WestConnect 2011 Annual Transmission Plan Meeting

Centennial West Clean Line

November 2011

CLEAN LINE ENERGY PARTNERS

Introduction to Clean Line Energy

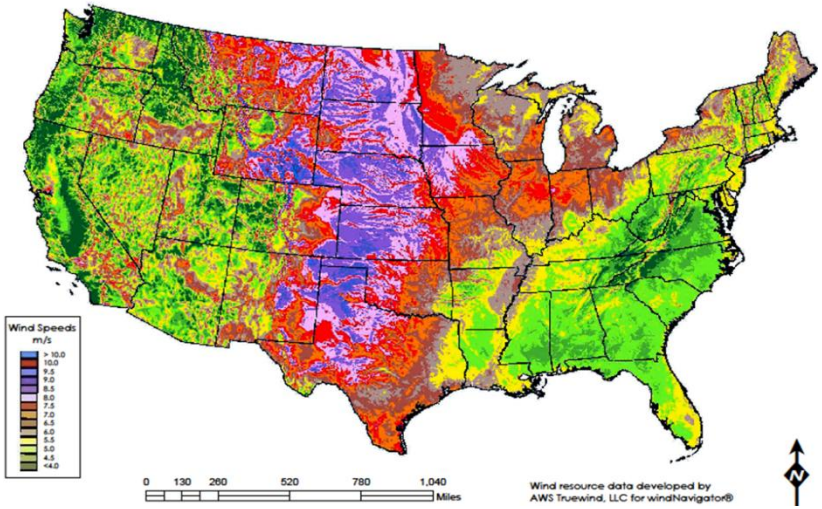
Connecting Renewable Energy to Demand

- Clean Line is an independent developer solely focused on building transmission lines.
- Clean Line is backed by investors with a long-term outlook and patient capital.
- Clean Line's management team brings a track record of success in energy project development.

Integrating large clean energy sources with demand centers

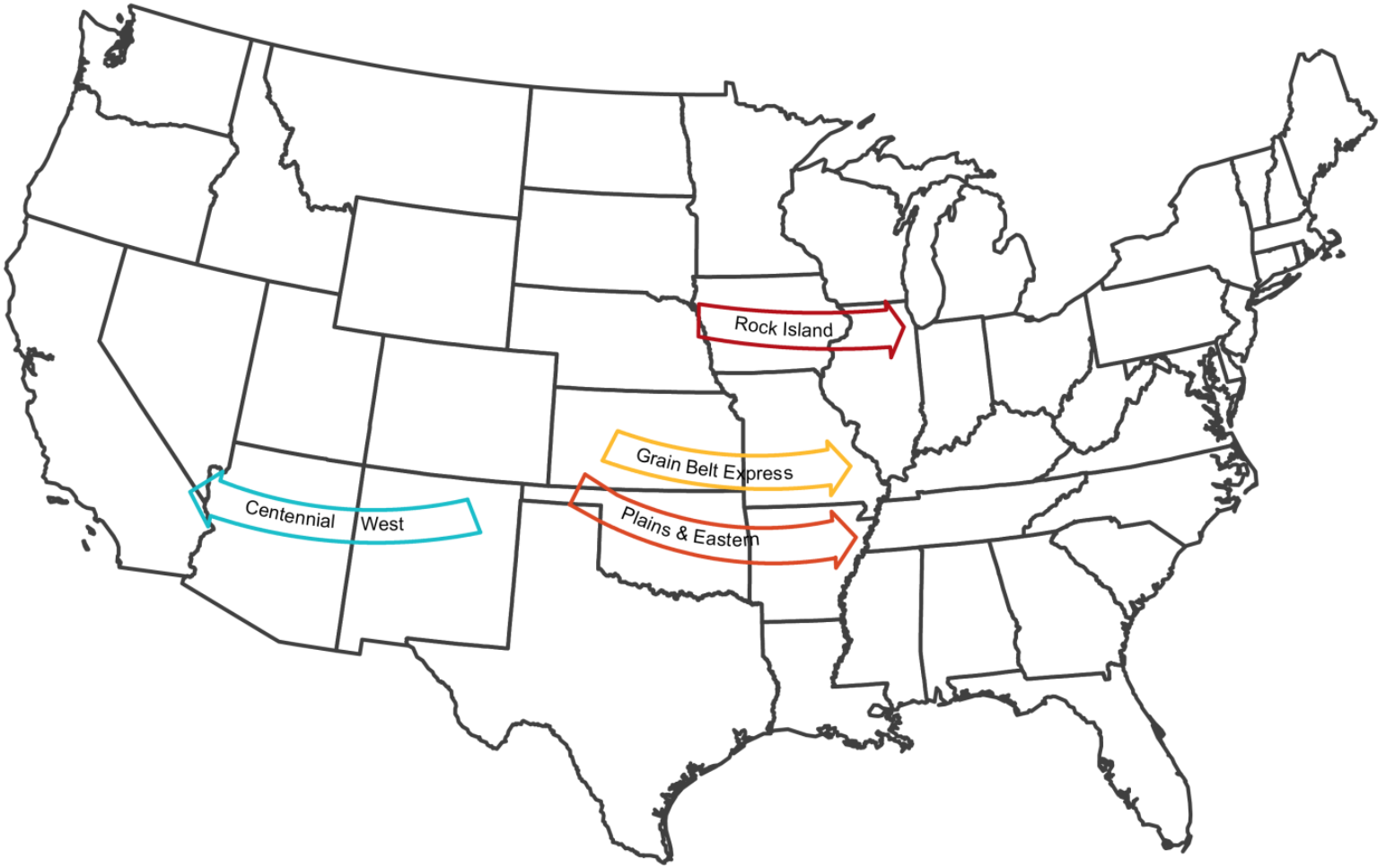
Why do we need transmission?

Best wind resources are in the central spine of the United States away from distant population centers



…and with limited access to robust transmission systems

Clean Line's four projects can bring 17+ GW of wind power to market

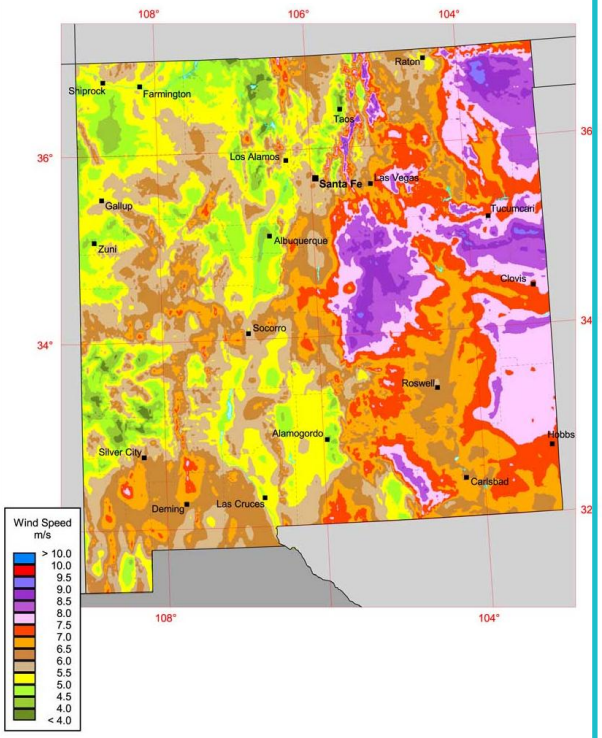


Centennial West Clean Line will transmit 3500 MW of New Mexico renewable power to California

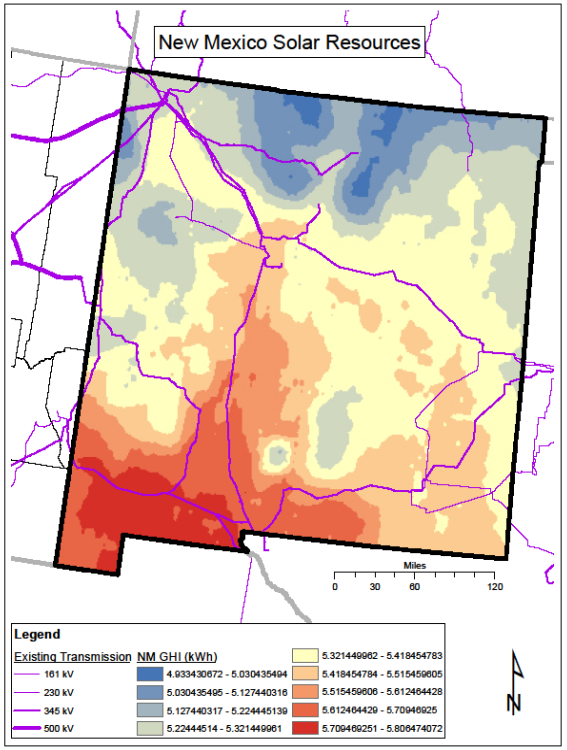
Project Specifications	
Transmission Capacity	3,500 MW
Technical Configuration	±600 kV DC bipole transmission line
Approximate Length	900 miles
Target Utilization Rate	50+%
Approximate Capital Cost	$2.5 billion

Centennial West will use exceptional Southwest renewable resources

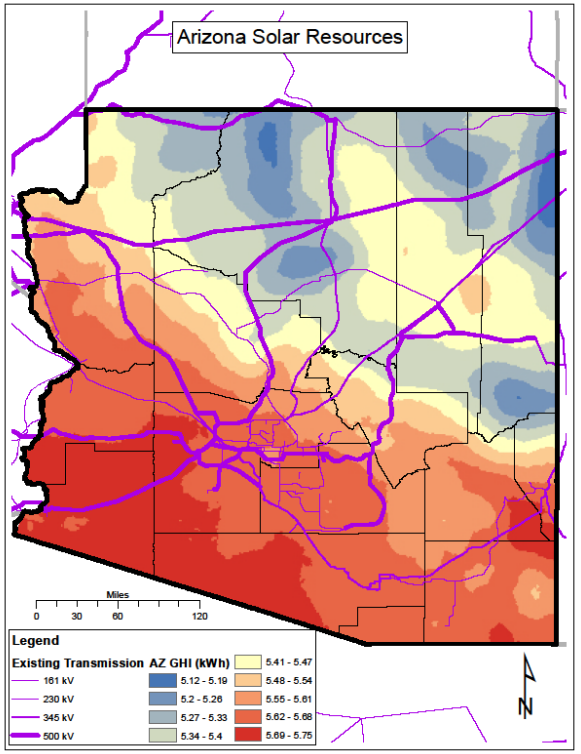
New Mexico Wind



New Mexico Solar



Arizona Solar



Source: AWS Truewind, NREL

Centennial West Clean Line Results in Significant Benefits

ECONOMIC BENEFITS

500+

OPERATIONS JOBS

5,000+

CONSTRUCTION JOBS

$7 BILLION

NEW WIND FARM INVESTMENTS

PROPERTY TAX REVENUE

MILLIONS PER YEAR

PROPERTY TAX REVENUE

1.9 MILLION PER YEAR

HOMES POWERED

INCREASED MARKET COMPETITION

CONSUMER BENEFITS

Centennial West Clean Line Results in Significant Benefits

ENVIRONMENTAL BENEFITS

CARBON DIOXIDE POLLUTION REDUCTION

5 MILLION TONS
(EQUAL TO TAKING 960,000 CARS OFF THE ROAD EACH YEAR)

WATER USE REDUCTION

OVER 2.8 BILLION GALLONS PER YEAR

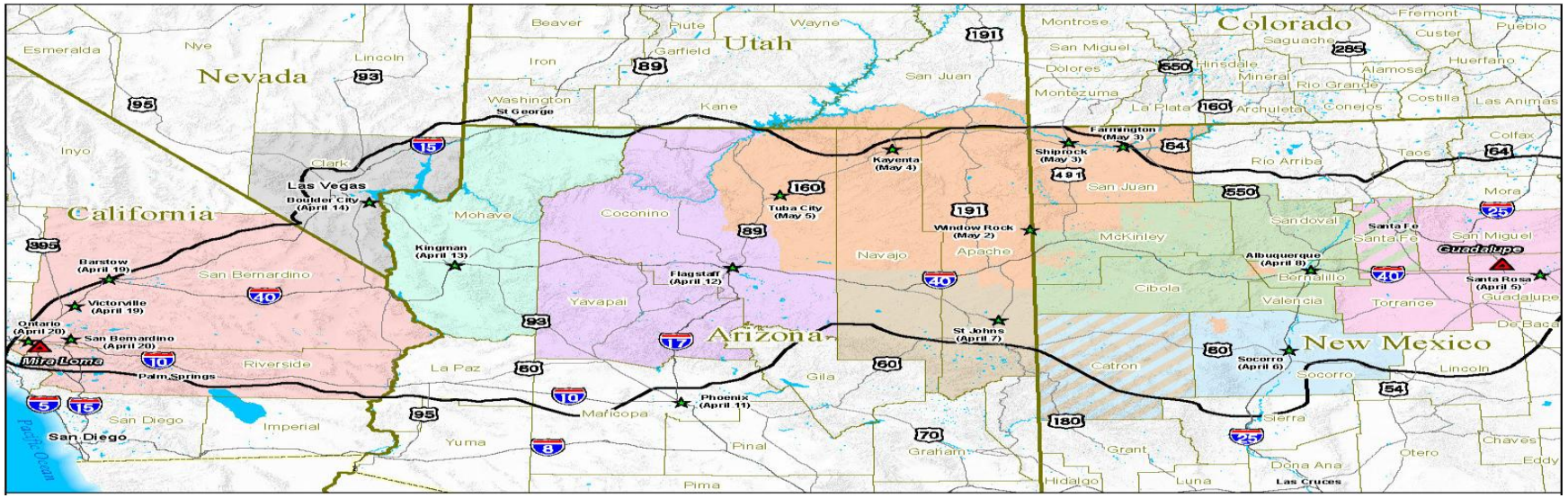
NITROGEN OXIDE POLLUTION REDUCTION

2,800 TONS PER YEAR
(NITROGEN OXIDE CONTRIBUTES TO SMOG)

Centennial West is conducting extensive public outreach

Community Leader Workshops, April - May 2011.

- Held 18 community leader workshops in four states and two tribal nations to gather information about local routing opportunities and constraints. Over 150 local leaders attended.
- Working with tribes on land use options and have signed an MOU with the Navajo Nation's Diné Power Authority
- Continuing to meet with and seek input from State and Federal regulators, environmental groups, elected officials, and potential suppliers



Interconnection and engineering options are undergoing systematic analysis

- Working with environmental groups and regional transmission planning efforts like the WECC Environmental Data Task Force to receive information on sensitive areas
- Completed feasibility study with PNM on HVDC and VSC options
- Participating in Western Electricity Coordinating Council stakeholder meetings
  - Studied in WECC 10 and 20 year plans
- WECC Path rating process is underway
  - Project Review Coordination Group Report completed and Centennial is now in Phase 1
- CAISO interconnection request filing in March 2012

Routing and permitting process is proceeding deliberately and carefully

- Submitted Right-Of-Way Application (SF-299) and Preliminary Plan of Development to Bureau of Land Management and to the U.S. Forest Service
- Conducting NEPA coordination with national BLM and USFS project manager
- Signed preliminary MOU, and working on development agreement, with Western Area Power Administration
- Signed MOU with New Mexico Renewable Energy Transmission Agency and cooperating on efforts to site line in New Mexico
- NEPA public scoping meetings anticipated in mid 2012

Diversity in a renewables generation portfolio is important for three key reasons

Scale of Need

The enormous scale of California's renewables requirement will require the use of multiple renewables sources

Technological Diversification

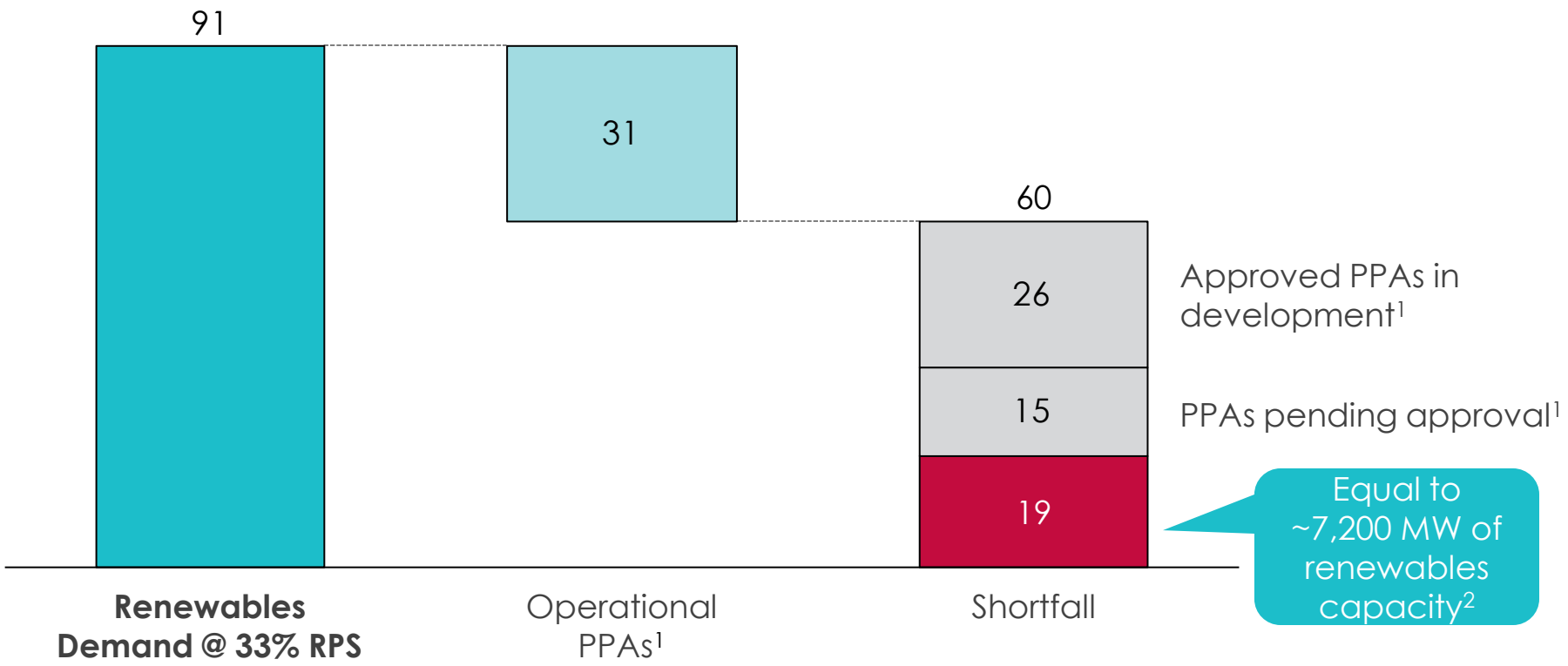
Different renewables technologies complement each other in terms of their power output profile

Geographical Diversification

Creates a geographically diversified portfolio reducing the occurrence of extreme changes in power output and smoothing seasonal effects across locations

The vast scale of California renewables demand by 2020 necessitates a mix of renewables supply

2020 California Renewable Power Supply-Demand
TWh/year

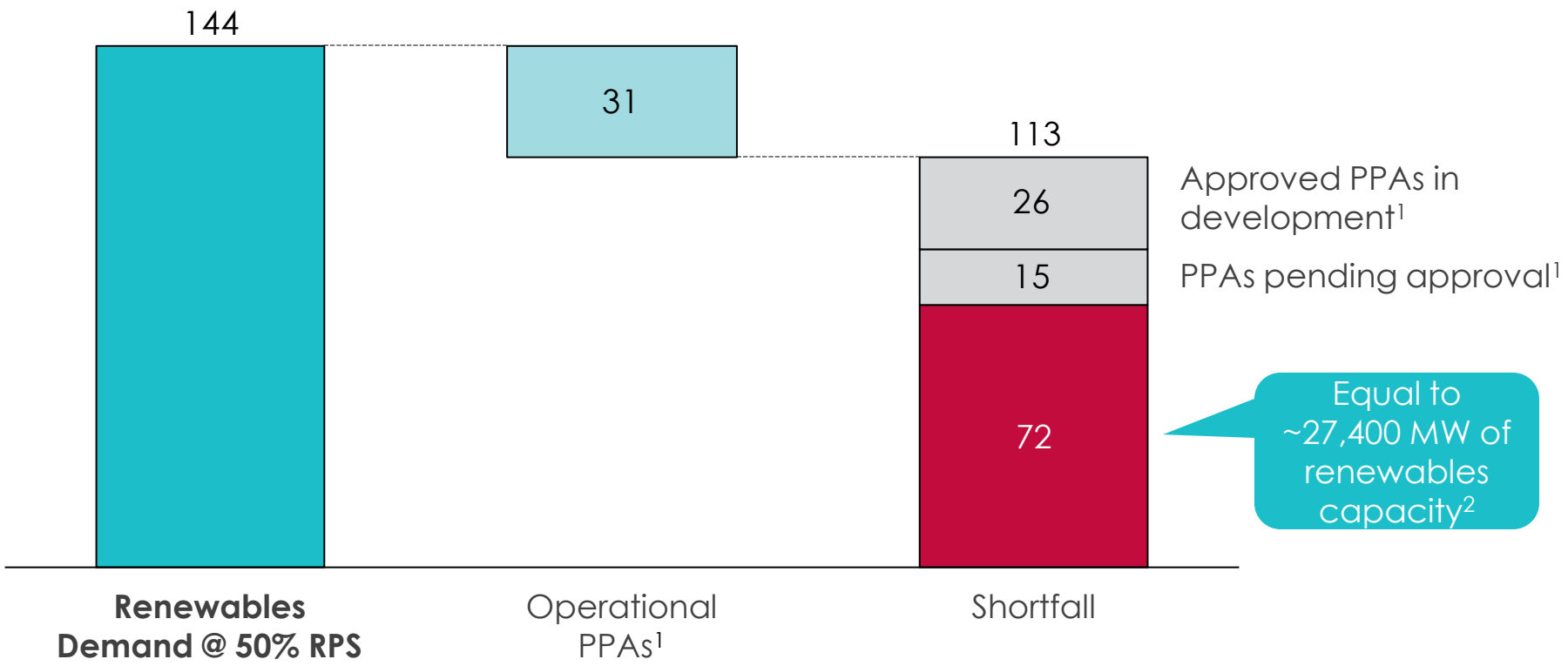


1. IOU contracts from CPUC's PPA list (as of April 2011) and muni contracts from LADWP, SCPPA, and SMUD's annual reports
2. Assuming a 30% capacity factor for renewables

Source: EIA; EIA AEO 2011; CPUC; LADWP; SCPPA; SMUD

A 50% RPS target by 2025 could make California's renewables shortfall even larger

2025 California Renewable Power Supply-Demand
TWh/year



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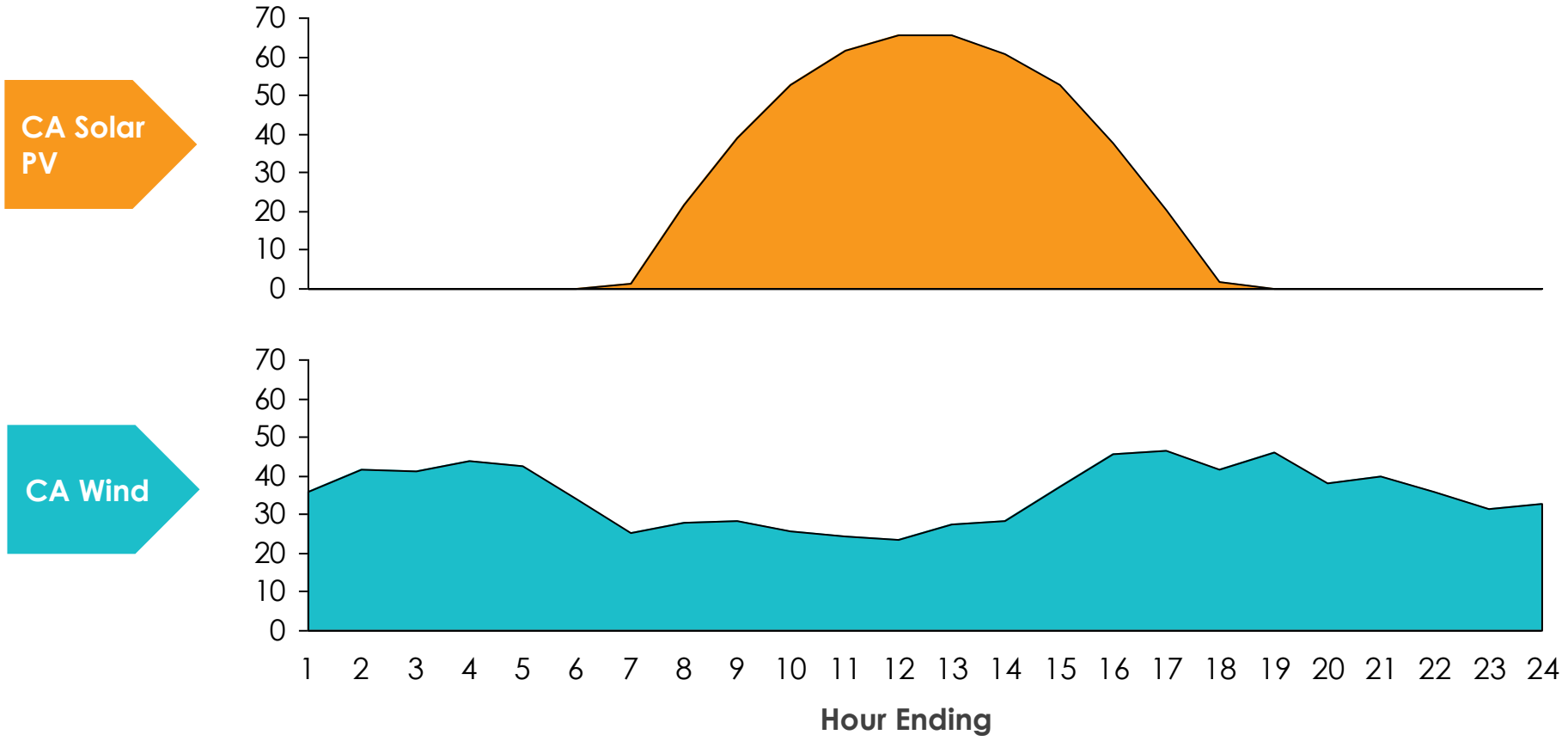
Source: EIA; EIA AEO 2011; CPUC; LADWP; SCPPA; SMUD

Solar and wind technologies generate power at different times of the day…

Power Output for Typical California August Day[1]
Percent of nameplate capacity

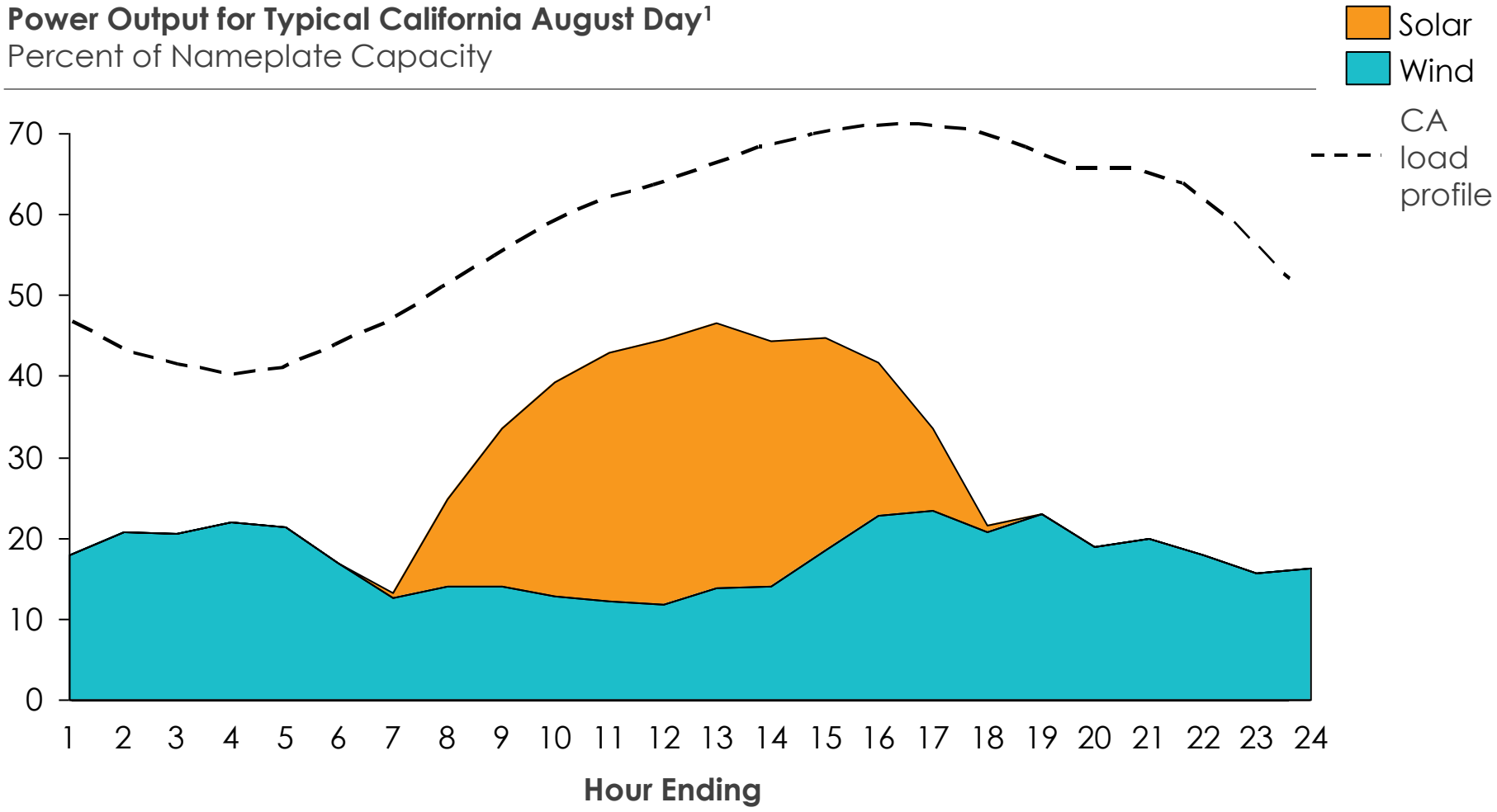


1. Eastern NM wind. Solar output based on Typical Meteorological Year data; Wind output based on 2009 data derived from V-Bar models.

Source: NREL PVWatts; V-BAR

…and their combination offers more consistent power output across the day

Power Output for Typical California August Day[1]
Percent of Nameplate Capacity

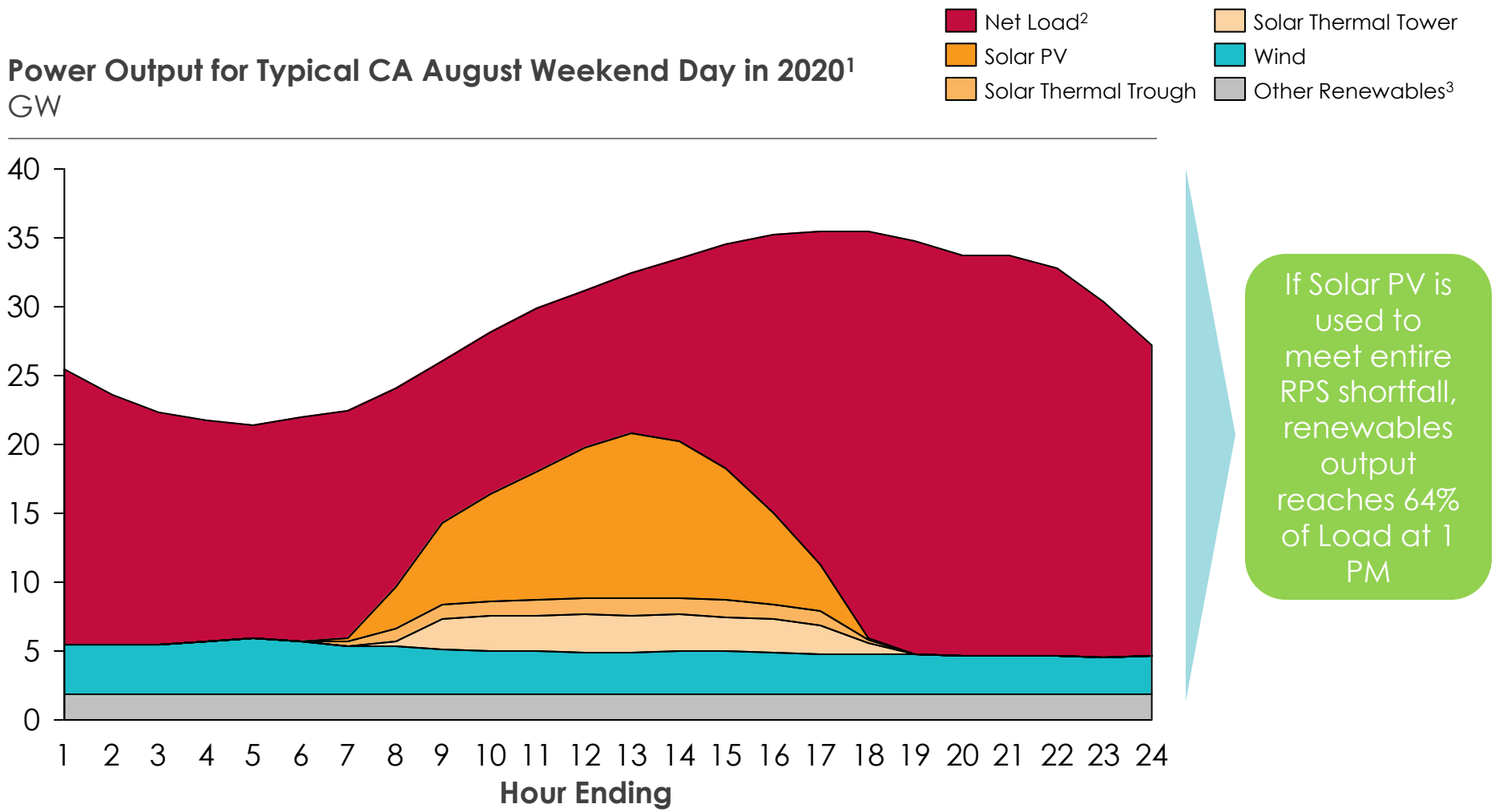


1. Assuming equal nameplate capacity for solar and wind

Source: NREL PVWatts; V-BAR

Excessive reliance on solar to meet CA's RPS could lead to high renewables penetration rates during peak hours

Power Output for Typical CA August Weekend Day in 2020[1]



If Solar PV is used to meet entire RPS shortfall, renewables output reaches 64% of Load at 1 PM

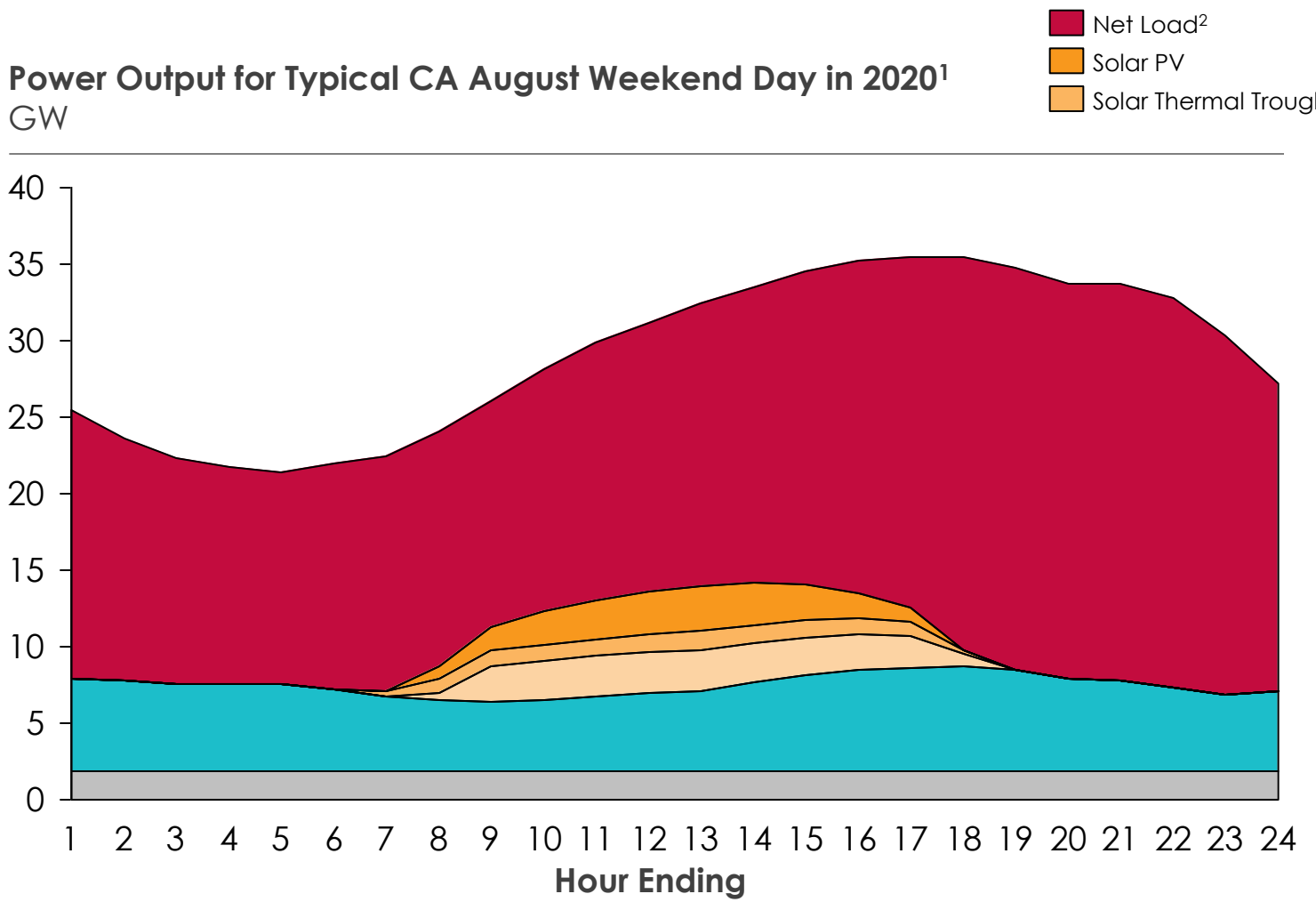
1. Includes all IOU renewables contracts from CPUC and annual reports of major munis. Assumes in-state solar PV capacity to meet renewables requirement to reach 33% RPS
2. Excludes baseload nuclear generation
3. Includes biogas, biomass, geothermal and small hydro

Source: EIA; CPUC; NREL System Advisor Model

Relying on wind to address CA's RPS gap could lead to more stable renewables generation output

Power Output for Typical CA August Weekend Day in 2020[1]

GW



Relying on wind to meet RPS shortfall leads to load penetration of 44% at noon

1. Includes all IOU renewables contracts from CPUC and annual reports of major munis. Assumes CA (Tehachapi) wind capacity to meet renewables requirement to reach 33% RPS
2. Excludes baseload nuclear generation
3. Includes biogas, biomass, geothermal and small hydro

Source: EIA; CPUC; NREL System Advisor Model

A geographically diversified portfolio reduces the occurrence of extreme events in generation output

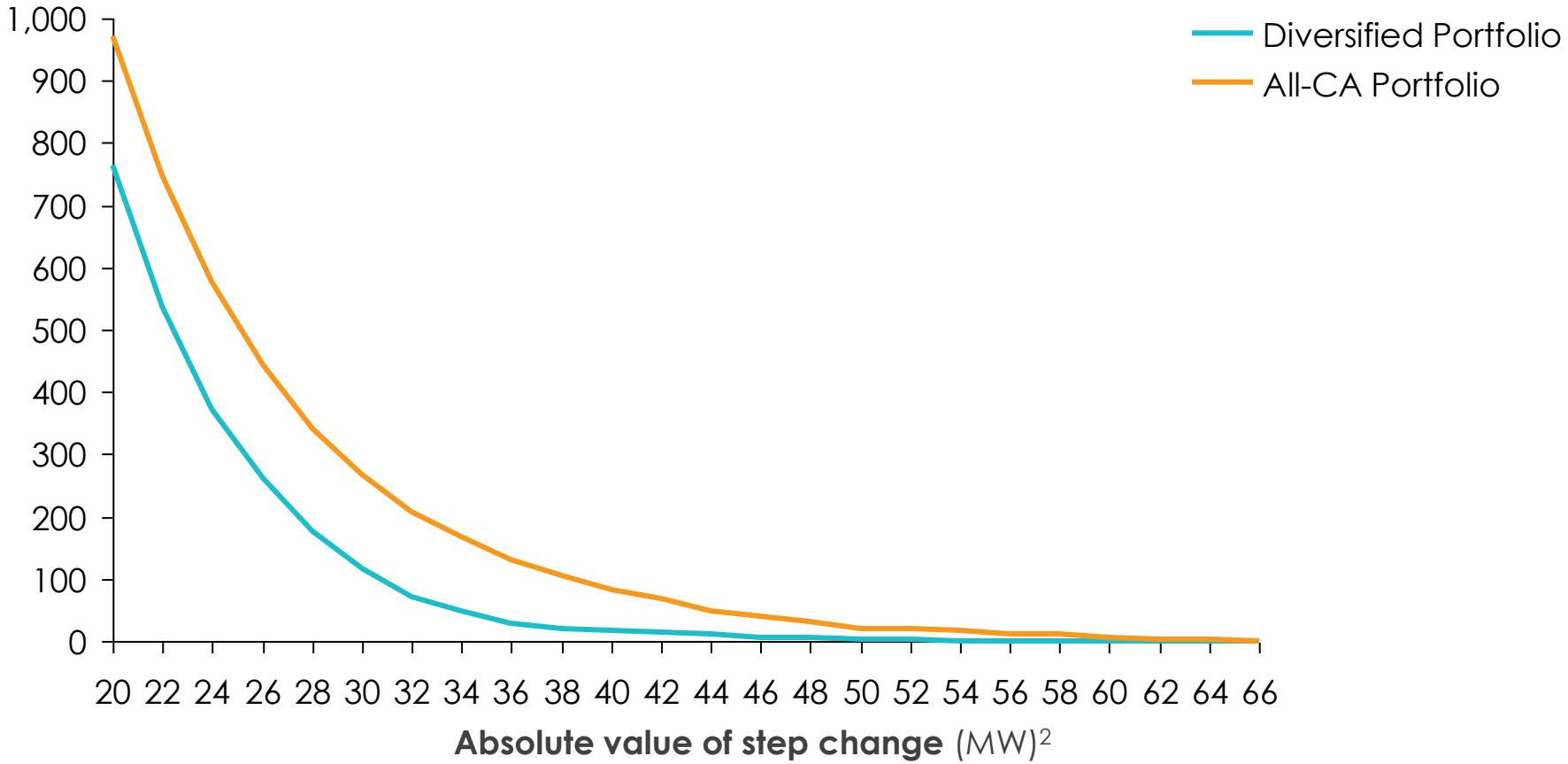
	Diversified Portfolio (CA, NM, WY)	**Undiversified Portfolio** (All 3 CA sites)
Average of hourly changes in output[1] *(Percent of capacity)*	-0.08	-0.17
Extreme Events[1]: *(# of hours in 3-yr period)*		
Up-ramps larger than 33% of capacity[2]	41	132
Down-ramps larger than 33% of capacity[2]	30	76
Maximum up-ramp *(Percent of capacity)*	60.0	73.6
Maximum down-ramp *(Percent of capacity)*	-52.7	-67.8

1. Comparison of generation output (for the years 2004-2006) of a portfolio of 3 wind farms all located in California versus a portfolio of 3 wind farms, with one wind farm each in California, Wyoming and New Mexico
2. Up-ramp: an increase in power output between consecutive hours; Down-ramp: a decrease in power output between consecutive hours

Source: NREL WWSIS study

Geographic diversity of sources reduces the occurrence of extreme changes in generation output

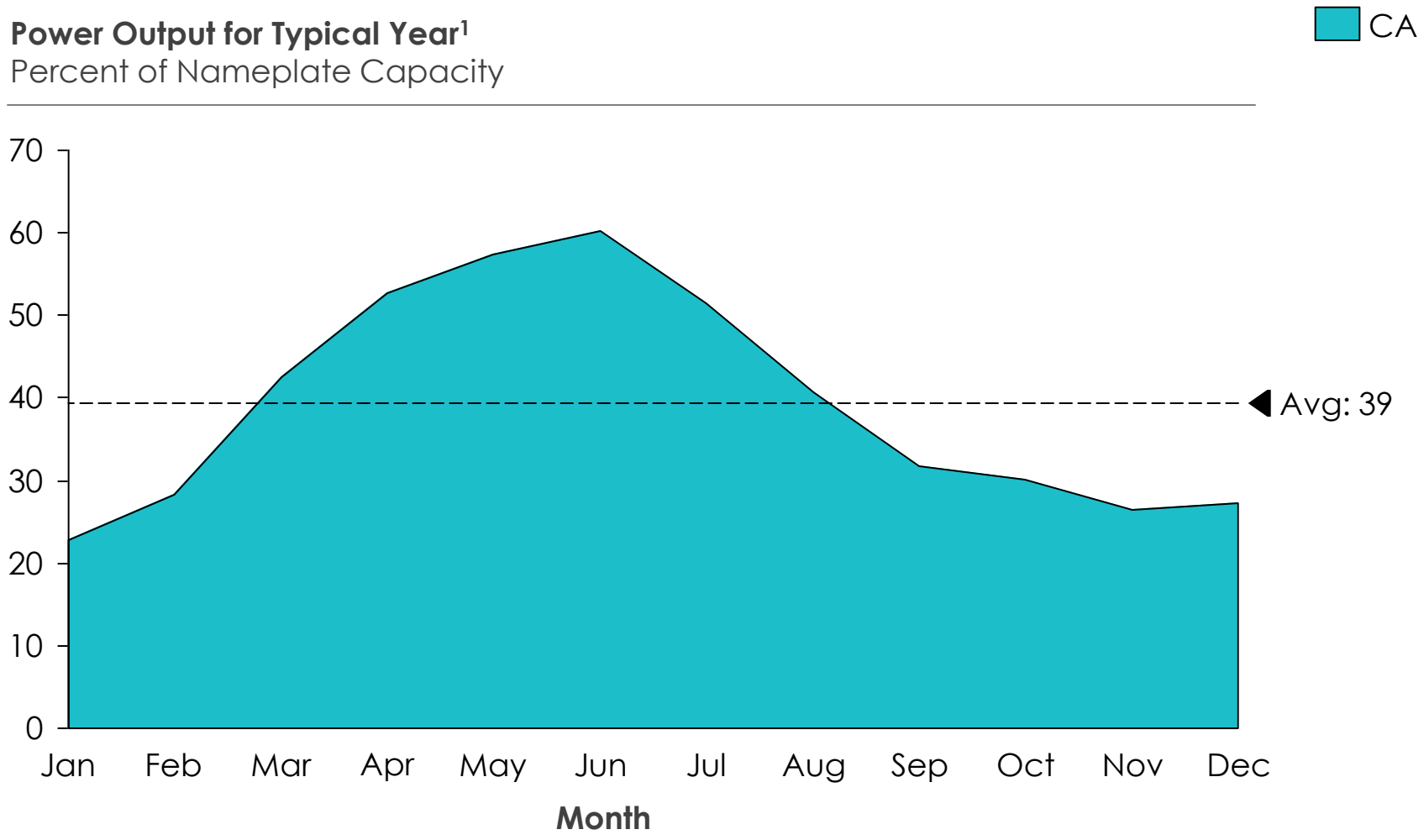
Frequency of Hourly Step Changes[1]
Number of hours



1. Comparison of generation output (for the years 2004-2006) of a portfolio of 3 wind farms all located in California versus a portfolio of 3 wind farms, with one wind farm each in California, Wyoming and New Mexico
2. For a total capacity of 90 MW (30 MW per wind farm)

Source: NREL WWSIS study

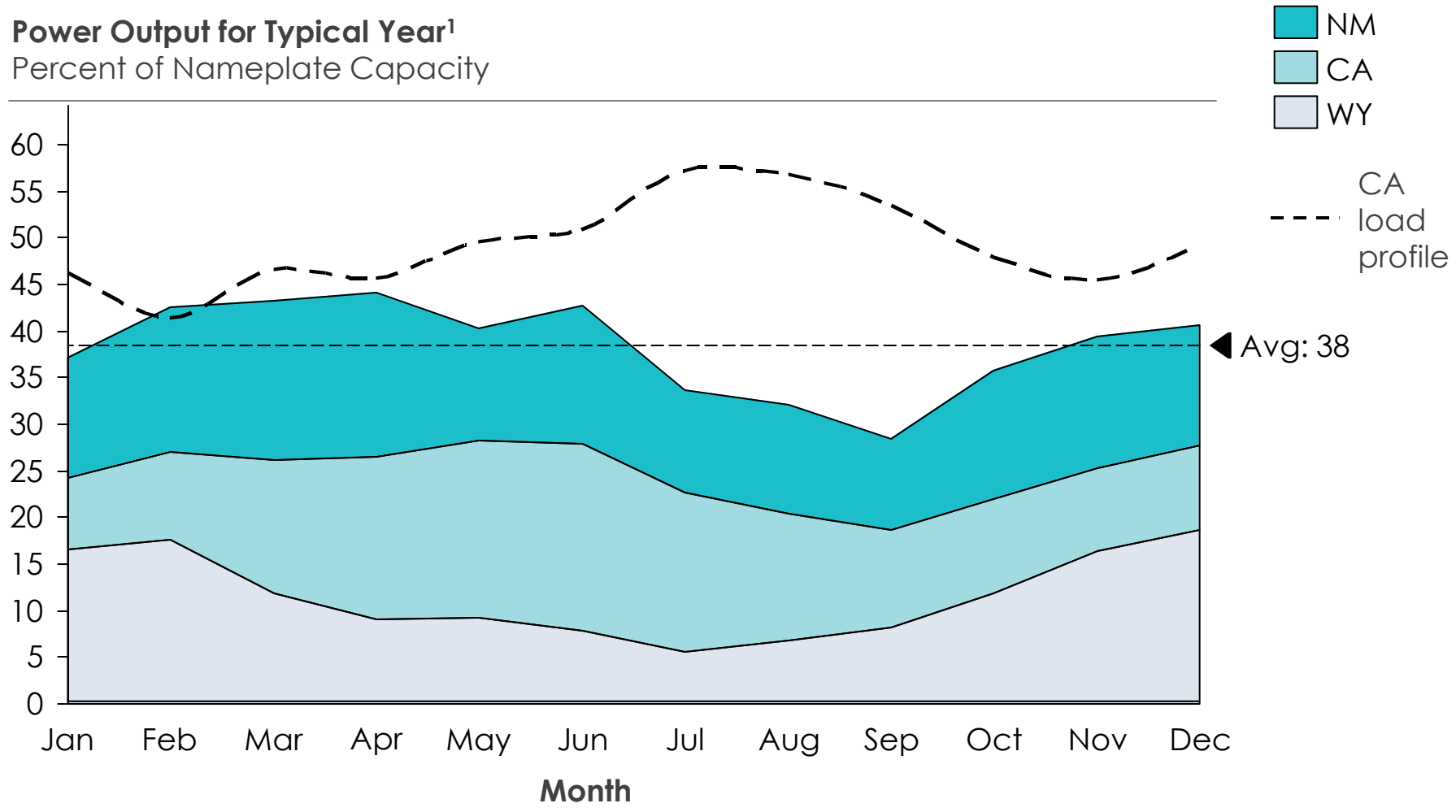
Renewable resources such as wind also exhibit seasonal variation in production…



1. Wind at Tehachapi

Source: V-BAR

…which can be mitigated by using a geographically diversified portfolio

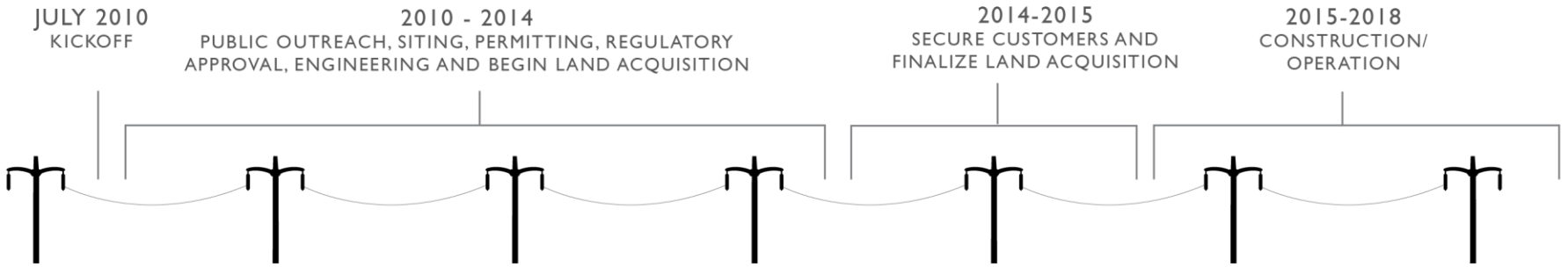


1. Assuming equal nameplate capacity for each location shown

Source: V-BAR

Centennial West plans to achieve commercial operation in early 2018

CENTENNIAL WEST CLEAN LINE SCHEDULE



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