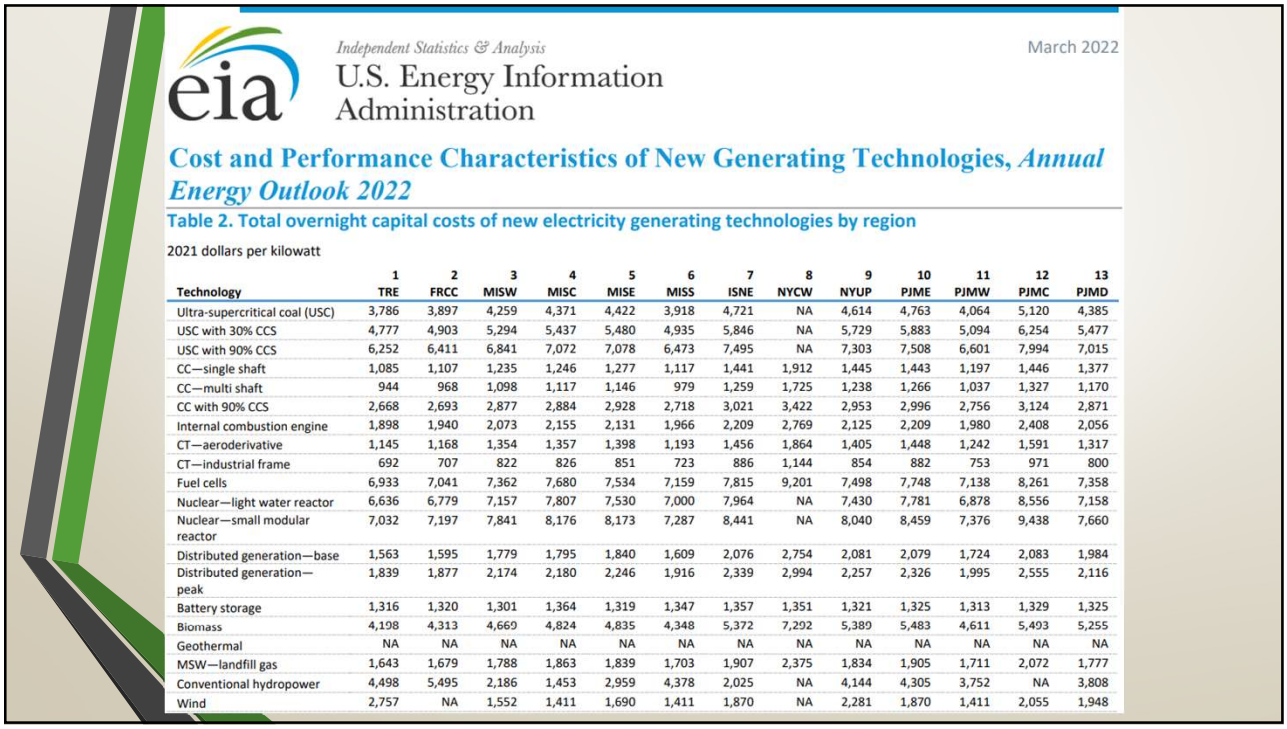
March 2022

Cost and Performance Characteristics of New Generating Technologies, *Annual Energy Outlook 2022*

Table 1. Cost and performance characteristics of new central station electricity generating technologies

Technology	First available year[1]	Size (MW)	Lead time (years)	Base overnight cost[2] (2021 $/kW)	Techno-logical optimism factor[3]	Total overnight cost[4,5] (2021 $/kW)	Variable O&M[6] (2021 $/MWh)	Fixed O&M (2021$/ kW-yr)	Heat rate[7] (Btu/kWh)
Ultra-supercritical coal (USC)	2025	650	4	4,074	1.00	4,074	4.71	42.49	8,638
USC with 30% carbon capture and sequestration (CCS)	2025	650	4	5,045	1.01	5,096	7.41	56.84	9,751
USC with 90% CCS	2025	650	4	6,495	1.02	6,625	11.49	62.34	12,507
Combined-cycle—single shaft	2024	418	3	1,201	1.00	1,201	2.67	14.76	6,431
Combined-cycle—multi shaft	2024	1,083	3	1,062	1.00	1,062	1.96	12.77	6,370
Combined-cycle with 90% CCS	2024	377	3	2,736	1.04	2,845	6.11	28.89	7,124
Internal combustion engine	2023	21	2	2,018	1.00	2,018	5.96	36.81	8,295
Combustion turbine—aeroderivative[8]	2023	105	2	1,294	1.00	1,294	4.92	17.06	9,124
Combustion turbine—industrial frame	2023	237	2	785	1.00	785	4.71	7.33	9,905
Fuel cells	2024	10	3	6,639	1.09	7,224	0.62	32.23	6,469
Nuclear—light water reactor	2027	2,156	6	6,695	1.05	7,030	2.48	127.35	10,443
Nuclear—small modular reactor	2028	600	6	6,861	1.10	7,547	3.14	99.46	10,443
Distributed generation—base	2024	2	3	1,731	1.00	1,731	9.01	20.27	8,923
Distributed generation—peak	2023	1	2	2,079	1.00	2,079	9.01	20.27	9,907
Battery storage	2022	50	1	1,316	1.00	1,316	0.00	25.96	NA
Biomass	2025	50	4	4,524	1.00	4,525	5.06	131.62	13,500
Geothermal[9, 10]	2025	50	4	3,076	1.00	3,076	1.21	143.22	8,813
Municipal solid waste—landfill	2024	36	3	1,743	1.00	1,743	6.49	21.04	8,513

75



Independent Statistics & Analysis

U.S. Energy Information Administration

March 2022

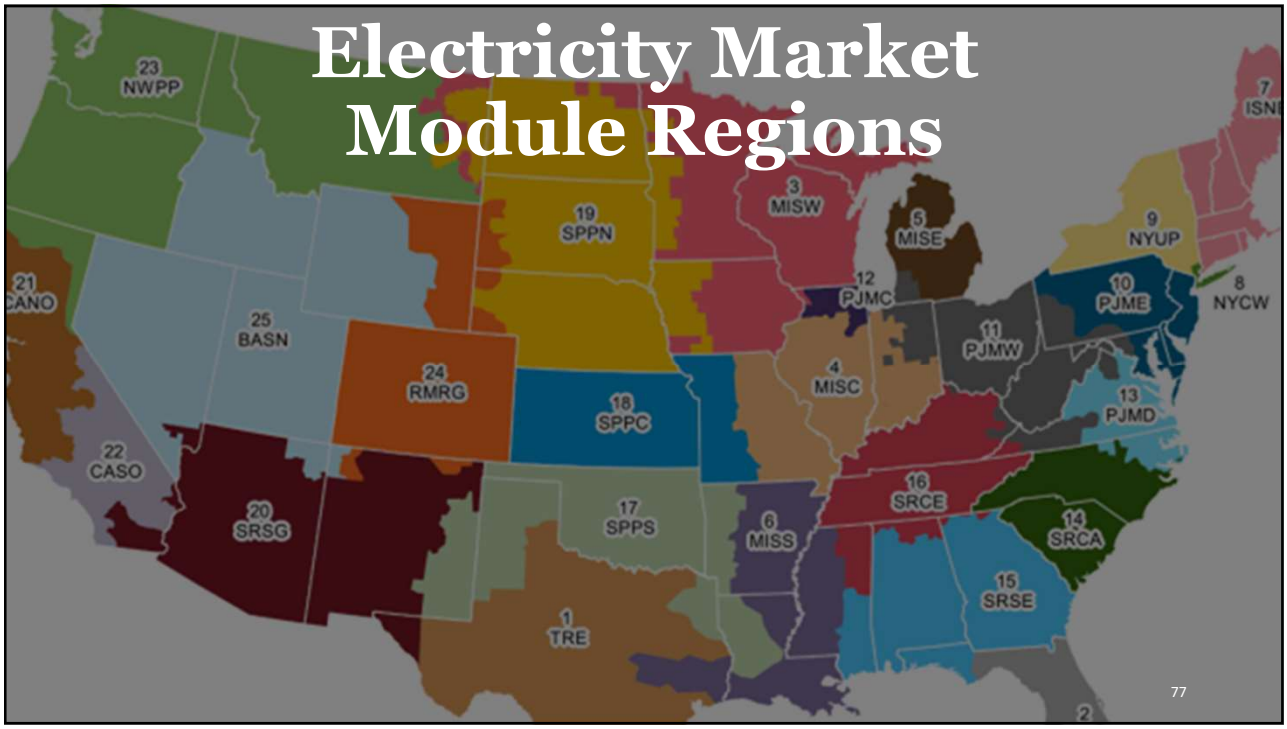
Cost and Performance Characteristics of New Generating Technologies, *Annual Energy Outlook 2022*

Table 2. Total overnight capital costs of new electricity generating technologies by region

2021 dollars per kilowatt

Technology	1 TRE	2 FRCC	3 MISW	4 MISC	5 MISE	6 MISS	7 ISNE	8 NYCW	9 NYUP	10 PJME	11 PJMW	12 PJMC	13 PJMD
Ultra-supercritical coal (USC)	3,786	3,897	4,259	4,371	4,422	3,918	4,721	NA	4,614	4,763	4,064	5,120	4,385
USC with 30% CCS	4,777	4,903	5,294	5,437	5,480	4,935	5,846	NA	5,729	5,883	5,094	6,254	5,477
USC with 90% CCS	6,252	6,411	6,841	7,072	7,078	6,473	7,495	NA	7,303	7,508	6,601	7,994	7,015
CC—single shaft	1,085	1,107	1,235	1,246	1,277	1,117	1,441	1,912	1,445	1,443	1,197	1,446	1,377
CC—multi shaft	944	968	1,098	1,117	1,146	979	1,259	1,725	1,238	1,266	1,037	1,327	1,170
CC with 90% CCS	2,668	2,693	2,877	2,884	2,928	2,718	3,021	3,422	2,953	2,996	2,756	3,124	2,871
Internal combustion engine	1,898	1,940	2,073	2,155	2,131	1,966	2,209	2,769	2,125	2,209	1,980	2,408	2,056
CT—aeroderivative	1,145	1,168	1,354	1,357	1,398	1,193	1,456	1,864	1,405	1,448	1,242	1,591	1,317
CT—industrial frame	692	707	822	826	851	723	886	1,144	854	882	753	971	800
Fuel cells	6,933	7,041	7,362	7,680	7,534	7,159	7,815	9,201	7,498	7,748	7,138	8,261	7,358
Nuclear—light water reactor	6,636	6,779	7,157	7,807	7,530	7,000	7,964	NA	7,430	7,781	6,878	8,556	7,158
Nuclear—small modular reactor	7,032	7,197	7,841	8,176	8,173	7,287	8,441	NA	8,040	8,459	7,376	9,438	7,660
Distributed generation—base	1,563	1,595	1,779	1,795	1,840	1,609	2,076	2,754	2,081	2,079	1,724	2,083	1,984
Distributed generation—peak	1,839	1,877	2,174	2,180	2,246	1,916	2,339	2,994	2,257	2,326	1,995	2,555	2,116
Battery storage	1,316	1,320	1,301	1,364	1,319	1,347	1,357	1,351	1,321	1,325	1,313	1,329	1,325
Biomass	4,198	4,313	4,669	4,824	4,835	4,348	5,372	7,292	5,389	5,483	4,611	5,493	5,255
Geothermal	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MSW—landfill gas	1,643	1,679	1,788	1,863	1,839	1,703	1,907	2,375	1,834	1,905	1,711	2,072	1,777
Conventional hydropower	4,498	5,495	2,186	1,453	2,959	4,378	2,025	NA	4,144	4,305	3,752	NA	3,808
Wind	2,757	NA	1,552	1,411	1,690	1,411	1,870	NA	2,281	1,870	1,411	2,055	1,948

76



77

Electricity Market Module Regions Reference Key

Region ID	NERC/ISO subregion	Geographic Name*
1- TRE	Texas Reliability Entity	Texas
2- FRCC	Florida Reliability Coordinating Council	Florida
3- MISW	Midcontinent ISO/West	Upper Mississippi Valley
4- MISC	Midcontinent ISO/Central	Middle Mississippi Valley
5- MISE	Midcontinent ISO/East	Michigan
6- MISS	Midcontinent ISO/South	Mississippi Delta
7- ISNE	NPCC/ New England	New England
8- NYCW	NPCC/NYC & Long Island	Metropolitan New York
9- NYUP	NPCC/Upstate NY	Upstate New York
10- PJME	PJM/East	Mid-Atlantic
11- PJMW	PJM/West	Ohio Valley
12- PJMC	PJM/Commonwealth Edison	Metropolitan Chicago
13- PJMD	PJM/Dominion	Virginia

Region ID	NERC/ISO subregion	Geographic Name*
14- SRCA	SERC Reliability Corporation/East	Carolinas
15- SRSE	SERC Reliability Corporation/Southeast	Southeast
16- SRCE	SERC Reliability Corporation/Central	Tennessee Valley
17- SPPS	Southwest Power Pool/South	Southern Great Plains
18- SPPC	Southwest Power Pool/Central	Central Great Plains
19- SPPN	Southwest Power Pool/North	Northern Great Plains
20- SRSG	WECC/Southwest	Southwest
21- CANO	WECC/CA North	Northern California
22- CASO	WECC/CA South	Southern California
23- NWPP	WECC/Northwest Power Pool	Northwest
24- RMRG	WECC/Rockies	Rockies
25- BASN	WECC/Basin	Great Basin

NERC=North American Electric Reliability Corporation, ISO=Independent System Operator NPCC = Northeast Power Coordinating Council, WECC = Western Electricity Coordinating Council
* Names are intended to describe approximate locations. Exact regional boundaries do not necessarily correspond to state borders or to other regional naming conventions.
Source: U.S. Energy Information Administration.

78

Cost Trend Factors – EIA Capital Cost

What happens with cost over time?

EIA Annual Energy Outlook Year	Capital Cost $/MHW	Trend Factor
2000	993	1.7301
2001	983	1.7477
2002	982	1.7495
2003	1,003	1.7129
2004	1,015	1.6926
2005	1,134	1.5150
2006	1,167	1.4722
2007	1,206	1.4245
2008	1,434	1.1980
2009	1,923	0.8934
2010	1,966	0.8739
2011	2,409	0.7132
2012	2,437	0.7050
2013	2,175	0.7899
2014	2,205	0.7791
2015	1,980	0.8677
2016	1,644	1.0450
2017	1,686	1.0190
2018	1,646	1.0437
2019	1,319	1.3025
2020	1,250	1.3744
2021	1,718	1.0000

79

Economic Life

Useful Life

System Useful Life	Years
Photovoltaics	25 to 40 yr
Wind	20 yr
Biomass Combined Heat and Power	20 to 30 yr
Biomass Heat	20 to 30 yr
Solar Water Heat	10 to 25 yr
Solar Vent Preheat	30 to 40 yr
Ground Source Heat Pump	20 yr for interior components 100 yr for ground loop

Source: National Renewable Energy Laboratory

80

Sample Cost Approach - Wind

Wind Farm Name	Megawatt Rating (MW)	Manufacturer	County Appraised	In-Service Year	Cost Per Wind Turbine	Wind Turbine Count
Windy Winderson Wind Farm	0.66	Vestas V47	Yes	2002	$1,000,000	170
Gusty Gus Gale Farm	1.50	General Electric	Yes	2010	$1,513,049	100
Breezey Bonnie's Farm	2.50	Clipper C-96	50%	2009	$3,905,531	40

Wind Farm Name	Total Cost	Age	Appr'd Factor	Appraised Value	Assessed Value	Taxable Status	PILOT
Windy Winderson Wind Farm	$170,000,000	21	0.200	$34,000,000	$8,500,000	Exempt	$5,000,000
Gusty Gus Gale Farm	$151,304,942	13	0.200	$30,260,988	$7,565,247	Exempt	$3,200,000
Breezey Bonnie's Farm	$156,221,241	14	0.200	$31,244,248	$7,811,062	Exempt	$1,650,000

81

Sample Cost Approach - Solar

Solar Project Name	Megawatt Rating (MW)	Solar Panel Count	Manufacturer	In-Service Year	Megawatt Rating (MW)	County Appraised
Sunny Sam's Solar	1.25	120	General Electric	2018	1.25	Yes
Bright Bill's Panel Party	2.25	220	Huawei	2019	2.25	Yes
Wild Ray's Energy Co-op	1.75	170	SunGrow	2021	1.75	50%

Solar Project Name	Racking Equip Cost	Solar Inverter Cost	Monitoring Equip Cost	Solar Panel Cost	Solar Battery Cost
Sunny Sam's Solar	$14,300,000	$12,500,000	$25,000,000	$110,000,000	$8,200,000
Bright Bill's Panel Party				$151,304,942	
Wild Ray's Energy Co-op		$8,000,000		$148,221,241	

82

Sample Cost Approach - Solar

Solar Project Name	Total Project Equip Cost NO Battery	Total Project Equip Cost Incl Battery	Land Cost Allocation	Proj Equip Cost Per Solar Panel NO Battery	Proj Equip Cost Per MW NO Battery
Sunny Sam's Solar	$161,800,000	$170,000,000	Leased	$1,348,333	$129,440,000
Bright Bill's Panel Party	$151,304,942	$151,304,942		$687,750	$67,246,641
Wild Ray's Energy Co-op	$156,221,241	$156,221,241		$918,948	$89,269,281

Solar Project Name	Total Cost	Age	Appraised Factor	Appraised Value	Assessed Value	Taxable Status	PILOT
Windy Winderson Wind Farm	$170,000,000	5	0.286	48,571,429	12,142,857	Exempt	$350,000
Gusty Gus Gale Farm	$151,304,942	4	0.429	64,844,975	16,211,244	Exempt	$400,000
Breezey Bonnie's Farm	$156,221,241	2	0.714	111,586,601	27,896,650	Exempt	$550,000

TEAM Consulting LLC

83

83

84

84

USPAP

Advisory Opinion 33 (AO-33)

- Avoid misuse or misunderstanding when DCF analysis is used in an appraisal assignment to develop an opinion of market value.
- It is the responsibility of the appraiser to ensure that the controlling input is consistent with the market evidence and prevailing market attitudes.

85

USPAP

Advisory Opinion 33 (AO-33)

- Market value DCF analyses, along with available factual data, are intended to reflect the expectations and perceptions of market participants.
- They should be judged on the support for the forecasts that existed when made, n on whether specific items in the forecast are realized at a later date.

86

USPAP

Advisory Opinion 33 (AO-33)

- Appraisal standards require that the appraiser must not commit a substantial error of omission or commission that significantly affects a appraisal.
- The appraiser must not render appraisal services in a careless or negligent manner, such as making a series of errors that, although individually might not significantly affect the results of an appraisal, in the aggregate would affect the credibility of those results.

87

USPAP

Advisory Opinion 33 (AO-33)

- Computer printouts showing the results of DCF analysis may be generated by readily available means such as an appraiser's own spreadsheet, a commercially available spreadsheet template, or specialized DCF software.
- Regardless of the method chosen the appraiser is responsible for the entire analysis including the controlling input, the calculations, and the resulting output.

88

USPAP

Advisory Opinion 33 (AO-33)

- Discount rates applied of cash flows and estimates of reversion should be derive from data and information in the real estate and capital markets.
- Primary considerations used in the selection of rates are risk, inflation, and real rates of return.

89

USPAP

Advisory Opinion 33 (AO-33)

- When reversion capitalization rates are used, they should reflect investor expectations considering the asset type, physical characteristics, age and conditic cash flow projections, and related factors.
- The projection or forecast period is a variable and should be based upon the same factors that typical market participants are using.

90

USPAP

Advisory Opinion 33 (AO-33)

- The results of DCF analysis should be tested and check for errors and reasonableness.
- The appraiser is to communicate each analysis, opinion, and conclusion in a man that is not misleading.
- All of the assumptions directly affect the conclusion and must be clearly and accurately disclosed in the appraisal report.

91

DCF Example: Land Lease

- **40 acres**
- **Land leased for solar array installation**
- **Lease rate of $10,000 per month**
- **Flat lease rate over 10 years**
- **Estimated Land Value in Year 10: $10,000/Acre**

92

IAAO 102 Review

Yield Rate Estimate Using Band-of-Investment

- Current commercial interest rates are **7%** to **8%,** with **25%** minimum down payment
- Current equity yield rates are **8%** to **14%**

Position	M	x	Y	=	Yo
Debt	75%	x	0.0800	=	0.06000
Equity	25%	x	0.1200	=	0.03000
Total Yield Rate (Y_O)					**0.09000**
As a Percent					**9.00%**

93

IAAO 112 Application

Number of Years	10
Yield Rate	9%

Year	Annual Rent	x	PV Factor	=	Present Value
1	$120,000	x	0.9174	=	$110,092
2	$120,000	x	0.8417	=	$101,002
3	$120,000	x	0.7722	=	$92,662
4	$120,000	x	0.7084	=	$85,011
5	$120,000	x	0.6499	=	$77,992
6	$120,000	x	0.5963	=	$71,552
7	$120,000	x	0.5470	=	$65,644
8	$120,000	x	0.5019	=	$60,224
9	$120,000	x	0.4604	=	$55,251
10	$120,000	x	0.4224	=	$50,689
Sale of Property					
Sale Price	Less 5% Commission		Net Proceeds		
$400,000	($20,000)	=	$380,000		
10	$380,000	x	0.4224	=	$160,516
			Total		**$930,635**
			Indicated Value (Rounded)		**$930,000**

94

Sales Comparison Approach

Not typically applied due to lack of data available.

95

Resources

Section 6

96

Resource Handout

- Websites
- Appraisal articles

97

Session Conclusion

Questions and Comments?

Thank you for attending!

98

APPRAISER CERTIFICATION BOARD

August 13, 2024

Agenda Item 5

(d) Home Builders Research- Las Vegas Housing Outlook

Nevada Department of Taxation

Property Tax Appraiser Continuing Education

New Course Application

Return this form to:
Division of Local Government Services
3850 Arrowhead Dr., 2nd Floor
Carson City, Nevada 89706

Please Print or Type:

COURSE INFORMATION (A person who wishes to receive contact hours for a course of continuing education that has not been previously approved, must apply for such approval.)

[redacted]	*TITLE* [redacted]

TITLE OF COURSE
Las Vegas Housing Outlook

VENDOR/PROVIDER
Home Builders Research

1. Course Summary:
The Las Vegas Housing Outlook presented by a panel of industry experts.

2. What are the hours of instruction? 2.5 hours

3. What is the completion date? 7/31/2024

SUBJECT CLASSIFICATION - CHECK ALL THAT APPLY

- ☐ **Mass Appraisal Concepts and Applications**
- ☐ **IAAO Standards**
- ■ **Residential, Commercial/Industrial Appraisal**
- ☐ **Unitary/Centrally Assessed Property Appraisal**
- ☐ **Legal Documents (Deeds, Titles, Leases, etc.)**
- ☐ **Nevada Statutes or Regulation, Appraisal or Assessment Standards**
- ☐ **College or Professional Level Accounting, Finance, Statistics or Other Appraisal Subjects**
- ☐ **GIS, Mapping, CAMA**
- ☐ **Laws Relating to Real Estate, Water or Mining**
- ☐ **Professional Ethics**
- ☐ **Other**

If other, please describe why the course is applicable to appraisal and/or property tax.

REQUIRED MATERIALS TO BE SUBMITTED WITH APPLICATION INCLUDE:

- ☐ **Detailed Course Outline**
- ■ **Syllabus or Course Material**

SIGNATURE

▶ [redacted] 8/1/2024

Requestor Signature *Date*

For Department Use Only

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Division of Local Government Services *Title* *Date*

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LAS VEGAS HOUSING OUTLOOK

PRESENTED BY

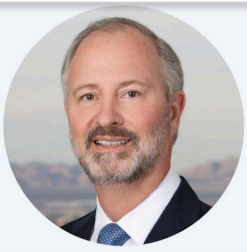
HIRSCHI COMPANIES

HOME BUILDERS RESEARCH

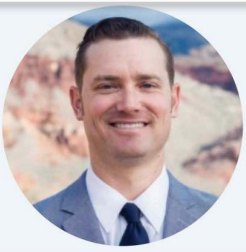
JULY 31, 2024
2:00 – 4:30 PM
6360 S RAINBOW BLVD, LV, NV 89118

JOIN US FOR THE 2024 LAS VEGAS HOUSING OUTLOOK
PRESENTED BY HIRSCHI COMPANIES AND
HOME BUILDERS RESEARCH
AT THE LAS VEGAS REALTOR BUILDING

SPEAKERS



STEVE HILL
CEO LAS VEGAS CONVENTION AND VISITORS AUTHORITY



ANDREW SMITH
PRESIDENT HOME BUILDERS RESEARCH

EXPERT PANEL

STEVE HILL
CEO LAS VEGAS CONVENTION AND VISITORS AUTHORITY

TINA FRIAS
CEO SOUTHERN NEVADA HOMEBUILDERS ASSOCIATION

KELLY GAINES
CEO NEVADA SUBCONTRACTORS ASSOCIATION

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LAS VEGAS HOUSING OUTLOOK

JULY 31, 2024

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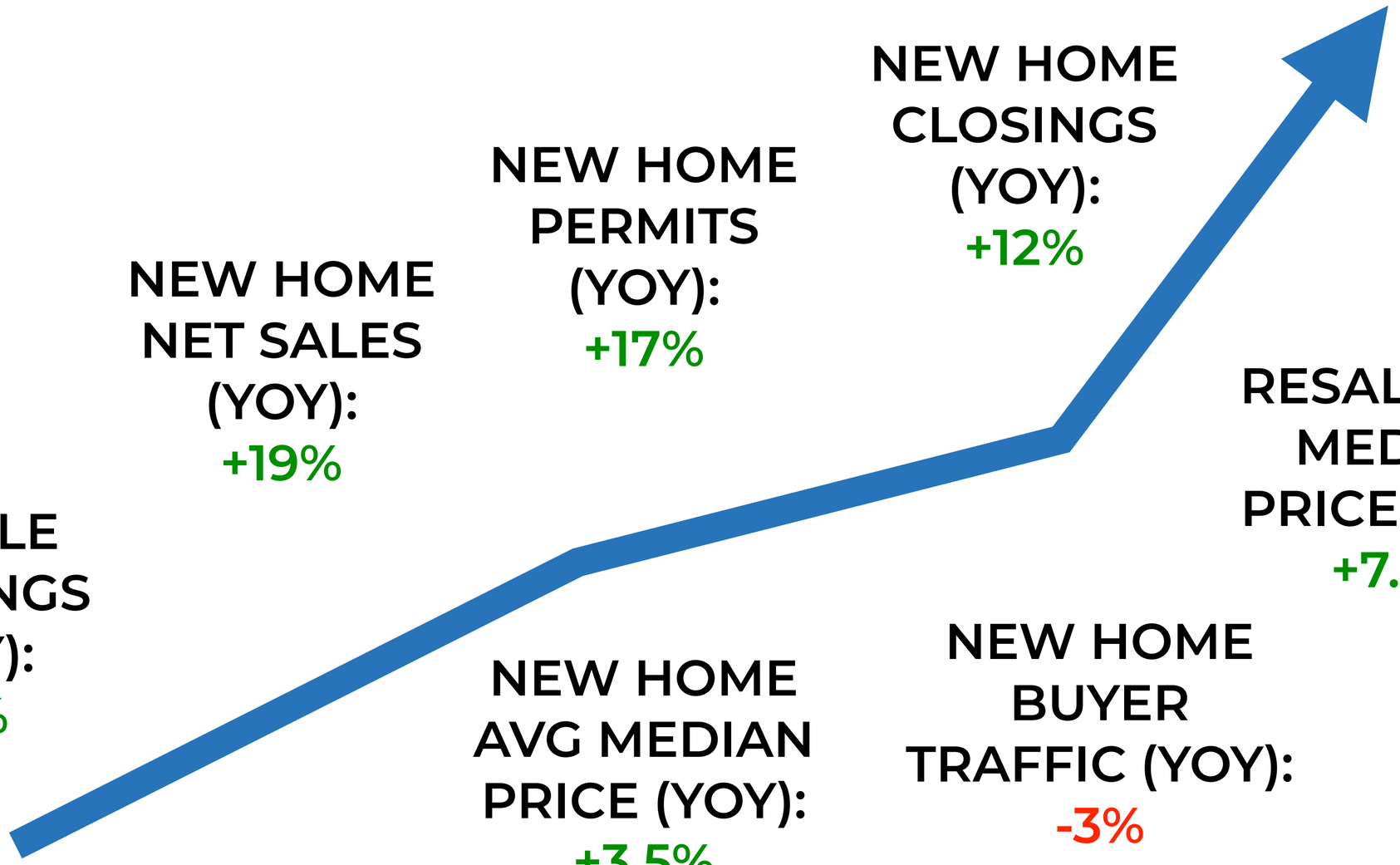
LOVE LAS VEGAS REALTY

Las Vegas Paver

2024 IN REVIEW (THROUGH Q2)



RESALE CLOSINGS (YOY): +2%

NEW HOME NET SALES (YOY): +19%

NEW HOME PERMITS (YOY): +17%

NEW HOME AVG MEDIAN PRICE (YOY): +3.5%

NEW HOME CLOSINGS (YOY): +12%

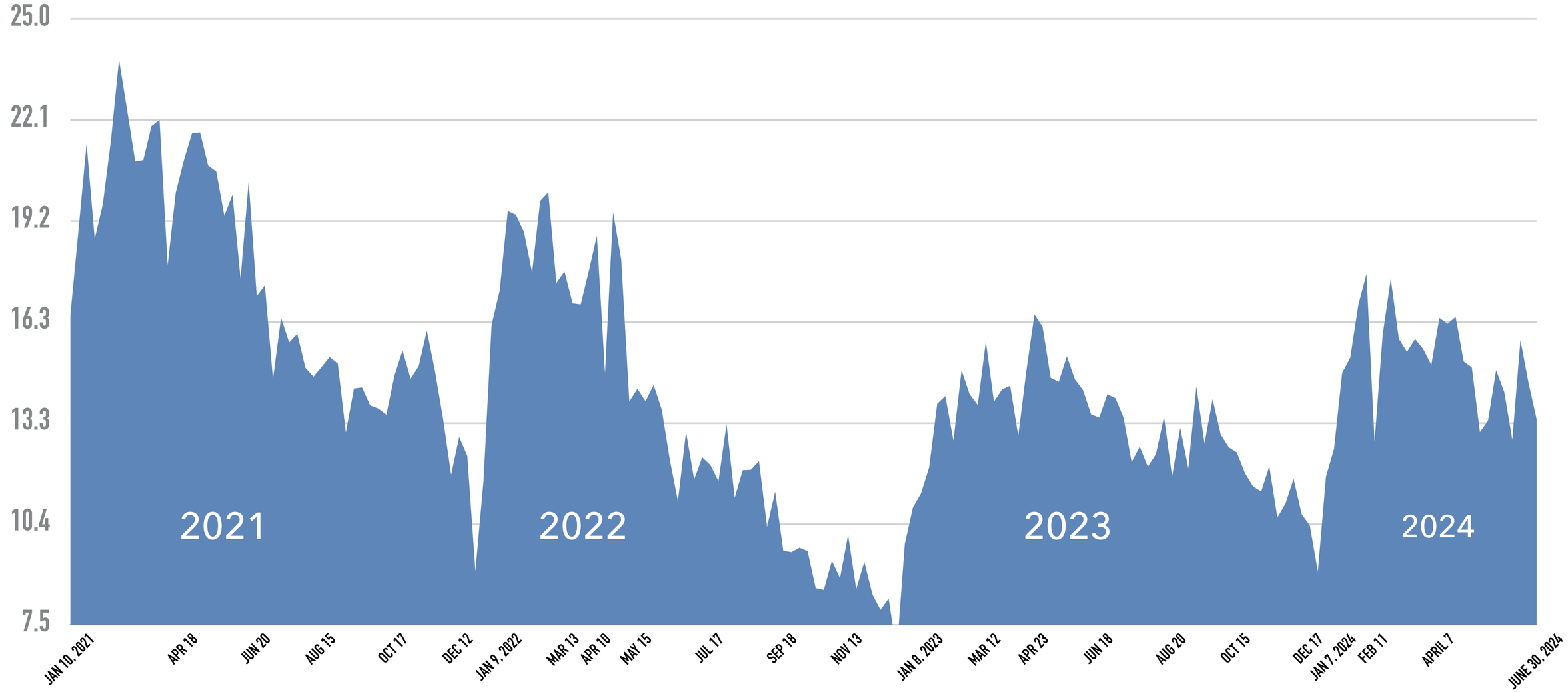
NEW HOME BUYER TRAFFIC (YOY): -3%

RESALE AVG MEDIAN PRICE (YOY): +7.8%

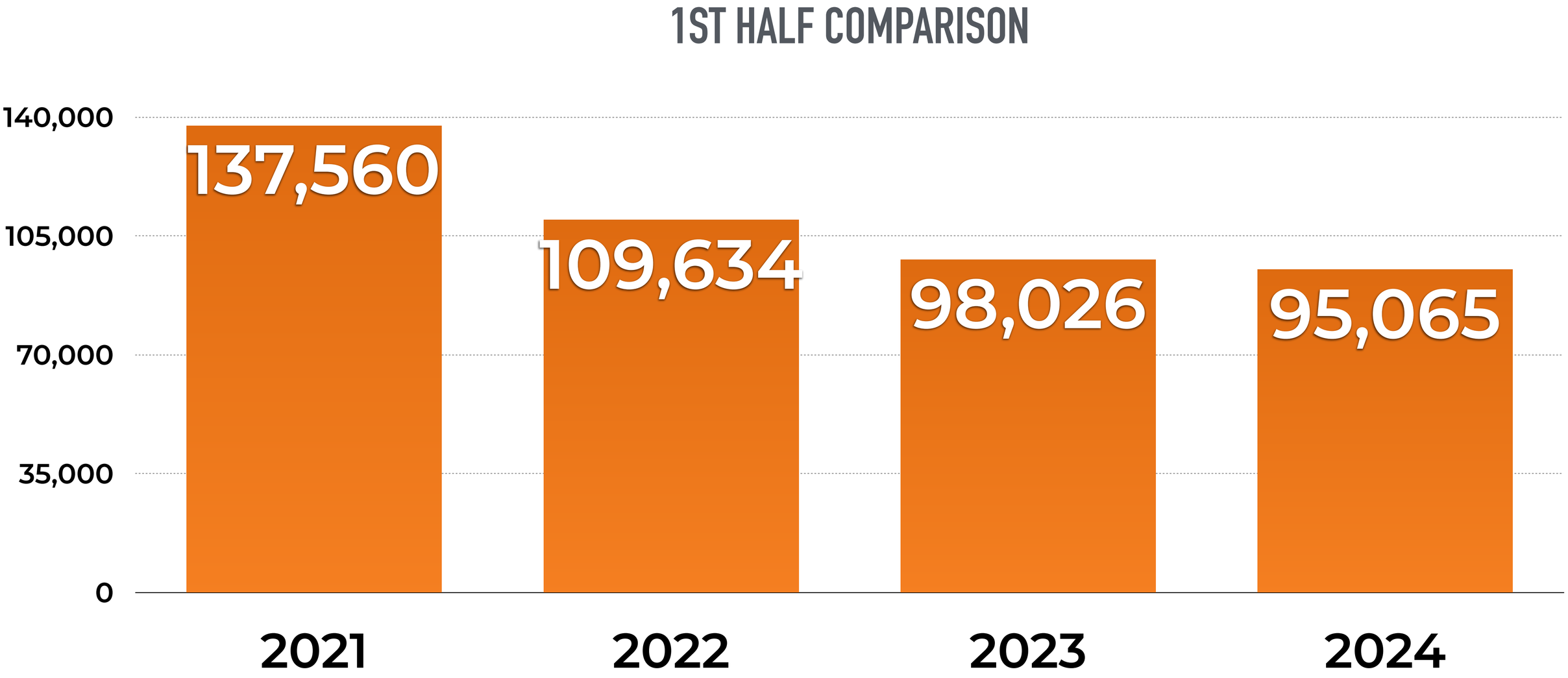
NEW HOME COMMUNITIES OPENED (YOY): +2%

WEEKLY BUYER TRAFFIC PER REPORTING SUBDIVISION

2021-2024

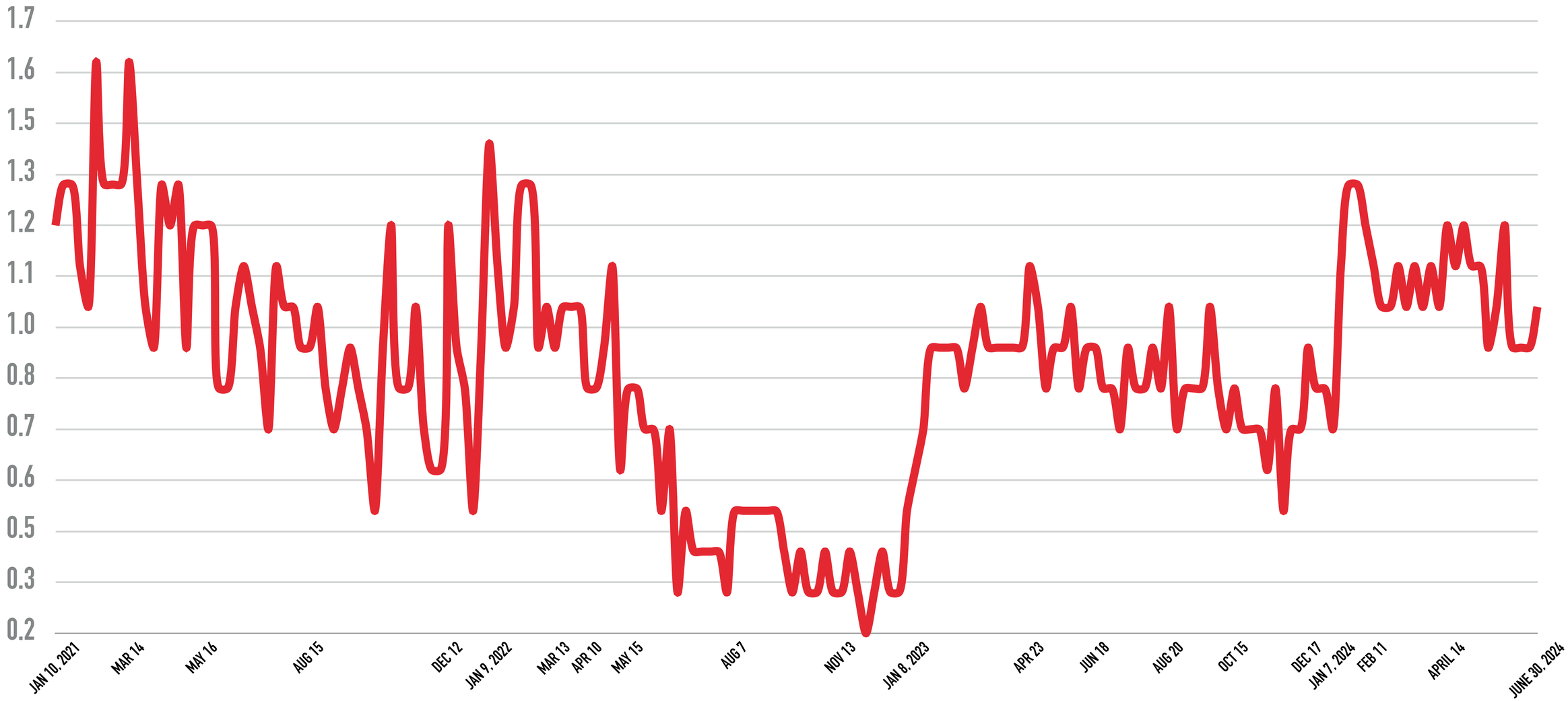


OVERALL BUYER TRAFFIC



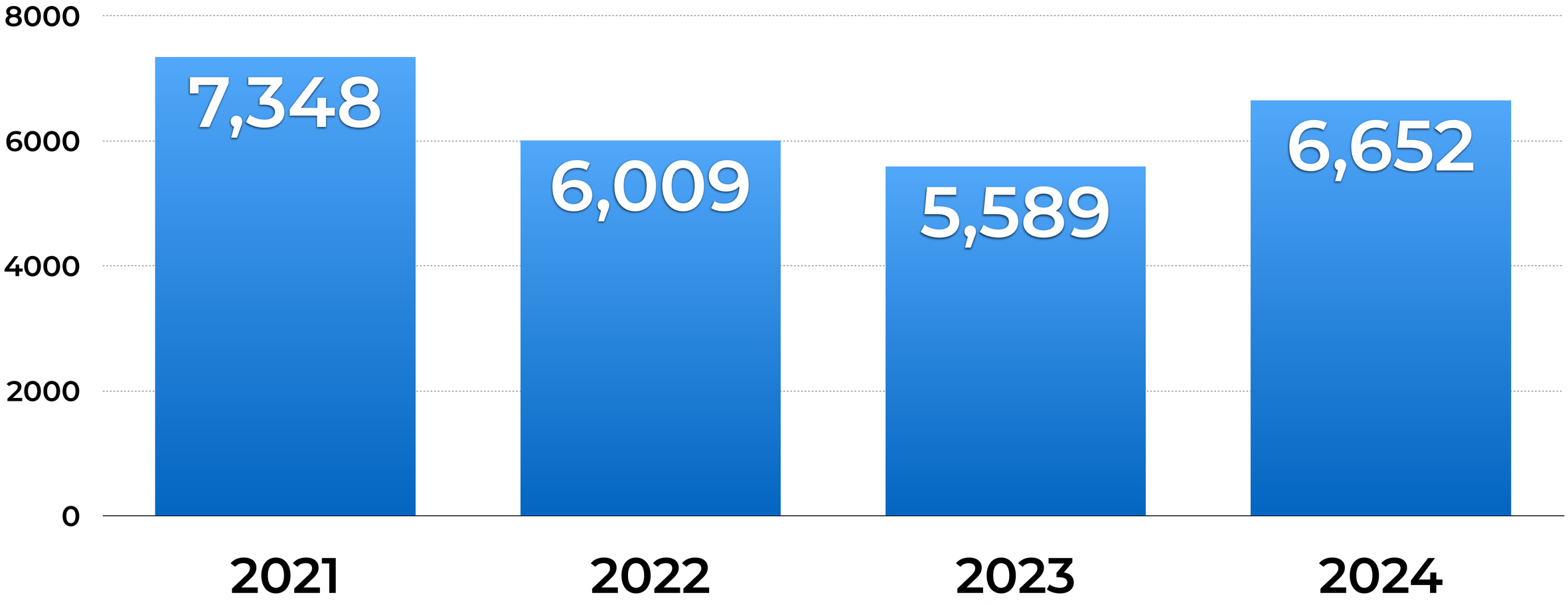
WEEKLY NET SALES PER REPORTING SUBDIVISION

2021–2024



OVERALL NET SALES

1ST HALF COMPARISON



TRAFFIC & NET SALES SUMMARY

1ST HALF COMPARISON 2023 VS 2024

- Total Buyer Traffic

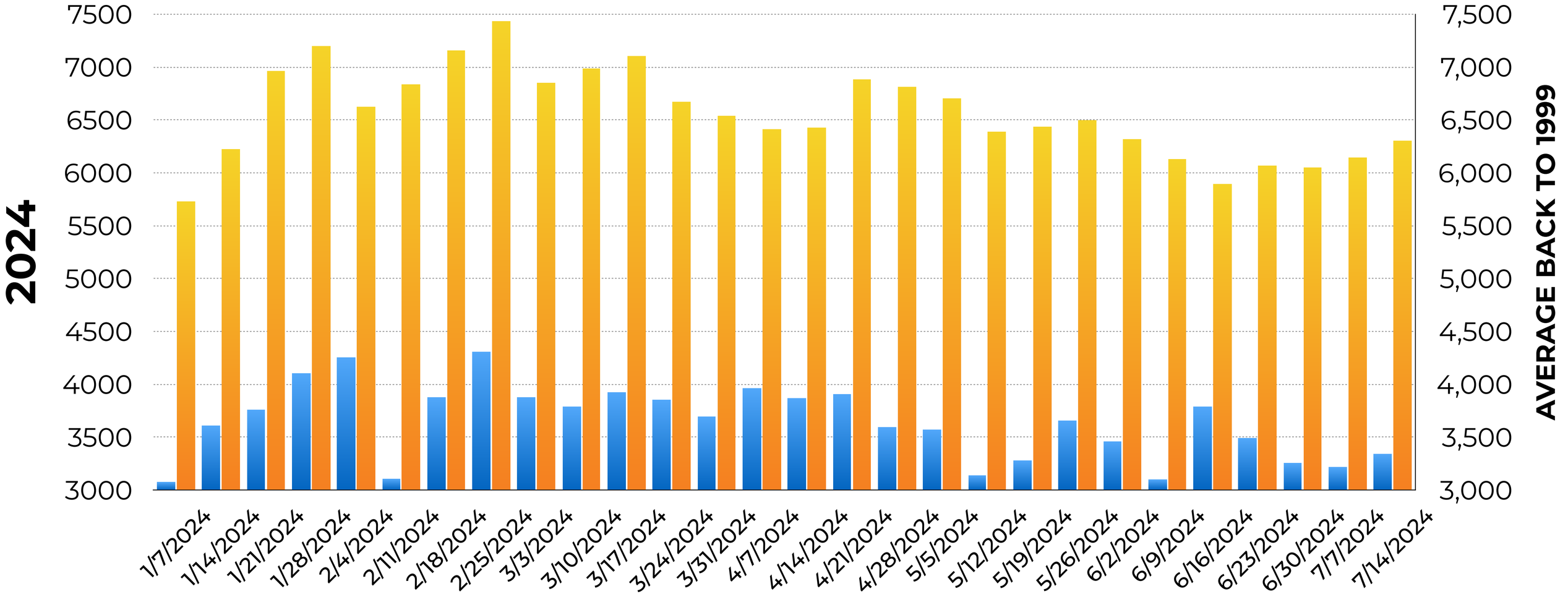
  ▼ 3.0% -2,961

- Total Net Sales

  ▲ 19.0% +1,063

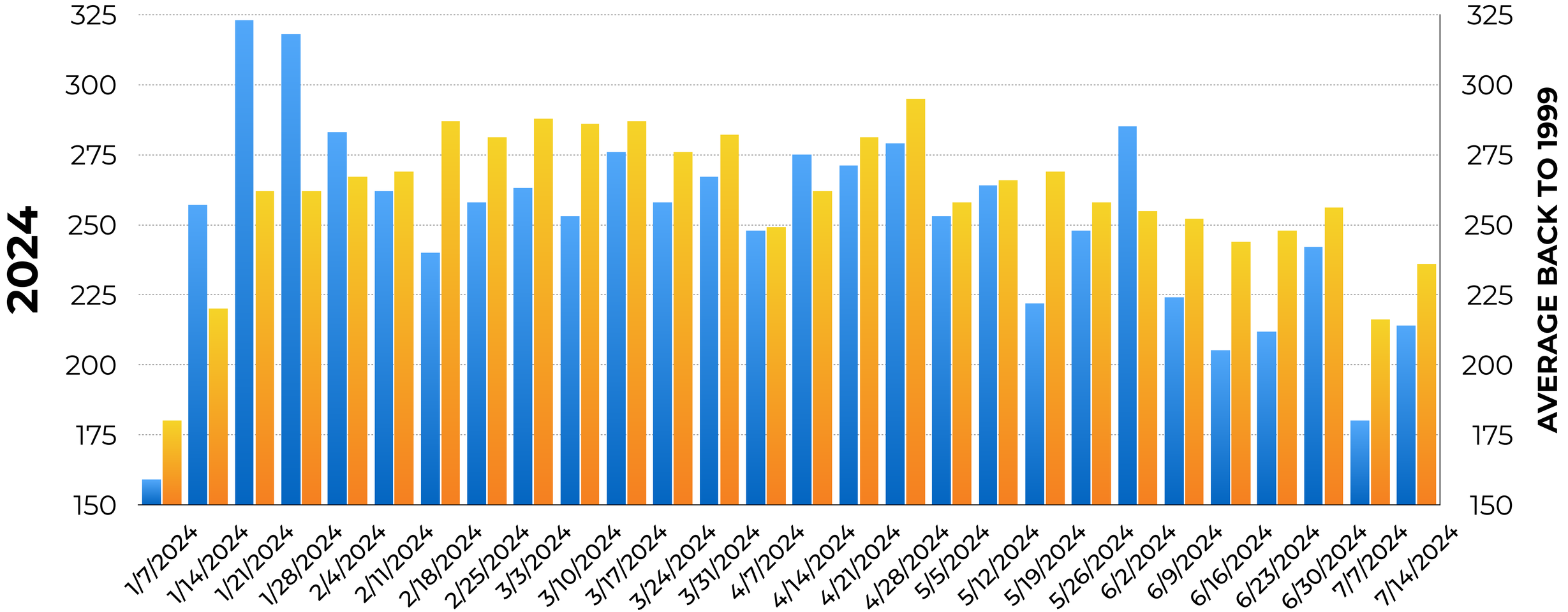
WEEKLY TRAFFIC

2024 vs HISTORICAL

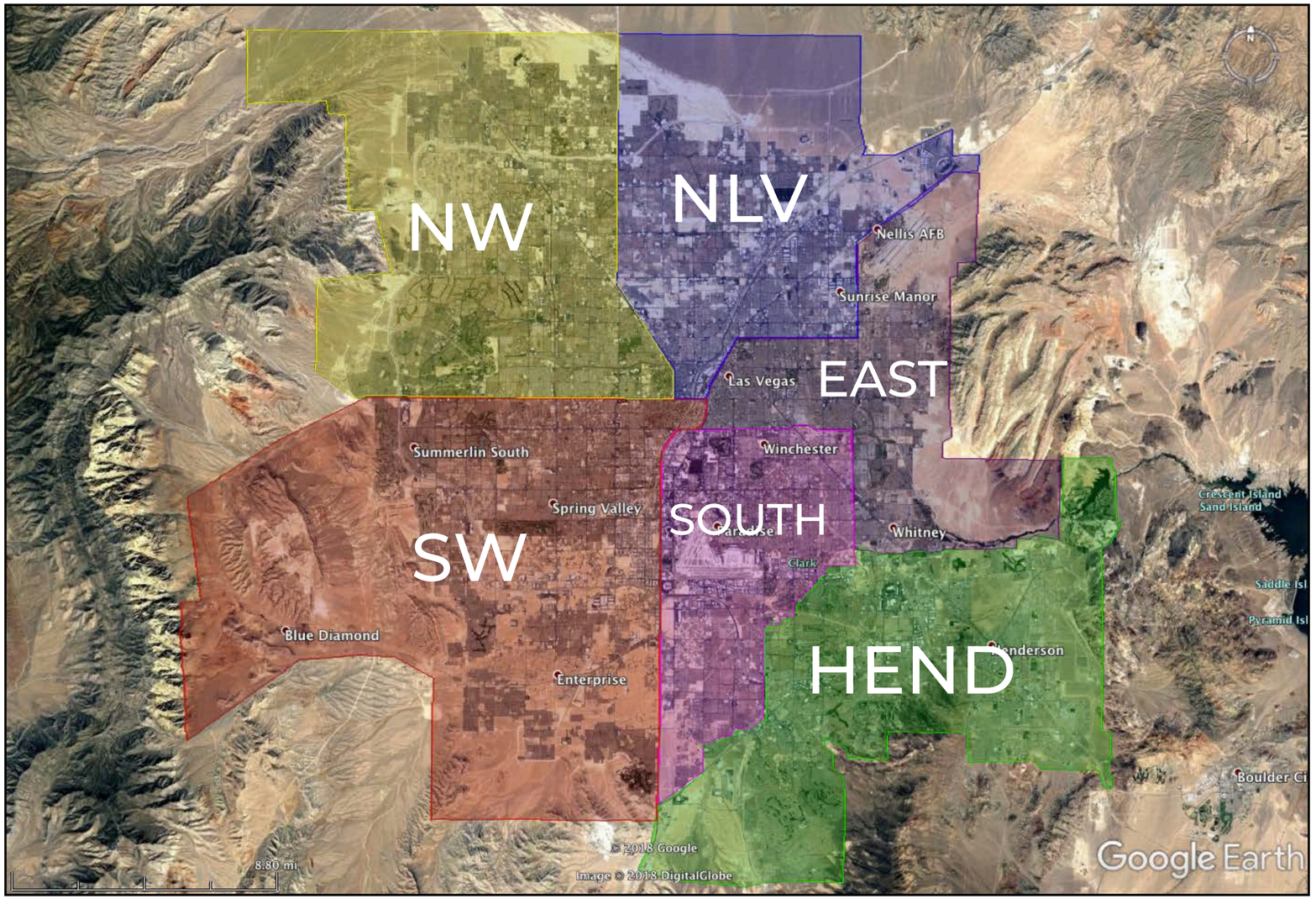


WEEKLY NET SALES

2024 vs HISTORICAL

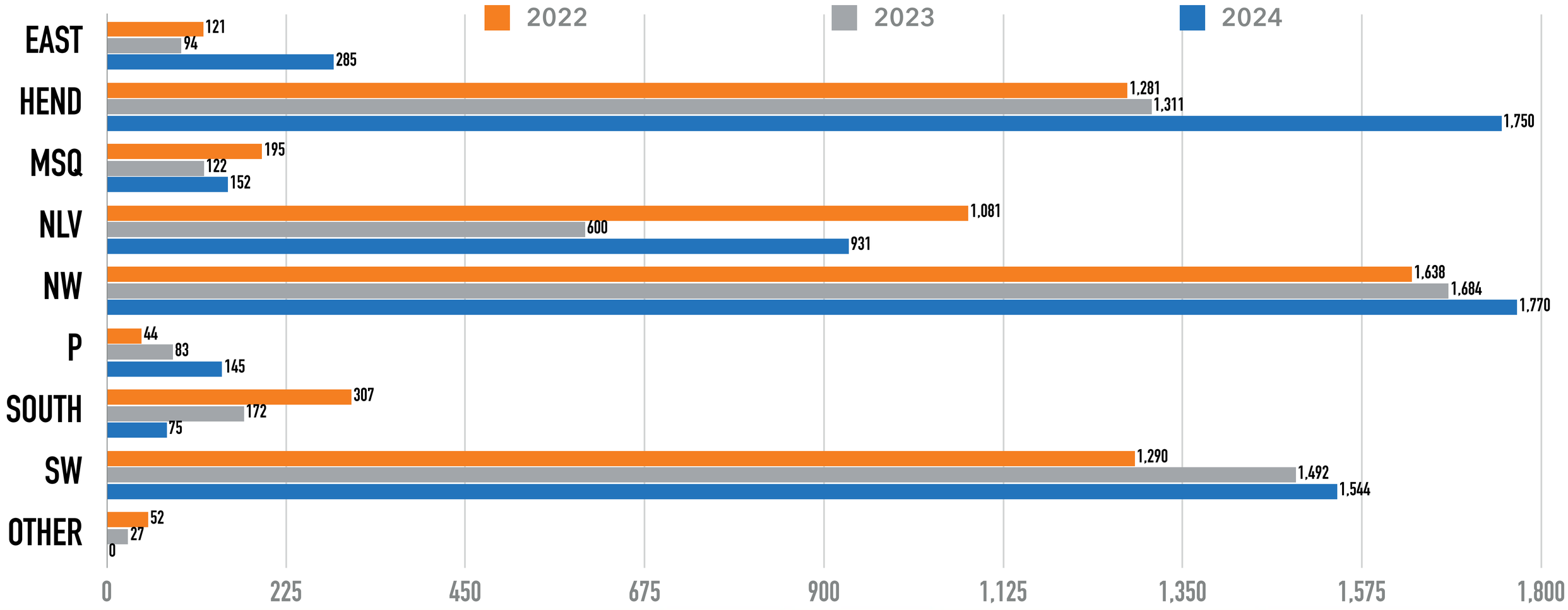


SUB-MARKET AREAS



NEW HOME NET SALES BY AREA

1ST HALF COMPARISON



NEW HOME NET SALES BY BUILDER

1ST HALF COMPARISON

BUILDER	2023	2024	CHANGE
LENNAR HOMES	1009	1198	18.73%
DR HORTON	879	931	5.92%
PULTE GROUP	785	900	14.65%
KB HOME	856	728	-14.95%
RICHMOND AMERICAN	422	578	36.97%
CENTURY COMMUNITIES	185	410	121.62%
TOLL BROTHERS	200	360	80.00%
BEAZER HOMES	255	277	8.63%
TRI POINTE HOMES	191	273	42.93%
TAYLOR MORRISON	195	258	32.31%
TOUCHSTONE LIVING	244	252	3.28%
WOODSIDE HOMES	108	225	108.33%
HARMONY HOMES	93	135	45.16%
SHEA HOMES	43	95	120.93%
PINNACLE HOMES	33	15	-54.55%
SUMMIT HOMES	6	10	66.67%
PARAGON LIFE BUILDERS	13	4	-69.23%
SIGNATURE HOMES	23	3	-86.96%

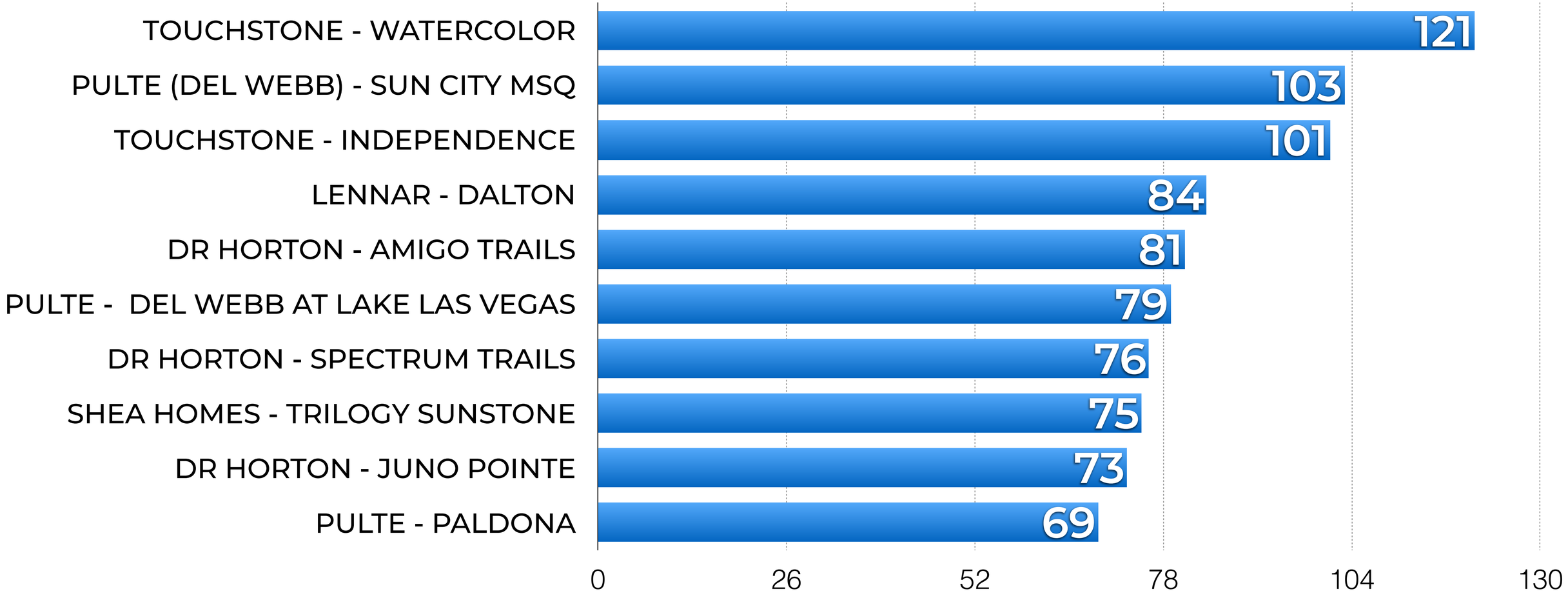
NEW HOME NET SALES BY MASTER PLAN

1ST HALF COMPARISON

BUILDER	2023	2024	CHANGE
CADENCE	465	705	51.61%
SUMMERLIN	537	602	12.10%
INSPIRADA	272	369	35.66%
SUNSTONE	144	347	140.97%
VILLAGES AT TULE SPRINGS	94	273	190.43%
SKYE HILLS	306	270	-11.76%
SKYE CANYON	210	235	11.90%
LAKE LAS VEGAS	158	182	15.19%
VALLEY VISTA	111	137	23.42%
MOUNTAIN FALLS	32	116	262.50%
ANTHEM MESQUITE	69	103	49.28%
SEDONA RANCH	N/A	94	

TOP 10 SUBDIVISIONS - NET SALES

1ST HALF 2024



LAS VEGAS HOUSING OUTLOOK

NEW HOME PERMITS, CLOSINGS, & PRICES

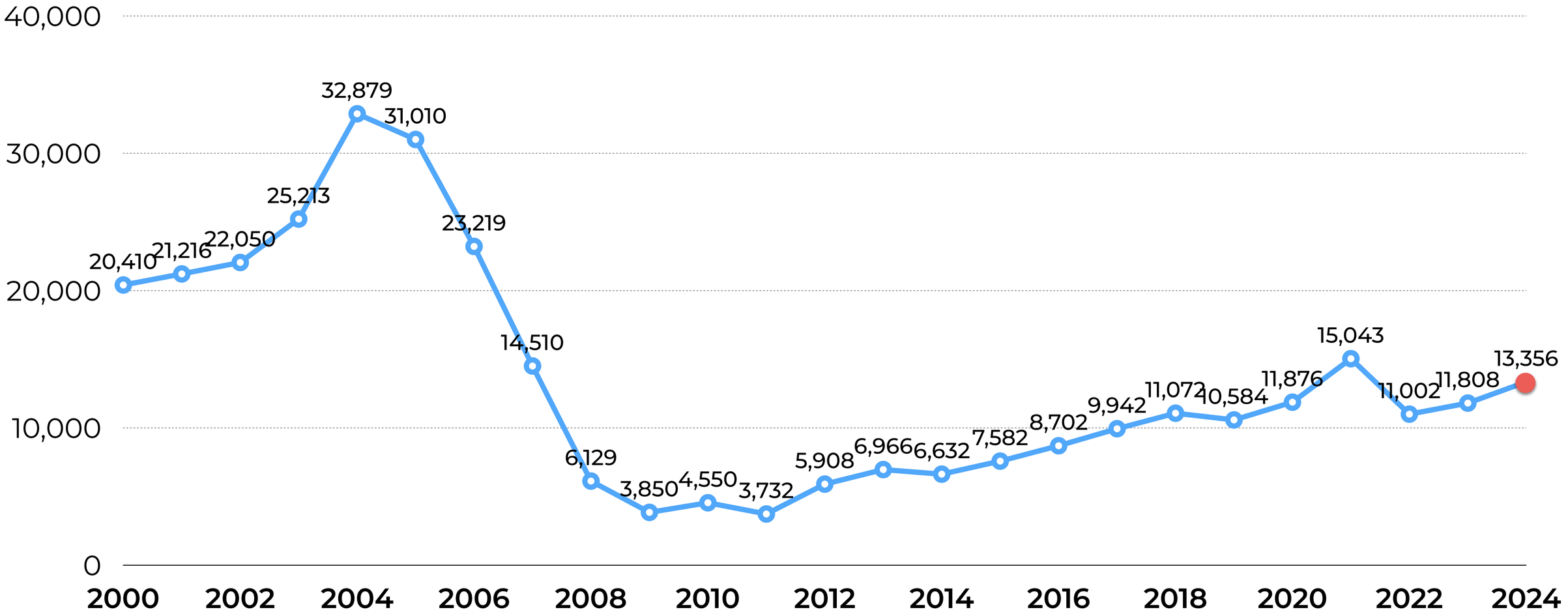
by Home Builders Research

PRESENTED BY

HIRSCHI COMPANIES

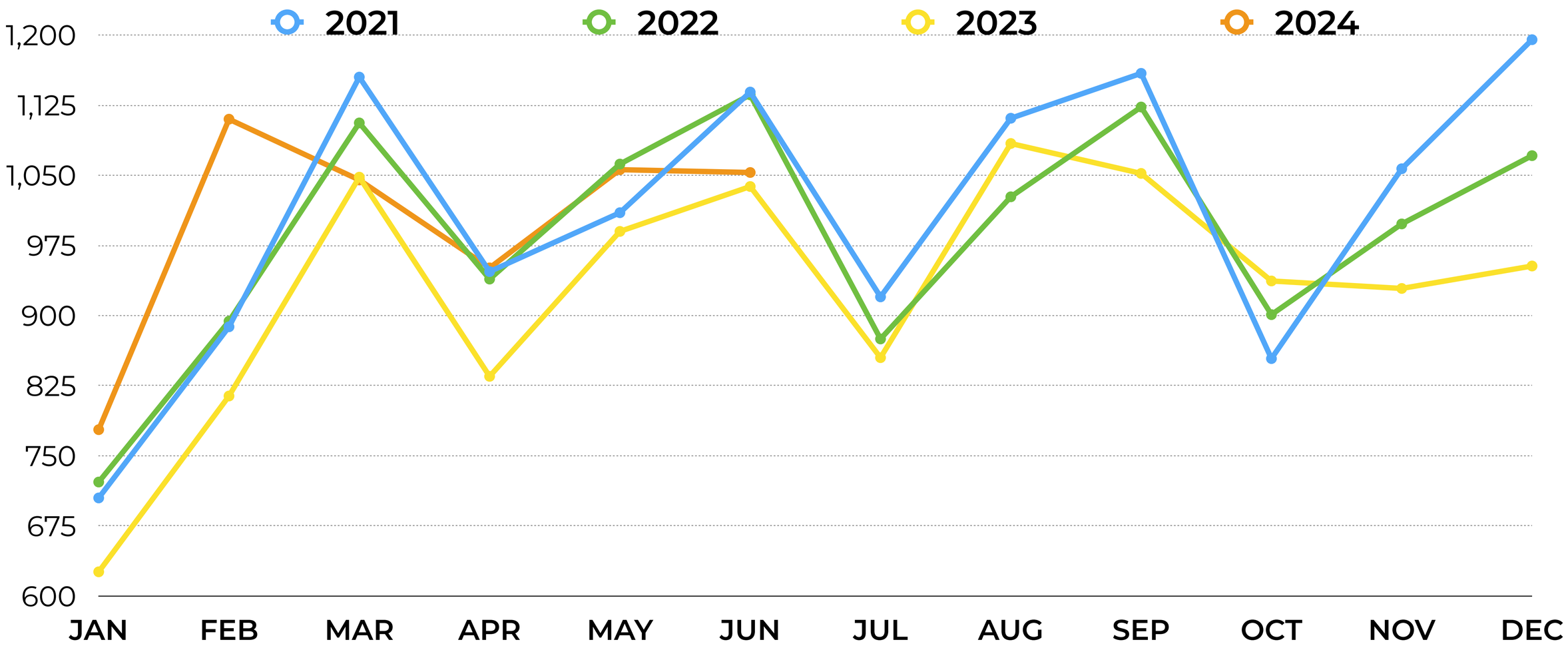
ANNUAL NEW HOME PERMITS

2000 – 2024



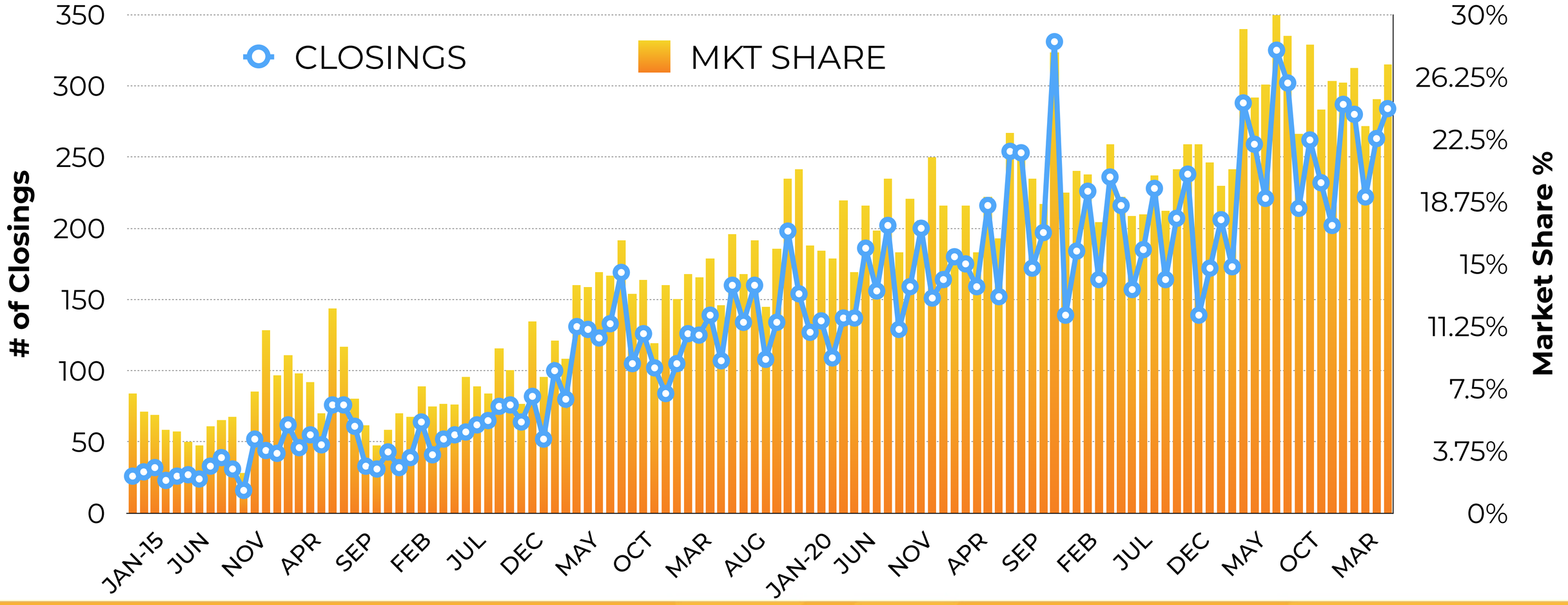
MONTHLY NEW HOME CLOSINGS

ALL PRODUCT TYPES



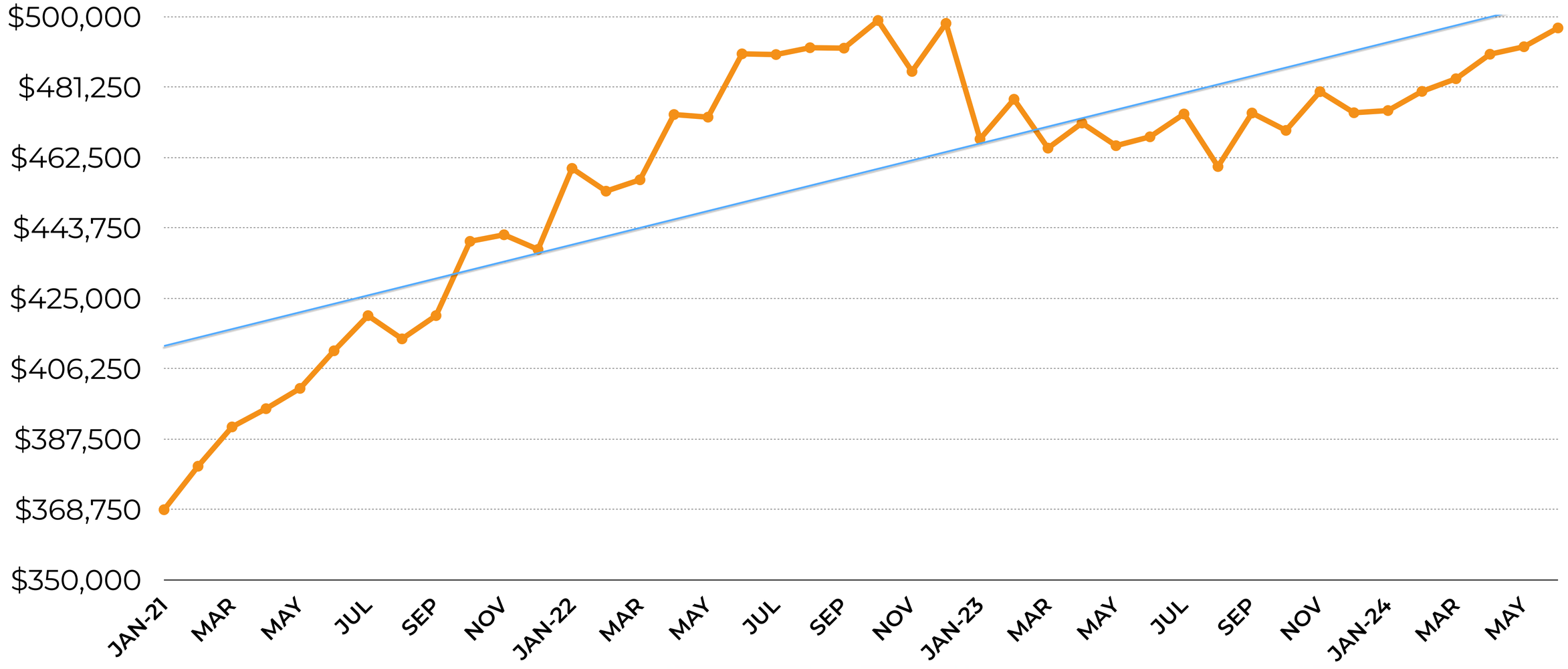
ATTACHED NEW HOME CLOSINGS & MARKET SHARE

2015–2024



NEW HOME MEDIAN CLOSING PRICE

ALL PRODUCT TYPES SINCE 2021



NAHB'S 10-POINT PLAN

1. Eliminate excessive regulations.
2. Promote careers in the skilled trades.
3. Fix building material supply chains and ease costs.
4. Pass federal tax legislation to expand the production of affordable and attainable housing.
5. Overturn inefficient local zoning rules.
6. Alleviate permitting roadblocks.
7. Adopt reasonable and cost-effective building codes.
8. Reduce local impact fees and other upfront taxes associated with housing construction.
9. Make it easier for developers to finance new housing.
10. Update employment policies to promote flexibility and opportunity.

LAS VEGAS HOUSING OUTLOOK

RESALE LISTINGS, CLOSINGS, & PRICES

by Home Builders Research

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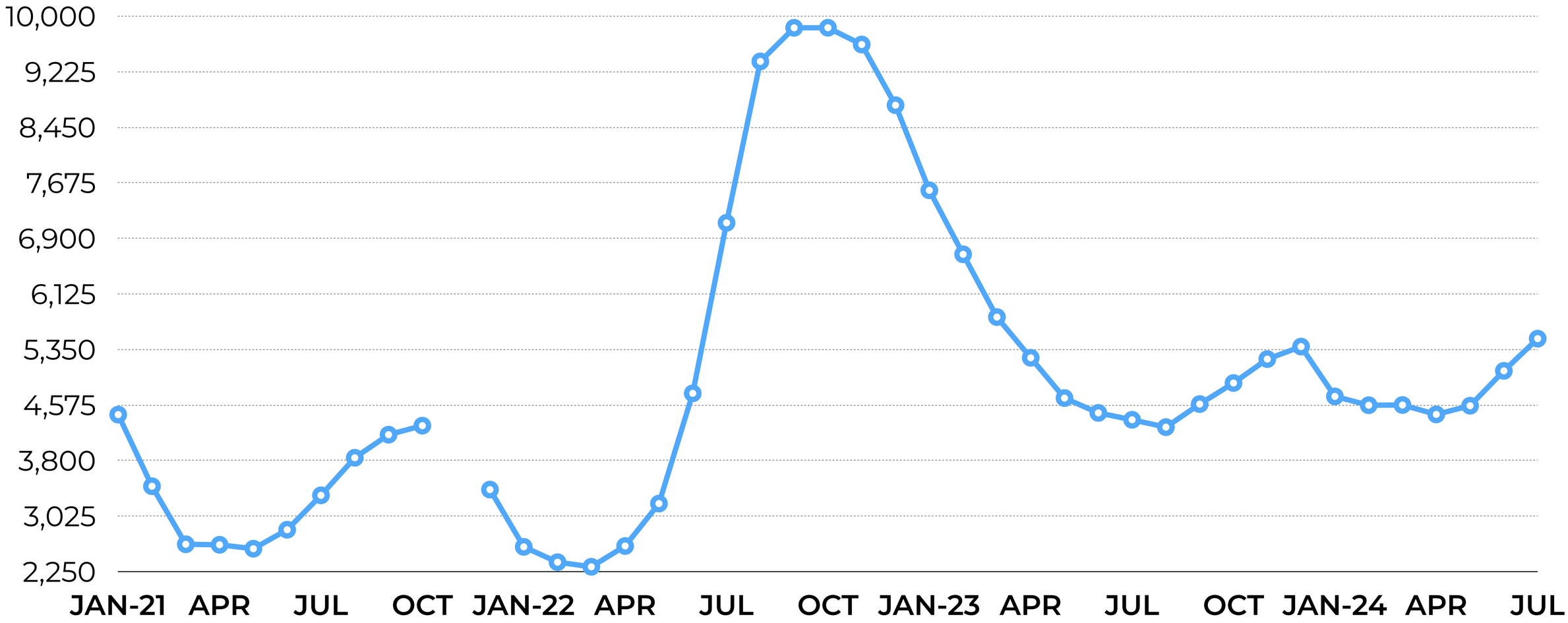
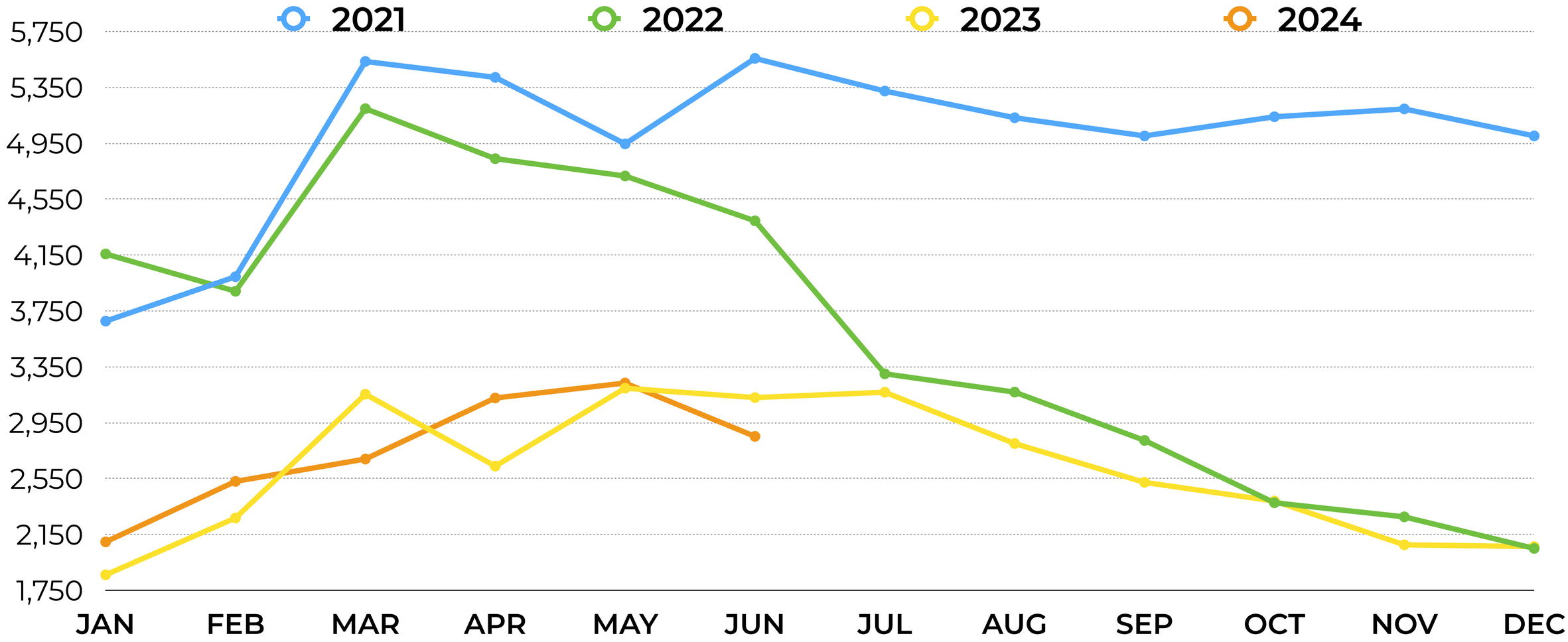
RESALE LISTINGS WITHOUT OFFERS

ALL TYPES 2021-2024



MONTHLY RESALE CLOSINGS

ALL PRODUCT TYPES



LAS VEGAS HOUSING OUTLOOK

BUILDER LAND PURCHASES

by Home Builders Research

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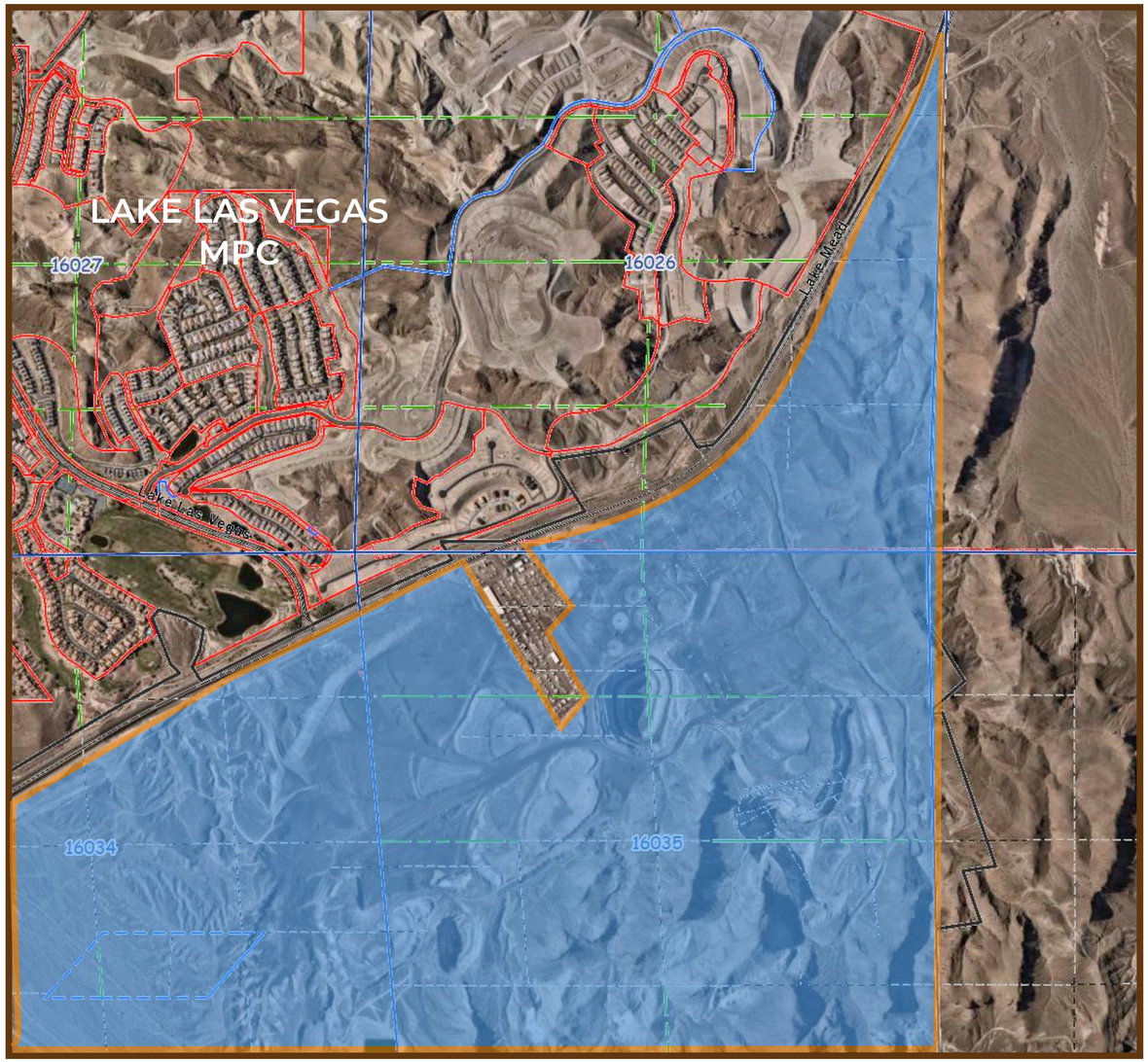
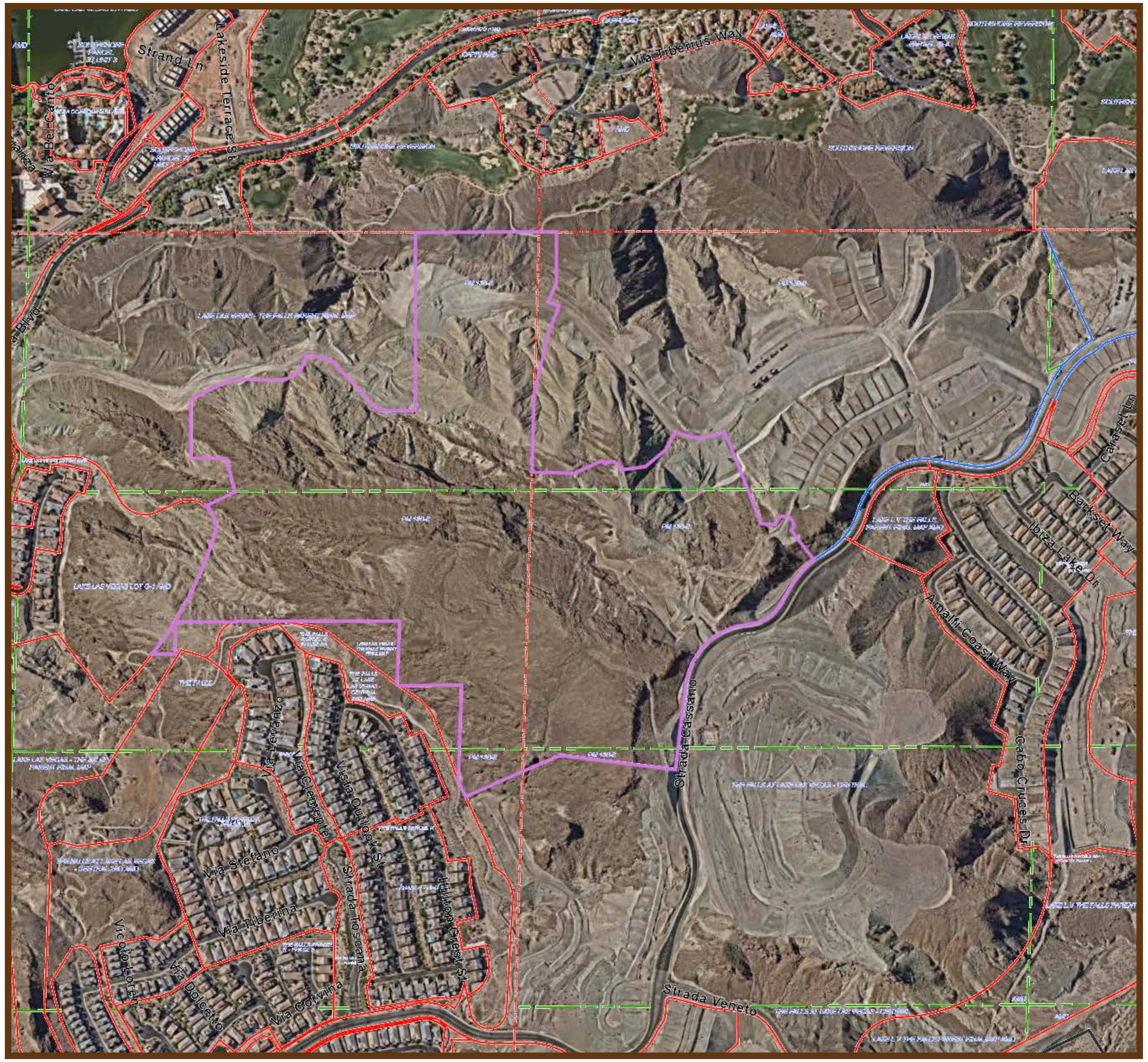
BUILDER LAND PURCHASES

DATE	FEB 28, 2024
BUYER	PULTE
SELLER	THREE KIDS ENTERPRISES INC.
PARCEL	160-35-701-004+
ZONING	PC
SIZE	276.5 ACRES
PRICE	$7,350,111
PRICE PER ACRE	$26,583



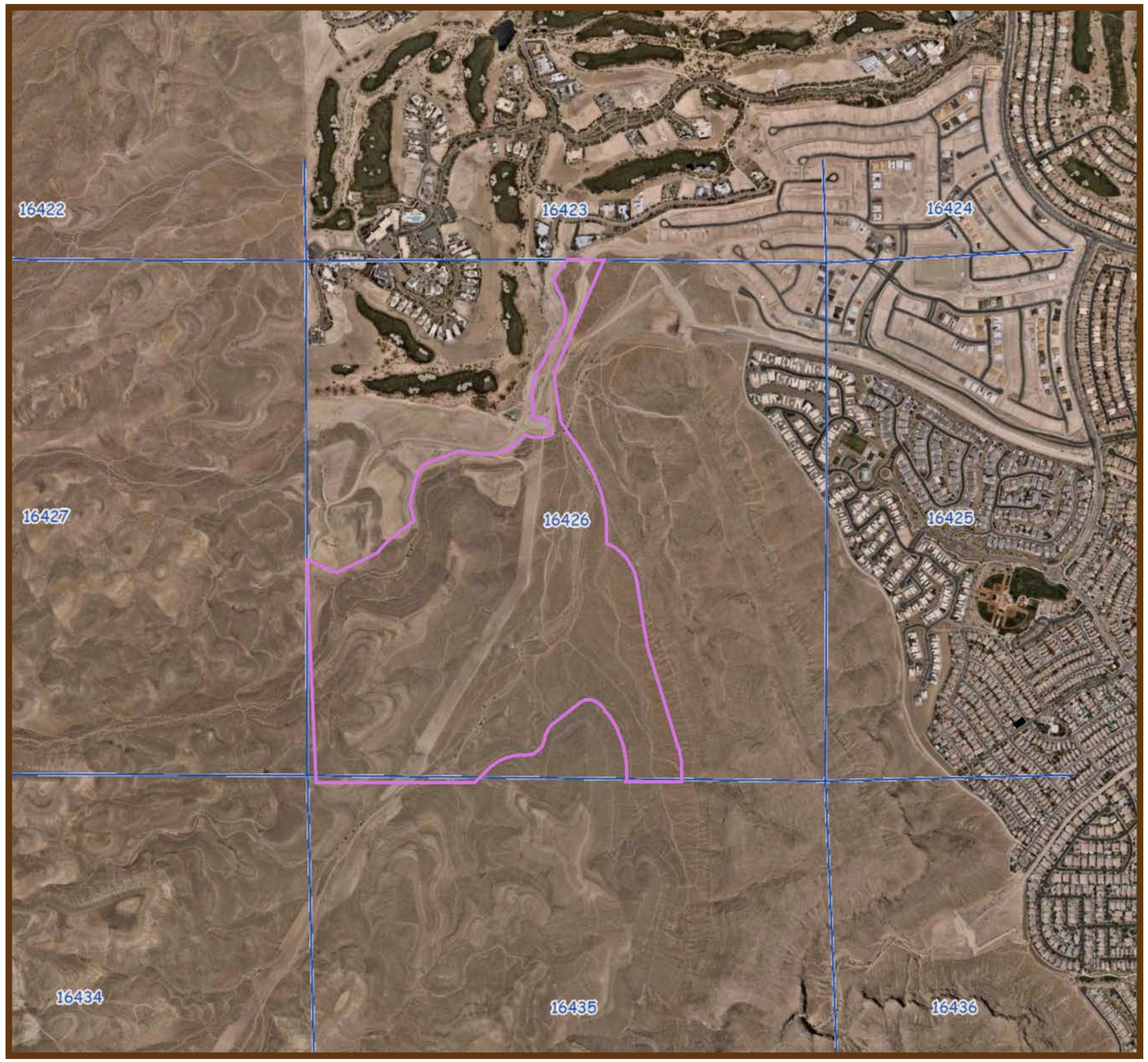
BUILDER LAND PURCHASES

DATE	MARCH 15, 2024
BUYER	GREYSTONE NEVADA (LENNAR)
SELLER	LLV-1 LLC (LAKE LAS VEGAS MASTER)
PARCEL	160-27-616-001+
ZONING	PS
SIZE	186.01 ACRES
PRICE	$25,571,294
PRICE PER ACRE	$137,473



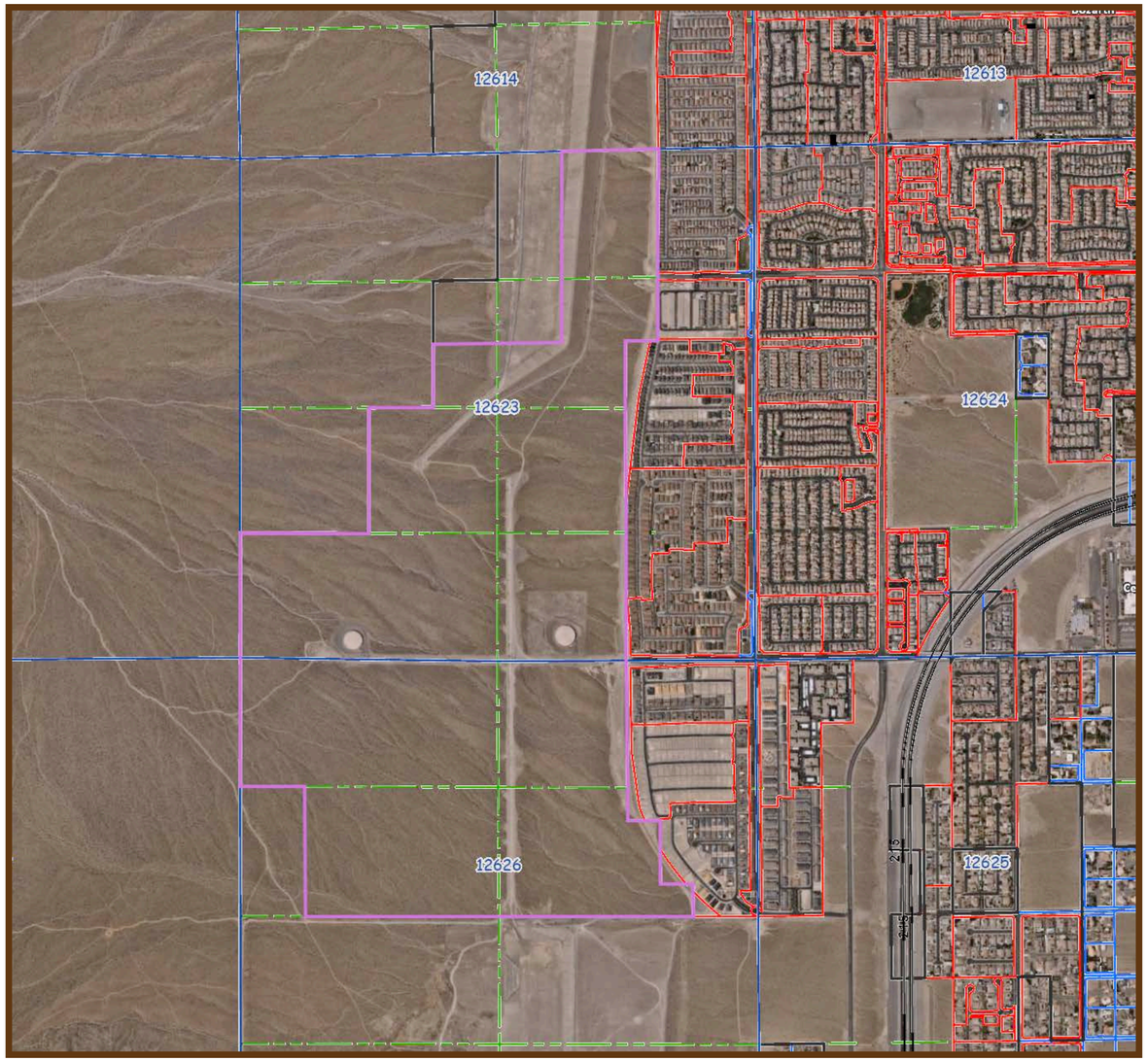
BUILDER LAND PURCHASES

DATE	FUTURE
BUYER	UNDISCLOSED
SELLER	HOWARD HUGHES
PARCEL	164-26-301-004
ZONING	RS80
SIZE	231.39 ACRES
PRICE	UNDISCLOSED
PRICE PER ACRE	UNDISCLOSED



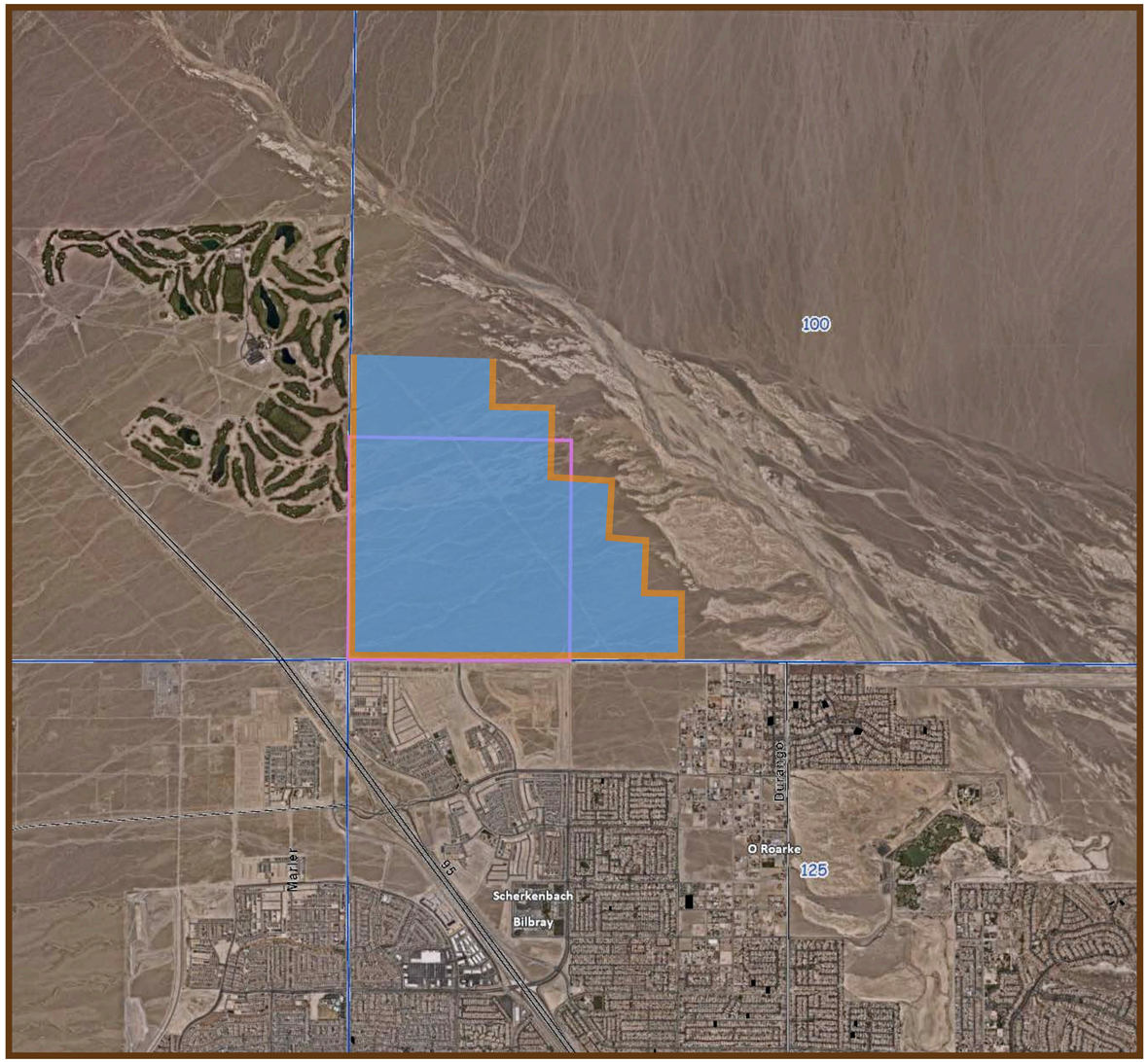
BUILDER LAND PURCHASES

DATE	MAY 24, 2024
BUYER	CANYON WALK LLC
SELLER	BLM
PARCEL	126-26-101-003
ZONING	C-V
SIZE	505 ACRES
PRICE	$55,000,000
PRICE PER ACRE	$108,911



FUTURE DEVELOPMENT?

NAME	UPPER LAS VEGAS WASH
PARTIES INVOLVED	OLYMPIA COMPANIES CLV, BLM
PARCEL	100-31-000-001+
ZONING	U(TND)
SIZE	>600 ACRES



LAS VEGAS HOUSING OUTLOOK

RATES

by Home Builders Research

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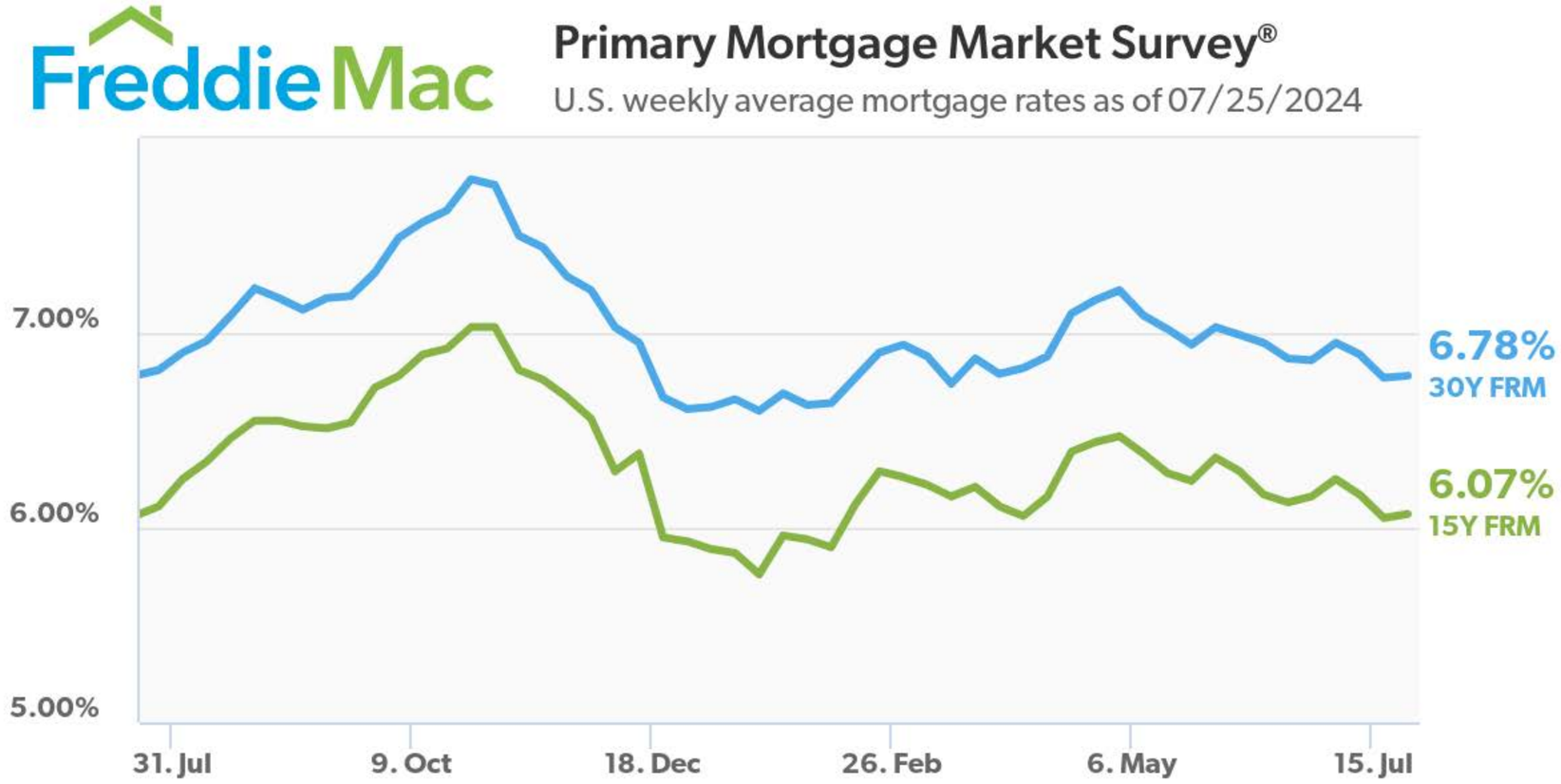
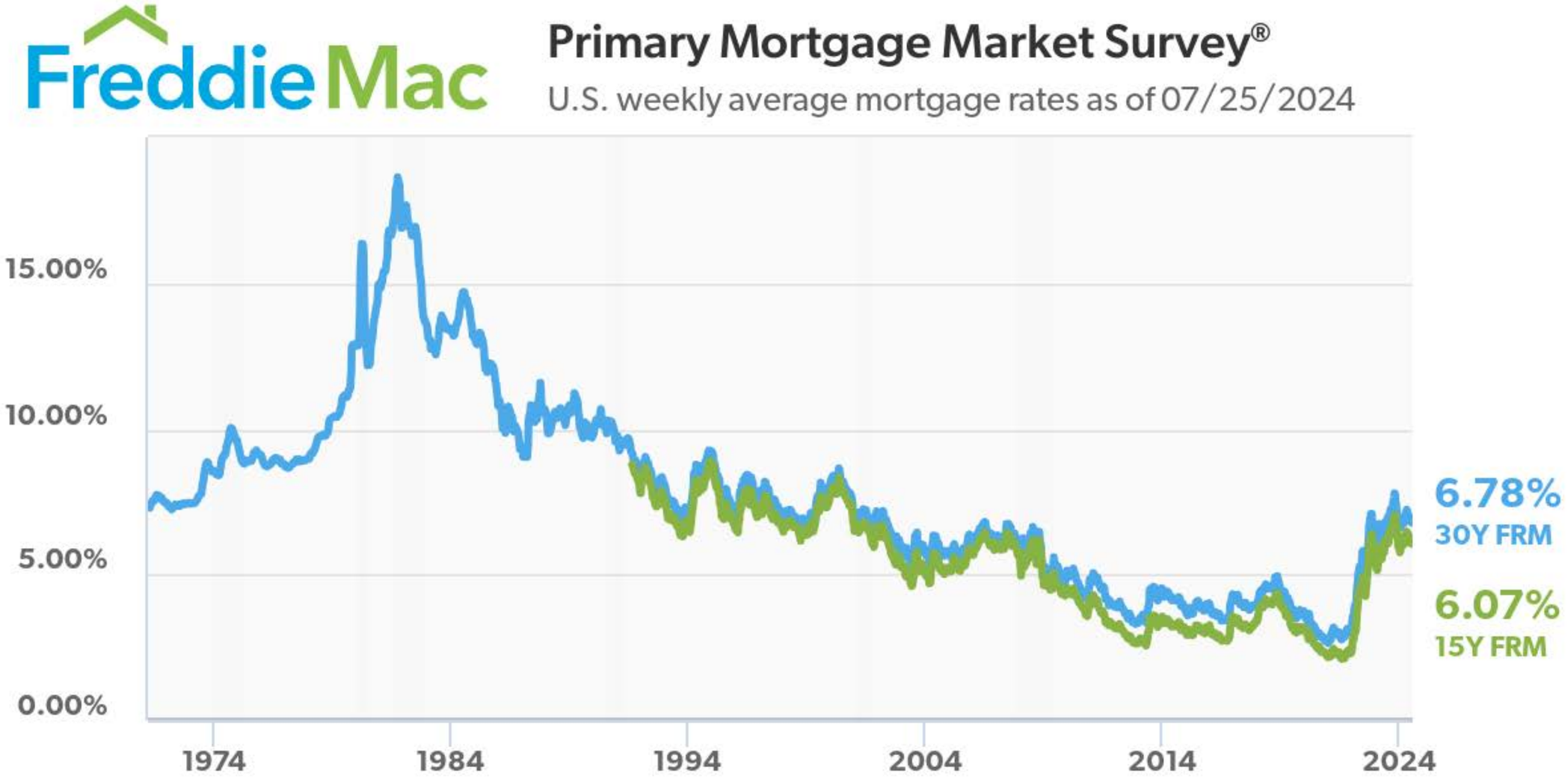
HIRSCHI COMPANIES

MORTGAGE RATES

- 6.78% U.S. weekly average 30-year FRM (7/25/2024)
  - Creeping lower since 2024 peak in early May (7.22%)



MORTGAGE RATES



THANK YOU

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