NOVEMBER 7, 2024

University of Virginia
Weldon Cooper Center for Public Service

Virginia Solar Database

Presentation to Commission on Electric Utility Regulation Energy Facility Siting Committee

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Good governance, equity, and resilience in every Virginia community

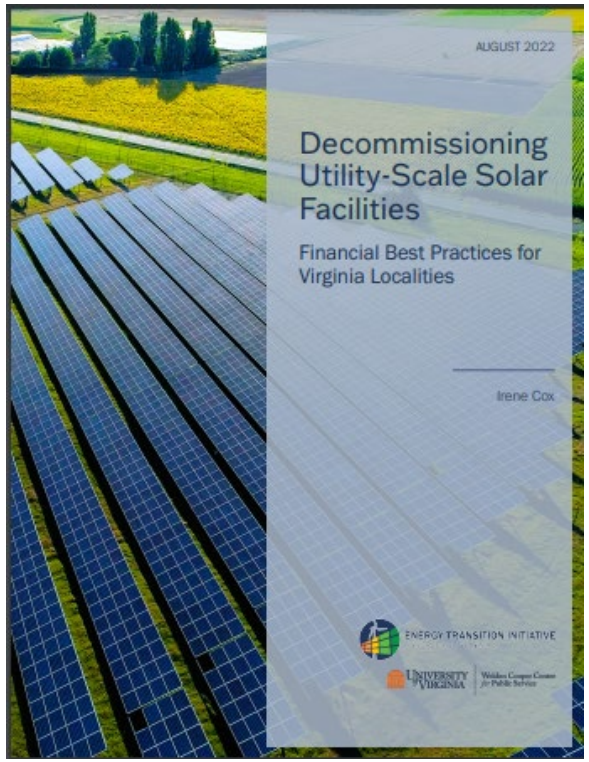
Weldon Cooper Center for Public Service at UVA offers rigorous training programs and nationally recognized applied research in service to the public good.

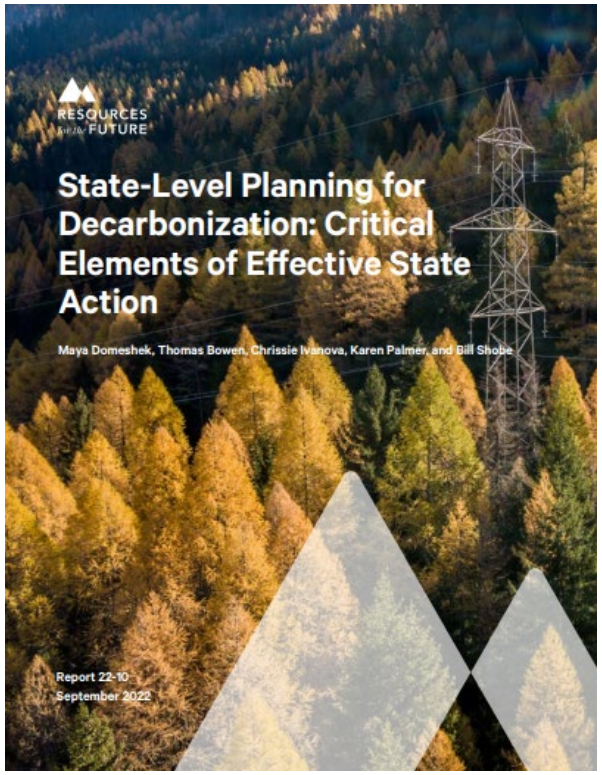
Our non-partisan, reliable services help policymakers and elected officials, students, governments, and community leaders in Virginia and beyond.

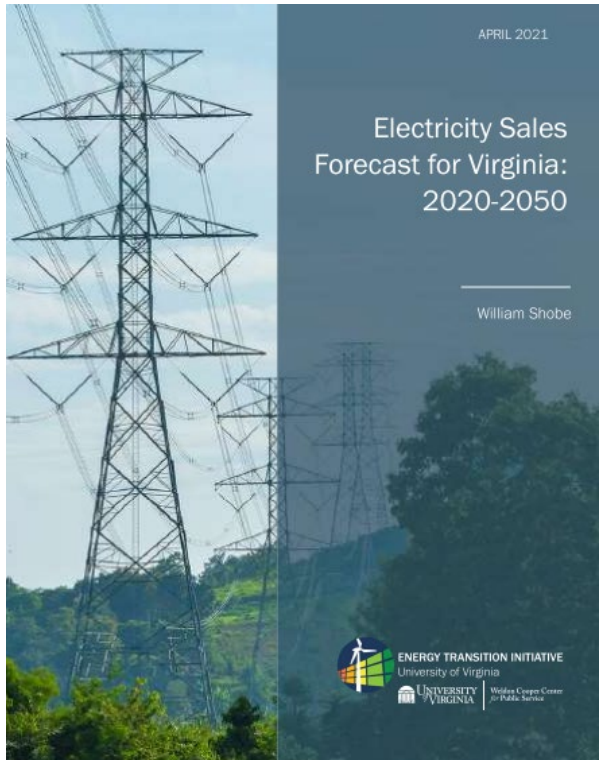
Energy Transition Initiative (ETI) **and Virginia Solar Initiative** (VSI) offer solar-related data, tools, and guidance to localities to reduce policy uncertainty, enhance environmental and social equity outcomes, and provide related support and analysis on land use, economic, and engagement matters.

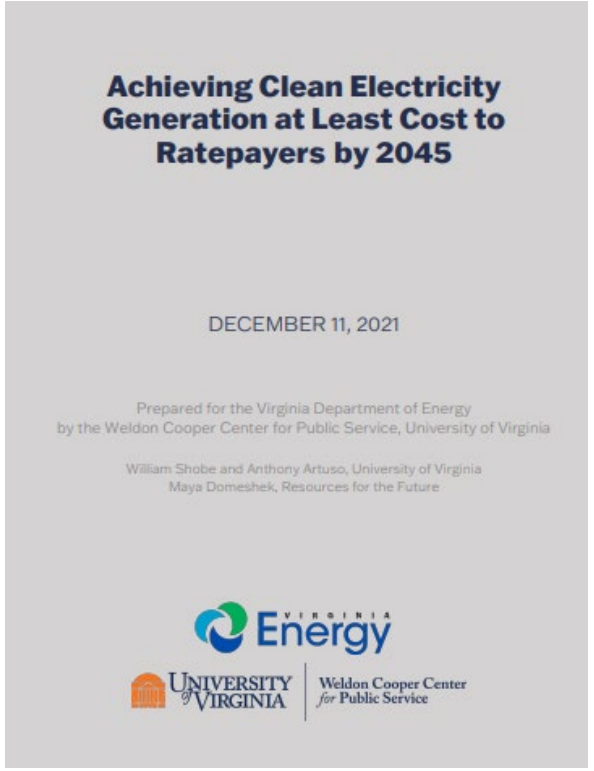
ENERGY TRANSITION INITIATIVE AT UVA

Resources for Policymakers:
White Papers, Energy Forecasts, Policy Analysis



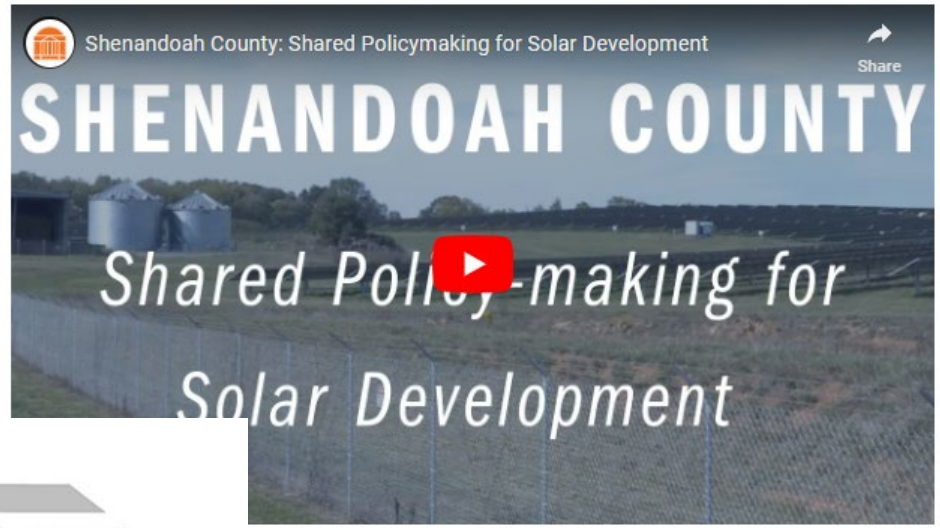






Resources for Policy Implementation:
Technical Assistance

Hear from Shenandoah County's staff



SOLSMART
NATIONALLY DISTINGUISHED. **LOCALLY POWERED.**

Resources for Solar Tax Policy:
SolTax Tool

Project Parameters

Parameter	Value
User	emm2t
Discount Rate	6%
Real Property Rate per $100 of Assessed Value	$0.84
M&T Tax Rate per $100 of Assessed Value	$4.28
Total Capitalized Investment	$100,000,000
Initial Year	2022
Project Size	30 MW
Total Land Acreage	300 acres
Inside Fence Acreage	270 acres
Base Land Value	$1,000 /acre
Inside the Fence Land Value	$10,000 /acre
Outside the Fence Land Value	$1,000 /acre

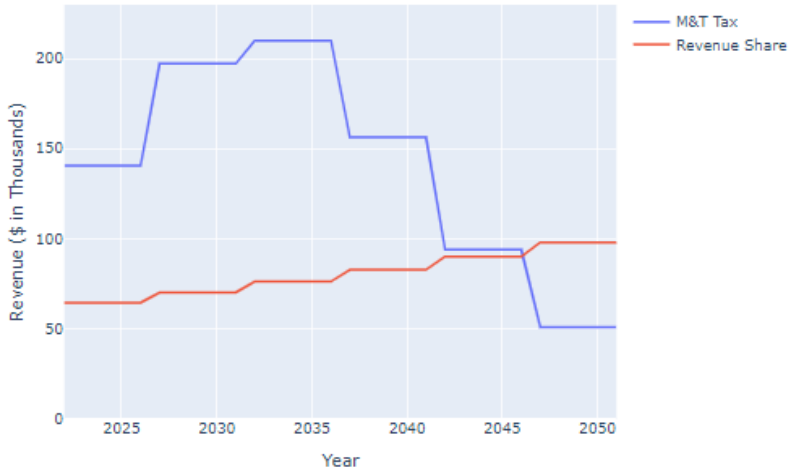
Highlighted in green is the tax rate is used for M&T/Real Estate tax calculations

Total Expected Lifetime Revenue

Discounted at 6% per year (2020 $)

Revenue Share	$973,000
M&T/Real Estate Tax	$2,033,000
Increase from Revenue Share	-$1,060,000

Lineplot of Nominal Cashflows



Preview: Virginia Solar Permit Map

www.solarpermitmap.coopercenter.org

Virginia Permit Map- Overview

- Online, interactive decision trees and permit maps for the various local, state, federal, and interconnection processes
- Highlight sequencing, dependencies, and relationships between processes
- Provide state code and policy references and summaries

4-VA
Advancing The Commonwealth

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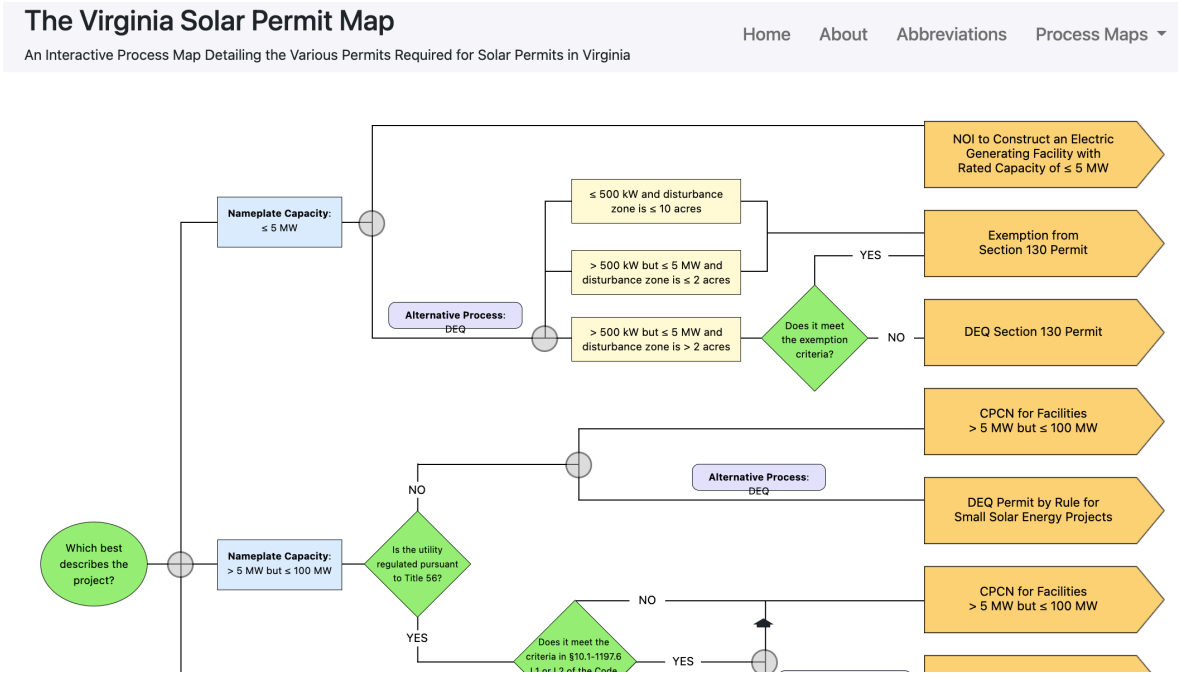
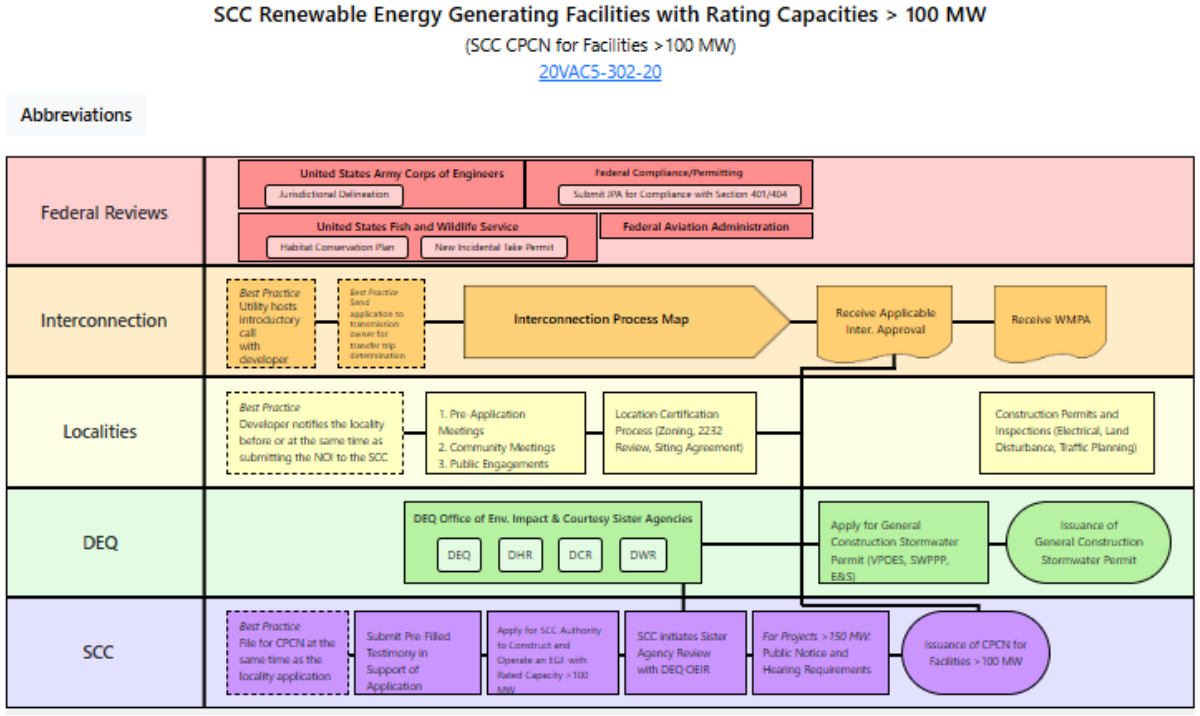
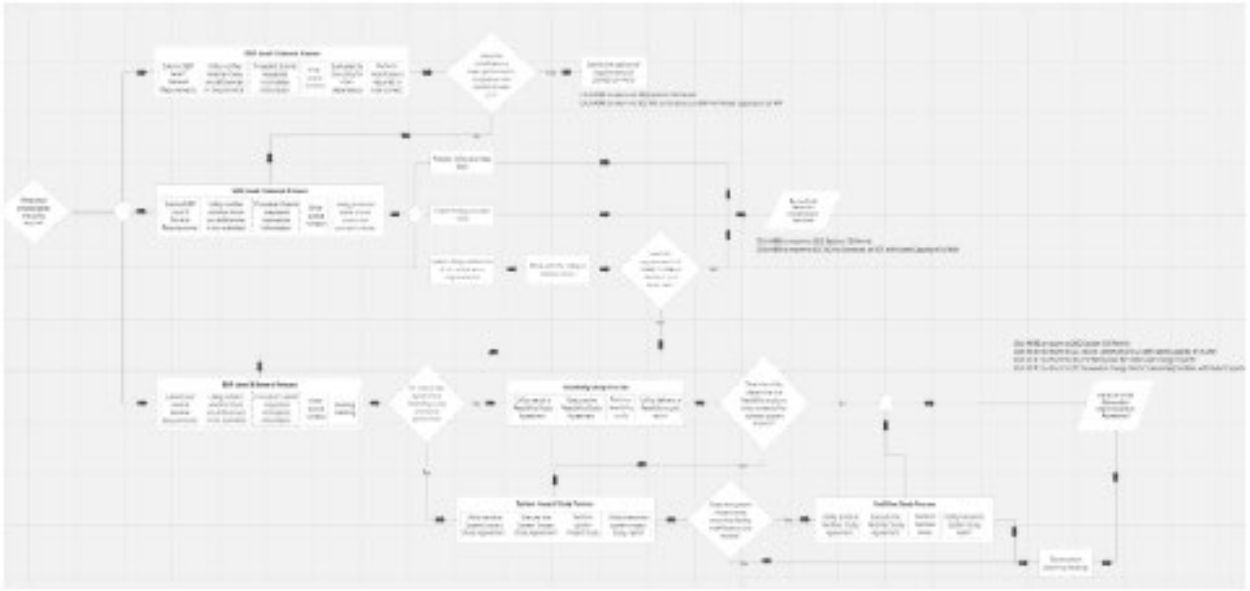
VIRGINIA TECH

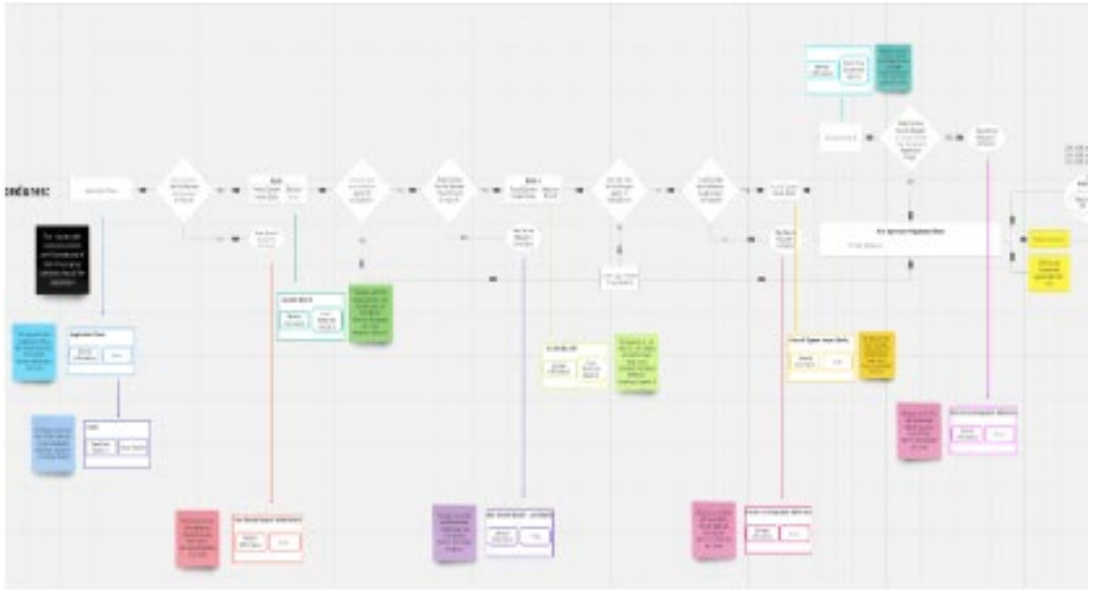
Interactive Decision Trees and Maps





Interconnection Process Maps





Click Here for SCC Interconnection Map

Click Here for PJM Interconnection Map

Introducing: Virginia Solar Database

www.solardatabase.coopercenter.org

Background:
Summary of Need

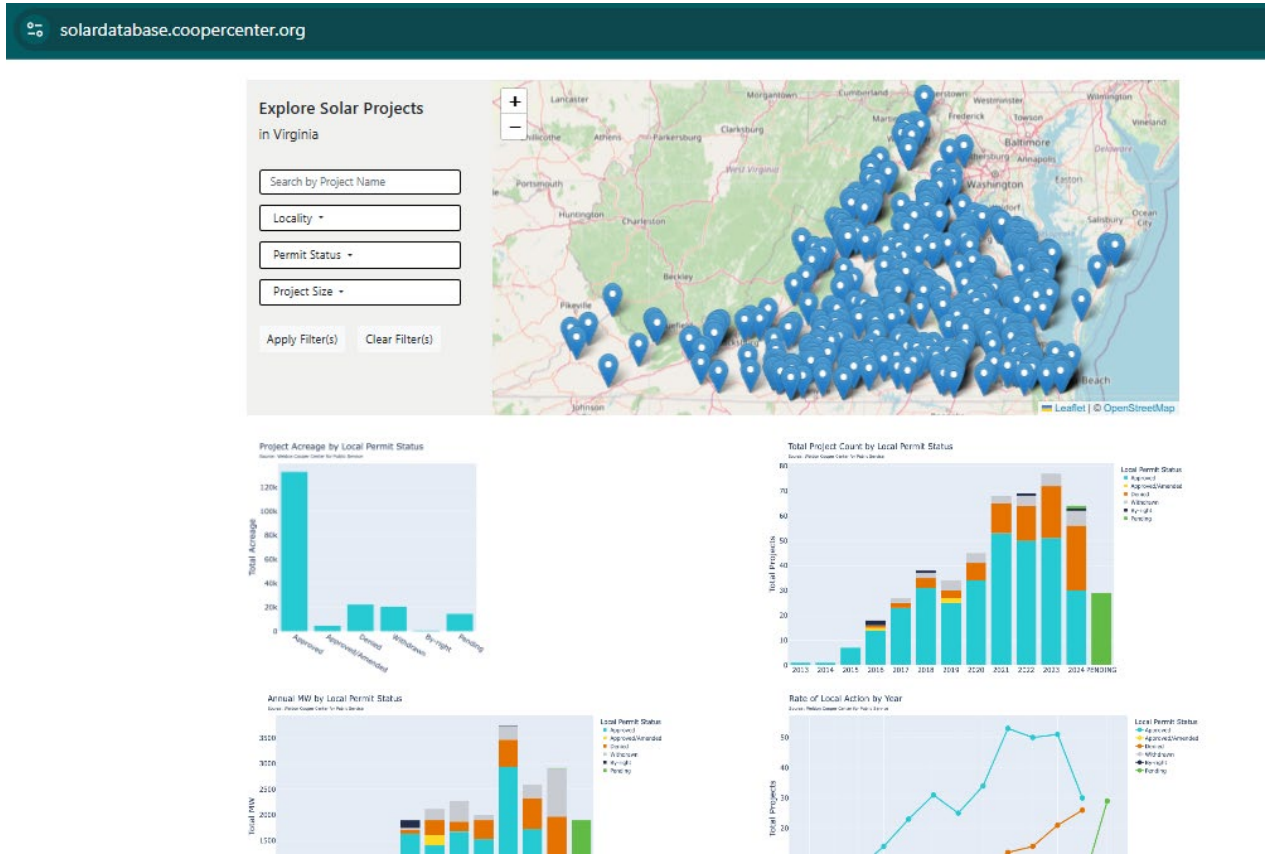
- **2022 Virginia Solar Survey confirmed the need for ongoing efforts to track local solar siting policy and permitting across the state.**
- Record-breaking energy demand forecasts indicate that **demand for solar facility siting will continue**.
- **Local permitting data is siloed** to each individual locality; no centralized, comprehensive source of data and no reliable mechanism for collecting it.
- **Difficult to obtain SCC data; difficult to reconcile PJM data** with local data
- Current tracking methods included labor-intensive manual searches, google alerts, and word of mouth. Result is **conflicting data and no central source of truth**.
- **No mechanism to track a project across local, state permitting and interconnection**. Identifying information often changes, making it difficult to track a project.

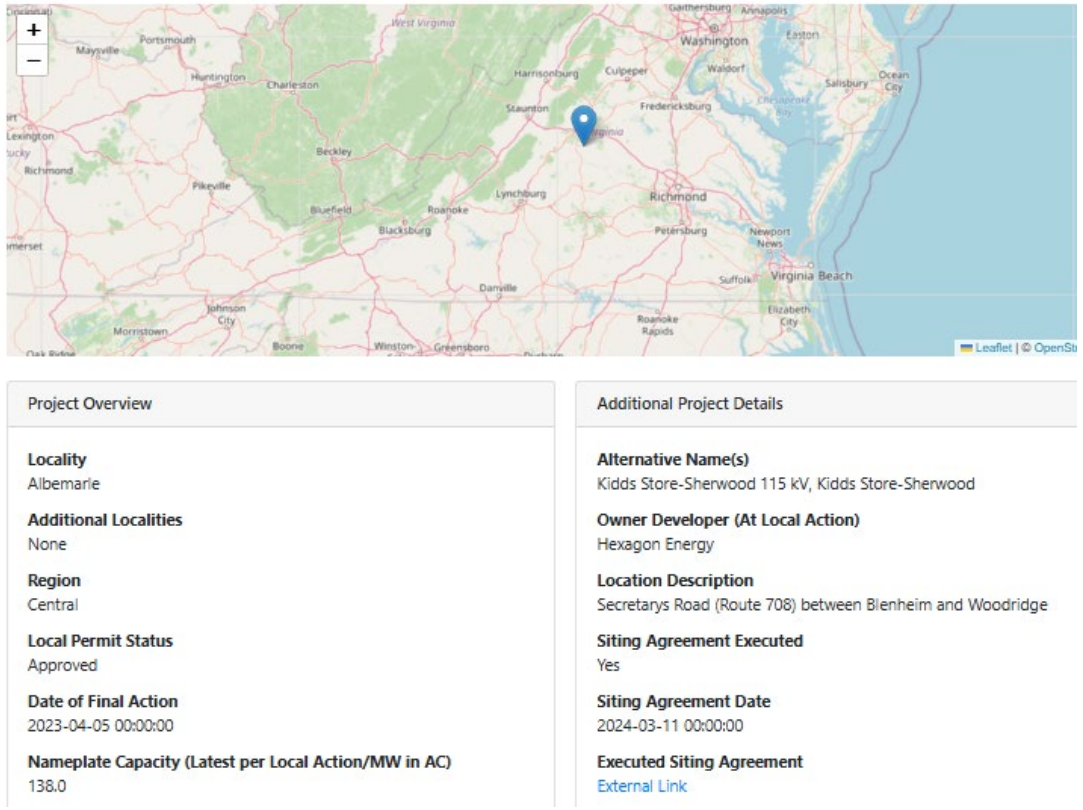
Project Vision

Provide an accessible, accurate, centralized, comprehensive, up-to-date source of large-scale solar facility siting and local permitting data to:

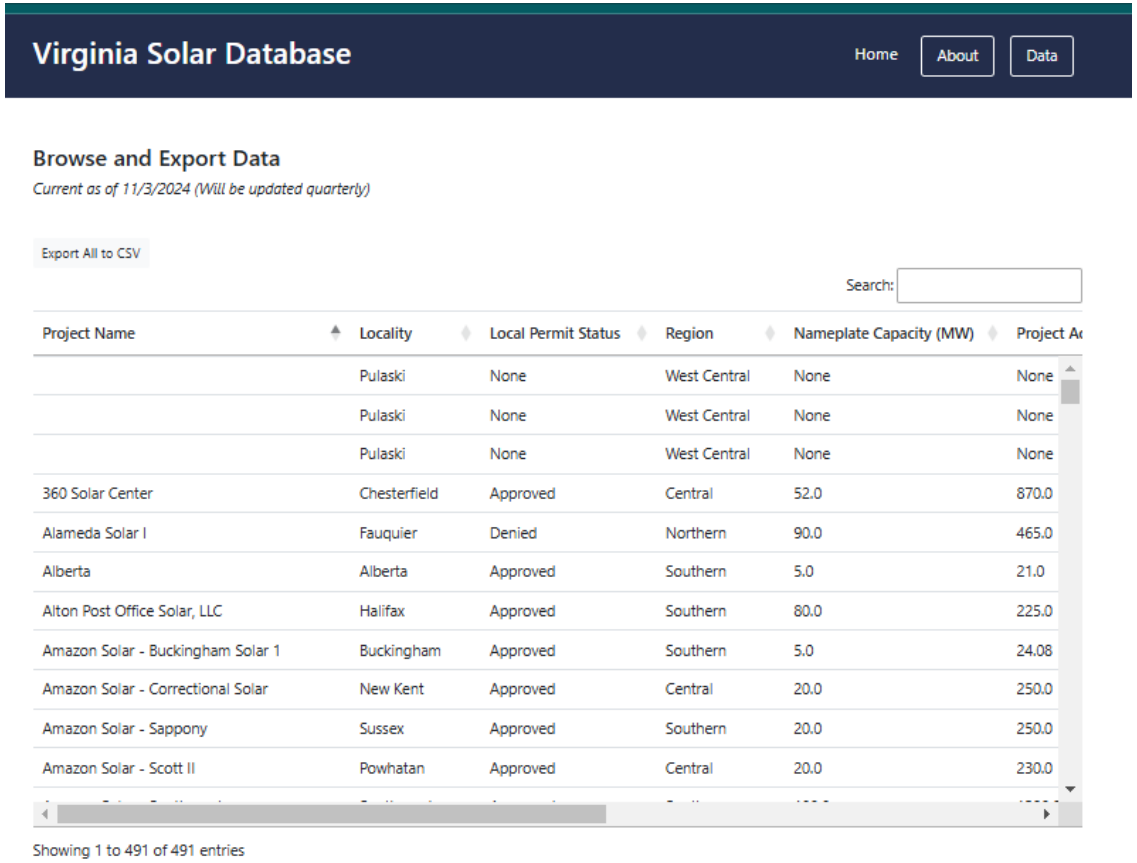
- Facilitate tracking projects across local, state, and interconnection permitting.
- Enable authentic community engagement and policy support by providing transparent and trusted information.
- Support data-informed policymaking.
- Enable monitoring of progress towards Virginia's adopted goals and policies.
- Provide foundational data to support complex analysis, research, and solar land use planning across the state.

Filterable Map, Dashboard, Project Summaries





Downloadable Data and Data Table



Virginia Solar Database

Home | About | Data

Browse and Export Data

Current as of 11/3/2024 (Will be updated quarterly)

Export All to CSV

Search:

Project Name	Locality	Local Permit Status	Region	Nameplate Capacity (MW)	Project Ac
	Pulaski	None	West Central	None	None
	Pulaski	None	West Central	None	None
	Pulaski	None	West Central	None	None
360 Solar Center	Chesterfield	Approved	Central	52.0	870.0
Alameda Solar I	Fauquier	Denied	Northern	90.0	465.0
Alberta	Alberta	Approved	Southern	5.0	21.0
Alton Post Office Solar, LLC	Halifax	Approved	Southern	80.0	225.0
Amazon Solar - Buckingham Solar 1	Buckingham	Approved	Southern	5.0	24.08
Amazon Solar - Correctional Solar	New Kent	Approved	Central	20.0	250.0
Amazon Solar - Sappony	Sussex	Approved	Southern	20.0	250.0
Amazon Solar - Scott II	Powhatan	Approved	Central	20.0	230.0

Showing 1 to 491 of 491 entries

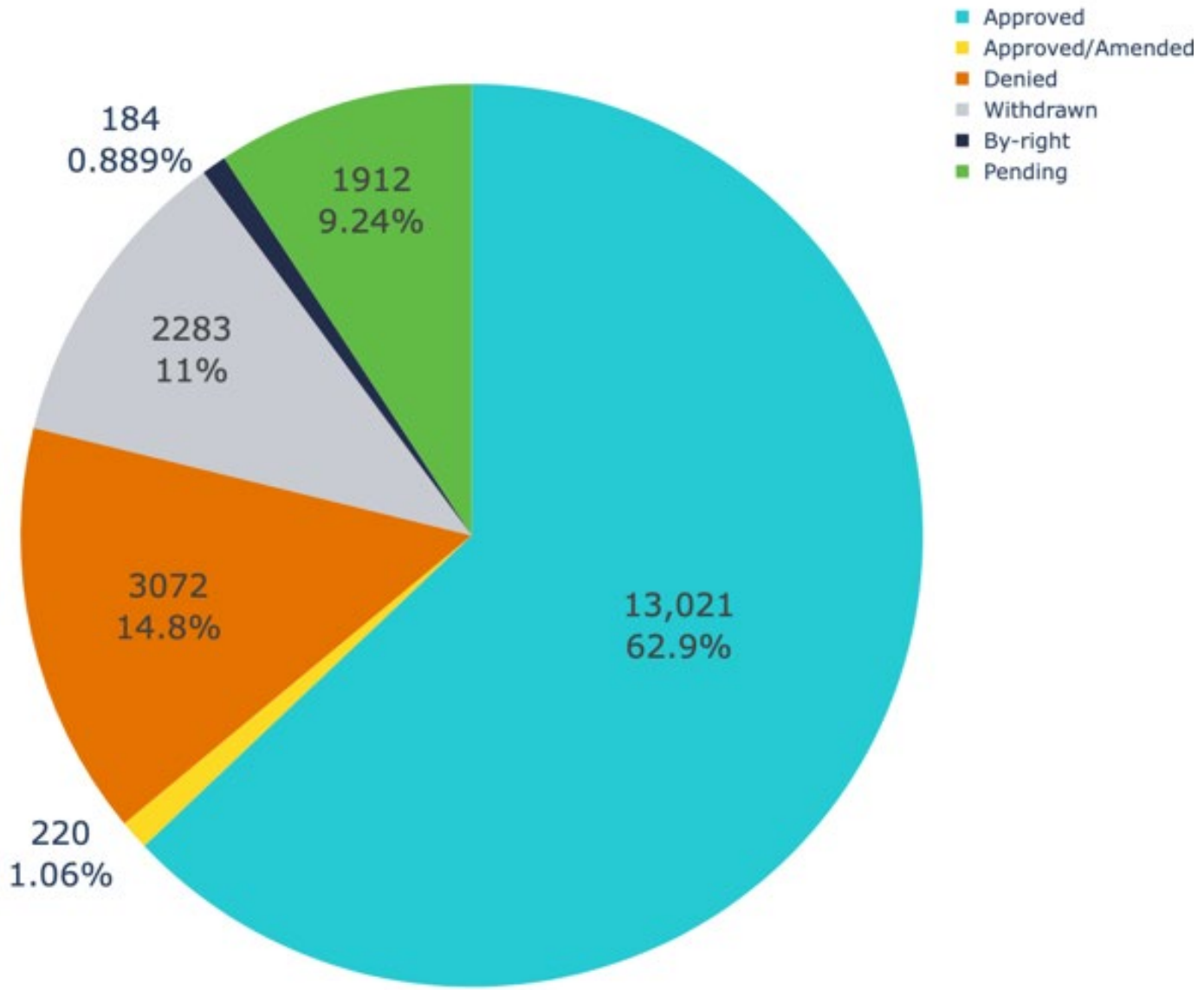
Future Enhancements

- Adding 25+ datapoints that inventory local permitting details such as: application dates, planning commission dates and actions, board/council dates and actions, additional project attributes, permitted conditions, prior project details, RPS compliance and contribution to VCEA carveouts, permit amendment details, etc.
- A more sophisticated geospatial mapping tool to allow advanced mapping analysis and visualizations, heat maps, temporal changes, and integration with external mapping resources.
- Expanded dashboard (include progress towards VCEA and policy targets, comparison to state permitting, interconnection, operational data, demand forecasts, etc.)
- Local zoning, policy, and decommissioning data.

Featured Data Analysis

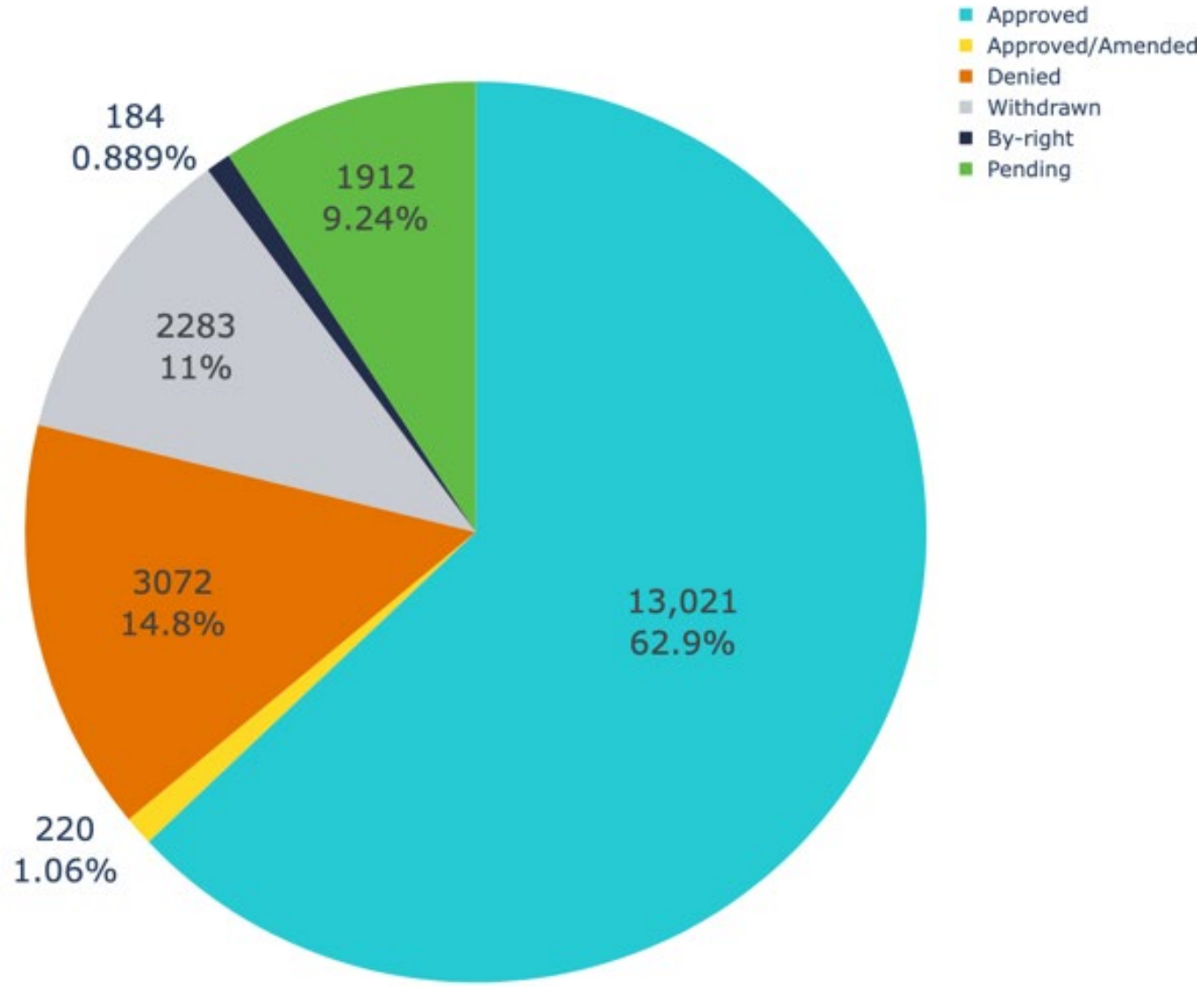
Total MW by Local Permit Status

Source: Weldon Cooper Center for Public Service



Total MW by Local Permit Status

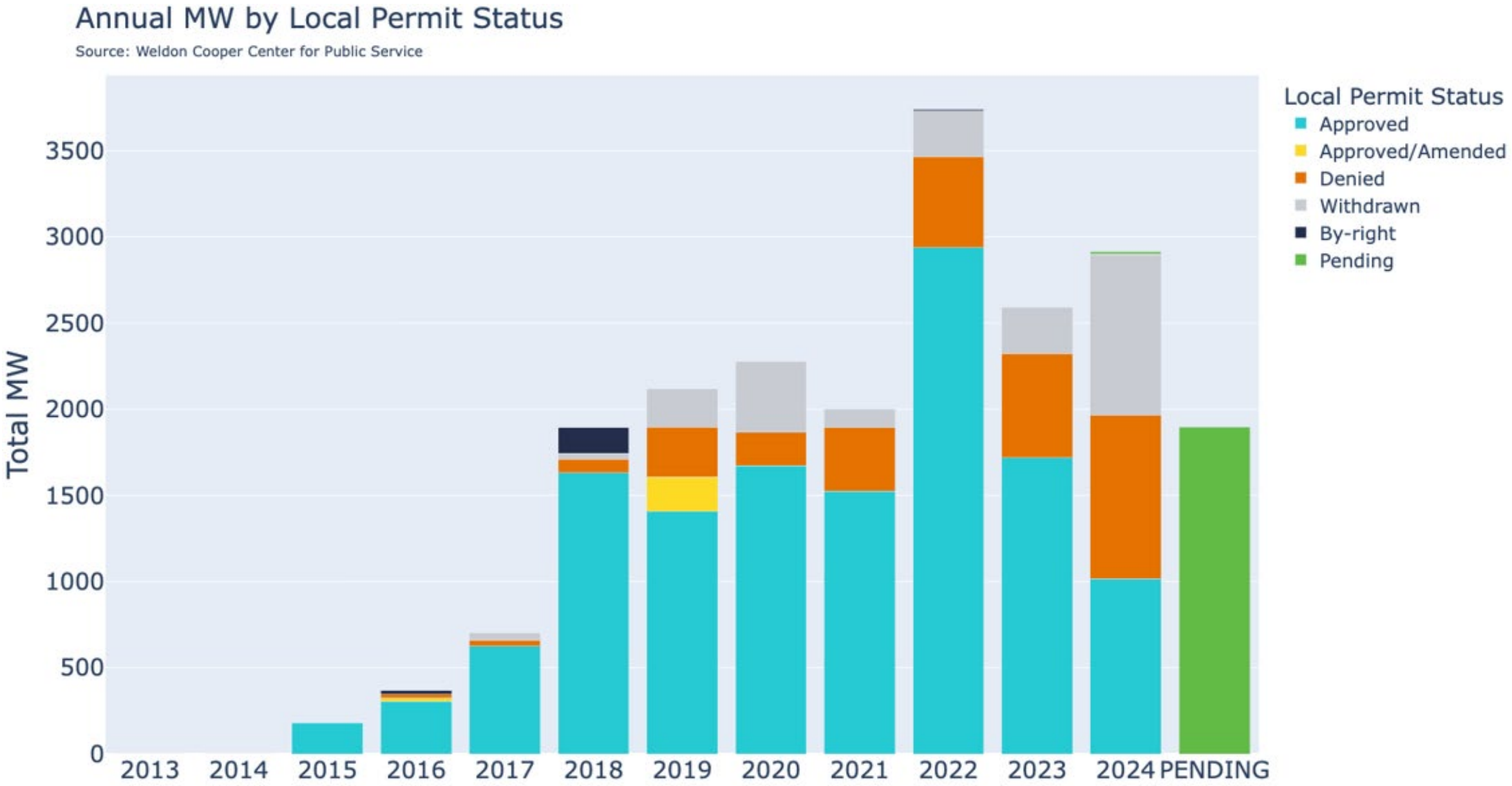
Source: Weldon Cooper Center for Public Service

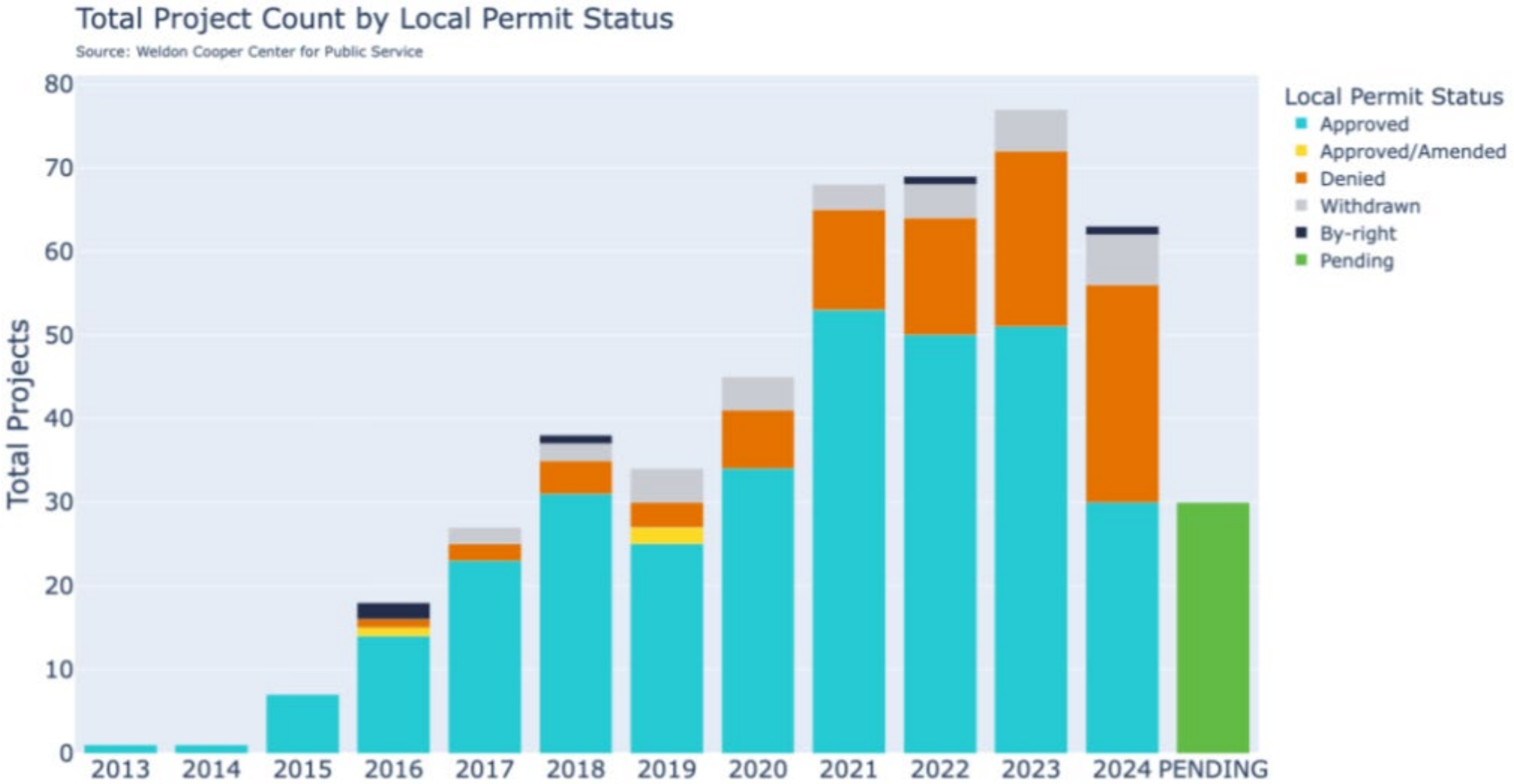


DEQ Solar Active Permits as of 10/29/24: 5583.4 MW

SCC CPCN as of 7/31/24: 3683.3 MW

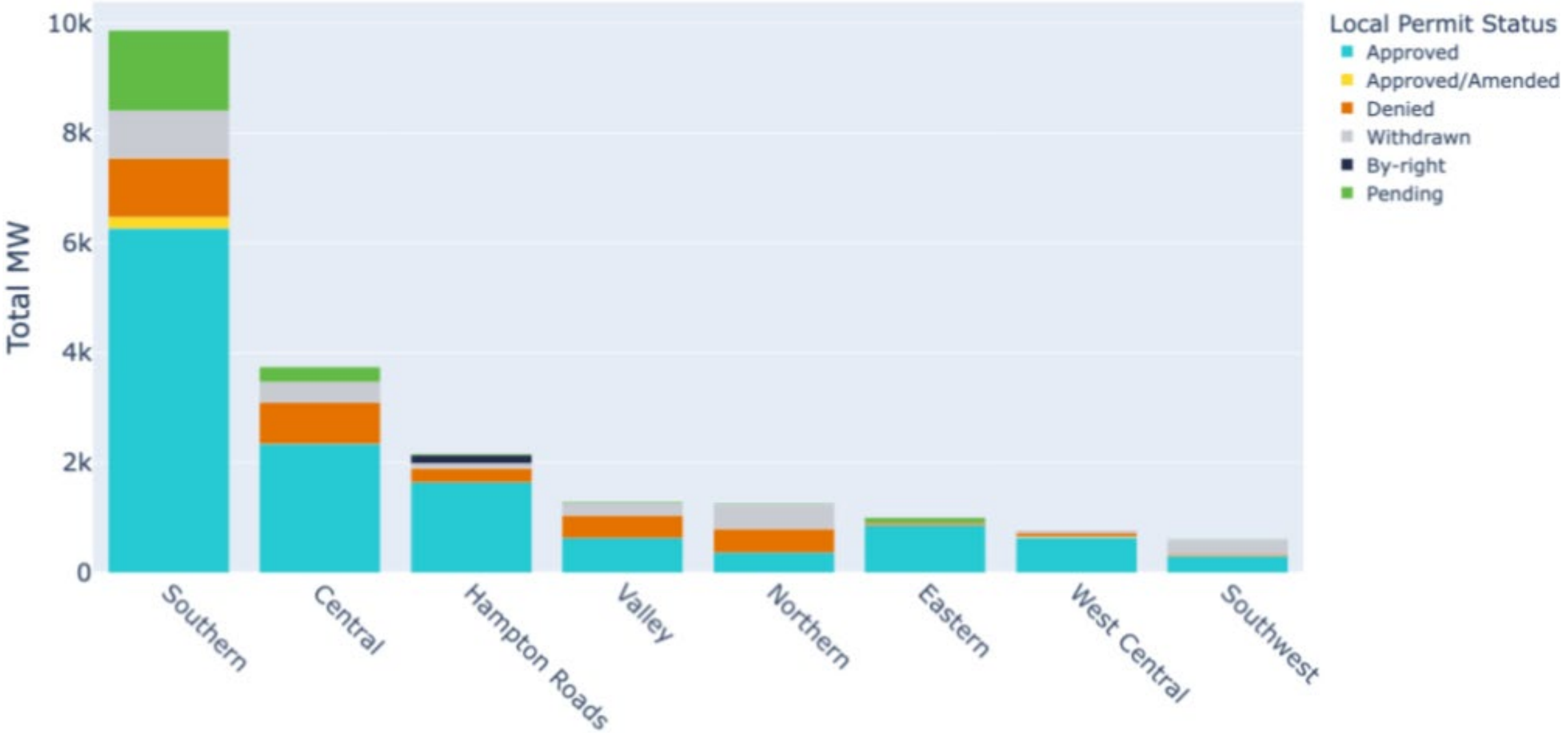
Total State Permits: +/- 9266.7 MW


Annual MW by Local Permit Status
Source: Weldon Cooper Center for Public Service
Total MW
0
500
1000
1500
2000
2500
3000
3500
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
PENDING
Local Permit Status
Approved
Approved/Amended
Denied
Withdrawn
By-right
Pending


Total Project Count by Local Permit Status
Source: Weldon Cooper Center for Public Service
Total Projects
0
10
20
30
40
50
60
70
80
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
PENDING
Local Permit Status
Approved
Approved/Amended
Denied
Withdrawn
By-right
Pending

Regional Total MW by Local Permit Status

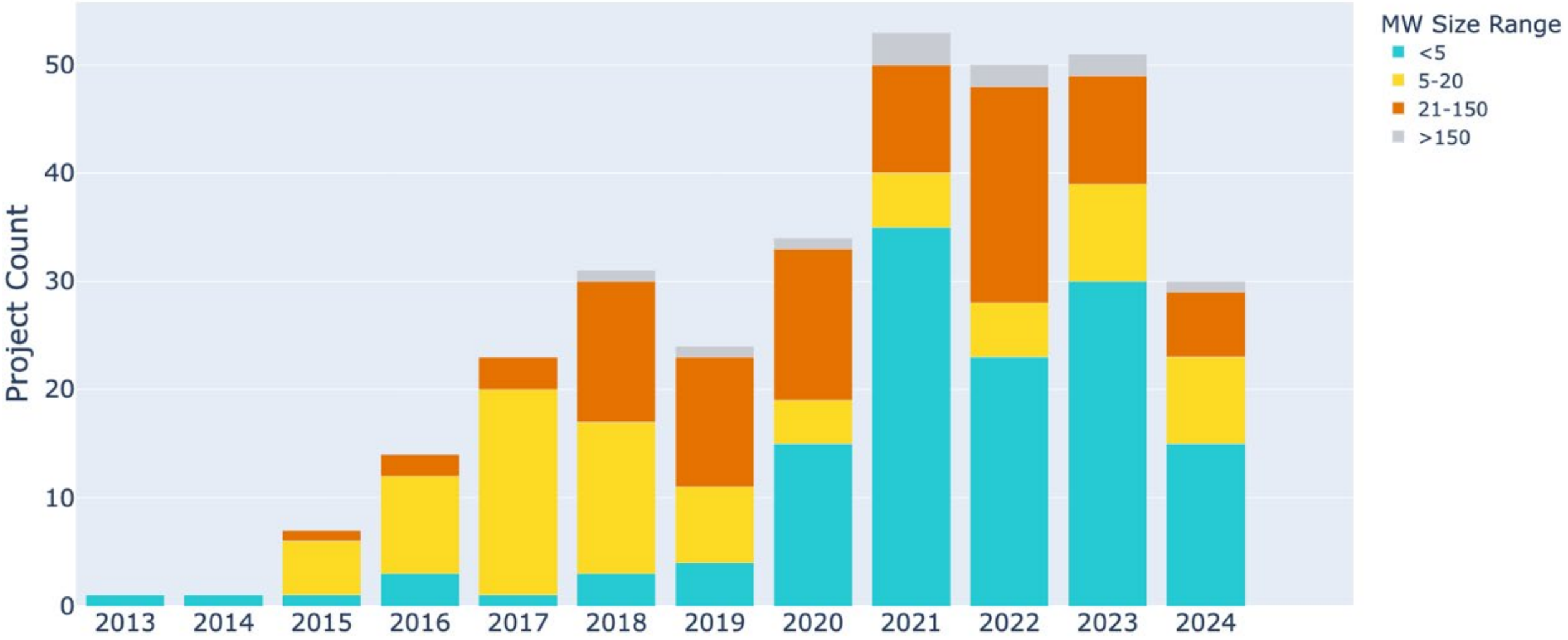
Source: Weldon Cooper Center for Public Service




Rate of Local Action by Year
Source: Weldon Cooper Center for Public Service
Percent of Projects
100%
80%
60%
40%
20%
0%
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Local Permit Status
Approved
Approved/Amended
Denied
Withdrawn
By-right

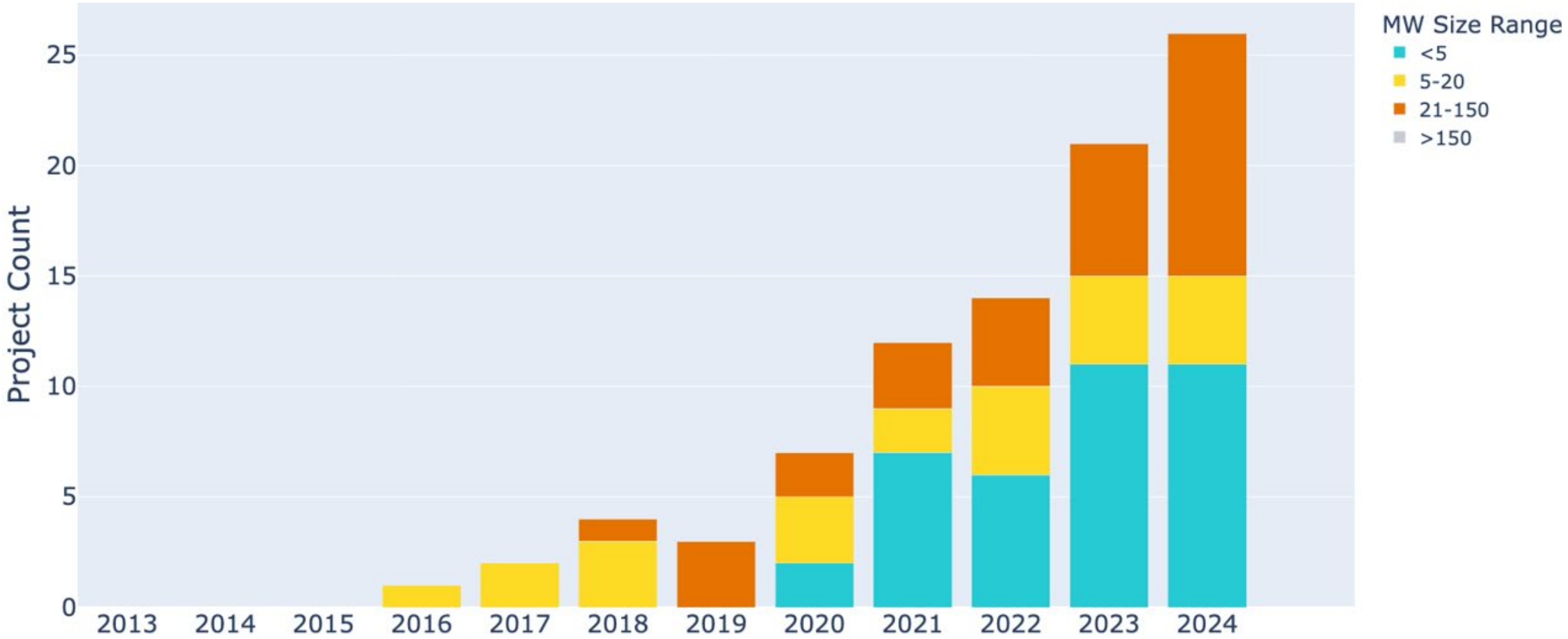
Annual Approved Projects by Project Size Range

Source: Weldon Cooper Center for Public Service



Annual Denied Projects by Project Size Range

Source: Weldon Cooper Center for Public Service



Observations and Emerging Opportunities

- Localities maintain their own siting permit records and do not report out.
- SCC data is difficult to obtain (USS and DG); PJM data is difficult to reconcile.
- Projects “dropping out” after local approval- Why? What happened to them? How long ago were they approved?
- Not understood how PJM pause and other external factors affected application rates
- Gain better understand of denial trends; how could policy interventions have the biggest impact?

Thank you.

Elizabeth Marshall
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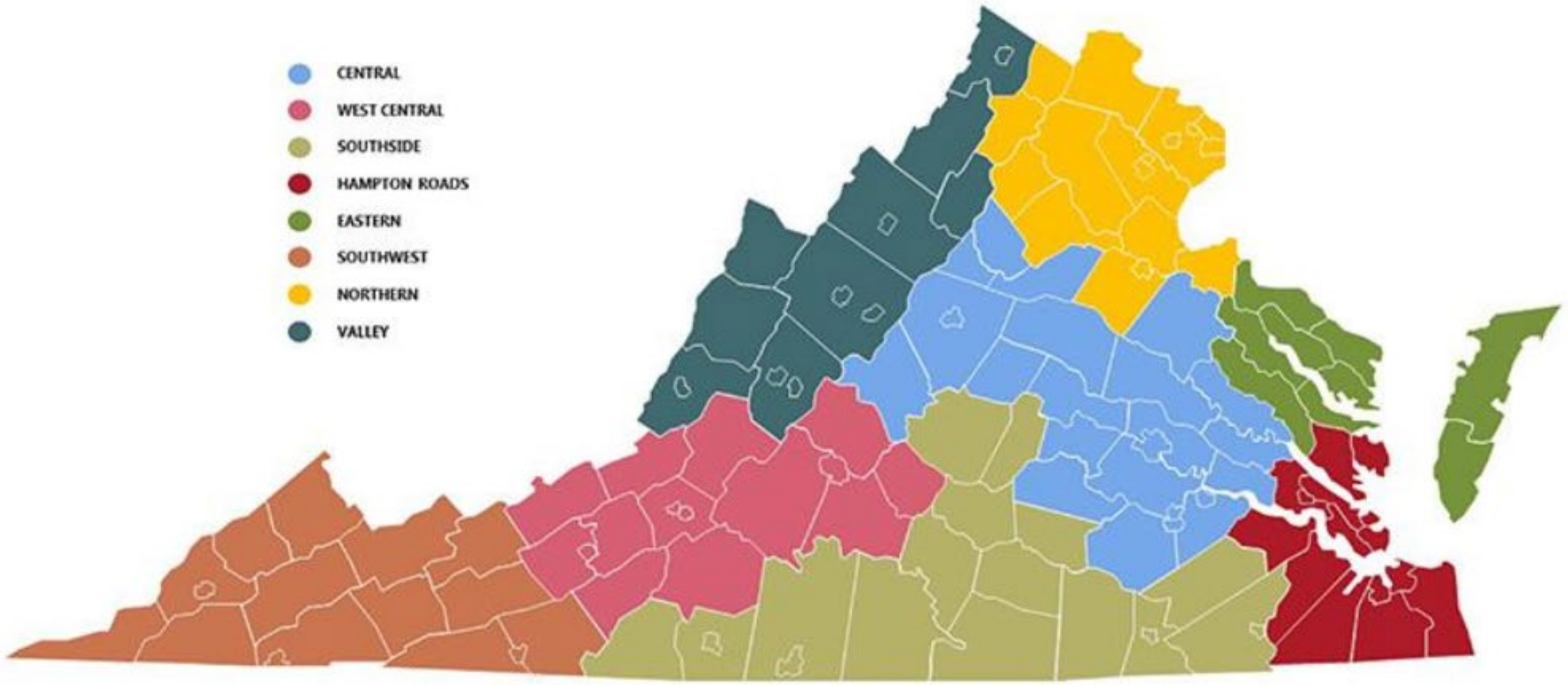
Appendix Slides

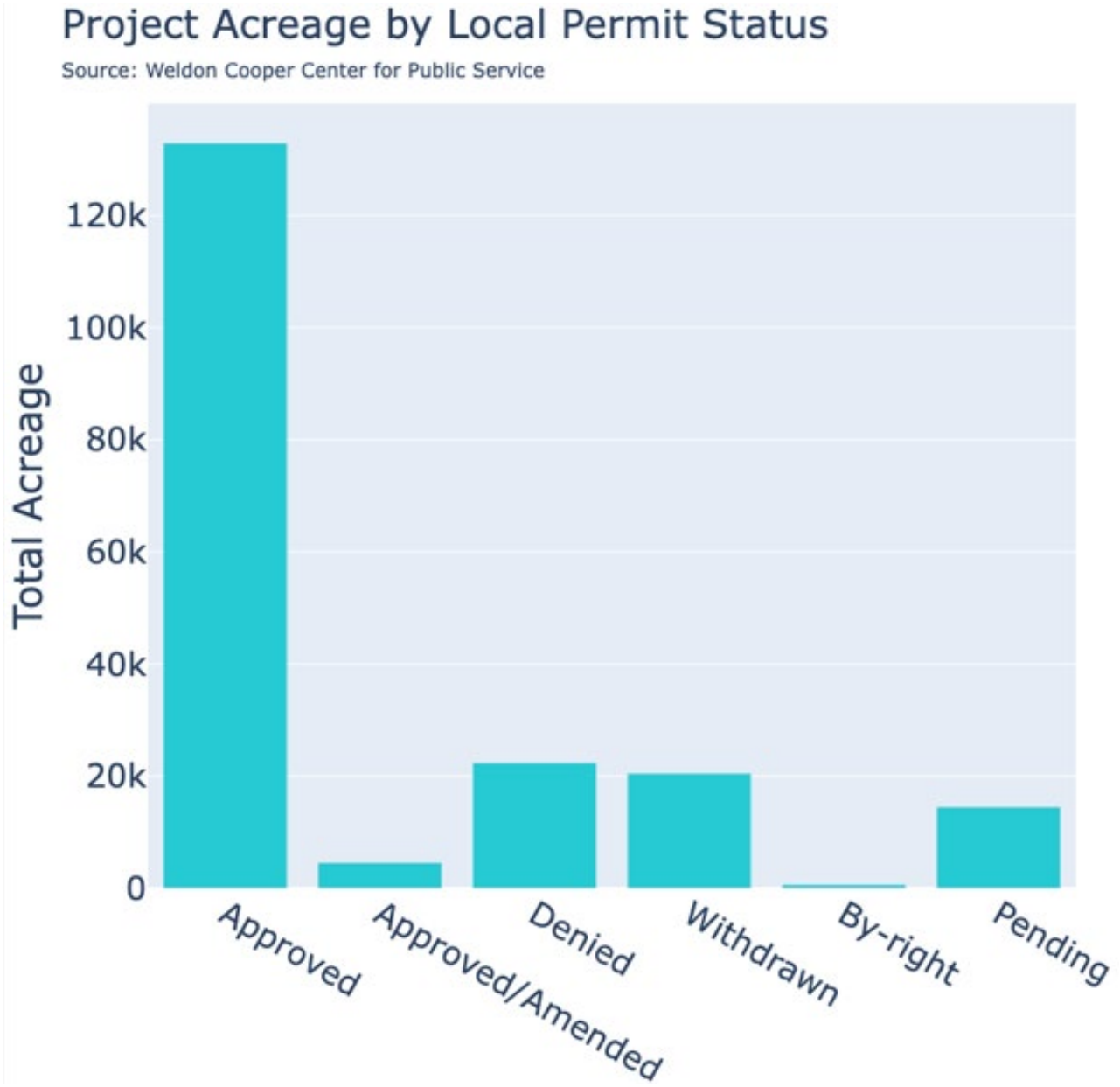
Datapoints

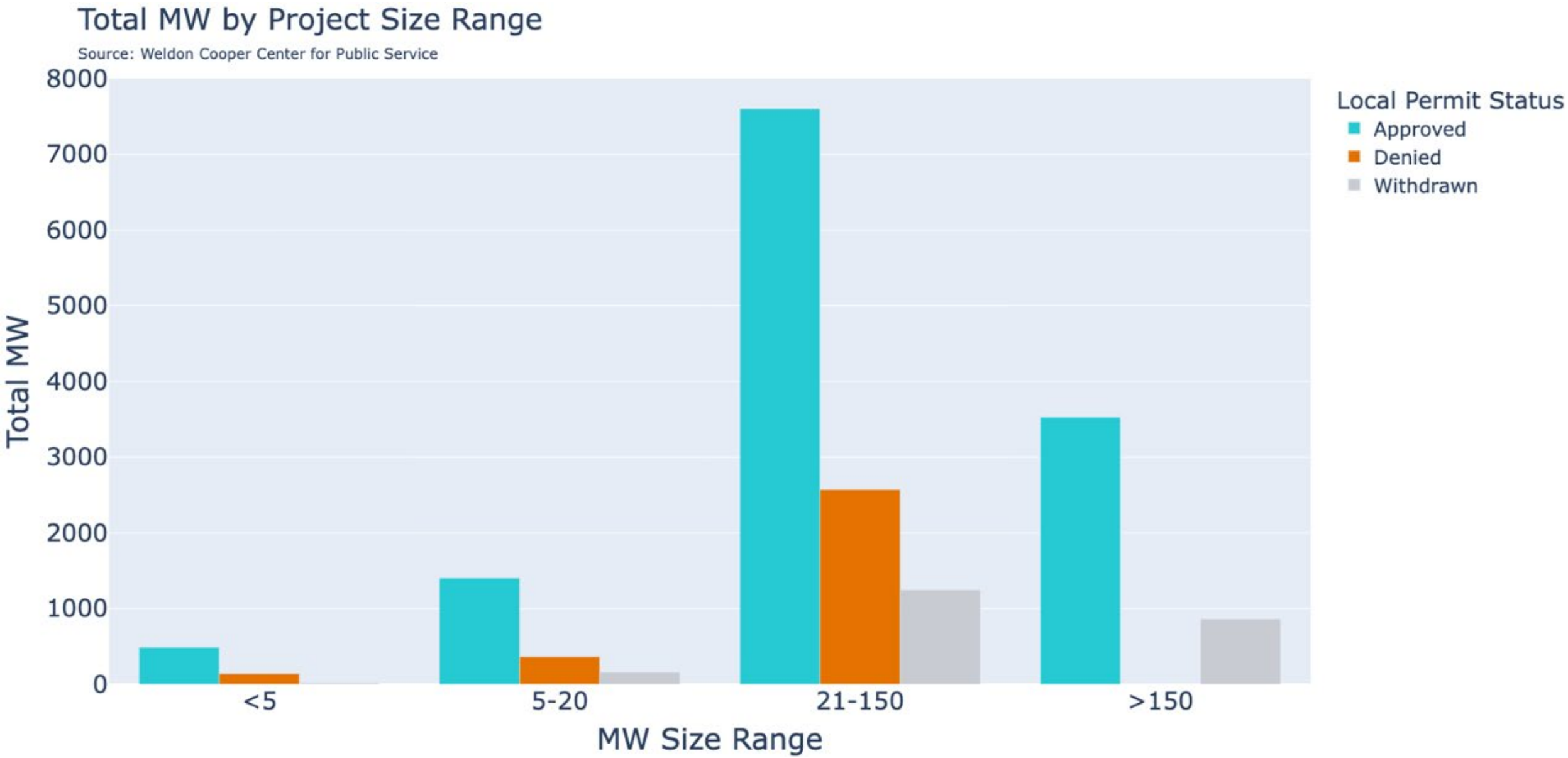
Unique Data ID
Project Name
Alternative Project Name(s)
Project Phases (name)
Parent/Child Project (Data ID)
Project Owner/Developer at Local Action
Locality Name
Additional Localities
Region
Location Description
Local Permit Status
Date of Final Action
Latest Nameplate Capacity per Local Action (MWac)
Phase MWac

Best available project acreage
DEQ Permit Number
SCC Certificate Number
PJM Queue #
Plant ID- EIA
Operating Status- EIA
Siting agreement Executed?
Date siting agreement executed
Siting agreement link
Shared solar program- enrolled (Dominion)
Abandoned Mine Land program/funding?
Energy storage onsite?
Energy storage capacity (MW)

Demographic Regions Map




Project Acreage by Local Permit Status
Source: Weldon Cooper Center for Public Service
Total Acreage
120k
100k
80k
60k
40k
20k
0
Approved
Approved/Amended
Denied
Withdrawn
By-right
Pending


Total MW by Project Size Range
Source: Weldon Cooper Center for Public Service
Total MW
8000
7000
6000
5000
4000
3000
2000
1000
0
<5
5-20
21-150
>150
MW Size Range
Local Permit Status
Approved
Denied
Withdrawn

Annual Denied MW by Project Size Range

Source: Weldon Cooper Center for Public Service