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Permit outcomes and timelines: Comparing state and sub-state permitting authorities for large-scale energy facilities

2026 LBNL Report

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ENERGY TECHNOLOGIES AREA | ENERGY ANALYSIS DIVISION | ENERGY MARKETS & PLANNING

About this Slide Deck:

This report presents an annual snapshot of trends in large-scale energy facility permitting. The visualizations summarize publicly available empirical data collected from state and local government authorities.

This edition of the report primarily summarizes data collected through March of 2026. Except for a few select projects which were updated based on quality control checks and newly available data, any updates to the data and trends that occurred since March 2026 would not be represented in this report. A previous version of this report, which focused only on data from state agencies, was published in 2025, and can be found at: https://emp.lbl.gov/publications/outcomes-and-timelines-state-based

This deck neither directly comments on nor recommends any specific policies – it simply summarizes and explains data trends.

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Definitions and Acronyms

Permitting refers to the process for obtaining permission to construct an energy facility in a specific location.

Authority Having Jurisdiction (AHJ) refers to the organization, agency, or office that has the legal power to review plans and issue the permit.

We report on state and sub-state AJHs. In most cases sub-state AHJs are counties, except for MA and NY where they are towns and municipalities.

This report considers timelines and outcomes of the permitting process for energy facilities developed largely on private land in the US, where the primary AHJ is typically a state agency or local government.

High-Level Findings

- Data
  - Permitting dates and outcomes were collected for 1,169 unique projects from 27 states and 429 counties, totaling over 130 GW capacity
  - Our data represent ~38% of wind & solar capacity and ~15% of wind & solar projects that came online in all US states within our time scope. Data representation is higher for projects permitted by state AHJs compared to sub-state AHJs.
- Timelines
  - Sub-state AHJs issue permit decisions about 6 months faster than the state AHJs on average
  - At both state and sub-state levels, some state timelines are substantially longer (3x) than others.
  - There are no significant differences in average processing times between wind and solar for either sub-state or state AHJ
  - Sub-state AHJs are slower to issue decisions for >100 MW solar-only projects, compared to <100 MW solar-only projects
  - There is some evidence of increasing processing times for sub-state AHJs in recent years.
- Stages
  - At both state and sub-state levels, ‘Completion to Decision’ is the longest stage, followed by ‘NOI to Submission’
  - Certain states (CA, WA, OR, NY) have substantially longer ‘Submission to Completion’ stages than most other states
- Outcomes
  - Approximately 90% of projects that apply are permitted in our sample
  - Sub-state AHJs are slightly more likely to deny permit applications than state authorities

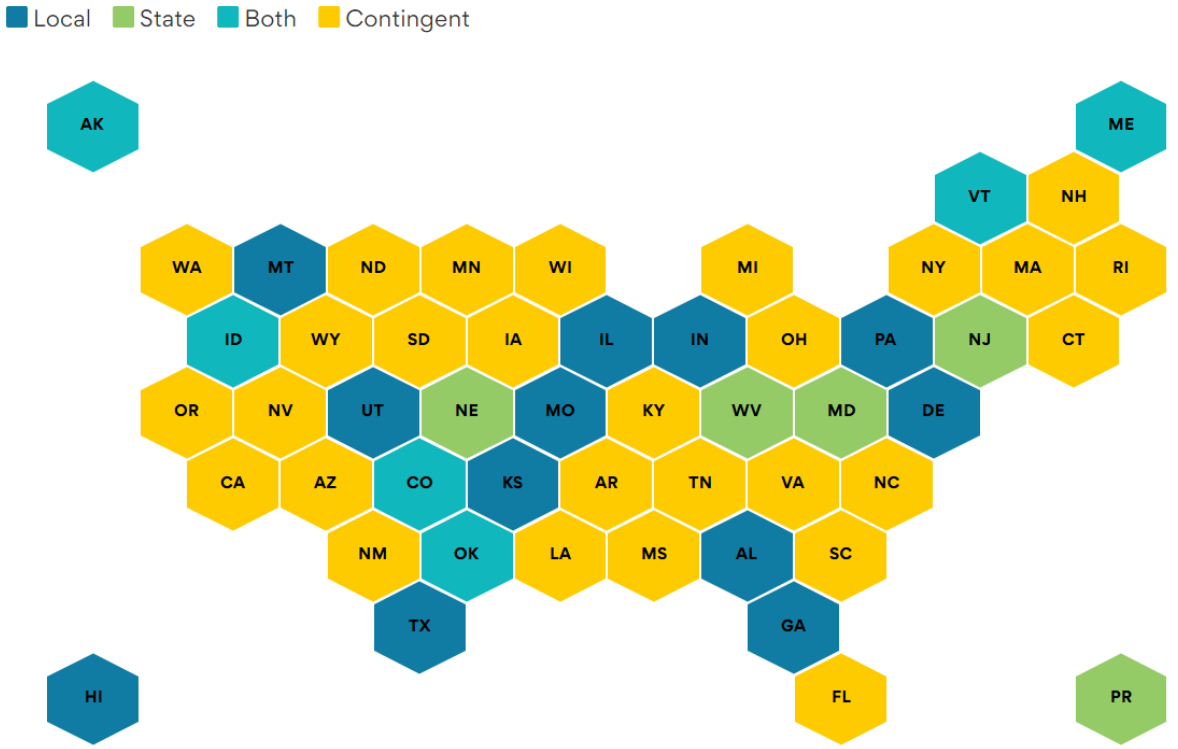


Introduction

Background and Motivation

- Permitting refers to the process for obtaining permission to construct an energy facility in a specific location
  - This may be referred to as a ‘land use permit’, ‘conditional use permit’, ‘certificate of public convenience and necessity’, ‘permit for a major renewable energy facility’, etc.
  - Permitting is distinct from the interconnection agreement
- Permitting policies vary widely from state to state. The primary may be the local government, a state agency, it may be contingent on the project type or size, or both may share authority *(see image on the right for a simplified depiction of permitting authority by state)*
- There is limited empirical data to allow comparisons between different states and AHJs within those states

Primary Authority for large-scale energy project siting in the U.S.



"Laws in Order: An Inventory of State Renewable Energy Siting Policies" (2024)

https://www.energy.gov/cmei/systems/siting-large-scale-renewable-energy-projects

Project Overview

Objectives:

- Research large-scale (≥1 MW) solar and wind energy project **permitting** timelines and outcomes
- Provide empirical data to support discussions of permitting bottlenecks and delays

Methods:

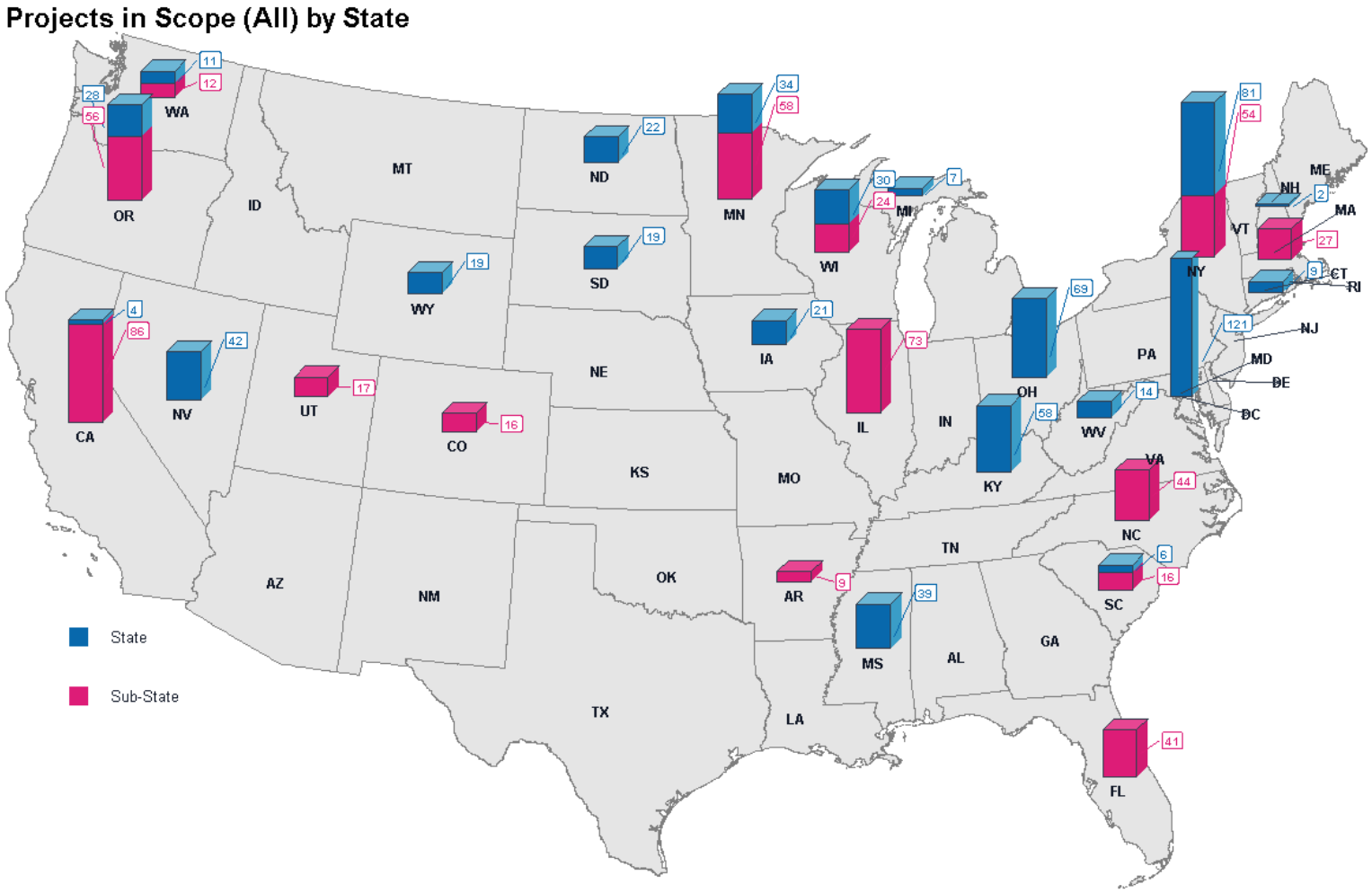
- Manually collect detailed, time-series, and annually updated **project-level** dataset on permitting timelines and outcomes
- Analyze permitting timelines and outcomes **across a set of cohorts**, including, among many other aspects, project type, location, project size, permit **authority having jurisdiction (AHJ),** and technology

Scope of this report:

- Solar projects with application date **after 1/1/2018**, or decision date after 1/1/2021. Wind projects with application date **after 1/1/2015**, or decision date after 1/1/2018
- This report summarizes permitting outcomes and timelines for data collected through March 31, 2026

Combined State and Sub-state AHJ Data

- **27 states; 429 counties**
  - 7 states have both state and sub-state projects: WA, OR, CA, MN, WI, NY, and SC
- **1,169 projects; 137,461 MW Total Capacity**
  - 1,044 Solar Projects; 110,880 MW
  - 116 Wind Projects; 23,886 MW
  - 9 Wind + Solar Hybrid; 2,695 MW
- Nationwide, our data represents approximately **38% of all capacity and 15% of all projects** that became operational within our time scope*
- 81% of projects (949) have reached a permit decision, while 19% (220) remain under consideration



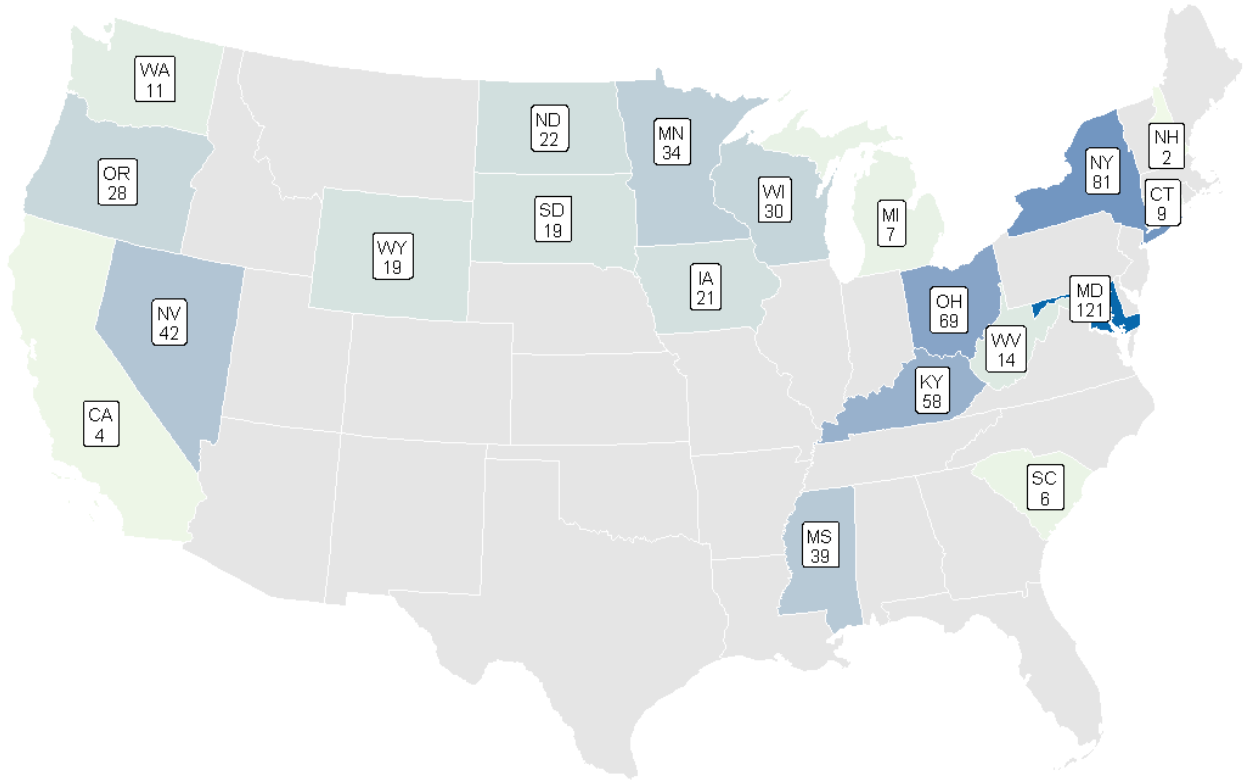
*Description of estimations provided in Appendix

State AHJ Data

- **636 projects** from 330 counties across 20 states
  - 519 solar projects; 108 Wind projects; 9 Wind + Solar; Total capacity ~108,000 MW
  - Data is from the state siting AHJs, which include Energy Facility Siting Boards or Siting Coordination Offices, Public Utility or Service Commissions, Land Use Commissions, or similar bodies with legal power to review and issue permits for an energy project
- Data representation:
  - The states were selected based on data availability but also represent most states with substantial development permitted at the state level. This data represents approximately 76% of all capacity and 39% of all projects estimated to have been permitted nationwide by state-level AHJs*
  - We collected all available data from each state's AHJ. The data represents nearly 100% of all capacity and 73% of all projects estimated to have been permitted by state AHJs within the 20 states where we collected data*

*Description of estimations provided in Appendix.

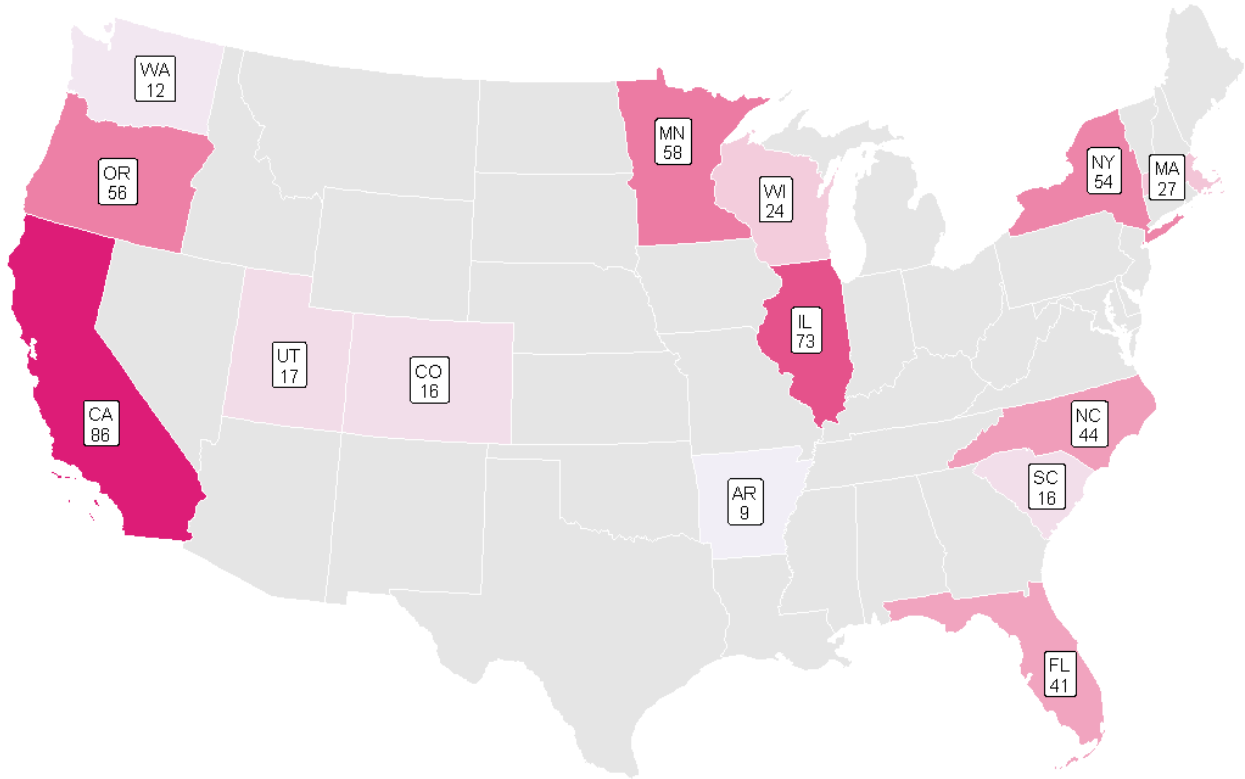
Number of Projects by State
State AHJ



Sub-state AHJ Data

- **533 projects** from 133 counties across 14 states
  - 525 solar projects; 8 wind projects; Total capacity ~30,000 MW
  - Data is from the sub-state AHJs, which typically are county commissions, land use planning boards, boards of supervisors, or similar entities with legal power to review and issue permits. Typically, this is data from a county, but from MA and NY the AHJ is a town
- Data representation:
  - This is a sample of projects. Data availability is heterogenous across localities.
  - We first selected states with high estimated capacity of projects permitted at the sub-state AHJ. This data represents approximately 15% of all capacity and 9% of all projects estimated to have been permitted nationwide by sub-state AHJs in our time scope*
  - Within the 14 states states, we targeted counties with highest installed capacity, lowest installed capacity, and randomly selected additional counties to broaden our sampling beyond those most likely to approve or deny projects. This data represents approximately 57% of all capacity, and 14% of all projects estimated to have been permitted by sub-state AHJs within the 14 states where we collected data.

Number of Projects by State
Sub-State AHJ



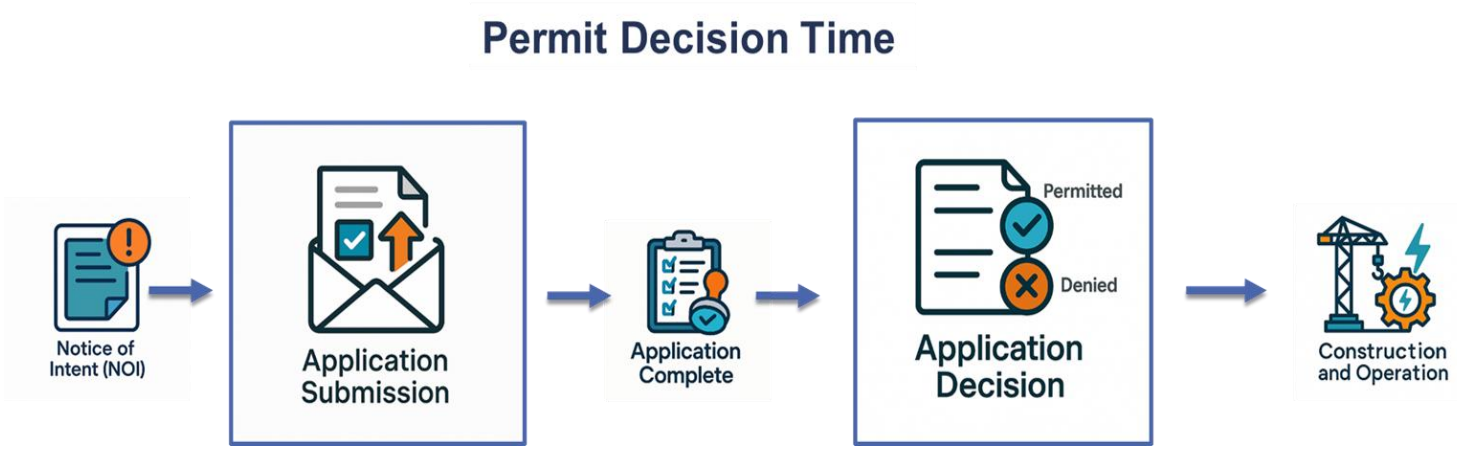
*Description of estimations provided in Appendix



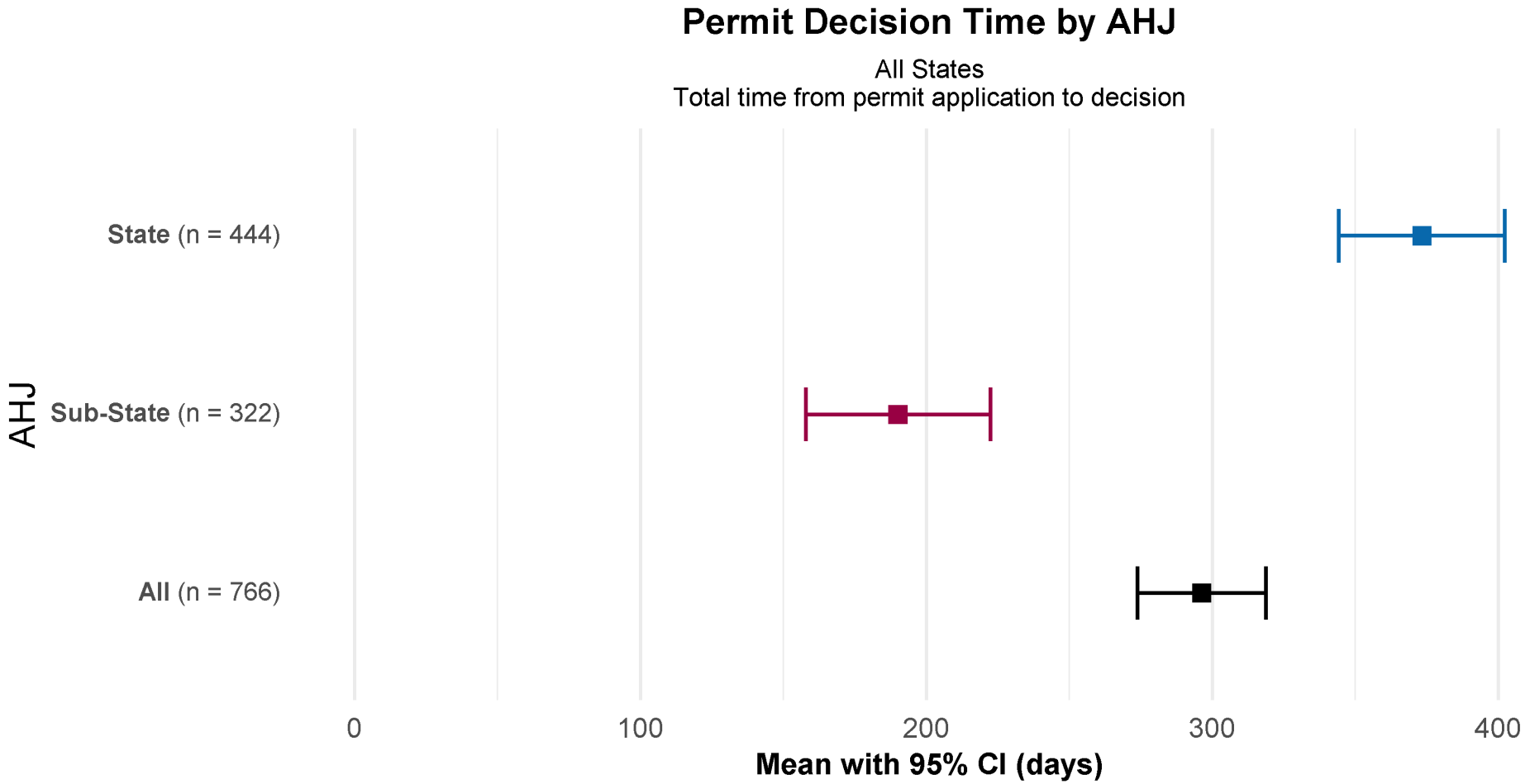
Findings

Permit Timelines

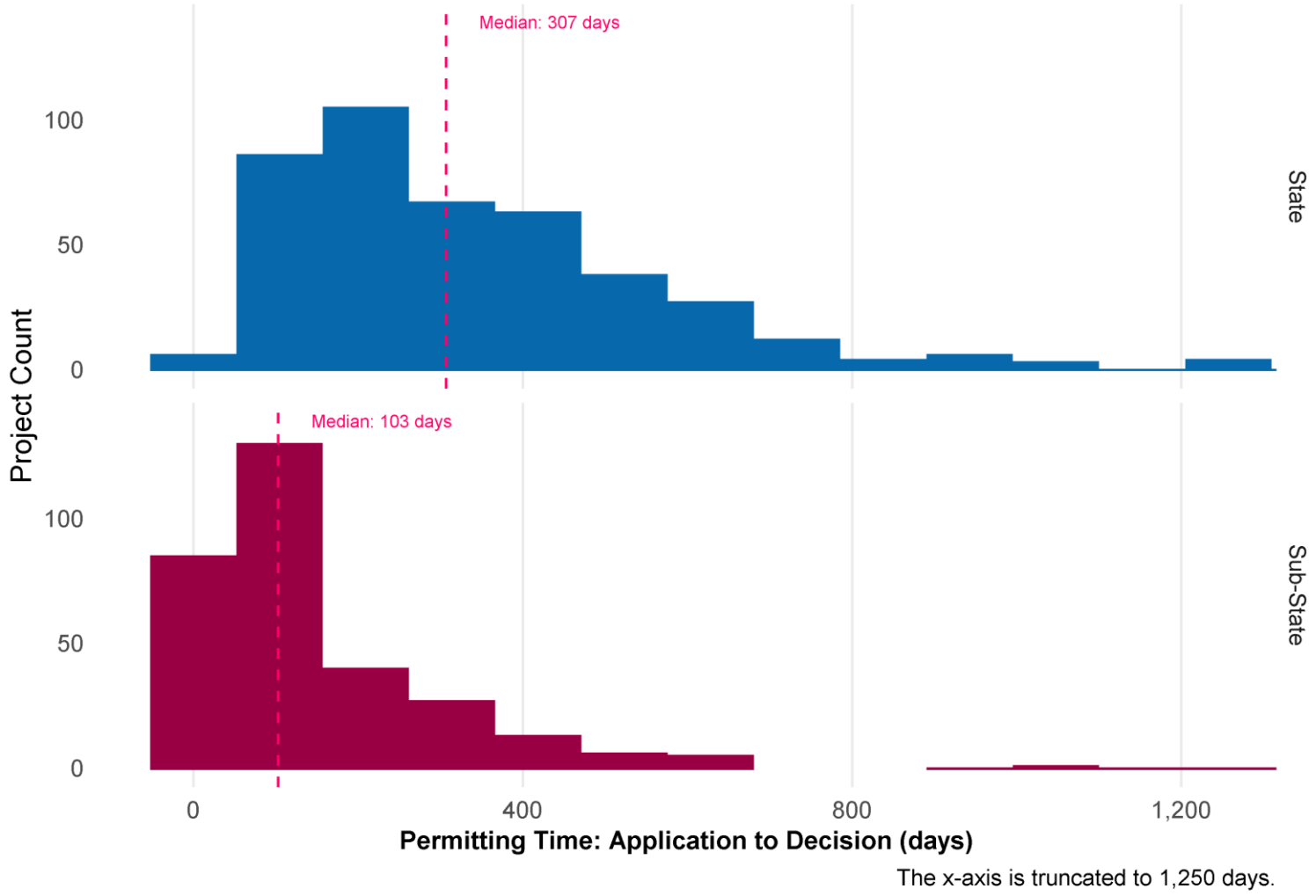
- **Permit Decision Time** is the total time from AHJ application submission to application decision. These dates are available for most completed projects. Therefore, this is the key timeline for comparison across cohorts.
- Withdrawn permits are excluded from this timeline analysis because they were withdrawn by the applicant prior to a decision
- We present all results in means; therefore, we include the effects of significantly longer and shorter timelines in our averages. Medians were examined as well, and tell roughly the same story, but are often smaller in value. See Appendix.



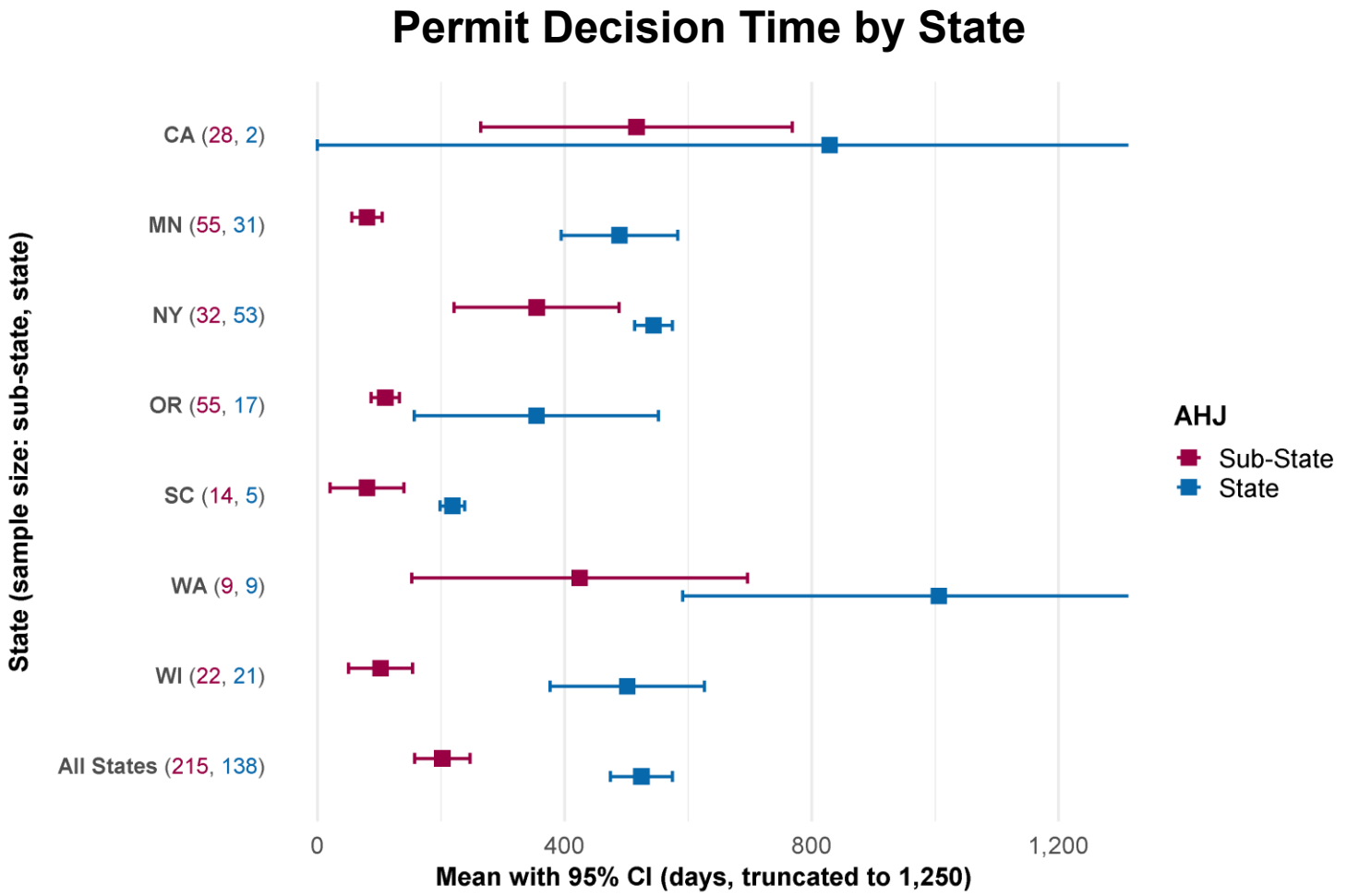
State AHJ timelines are on average ~1 year (360 days), while sub-state AHJ timelines are just over half a year (189 days)



State median timeline is 307 days, while sub-state median is 103 days. Some projects permitted at both AHJs exceed 1,000 days.

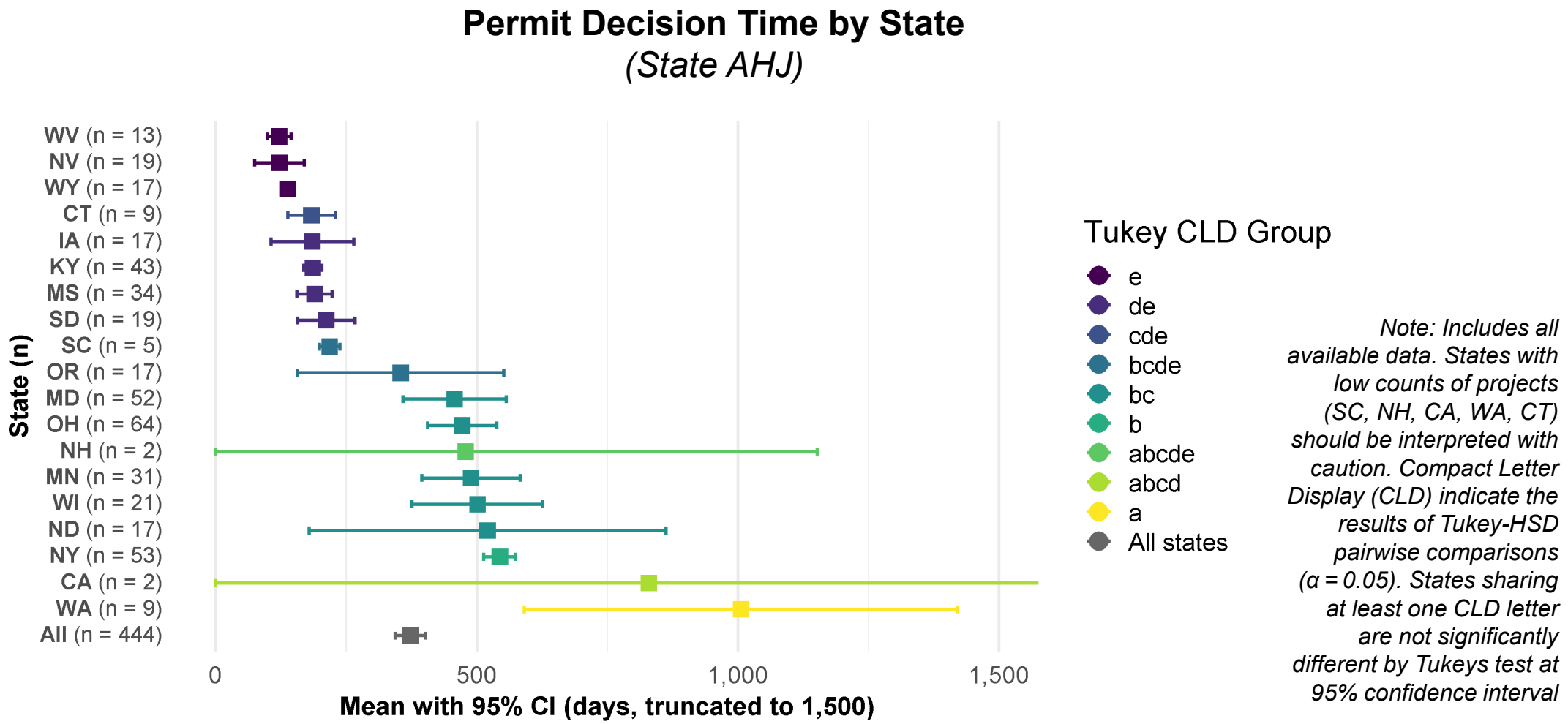


Average sub-state timelines are substantially shorter compared to the state timelines in MN, NY, OR, SC, and WI



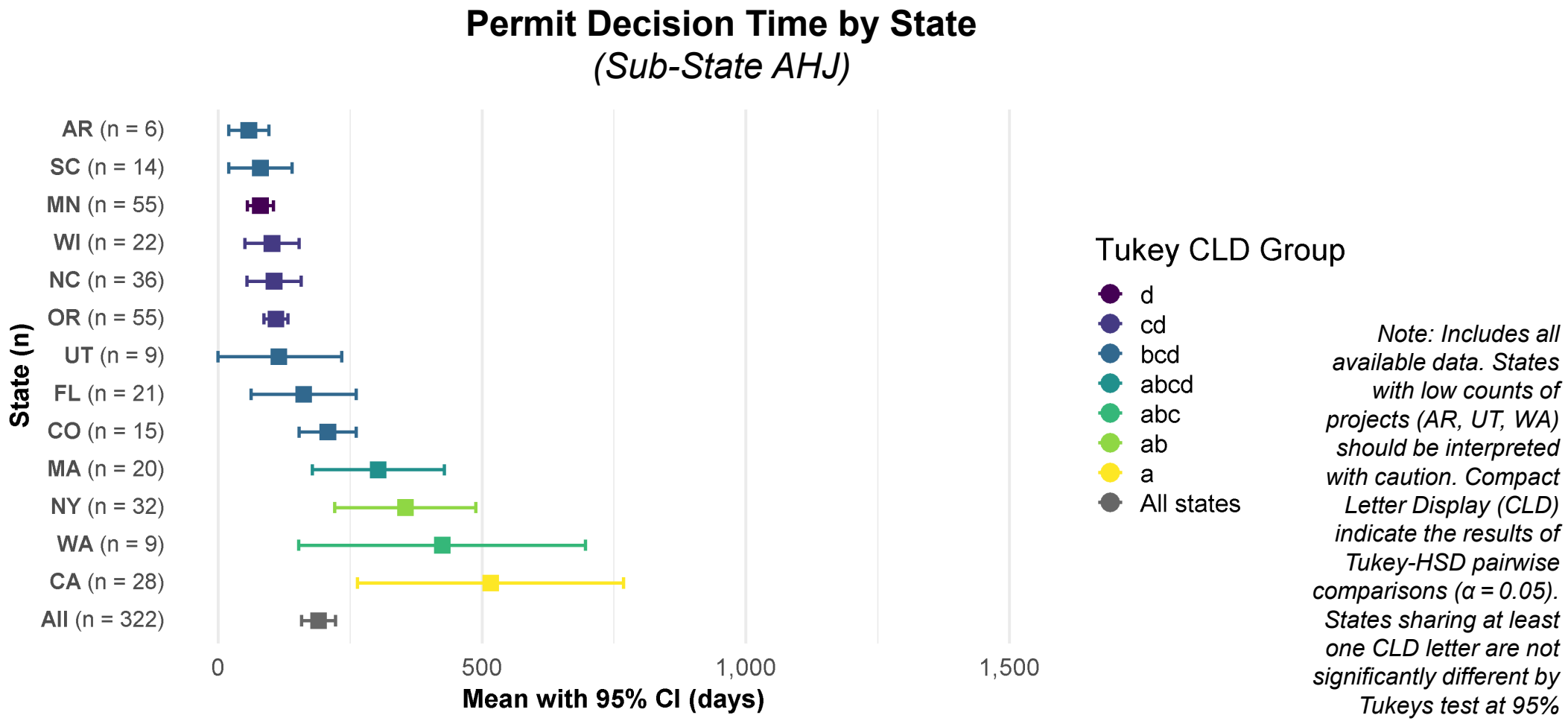
Notes: Includes all available data. The states shown have a contingency threshold, where state permitting occurs for larger projects, therefore state projects are typically larger capacity. See slide 22 for capacity results. States with low counts of projects (SC, WA, CA) should be interpreted with caution.

Average timelines in 9 states (WV, NV, WY, CT, IA, KY, MS, SD, SC) are substantially shorter than the overall average for all state AHJs



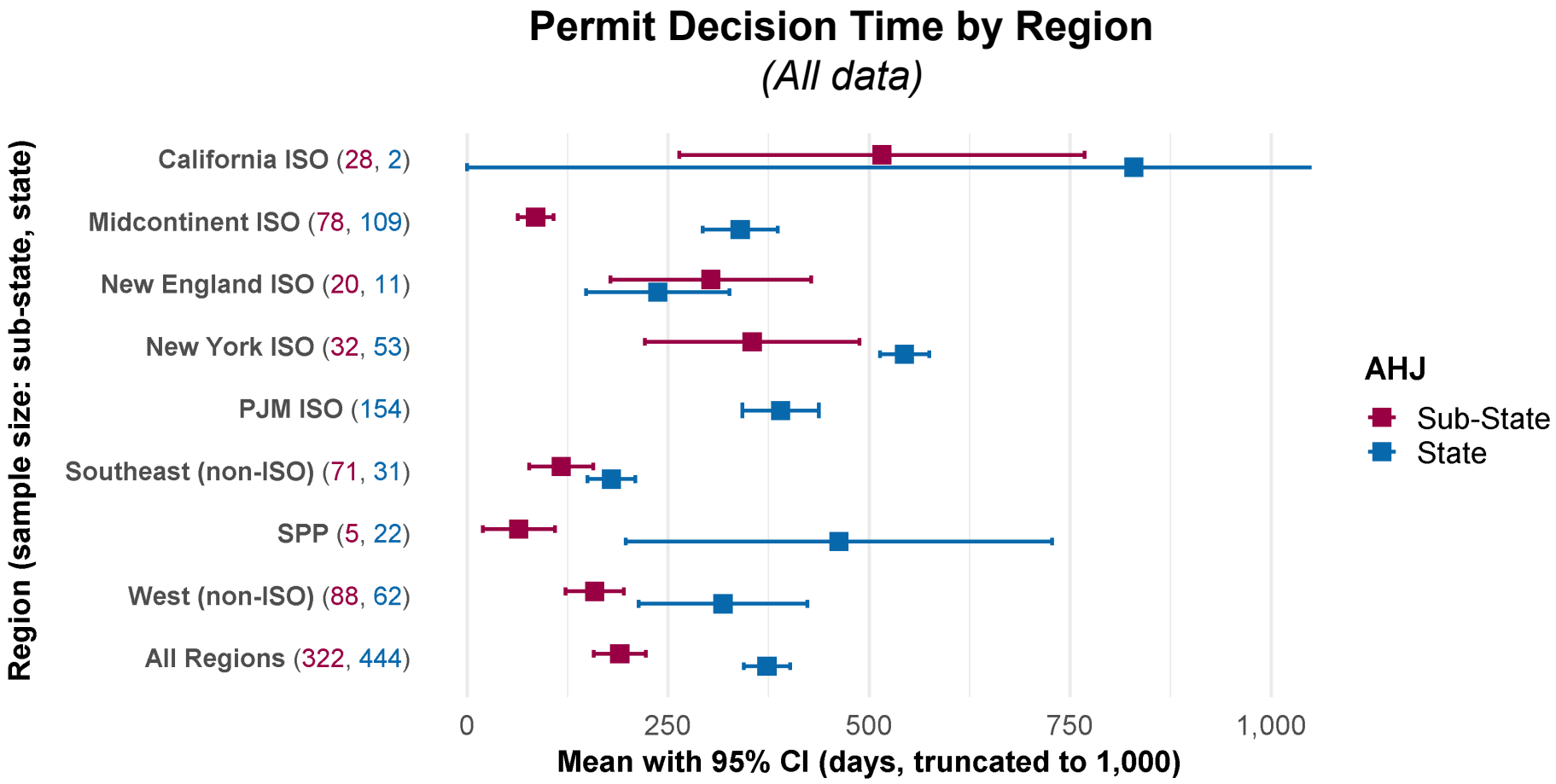
Note: Includes all available data. States with low counts of projects (SC, NH, CA, WA, CT) should be interpreted with caution. Compact Letter Display (CLD) indicate the results of Tukey-HSD pairwise comparisons (α = 0.05). States sharing at least one CLD letter are not significantly different by Tukeys test at 95% confidence interval

For sub-state AHJs, six states (AR, SC, MN, WI, NC, OR) have timelines significantly below the overall average



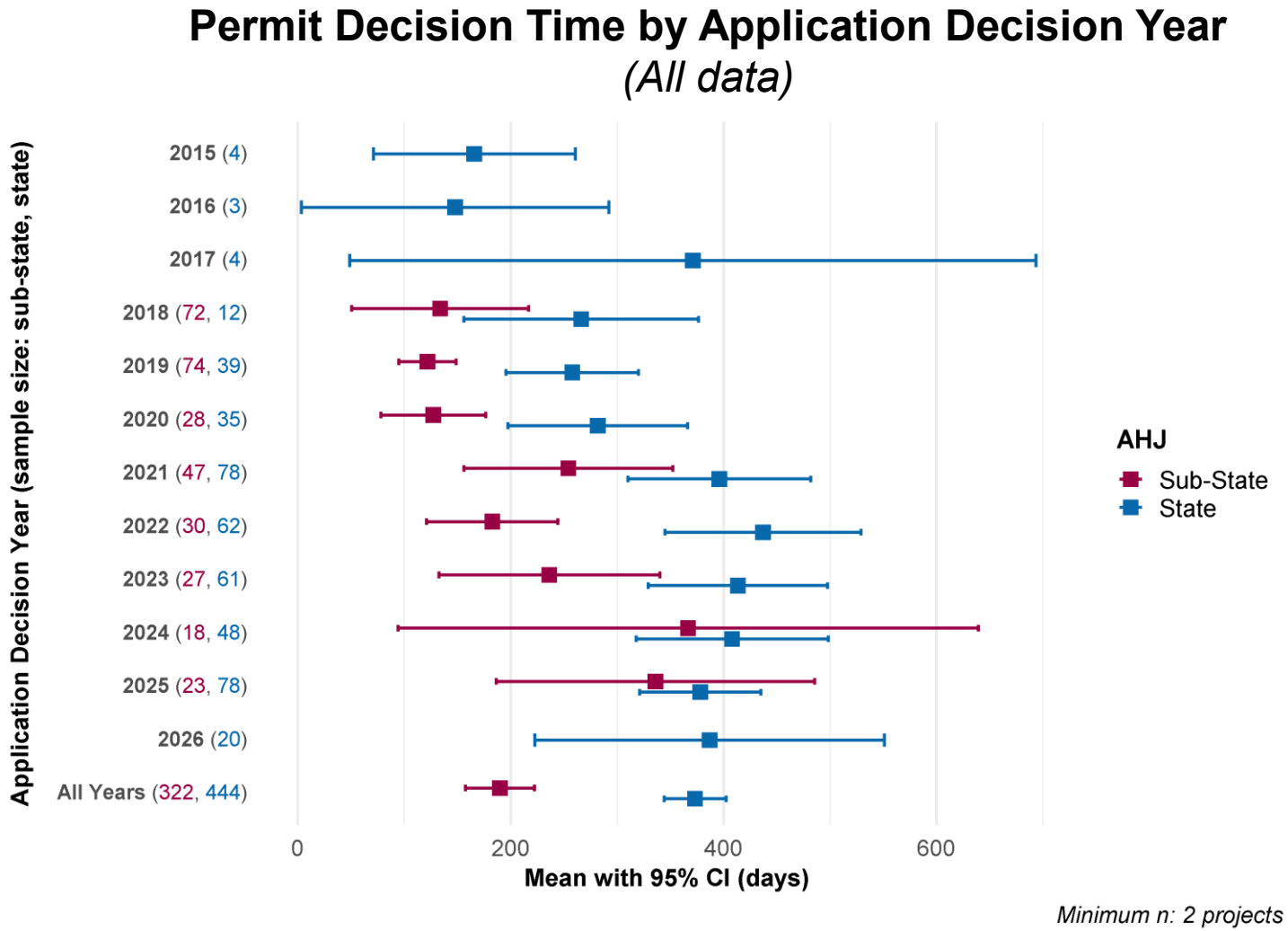
Note: Includes all available data. States with low counts of projects (AR, UT, WA) should be interpreted with caution. Compact Letter Display (CLD) indicate the results of Tukey-HSD pairwise comparisons (α = 0.05). States sharing at least one CLD letter are not significantly different by Tukeys test at 95% confidence interval

In certain regions (CA-ISO, NE-ISO, Southeast), there is no substantial difference between average timelines of the state and sub-state AHJs



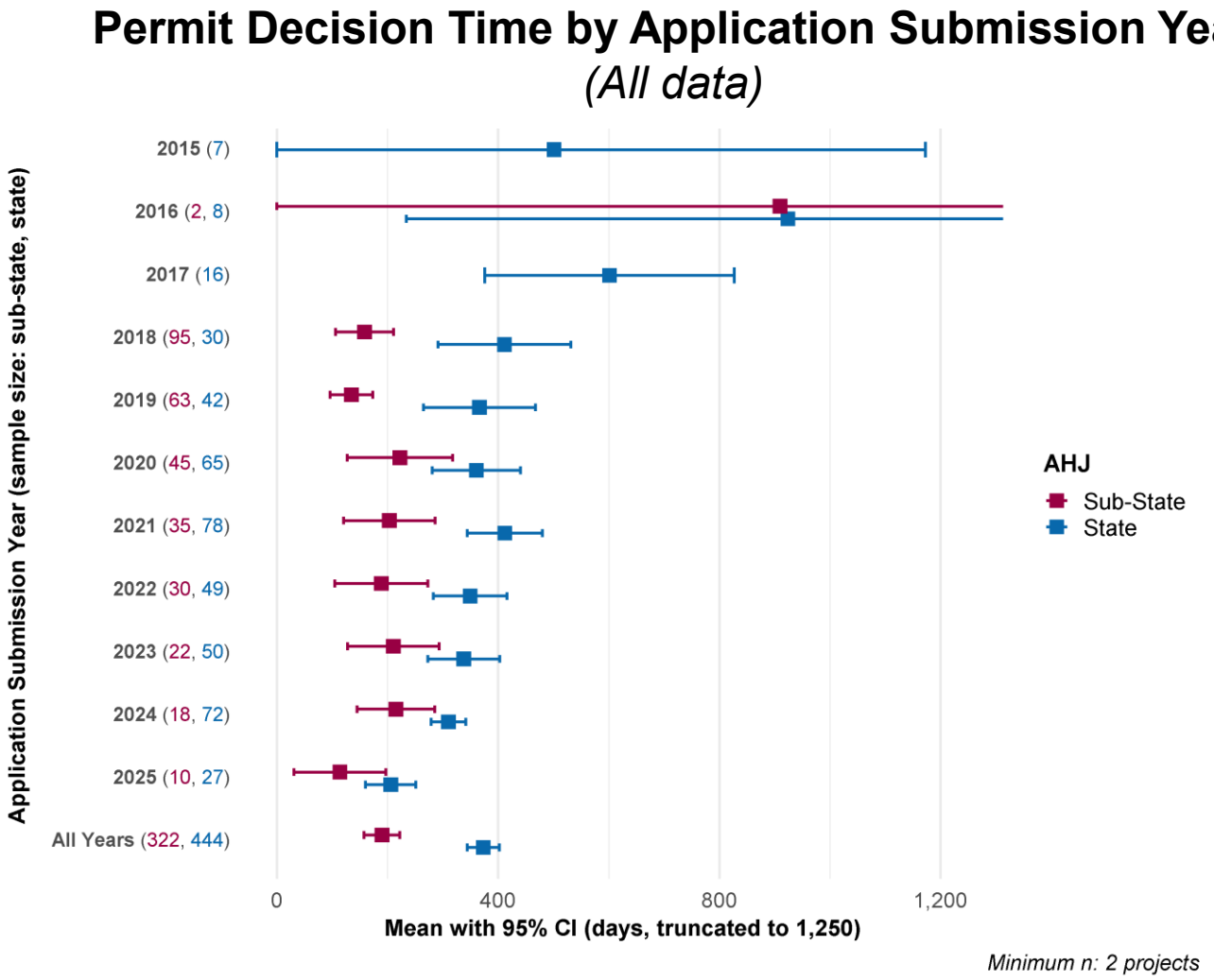
Note: Includes all available data. Regions with low count of projects (SPP, CAISO, NE-ISO) should be interpreted with caution

Based on the application decision year, sub-state timelines show modest evidence of an increase from 2022 to 2025



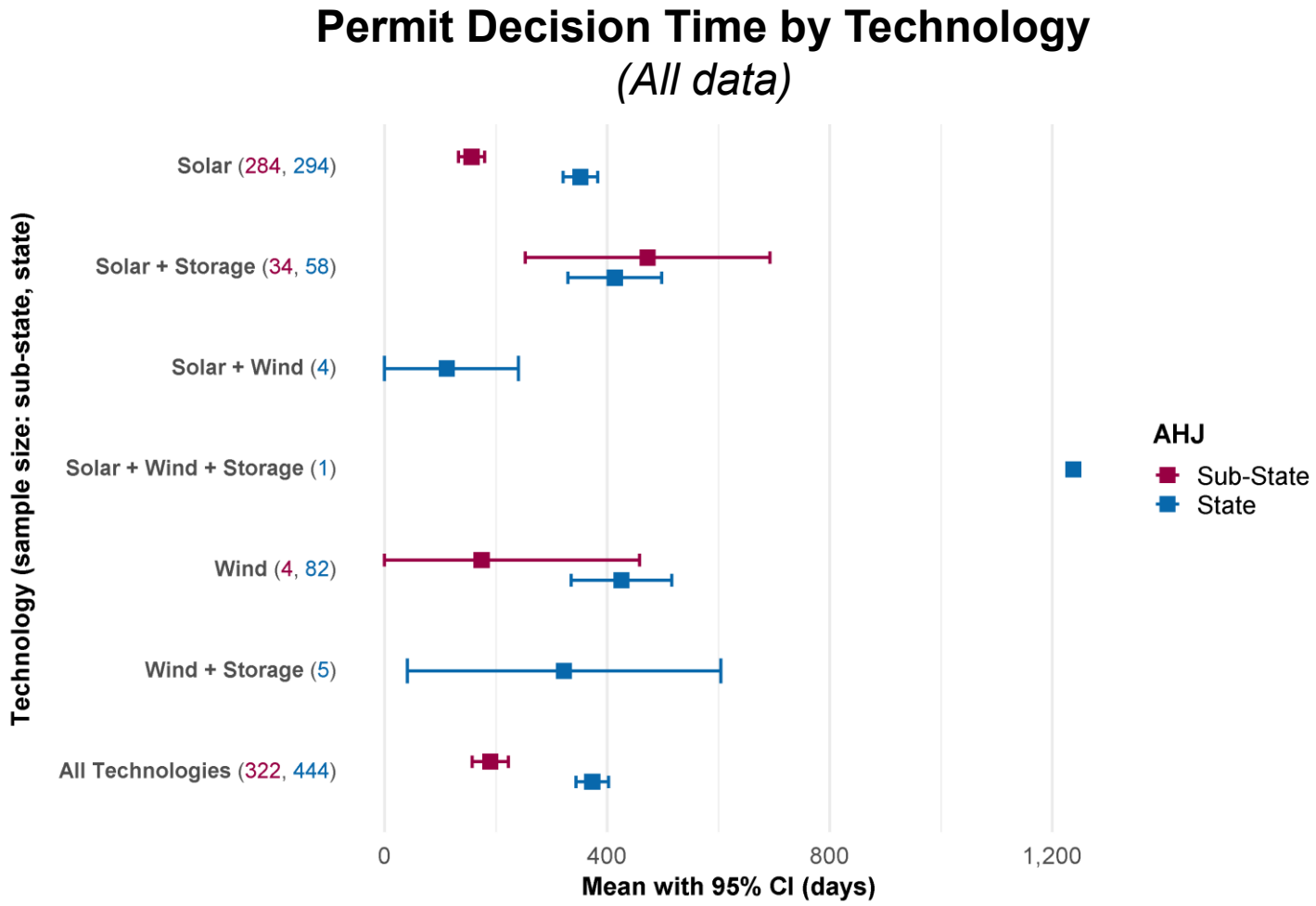
Note: Sub-state timelines averaged less than 200 days in 2022, and over 300 days in 2025 (p-value = 0.038). Data for 2026 should be interpreted with caution, because only a portion of 2026 data were collectable at the time of this report

Based on application submission year, state timelines decrease slightly over time, while sub-state timelines remain more consistent



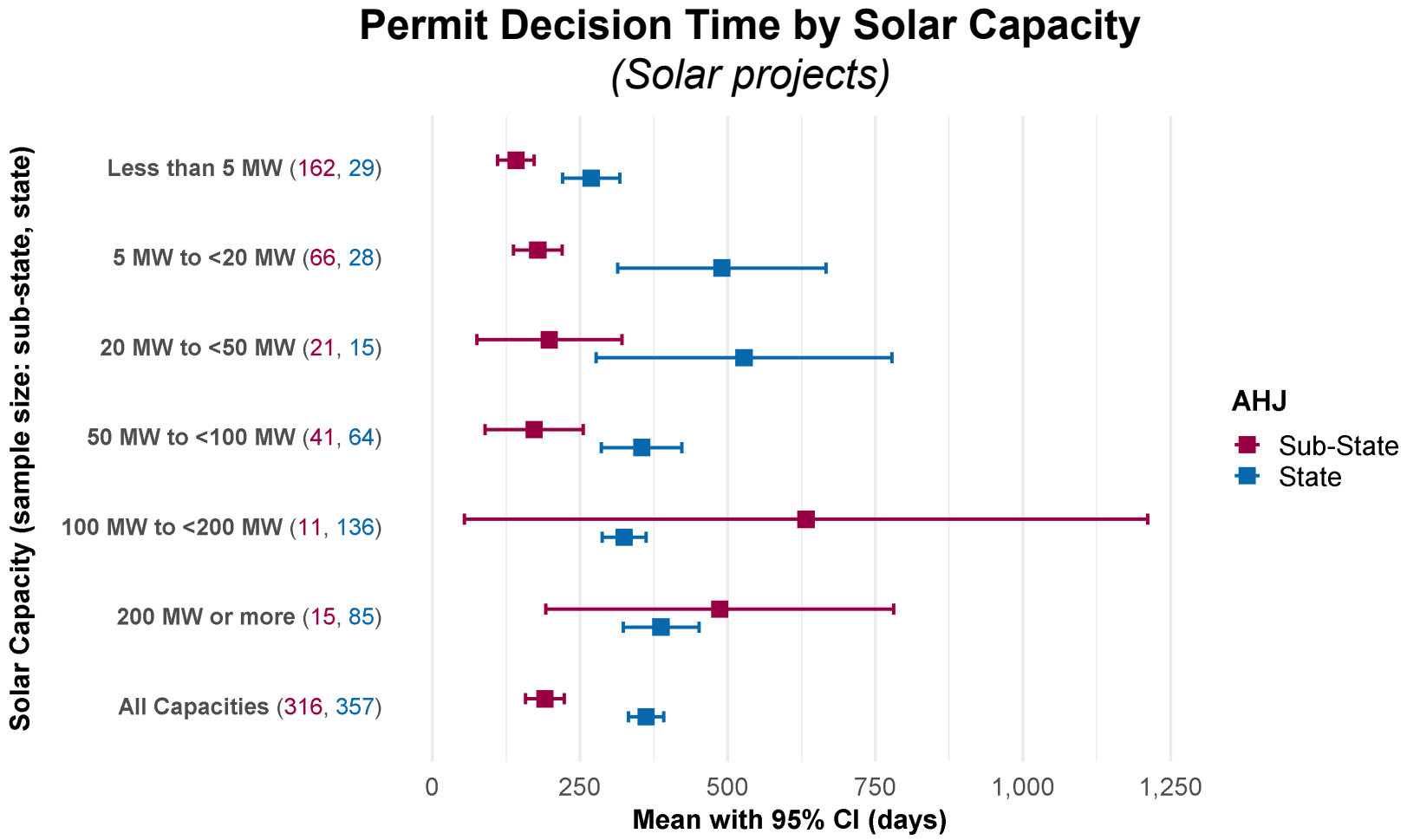
Note: Most recent years should be interpreted with caution. Projects submitted recently that have been decided have shorter timelines that projects that will be decided later, and those projects are not shown here.

No substantial differences observed between wind and solar. Sub-state solar + storage take substantially longer than sub-state standalone solar

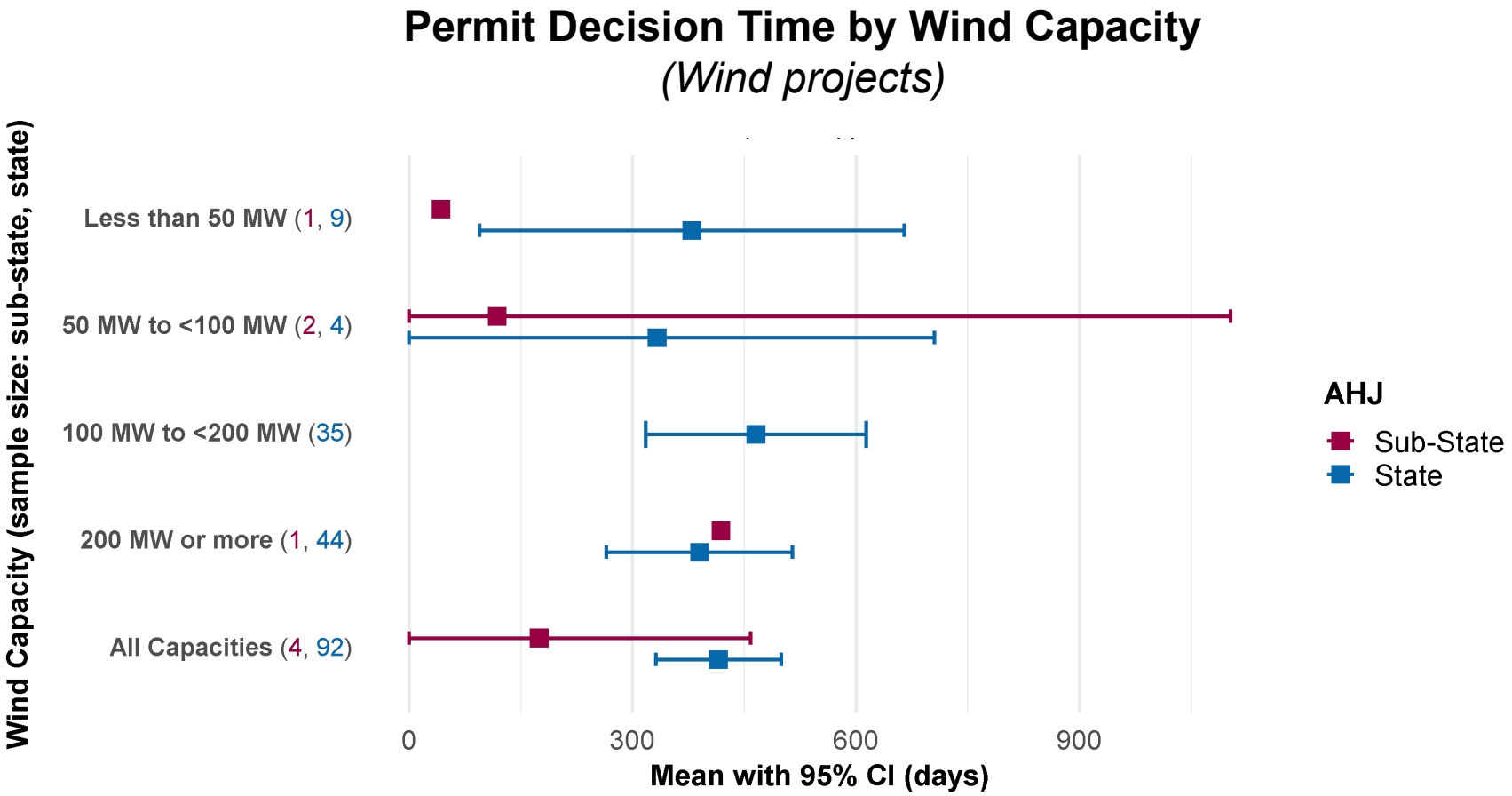


Note: Includes all available data. Techs with low count of projects (SW, SWS, WS) should be interpreted with caution

For solar projects, sub-state appears to be slower for the largest capacity projects, but small sample sizes complicate interpretation

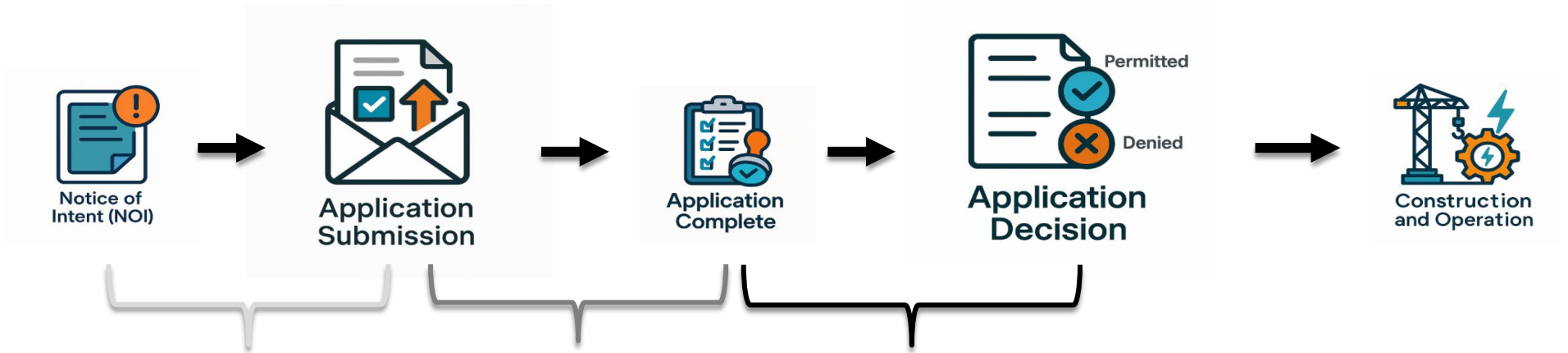


For wind projects, capacity has no discernible impact on timelines



Note: Includes all available data. Capacities with low count of projects should be interpreted with caution

Permit Stages



NOI to Submission

Typically, the timeline of this stage is dependent on developer's preparation of application

NOI is not required in all states

Submission to Completion

Authority reviews initial application and either issues a determination of completeness or requests additional information

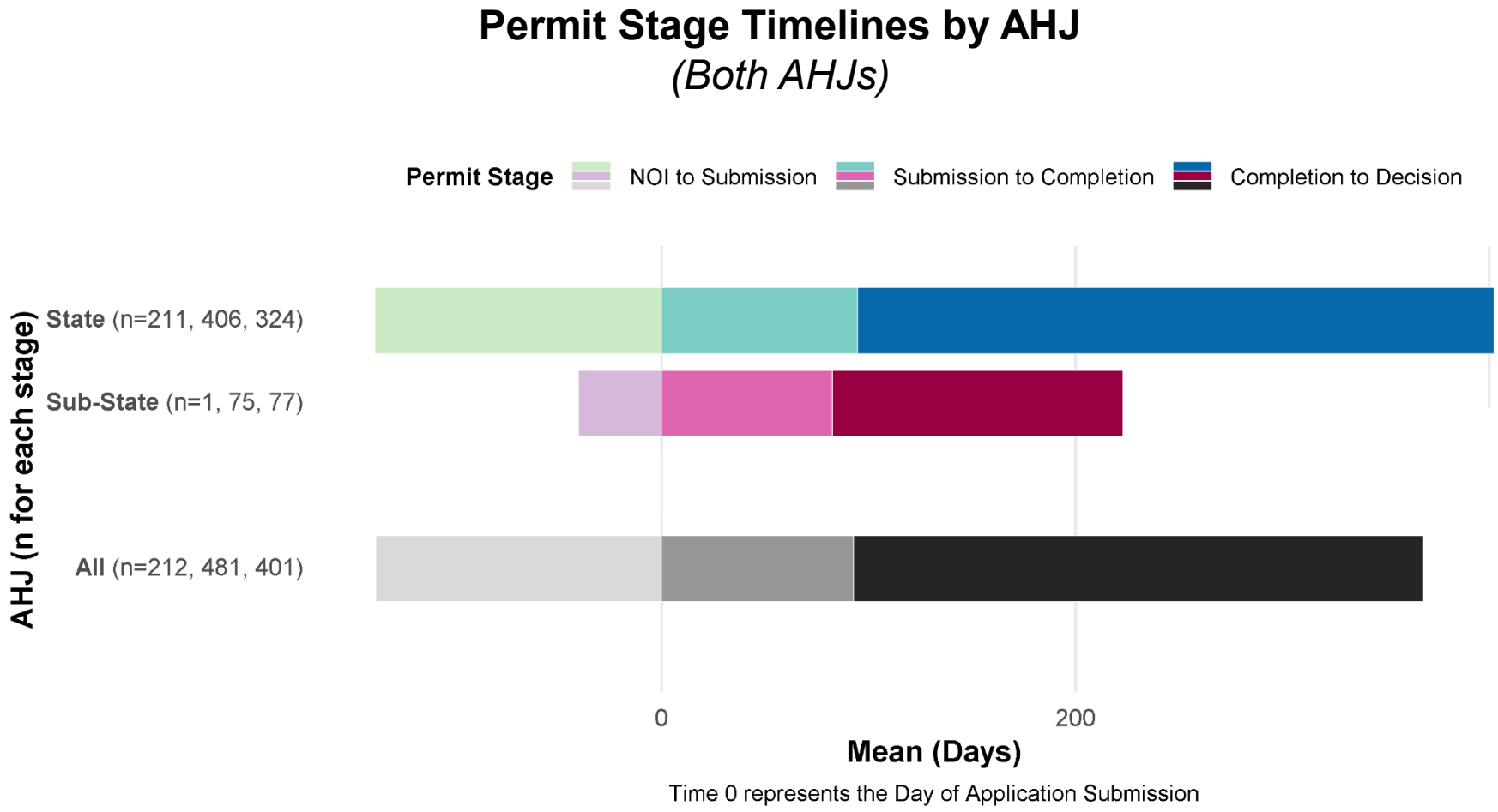
Completion to Decision

Authority reviews application for compliance with applicable laws and regulations and issues a decision

Some states have established limits for duration of this stage

Note: We are collecting data on many more permitting steps, but they are often not generalizable across states

At both state and sub-state level ‘Completion to Decision’ is the longest stage, followed by ‘NOI to Submission’

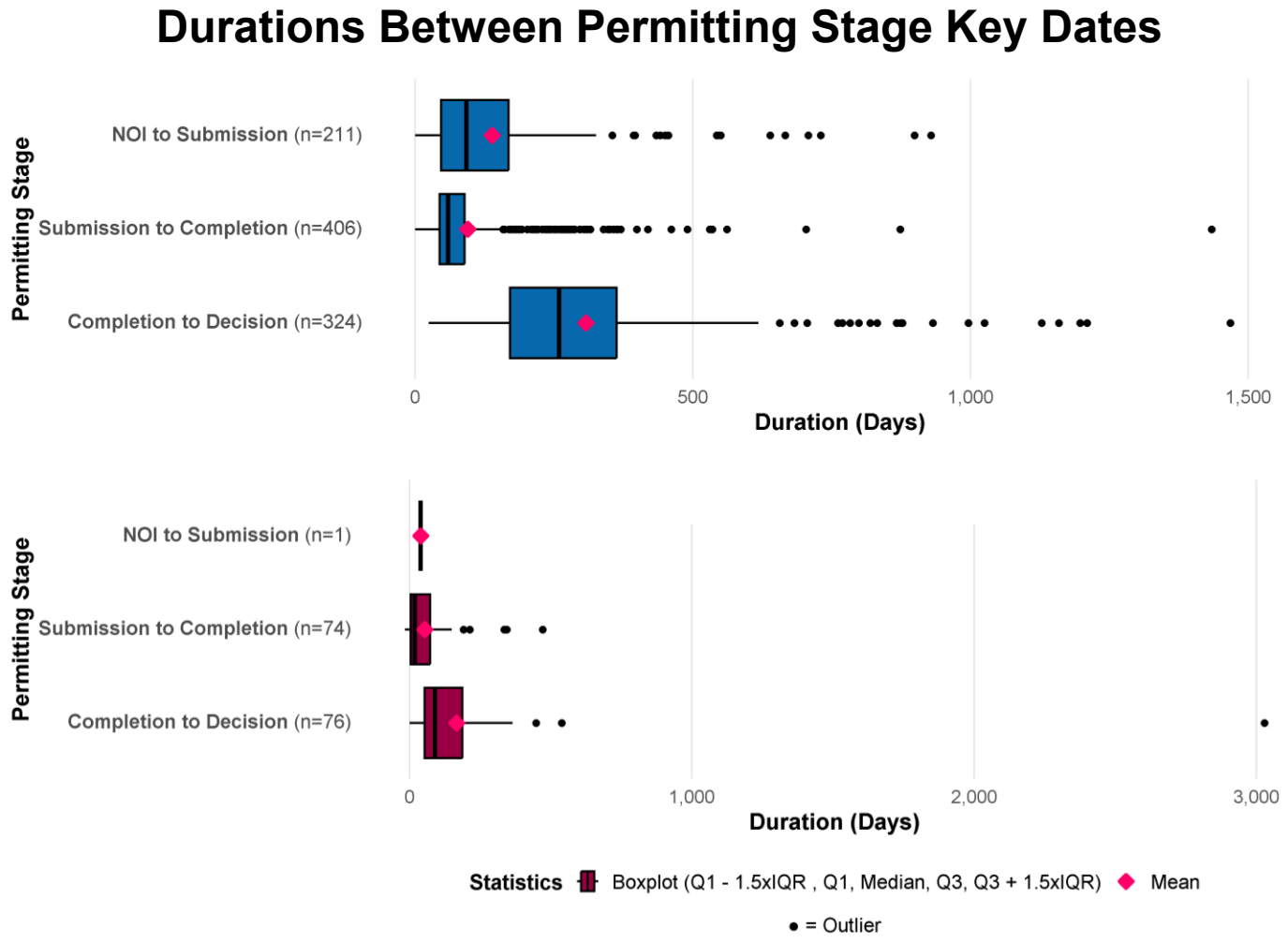


Note: Sub-state AHJs have less standardized data than state AHJs, and many lack an NOI requirement or application completion dates, which reduces the sub-state sample sizes for those stages

Outliers demonstrate individual projects can differ substantially from mean and median values, sometimes spending over 1000 days in a stage

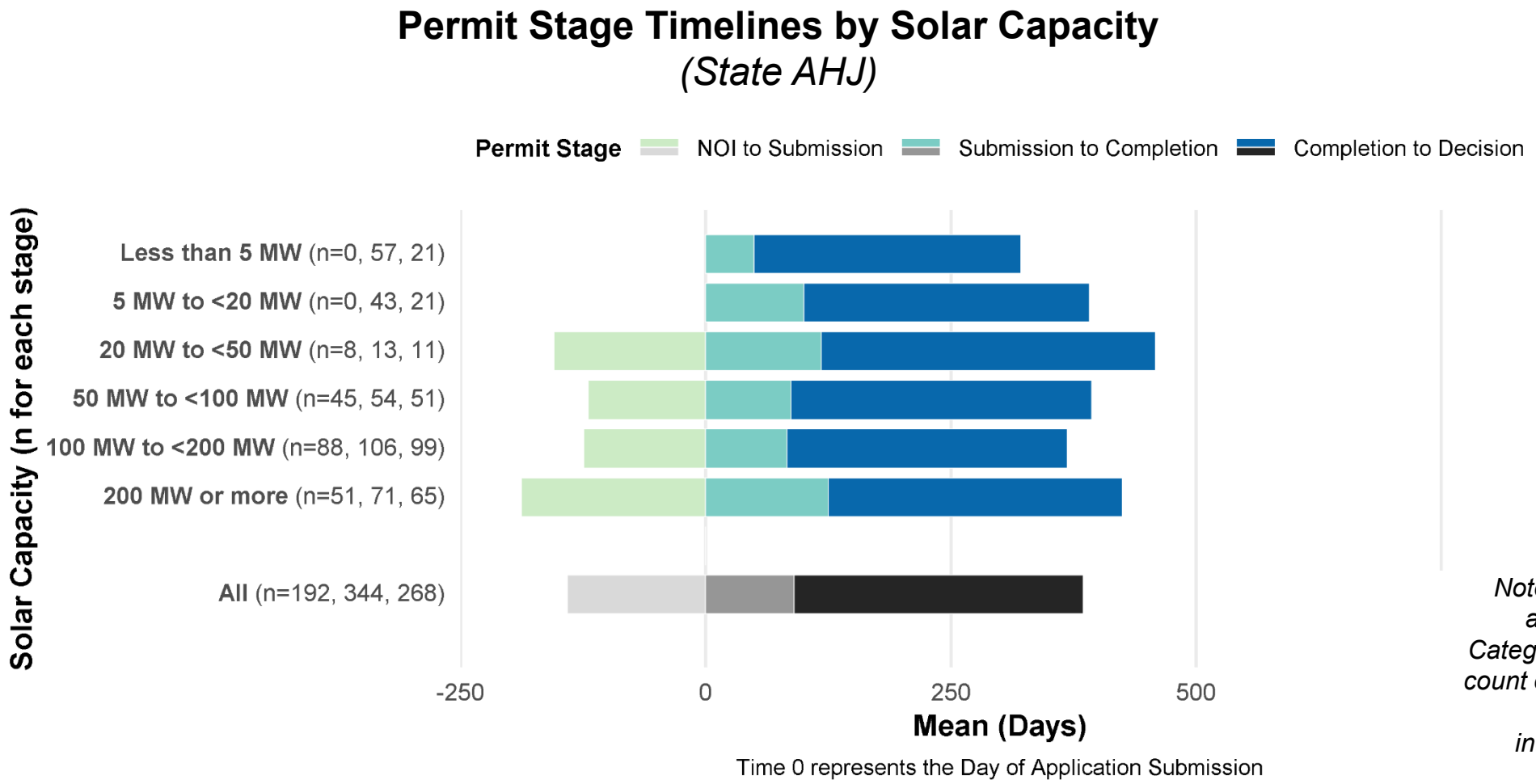
State AHJ

Sub-State AHJ



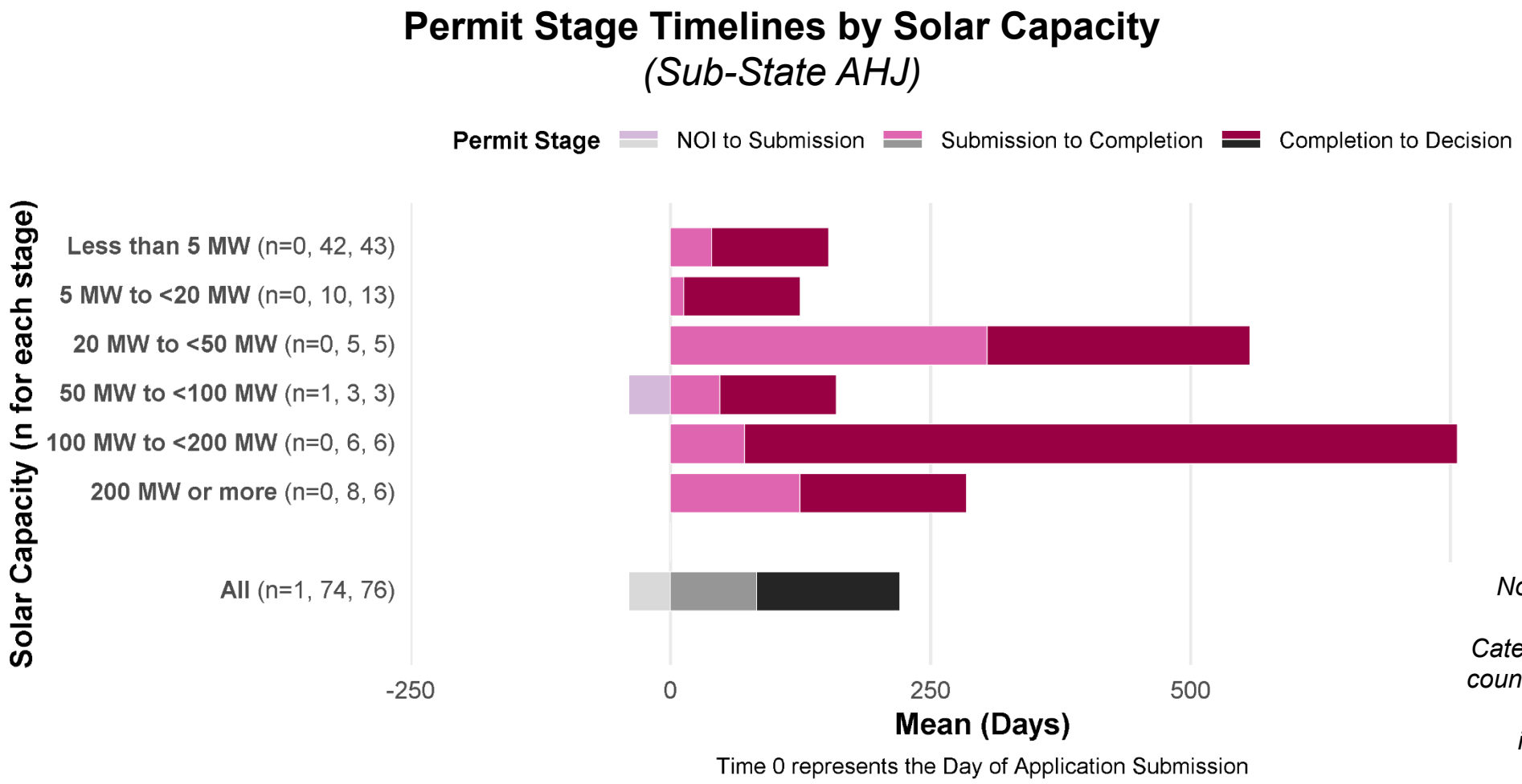
Note: Includes all available data. Categories with low count of projects (n) should be interpreted with caution

Median timelines for each permit stage, at the state AHJ, are quite consistent regardless of solar project size



Note: Includes all available data. Categories with low count of projects (n) should be interpreted with caution

For the sub-state AHJ, timelines of each permit stage are more variable, and largest projects have slowest timelines



Note: Includes all available data. Categories with low count of projects (n) should be interpreted with caution

Permit Outcomes

Projects may be either permitted or cancelled. For the latter, we consider four distinct forms: one developer-driven and three AHJ-driven.

Developer-driven cancellation



Developer decides to withdraw the project from consideration prior to a permit decision

AHJ-driven cancellation



Authority terminates the proposal prior to a decision



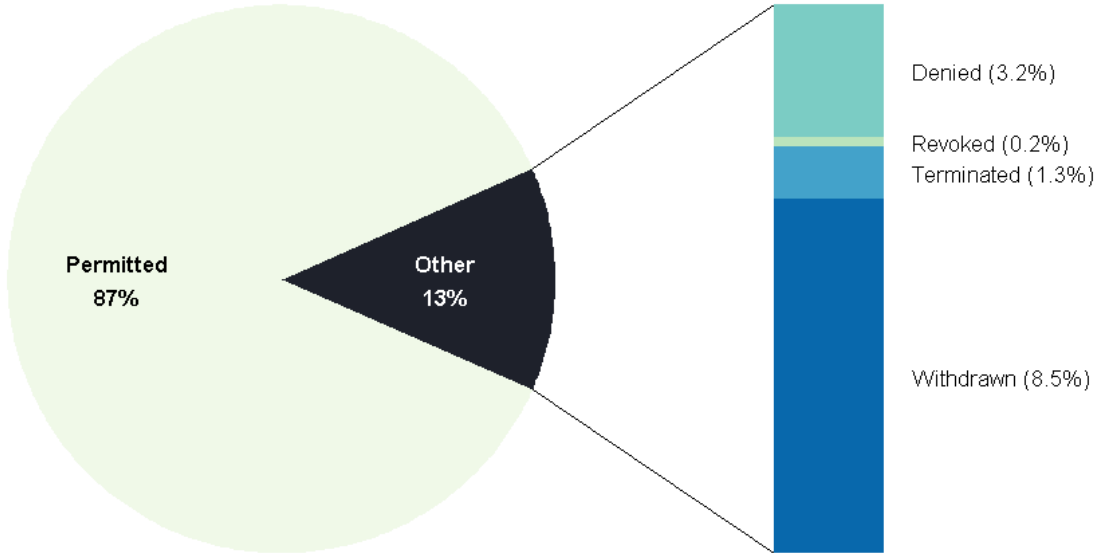
Authority decision is to deny the permit



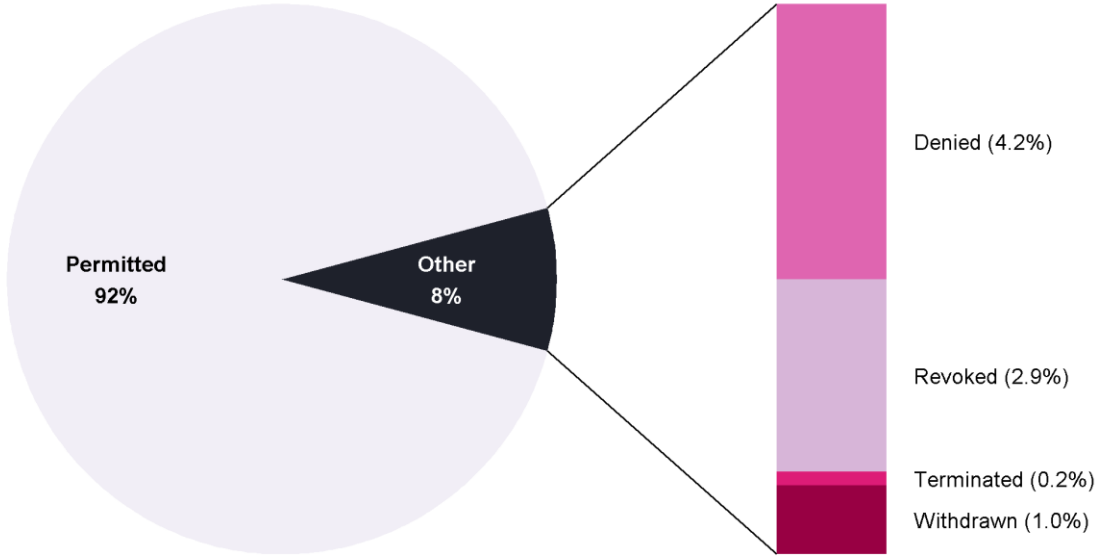
Authority revokes the permit after previously having approved it

Most projects are permitted (87% at state AHJ, 92% at sub-state AHJ). There are more denials at sub-state, and more withdrawals at state.

State AHJ

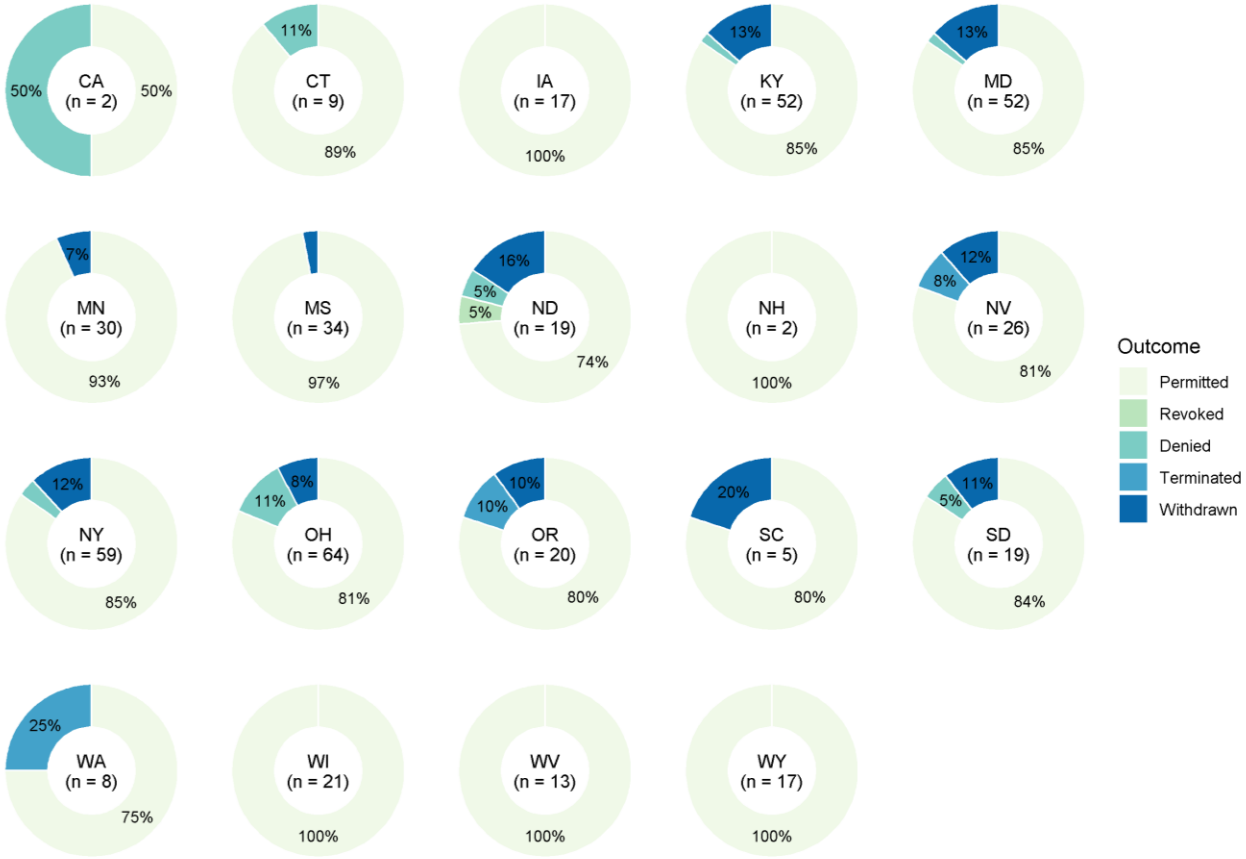


Sub-State AHJ

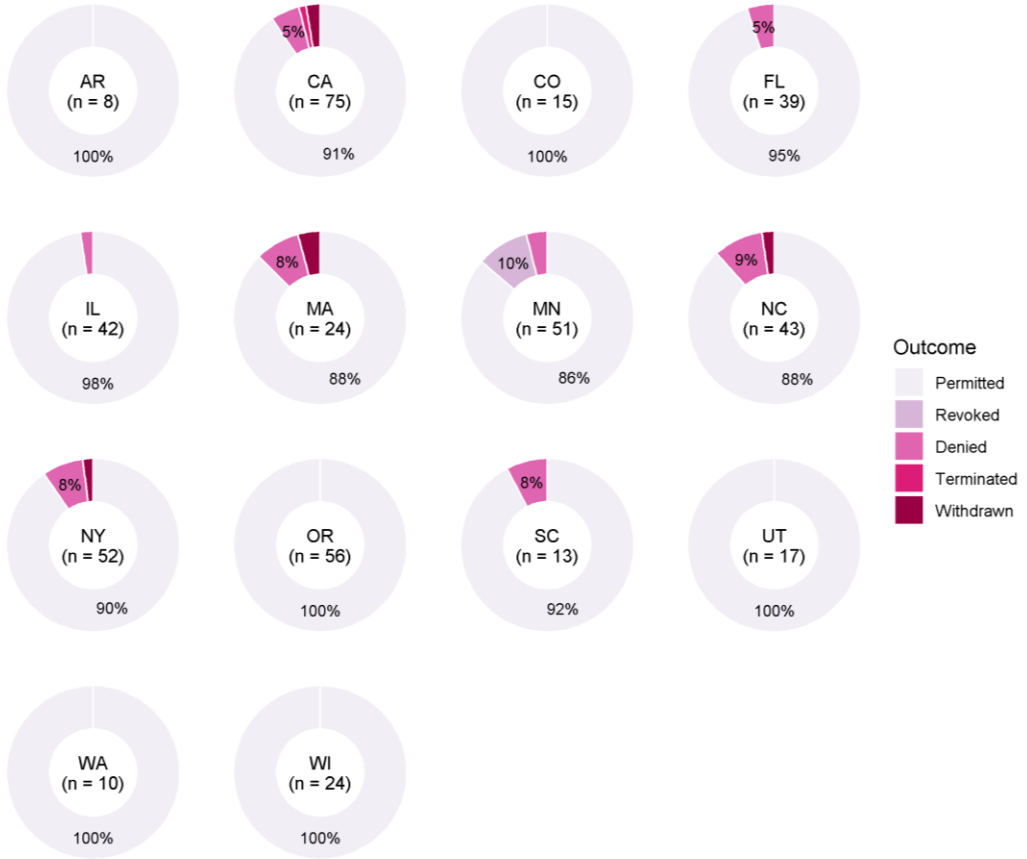


CA, WA, OR, SC, NV and OH have highest proportion of state cancellations. MN, NC, and MA have highest proportion at sub-state.

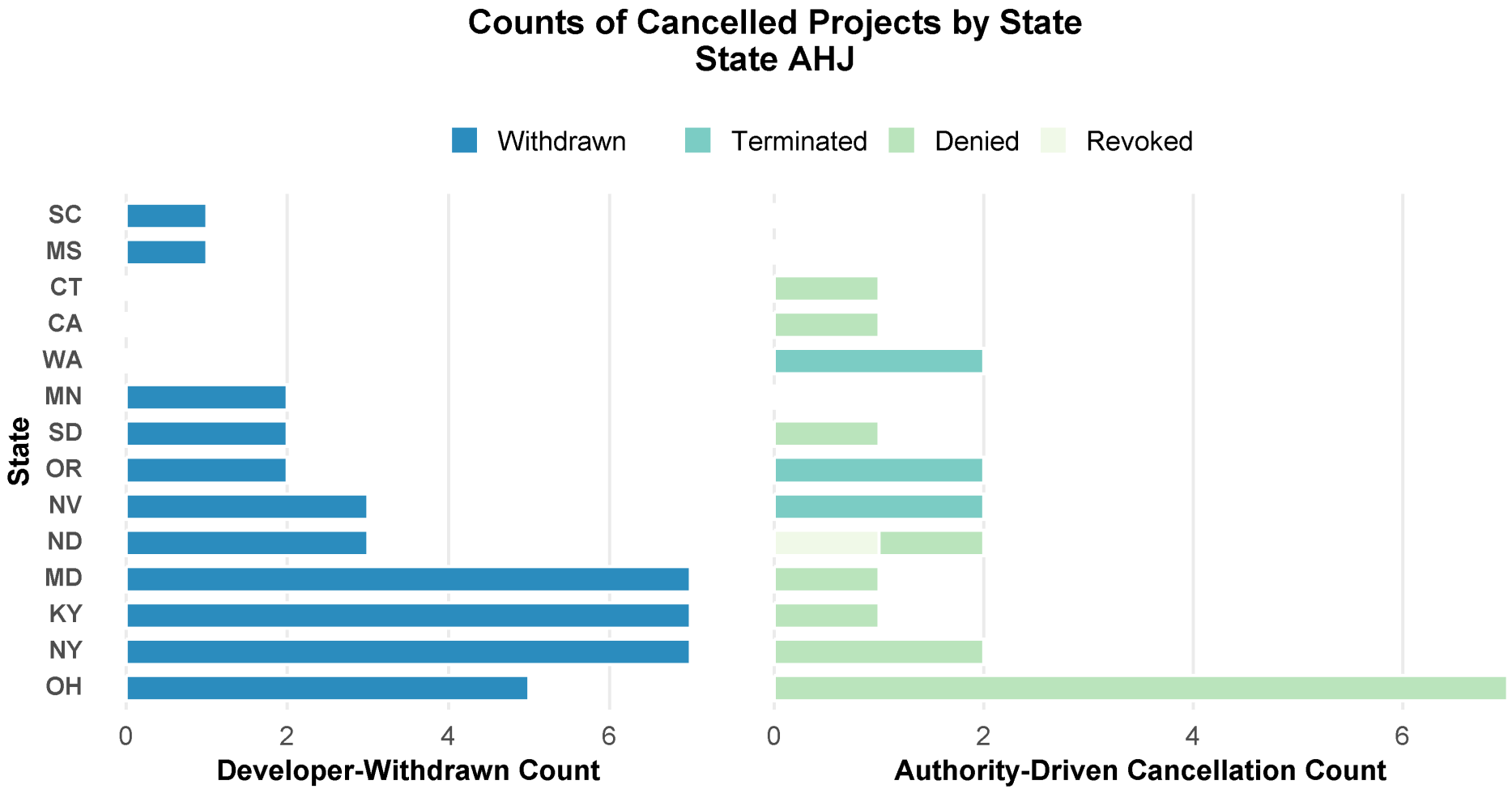
State AHJ



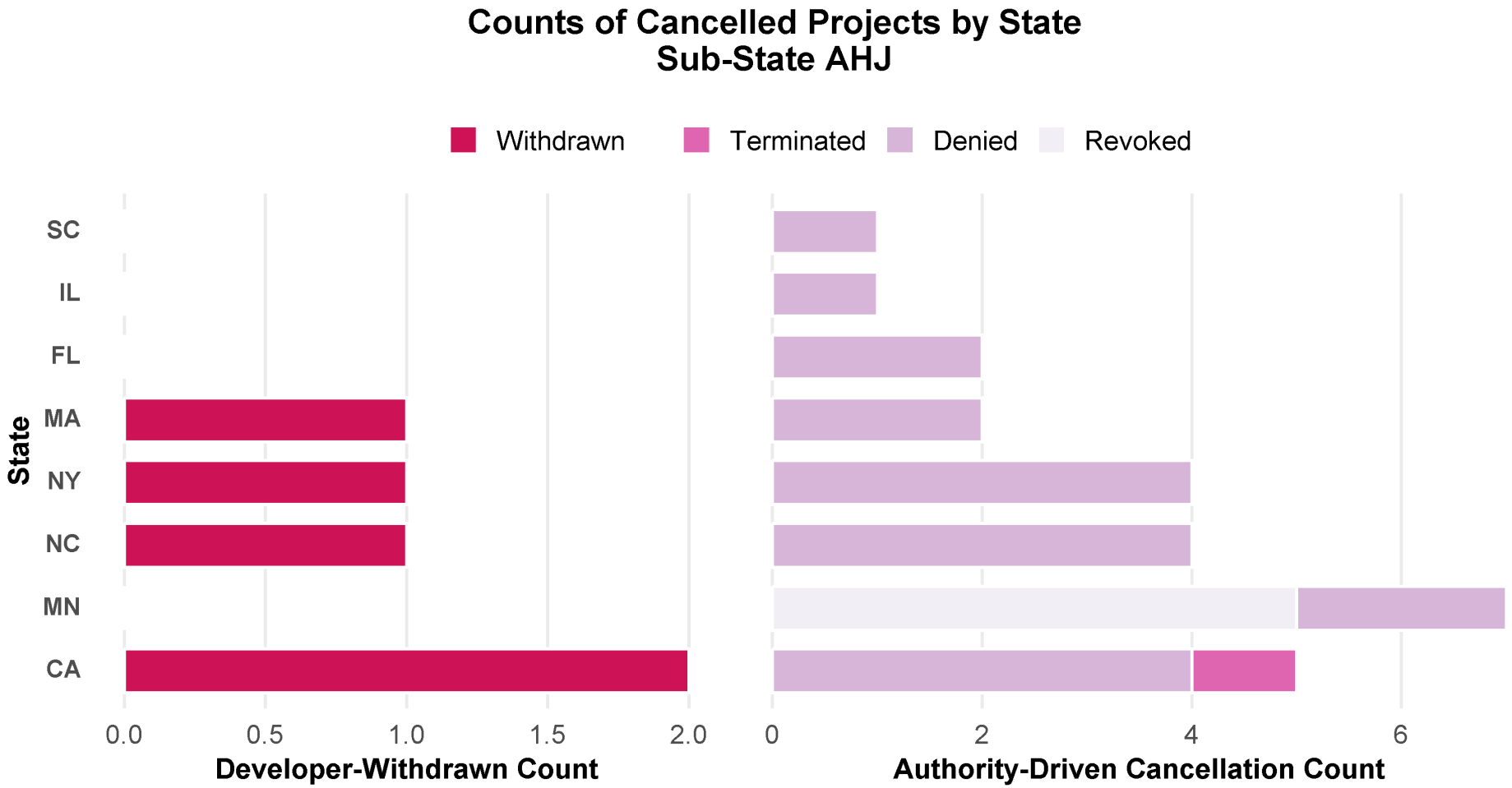
Sub-State AHJ



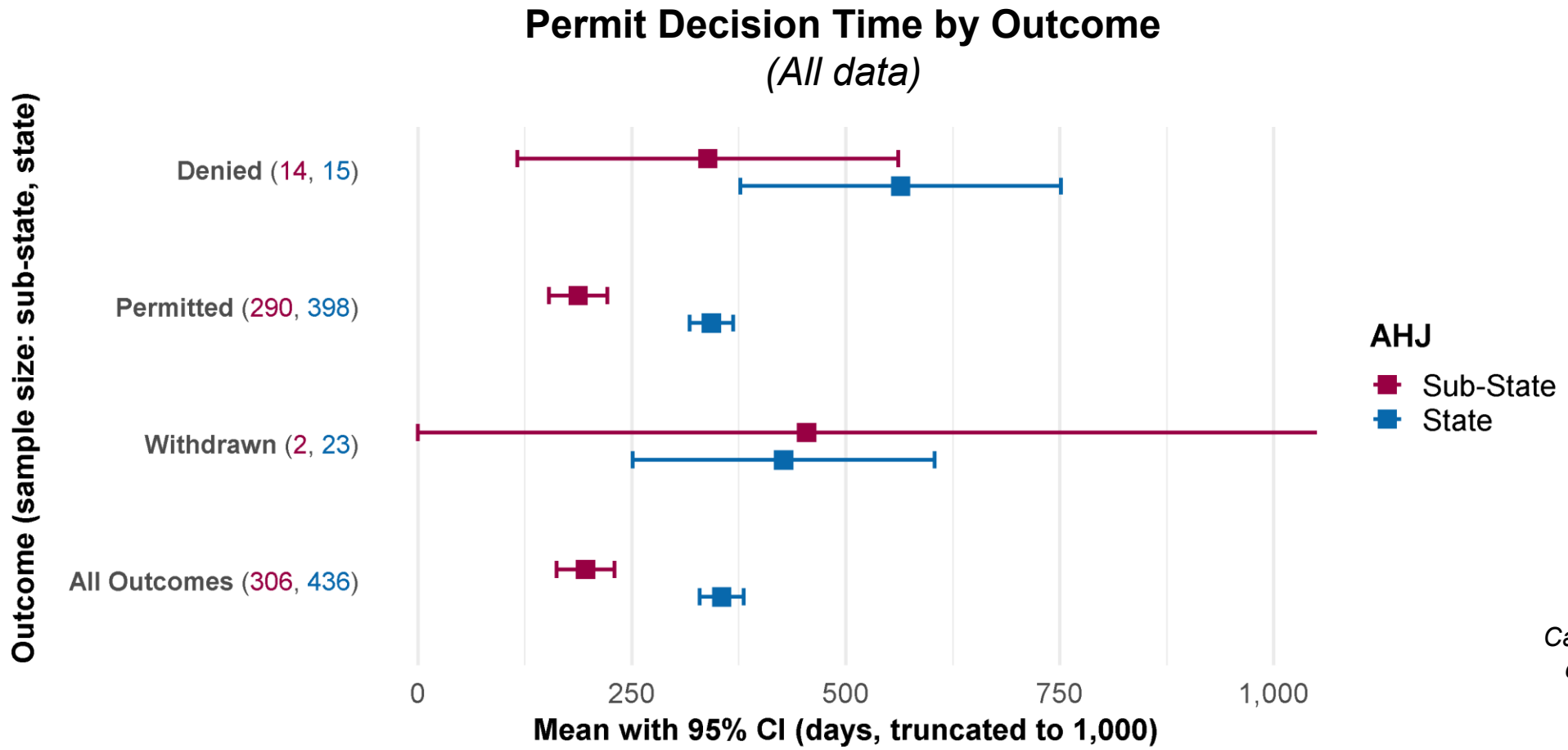
Ohio has denied 7 projects at the state level; no other state exceeds 2. MD, KY, and NY each have 7 withdrawn projects.



Sub-state AHJs in NY, NC, and CA each denied 4 projects. MN has revoked 5 projects. Few projects were withdrawn from sub-state AHJs.



Denied and withdrawn projects do appear to have longer timelines on average, but the long error bars indicate a wide range of these timelines



Note: Includes all available data. Categories with low counts of projects (n) should be interpreted with caution



Conclusions

Key takeaways: Permit timelines

- On average, sub-state AHJs issue permit decisions about 6 months faster than state AHJs
- In states where we have data from at least 5 projects at both the state and sub-state levels (MN, NY, OR, SC, and WI), the average sub-state decision time is faster than the state decision time
- In many states, larger projects are more likely to be sited by state AHJs due to state policies. For the limited number of larger projects (>100 MW) that were processed at the sub-state AHJ, the timelines were longer
- There are no significant differences in processing times on average between wind and solar projects
- Sub-state AHJs are slower to issue decisions for Solar + Storage projects than solar-only projects without storage
- There is some evidence of increasing processing times for sub-state AHJs in recent years.

Key takeaways: Permit stages

- Agency review time (‘Completion to Decision’) is typically the longest stage of permitting
- At both state and sub-state level ‘Completion to decision’ is the longest stage, followed by ‘NOI to Submission’. The time from ‘Submission to Completion’, when the agency may be requesting additional information from the developer, is not typically the longest part of the process.
- While mean and median values demonstrate the general tendency of the data, the presence of outliers, especially in the state level data, shows there are projects with substantially longer timeframes for each stage. (See Appendix for median values)
- Certain states (CA, WA, OR, NY) have projects with longer median ‘Submission to Completion’ stages than most other states, which may indicate these applications are more cumbersome to prepare
- While state timelines for different permit stages remain consistent regardless of the project capacity, sub-state timelines are substantially longer for large solar projects
- Informal sub-state processes lead to less data availability to compare the duration between key dates

Key takeaways: Permit outcomes

- Most projects that submit applications are permitted
- Sub-state authorities are slightly more likely to deny permit applications than state authorities
- There is a marginally higher rate of developers withdrawing projects from state level consideration than sub-state consideration. Withdrawals may occur for reasons unrelated to the permitting process (e.g. interconnection costs) or because developers opt to change project details and submit new applications, sometimes at a different AHJ, that may ultimately be permitted.
  - At least 4 project withdraws from state AHJ in MD, KY, NY, and OH
- The state AHJ in Ohio has denied 7 permit applications, more than any other state AHJ
- Sub-state authorities have denied, revoked, or terminated at least 3 permits in NY, NC, CA, and MN
- On average, it takes longer for a permit decision to be reached for denied and withdrawn projects compared to permitted projects

Additional future and related research

- These data will be updated annually to improve representation across the country
- These data will be merged with other pre- and post-operation timeline data, such as interconnection, construction and operation (USWTDB & USPVDB) dates
- We are investigating causes and patterns of permit cancellations with case-study analyses
- Identify drivers of heterogeneous permit timelines across states, including consideration of implementation of state siting policy changes to examine pre- and post- timeline differences
- We are currently collecting permit cost data
- We are collecting permitting data for large-scale geothermal projects

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For more information

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The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof, or The Regents of the University of California.

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Appendix

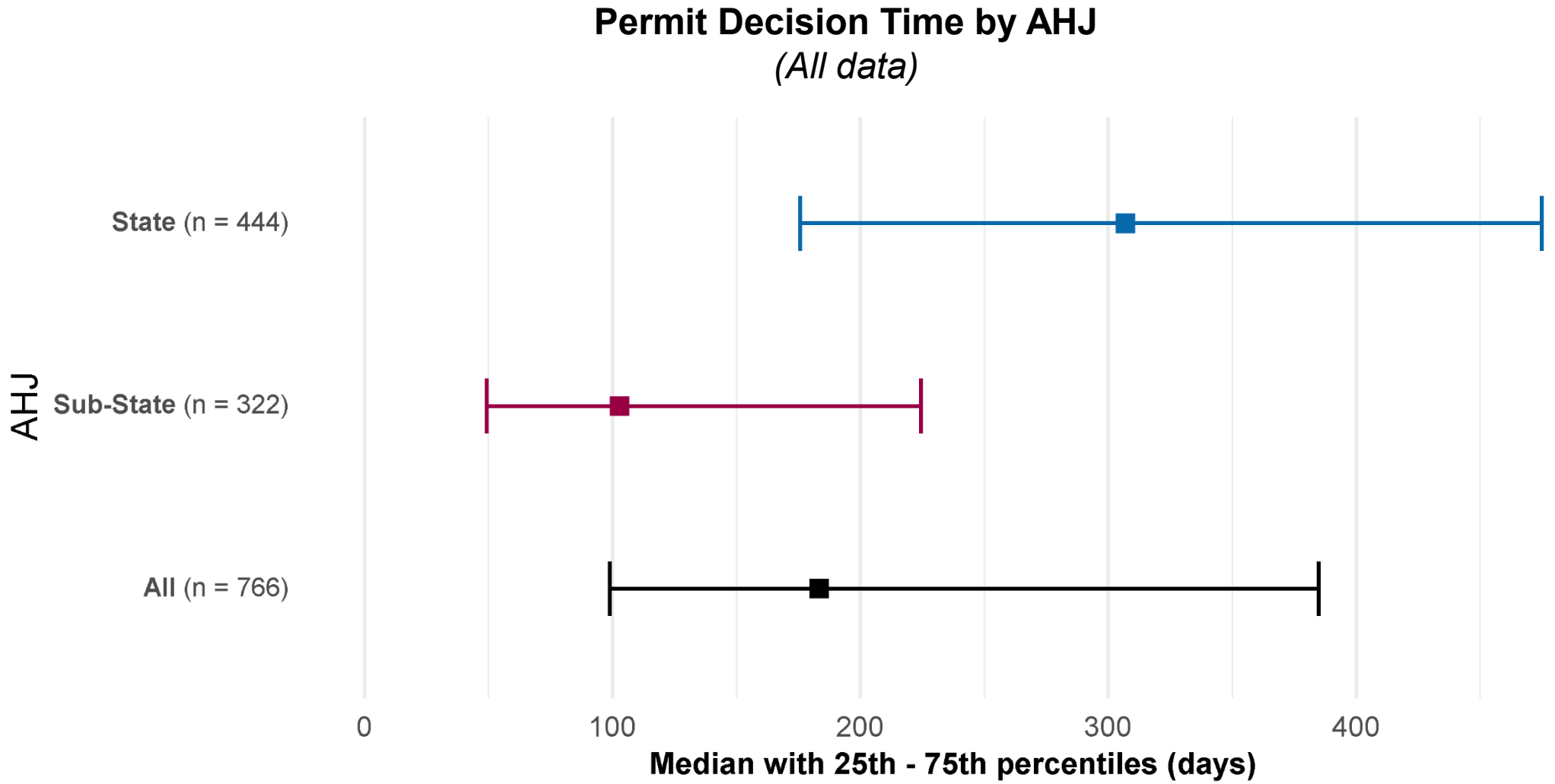
Data representation notes and selected results of median timelines
(figures only)

Note: For cohorts with n<5, R estimates quantiles using the default, Type 7. See R documentation for more details

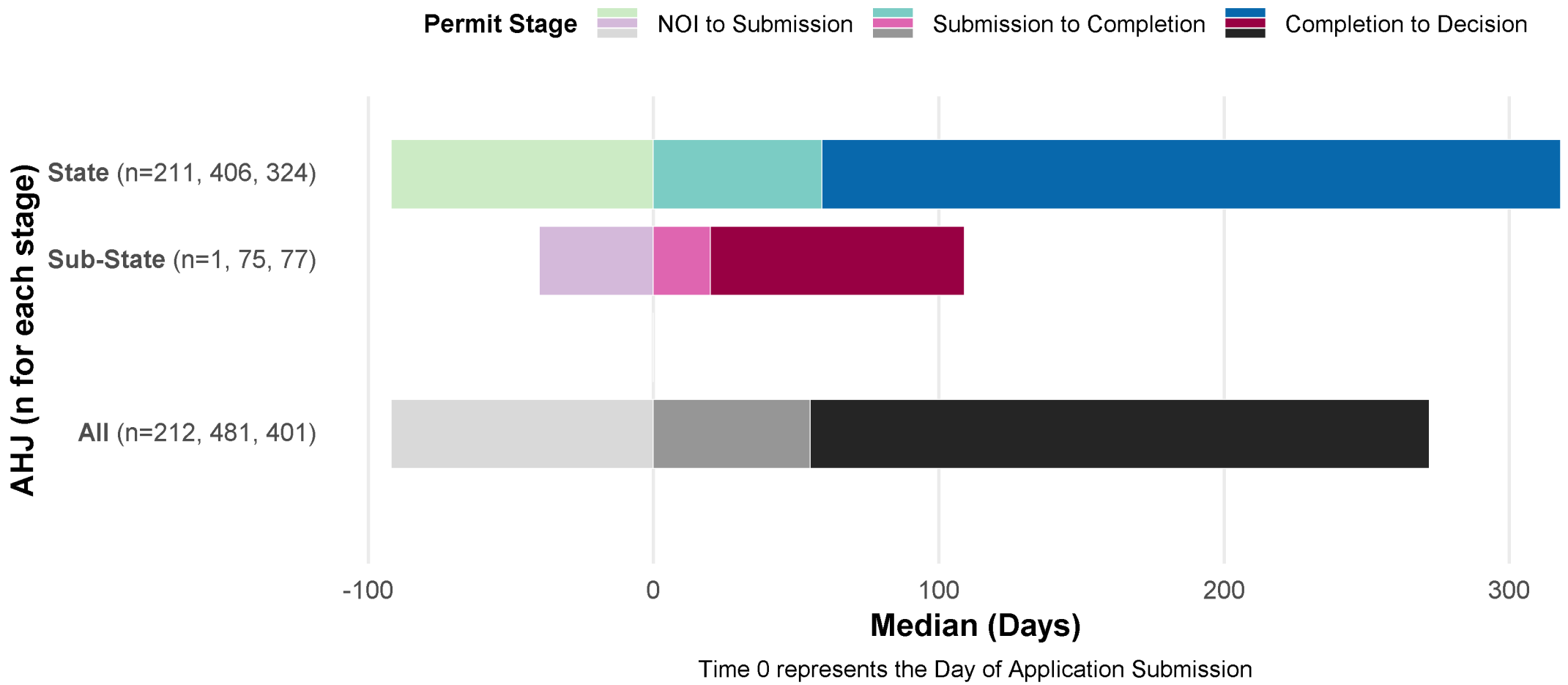
Data Representation Notes

Data Level	Scope	Capacity coverage	Projects coverage
State AHJ data	Within the 20 states where data was collected	~100%	73%
	Nationwide (permitted by state-level AHJs)	76%	39%
Sub-state AHJ data	Within the 14 states where data was collected	57%	14%
	Nationwide (permitted by sub-state AHJs)	15%	9%
All data (combined)	Nationwide (became operational within time scope)	38%	15%

- Estimations are based on dividing our project count and summed MW by the total project count and MW of projects that became operational in our time scope from EIA860M July 2026 data
- Operational month and year are filtered to Jan 2018 - March 2026 for solar projects, and Jan 2015 to March 2026 for wind projects
- EIA does not provide a permitting authority, so to make the state and sub-state estimations, we identified an expected AHJ based on state policies and evidence from projects in our dataset matched to EIA. Given shifting permitting policies over our time scope, these estimations are approximate. We have collected all available state AHJ data within the 20 states

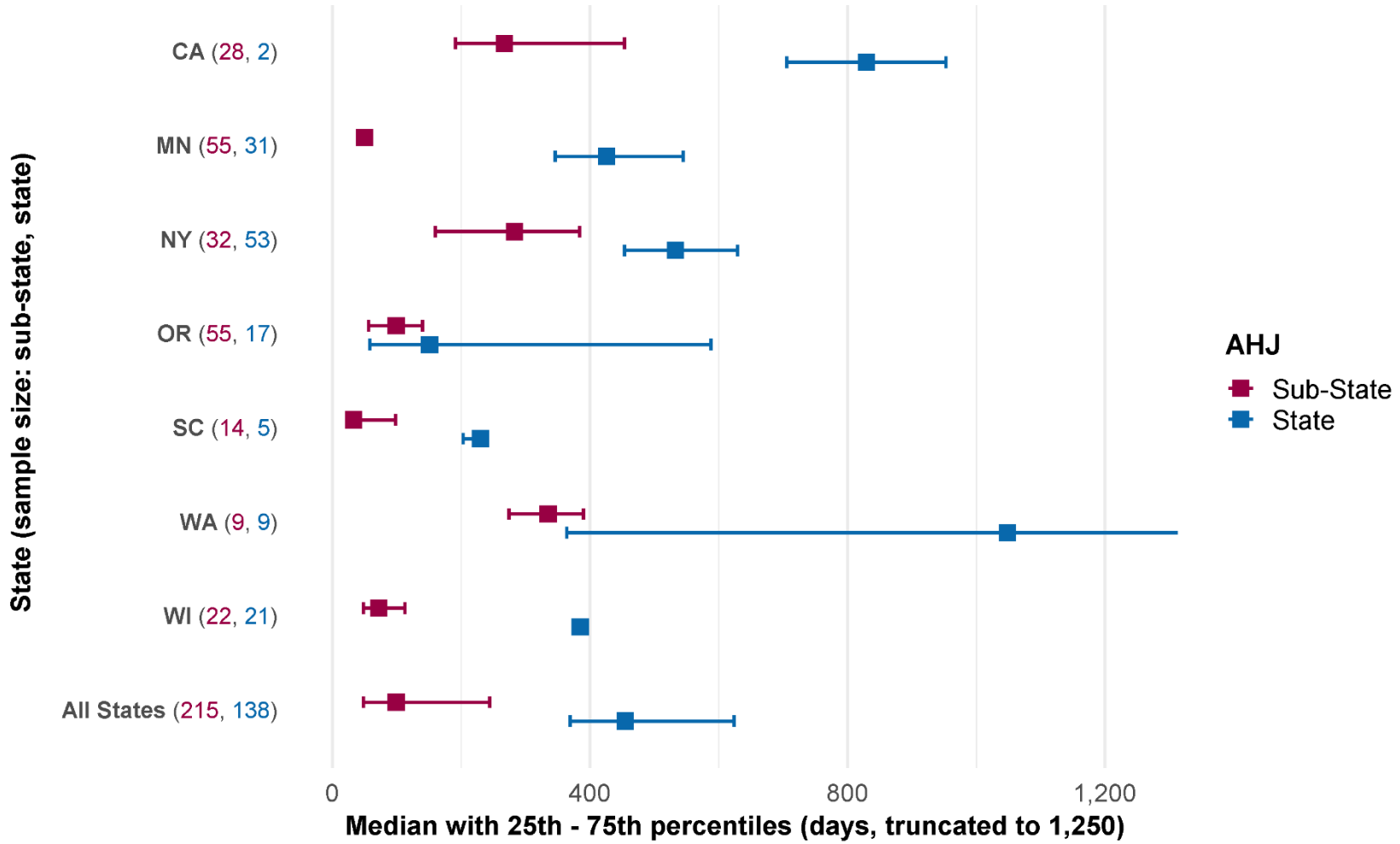

Permit Decision Time by AHJ
(All data)
AHJ
State (n = 444)
Sub-State (n = 322)
All (n = 766)
0
100
200
300
400
Median with 25th - 75th percentiles (days)

Median Permit Stage Timelines by AHJ

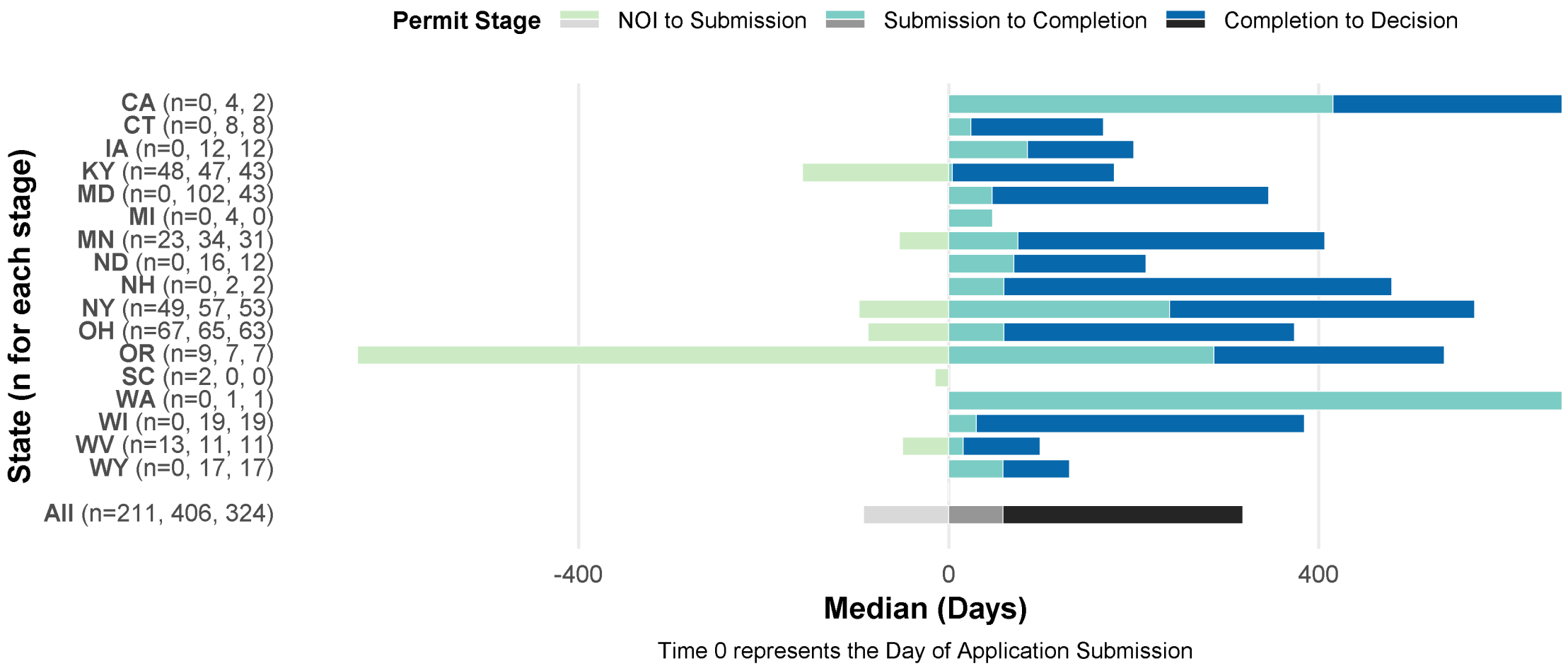


Permit Decision Time by State

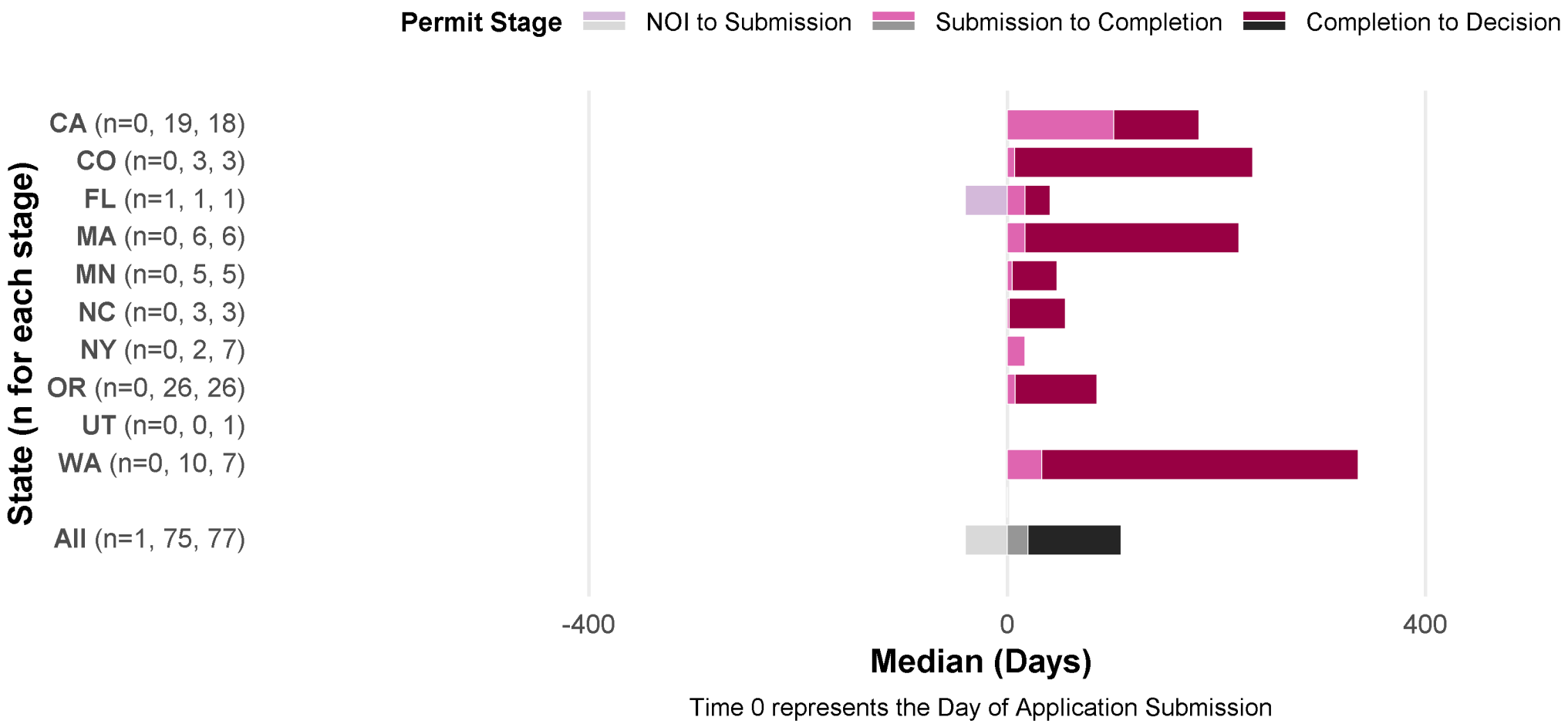
(All data)



Median Permit Stage Timelines by State: State AHJs

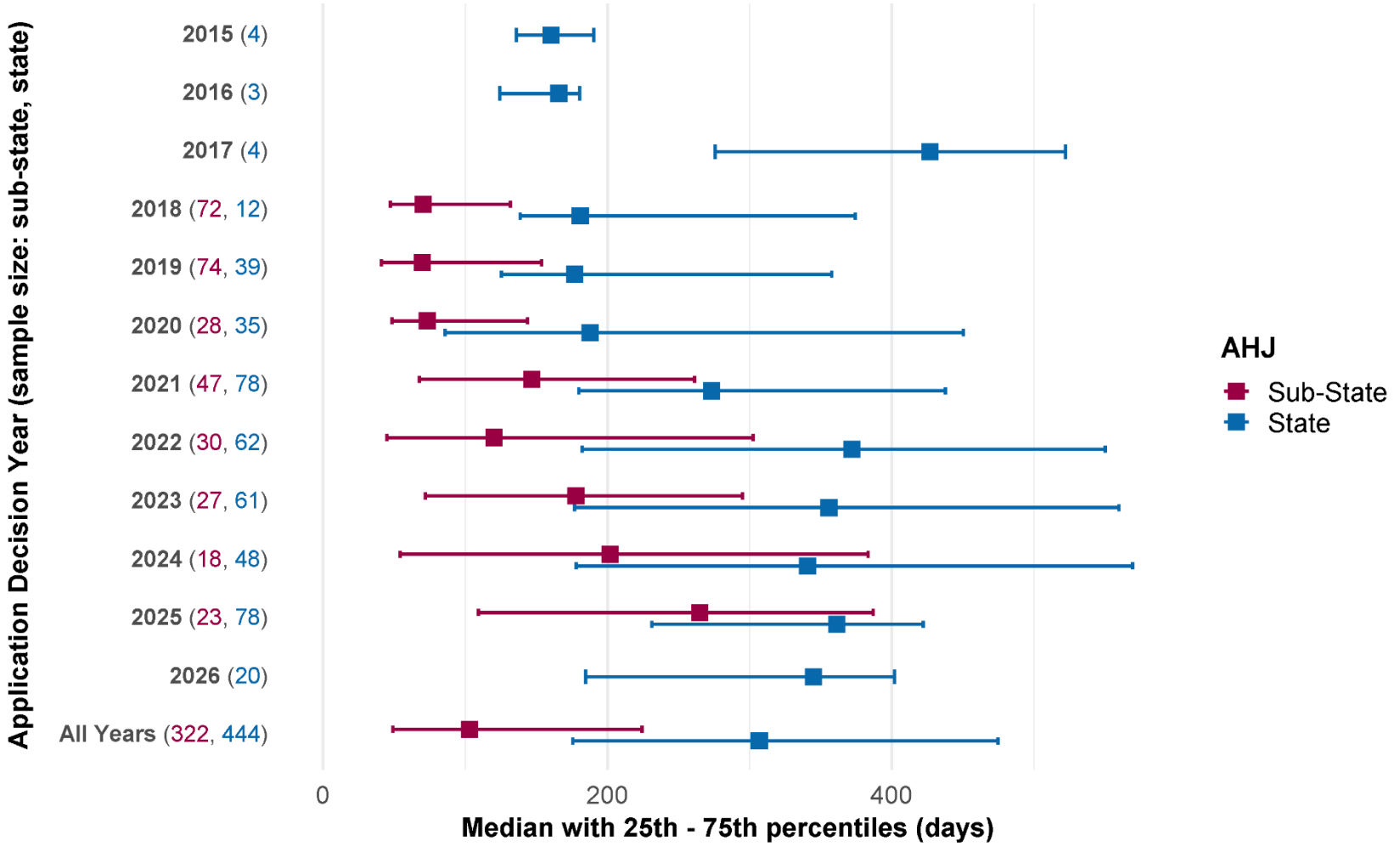


Median Permit Stage Timelines by State: Sub-State AHJs



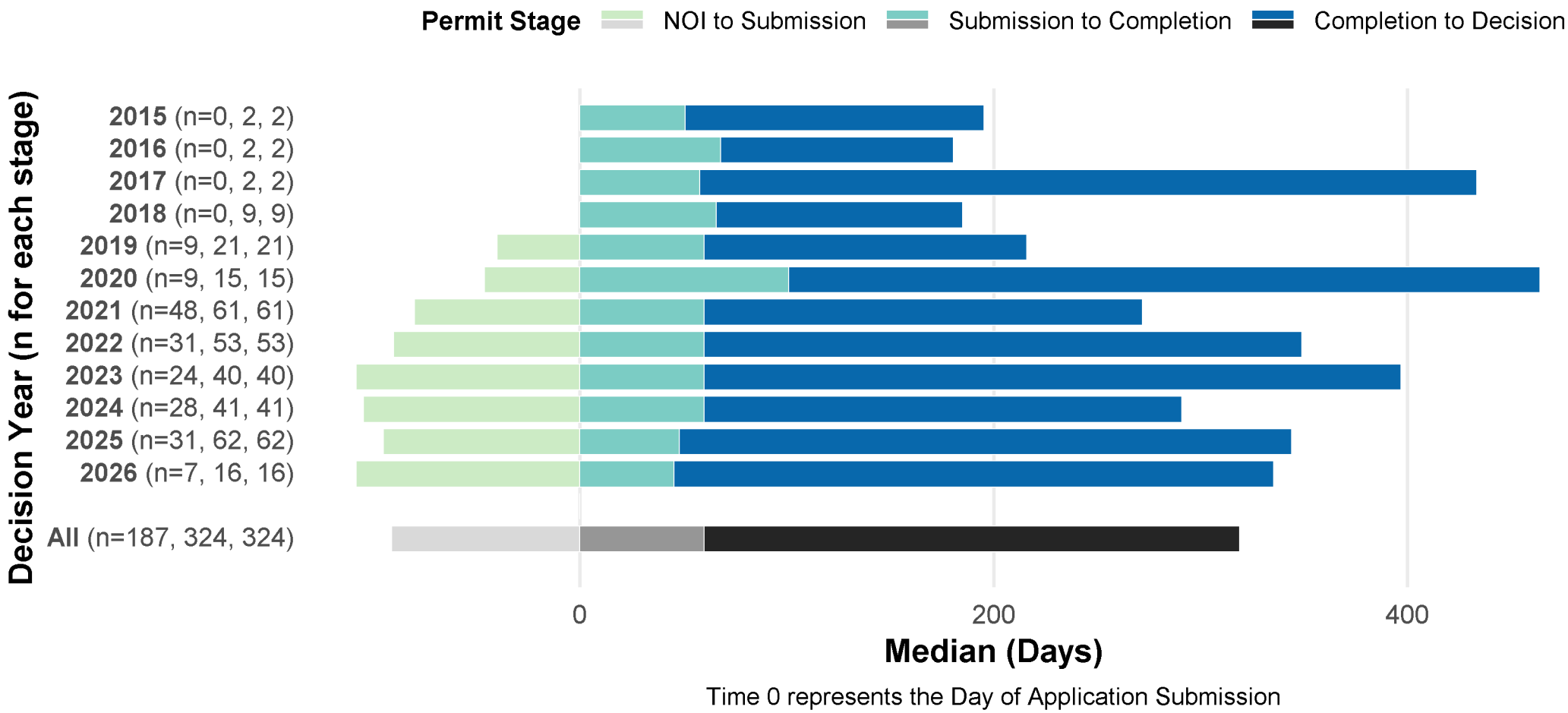
Permit Decision Time by Application Decision Year

(All data)

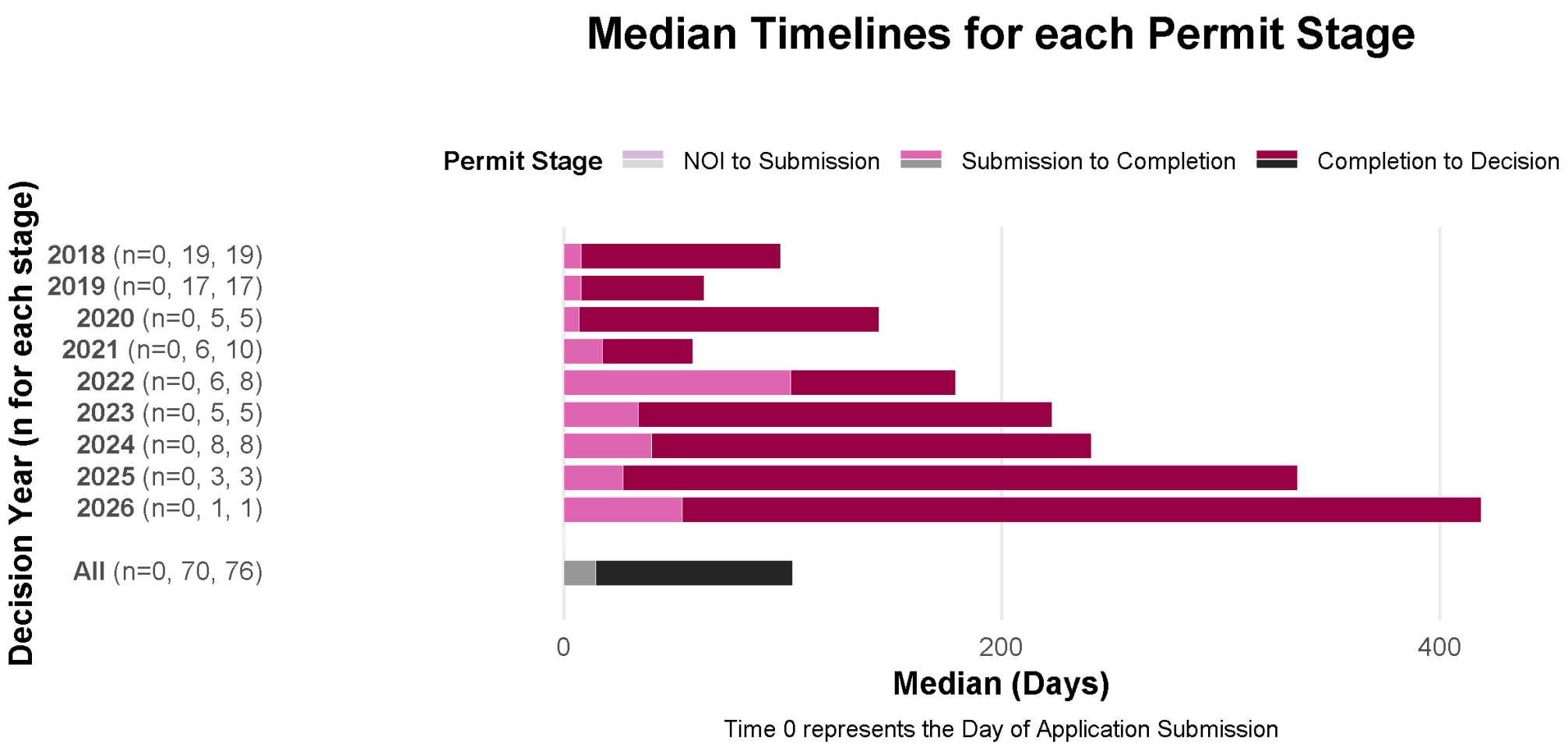


Minimum n: 2 projects

Median Permit Stage Timelines by Permit Decision Year: State AHJs

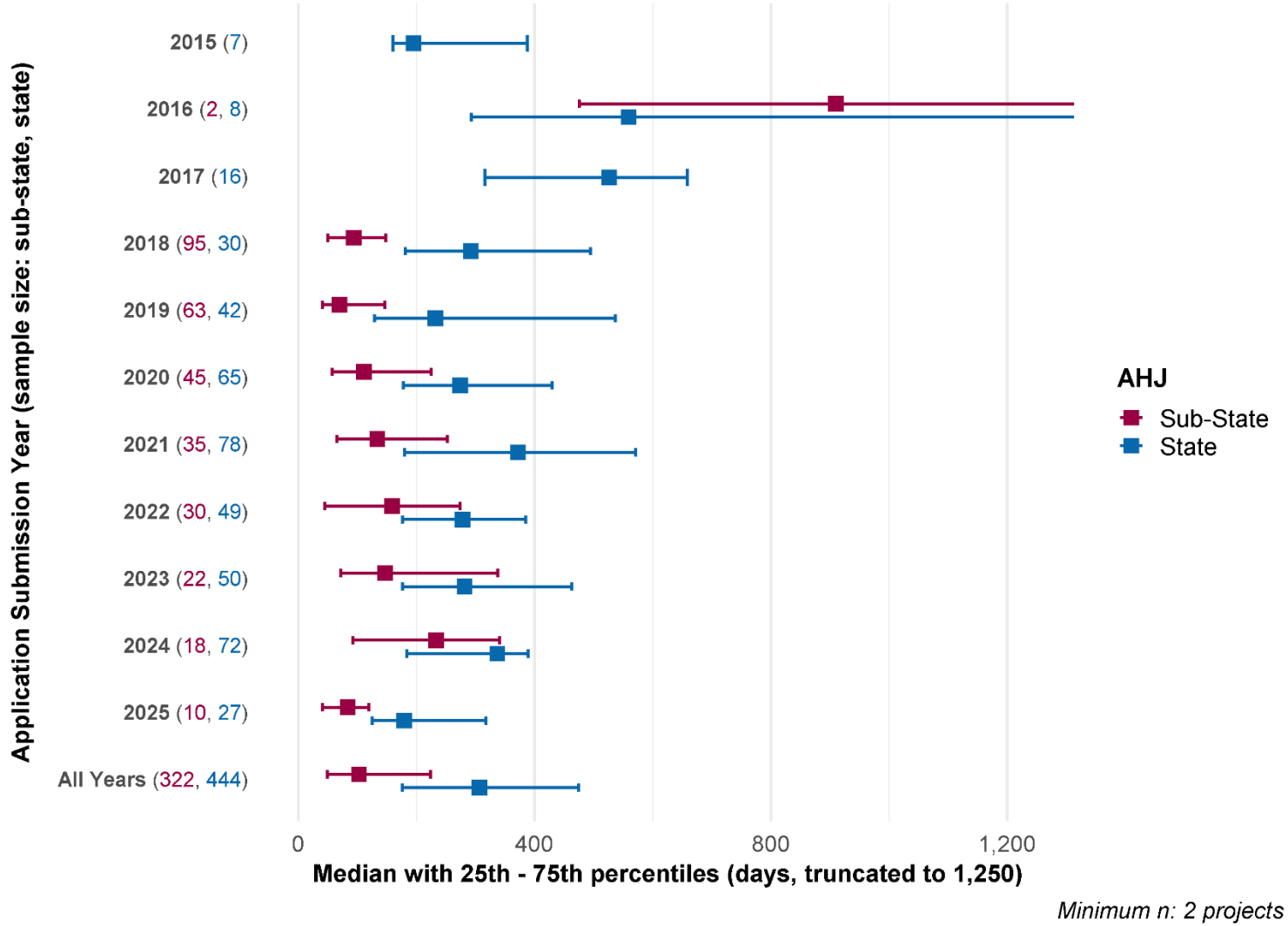


Median Permit Stage Timelines by Permit Decision Year: Sub-State AHJs



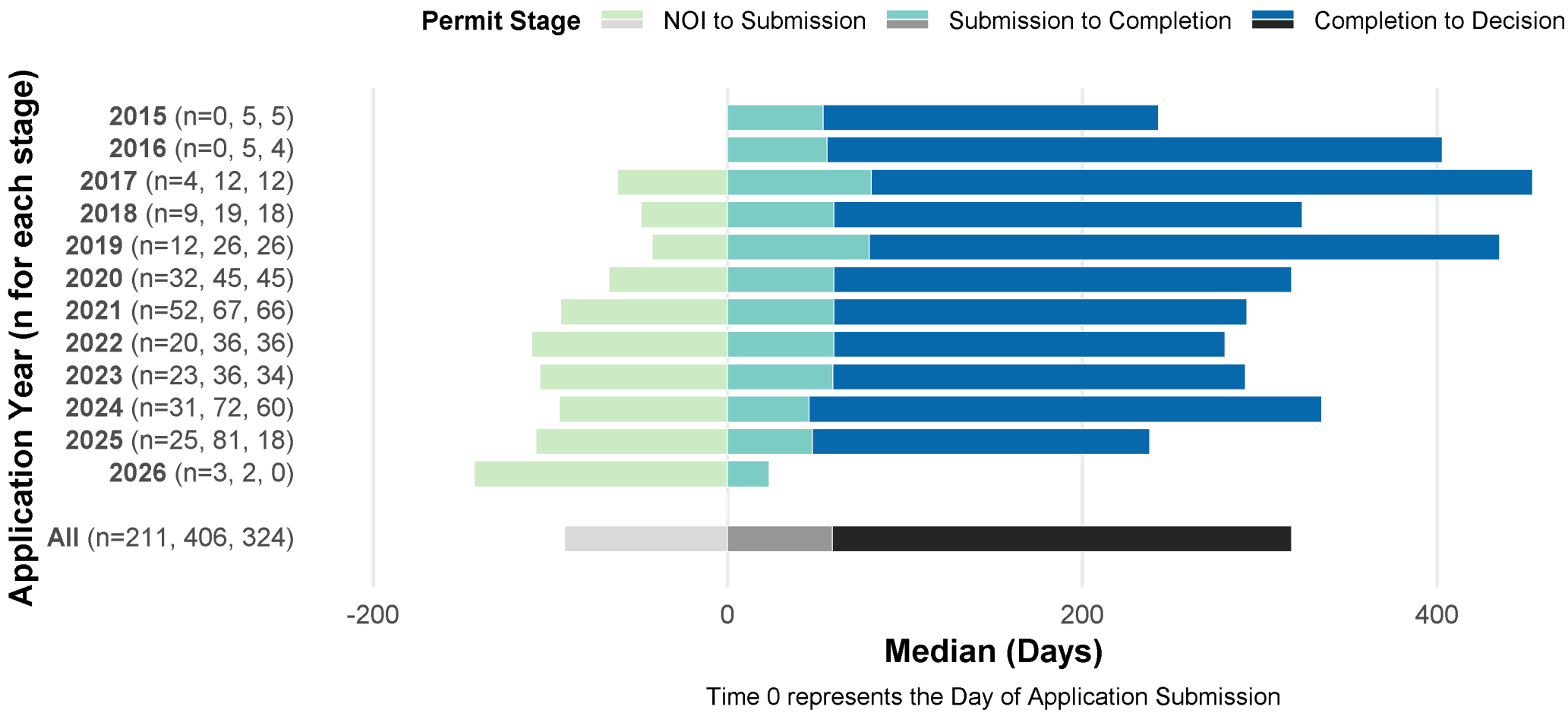
Permit Decision Time by Application Submission Year

(All data)

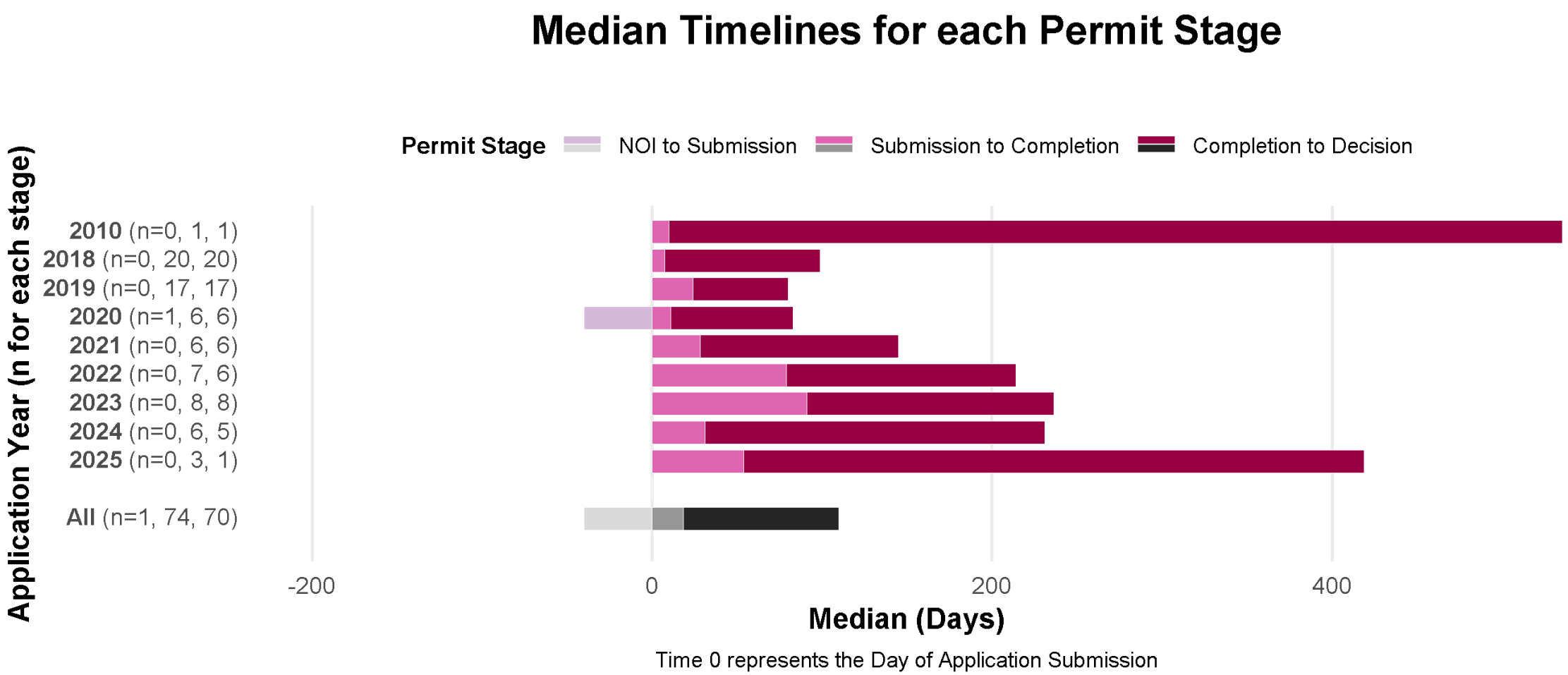


Minimum n: 2 projects

Median Permit Stage Timelines by Permit Application Year: State AHJs

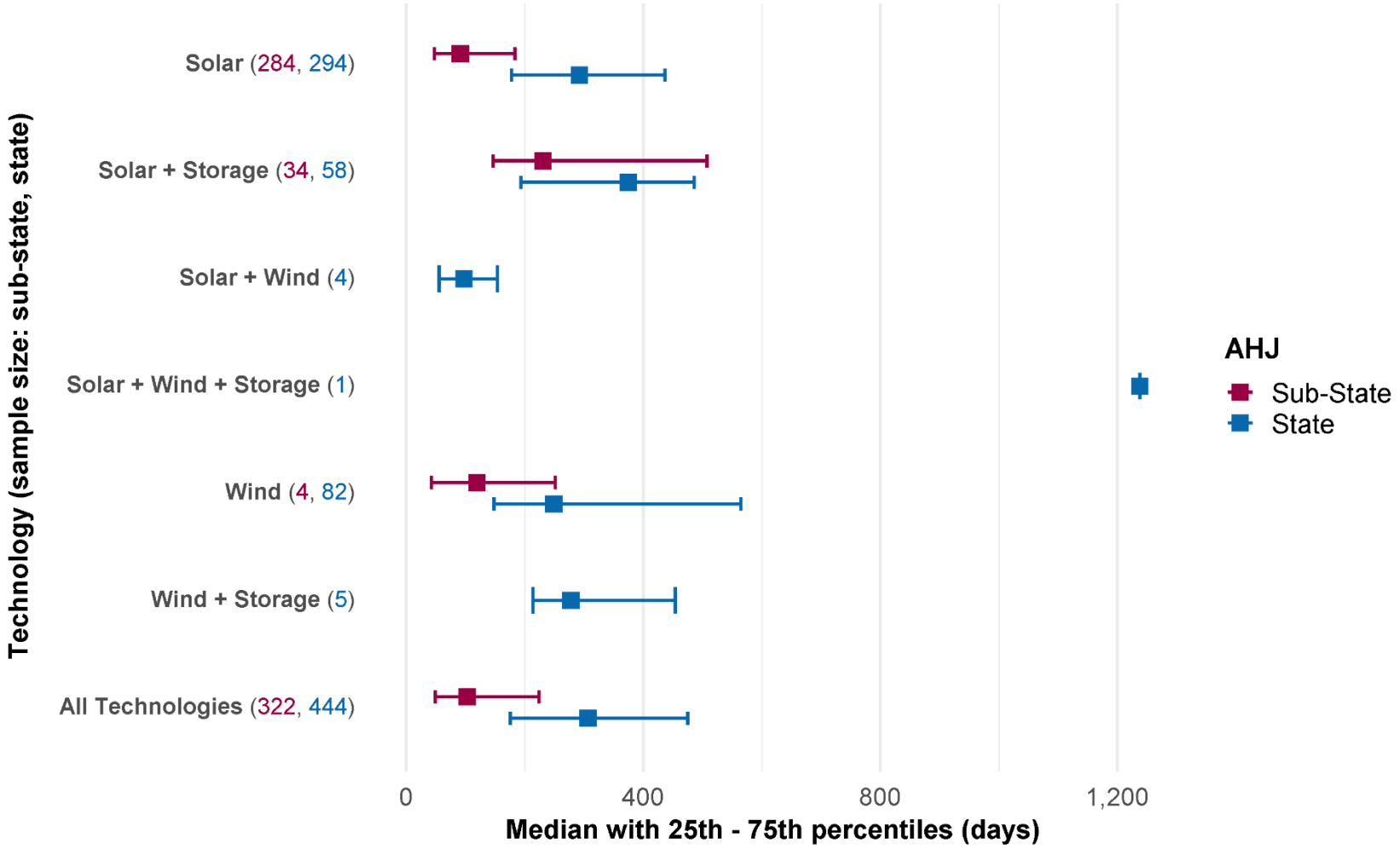


Median Permit Stage Timelines by Permit Application Year: Sub-State AHJs

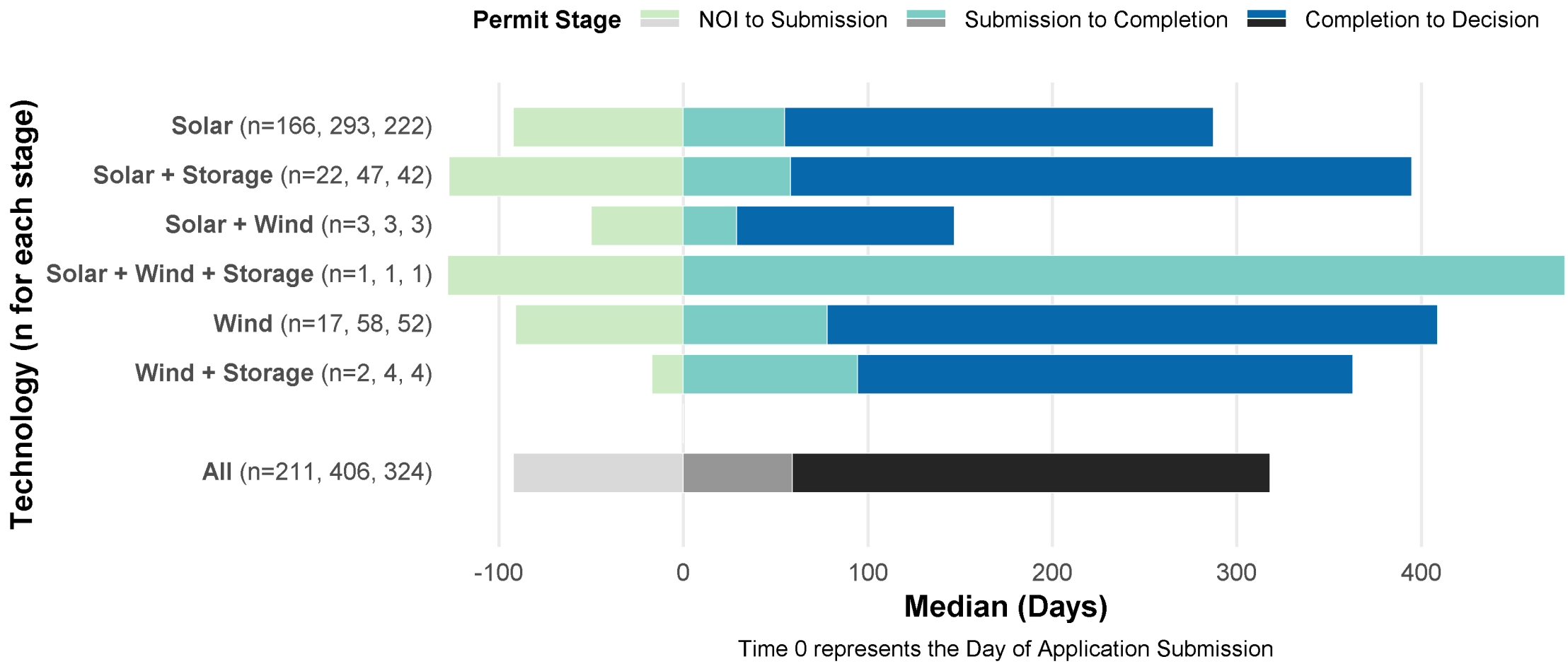


Permit Decision Time by Technology

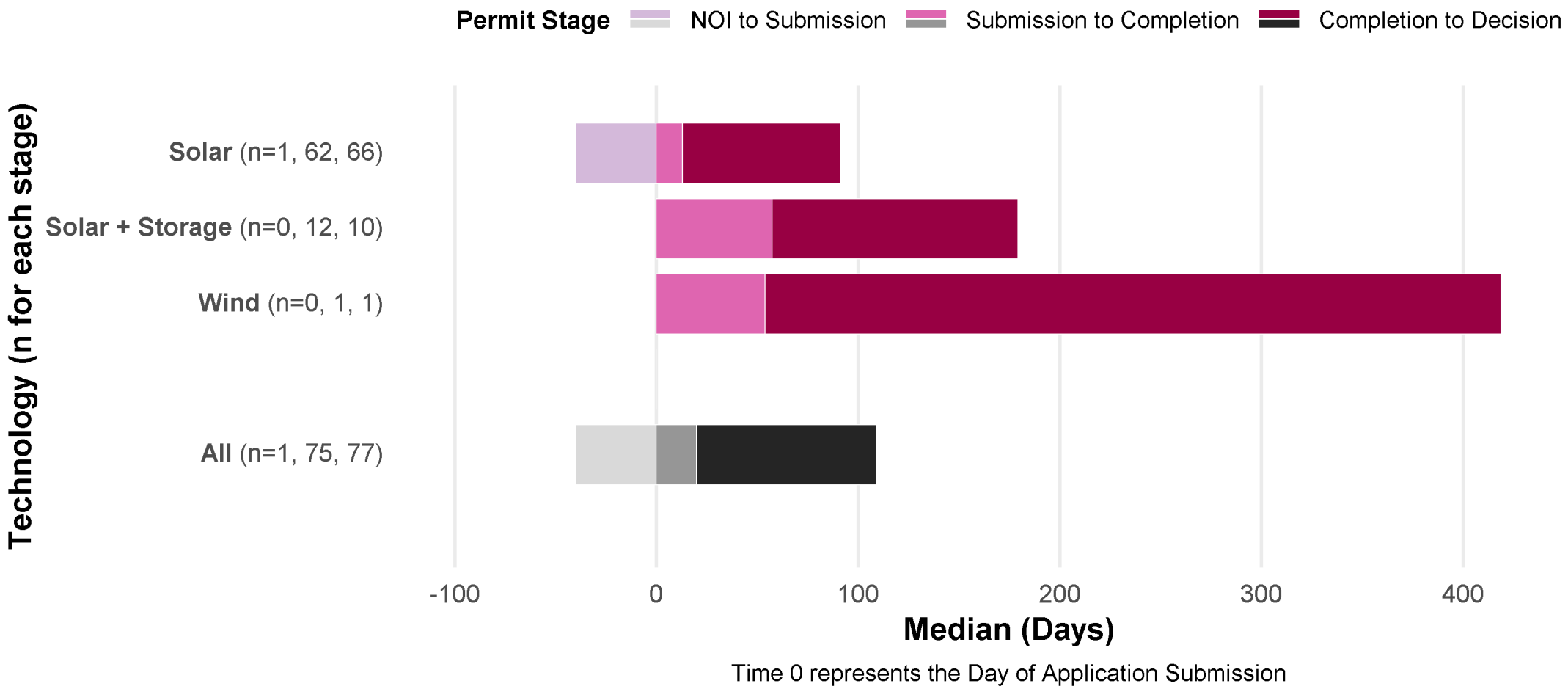
(All data)



Median Permit Stage Timelines by Technology: State AHJs

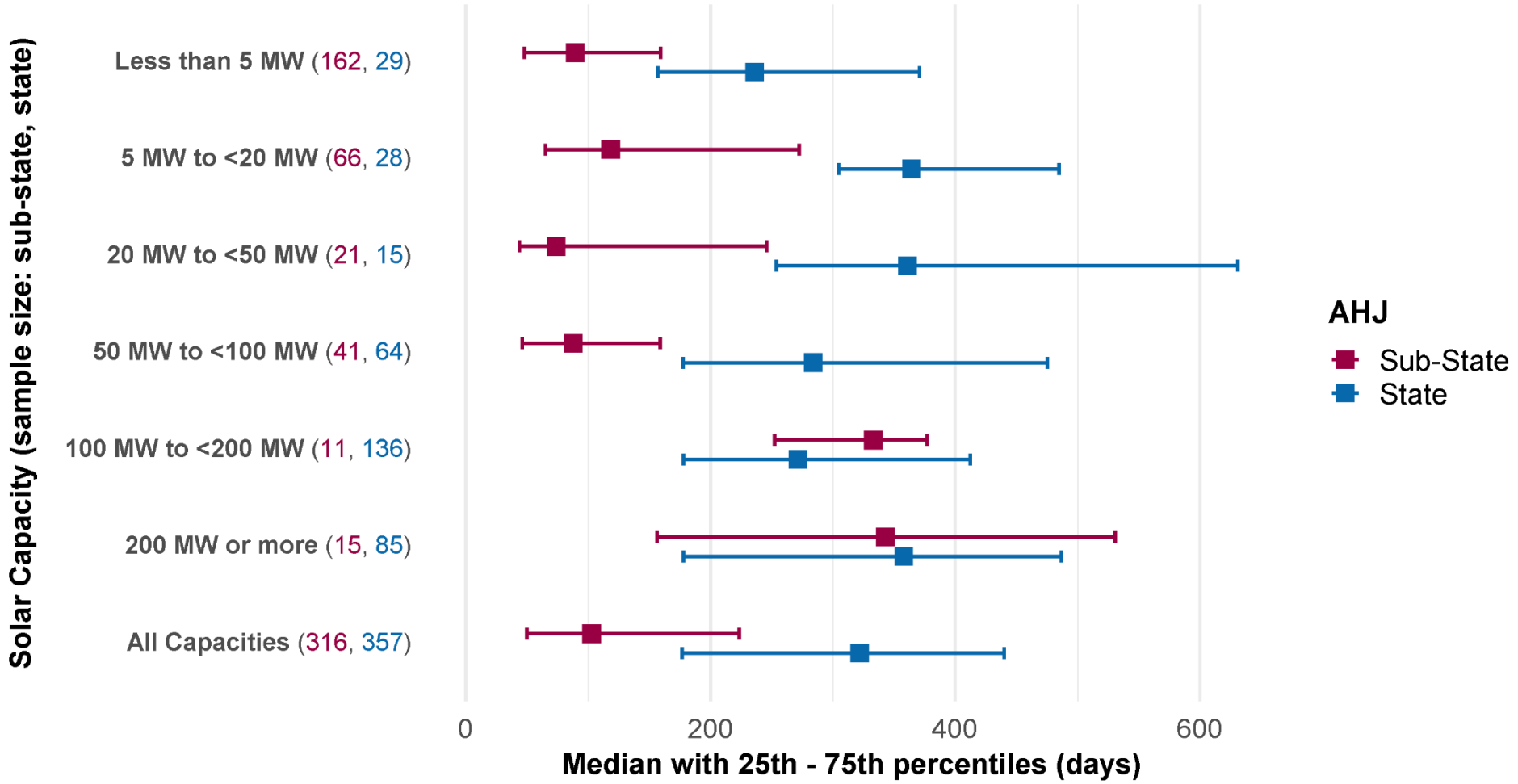


Median Permit Stage Timelines by Technology: Sub-State AHJs

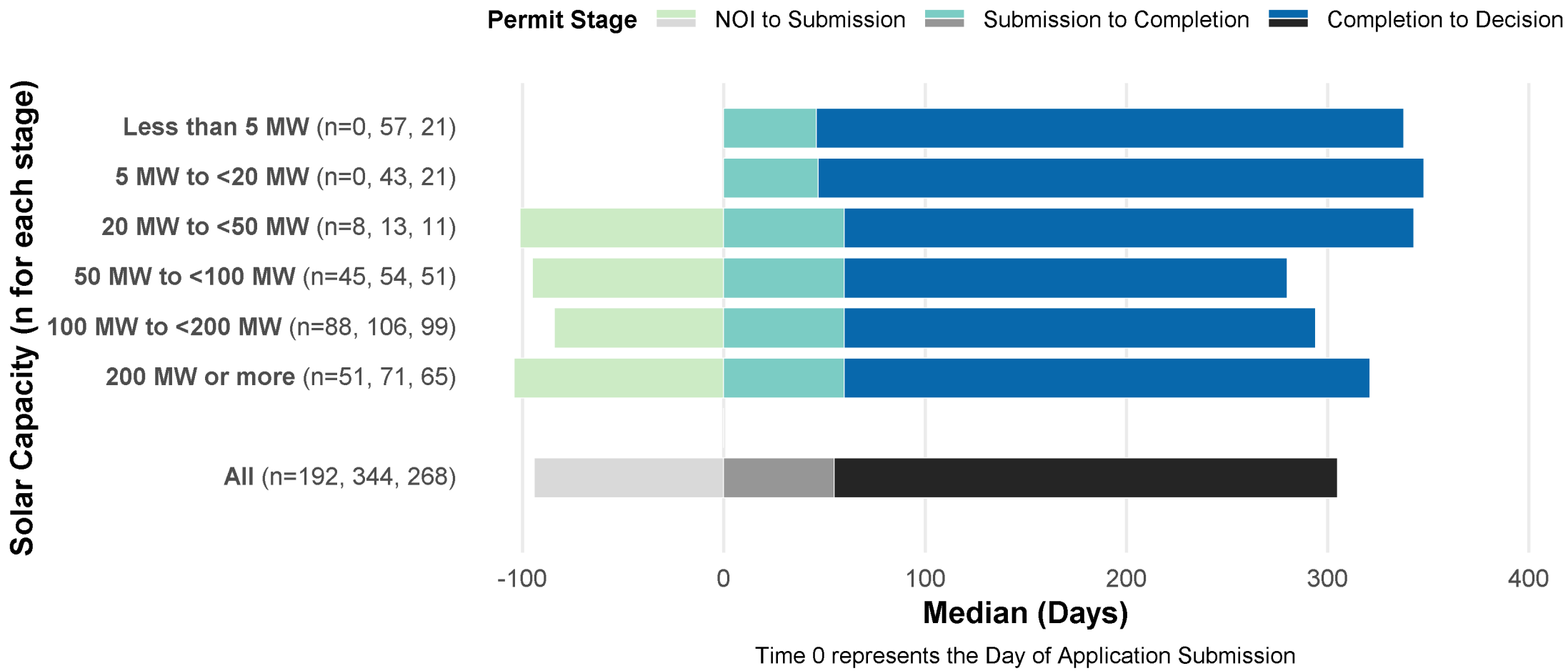


Permit Decision Time by Solar Capacity

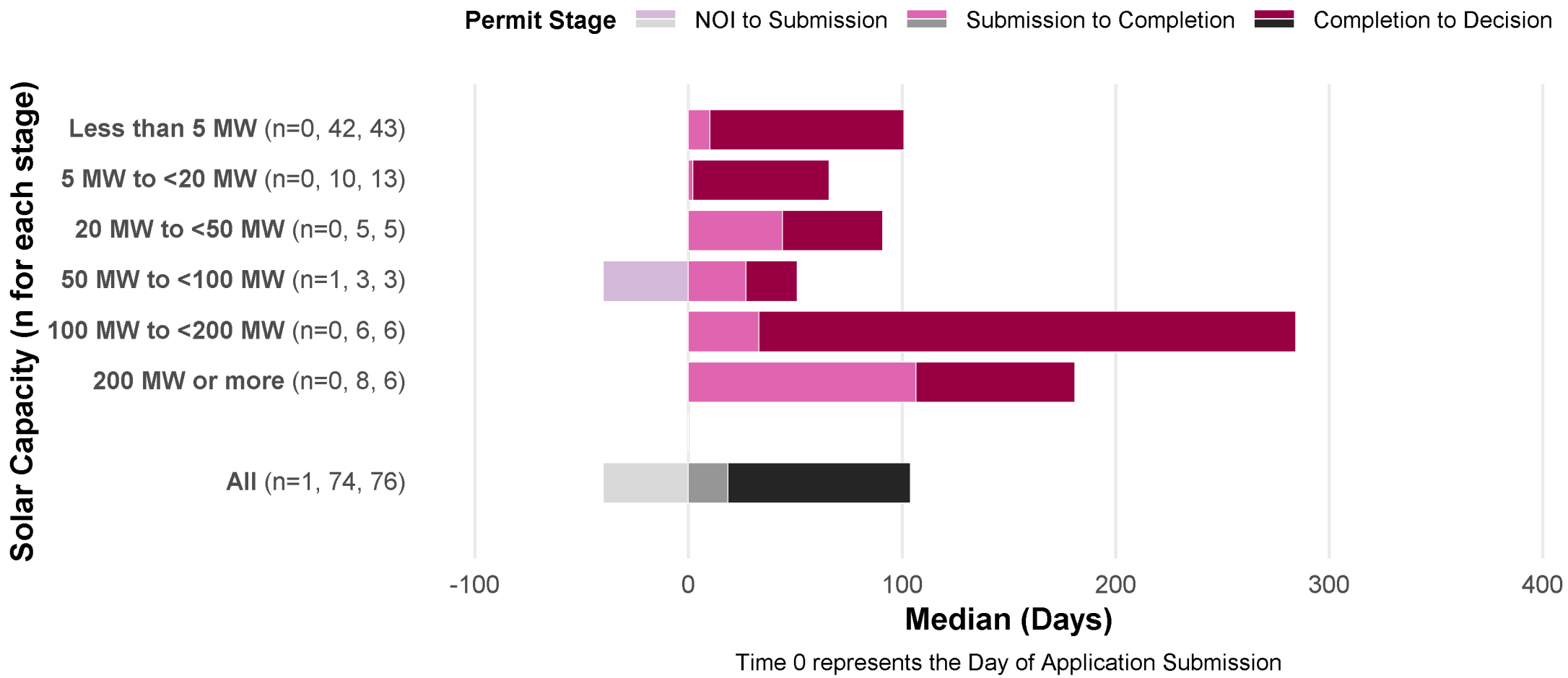
(Solar project data)



Median Permit Stage Timelines by Solar Project Capacity: State AHJs

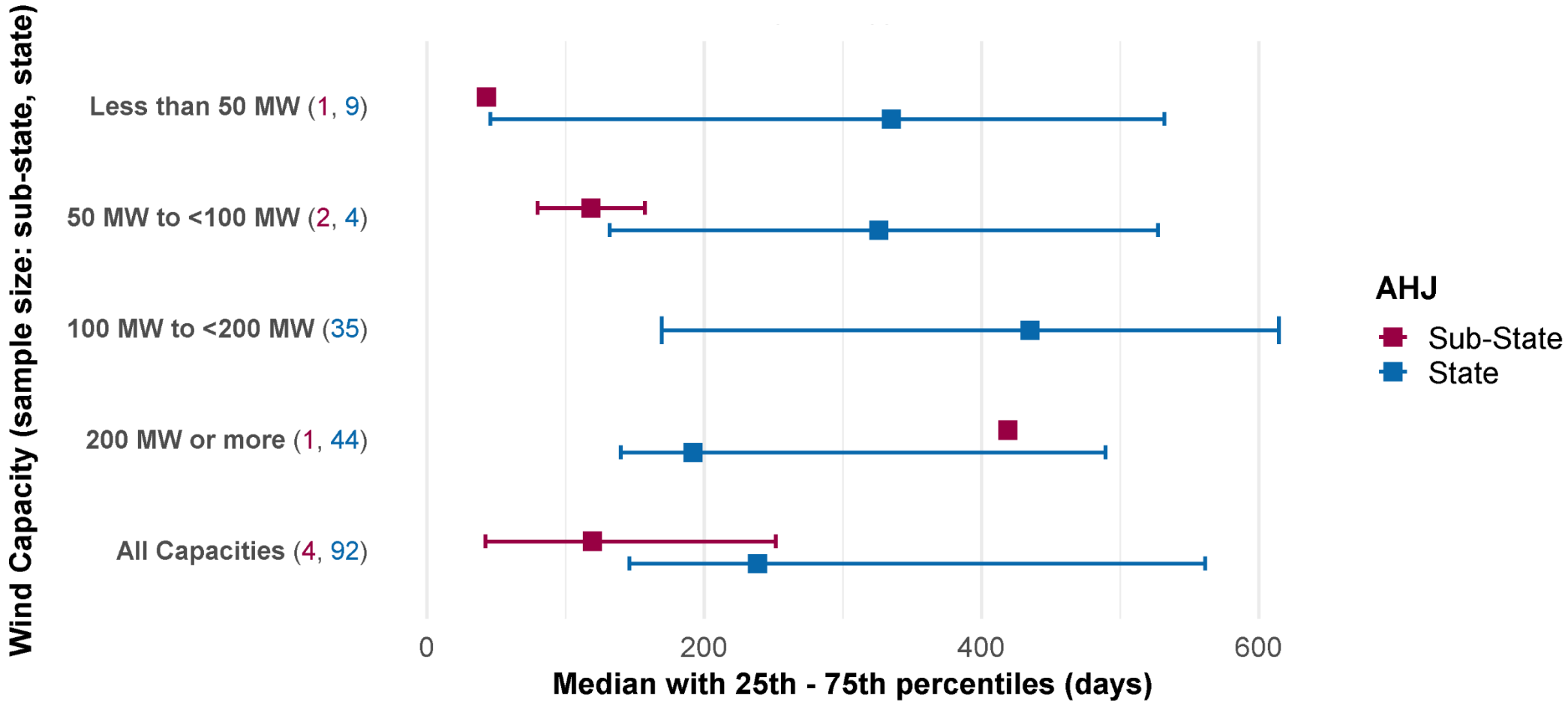


Median Permit Stage Timelines by Solar Project Capacity: Sub-State AHJs

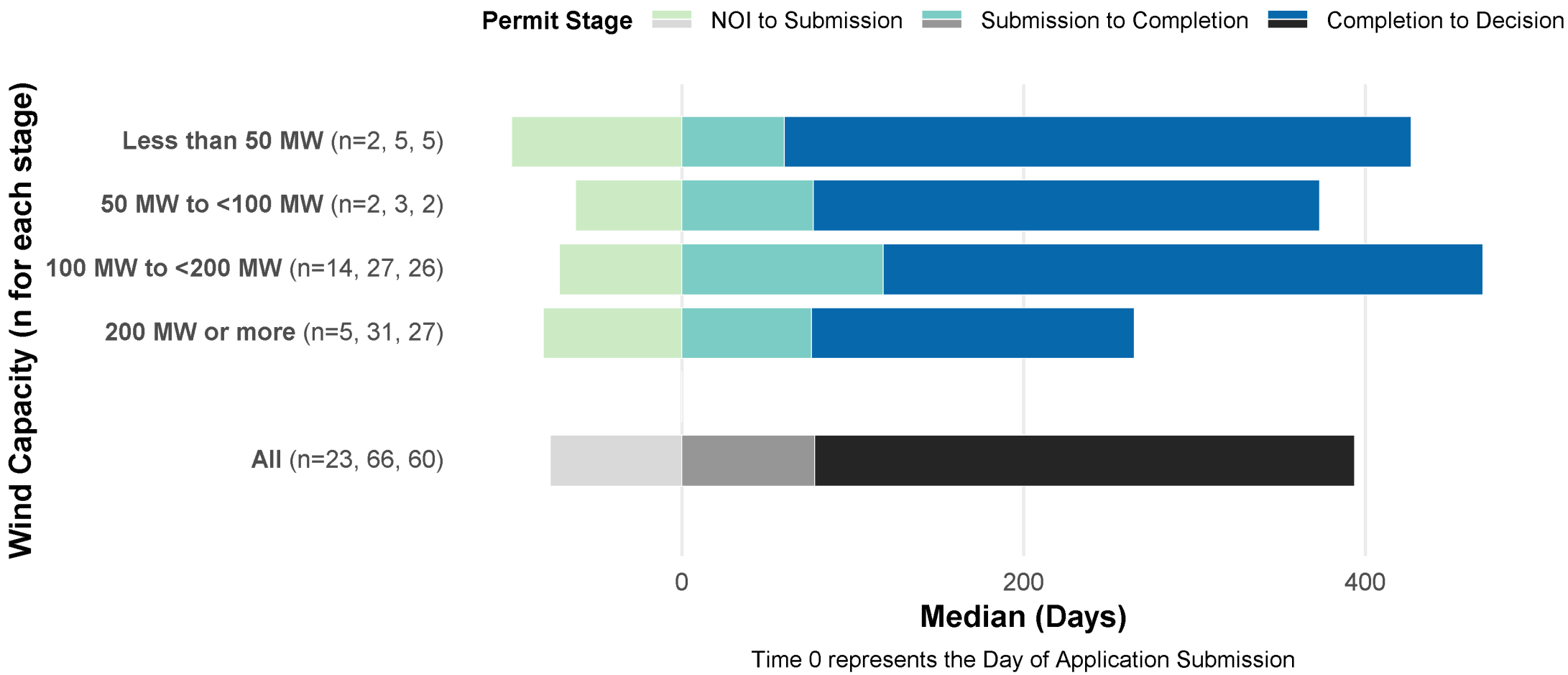


Permit Decision Time by Wind Capacity

(Wind project data)



Median Permit Stage Timelines by Wind Project Capacity: State AHJs



Median Permit Stage Timelines by Wind Project Capacity: Sub-State AHJs

