

# Economy-wide Deep Decarbonization - Beyond Electricity

MIT

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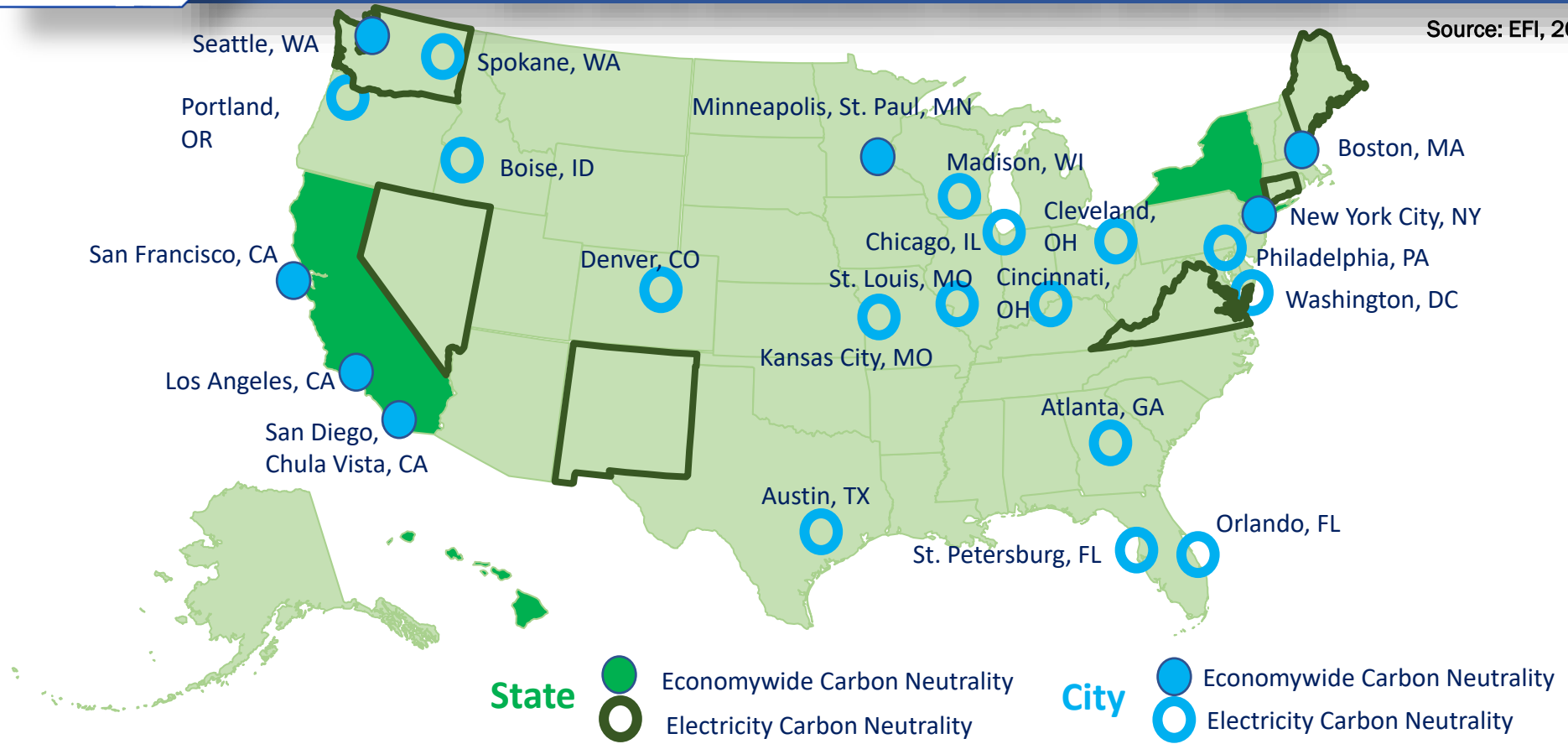
Moderators

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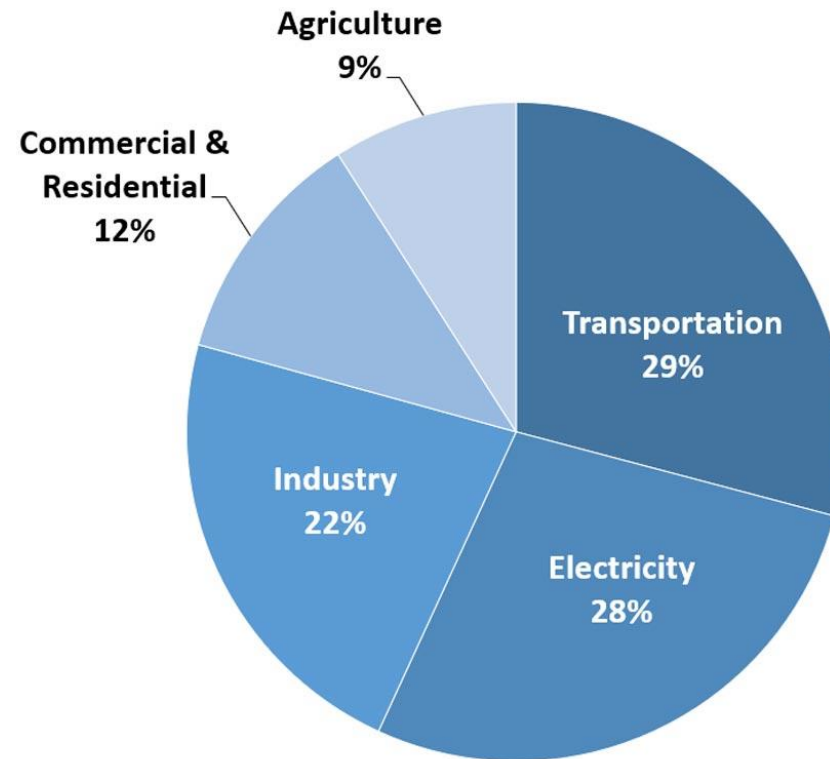
# Growing Number of Subnational Net-Zero Emissions Policies and Goals

Source: EFI, 2019.



# U.S. Greenhouse Gas Emissions

## Sources of Greenhouse Gas Emissions in 2017



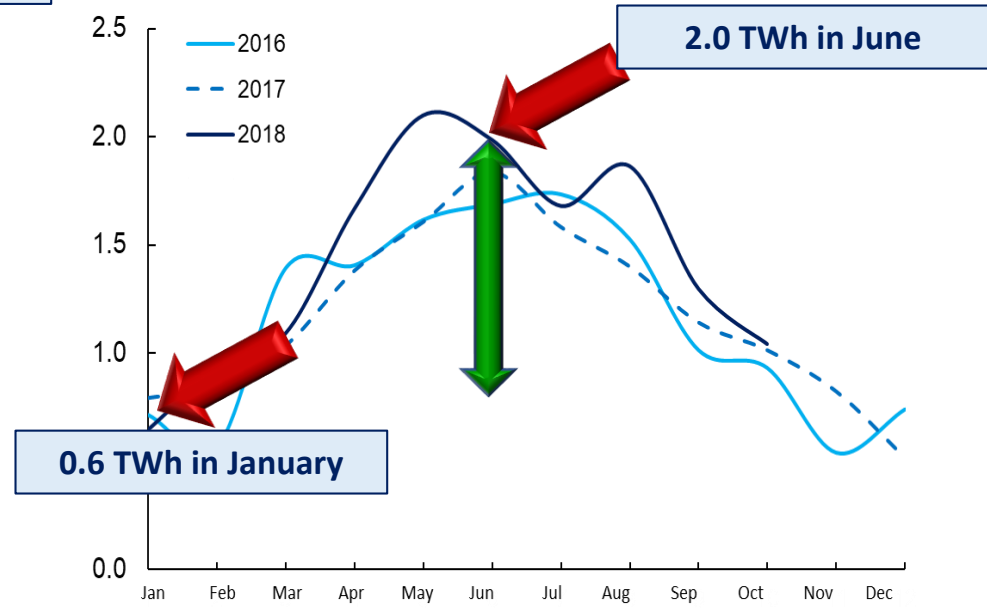
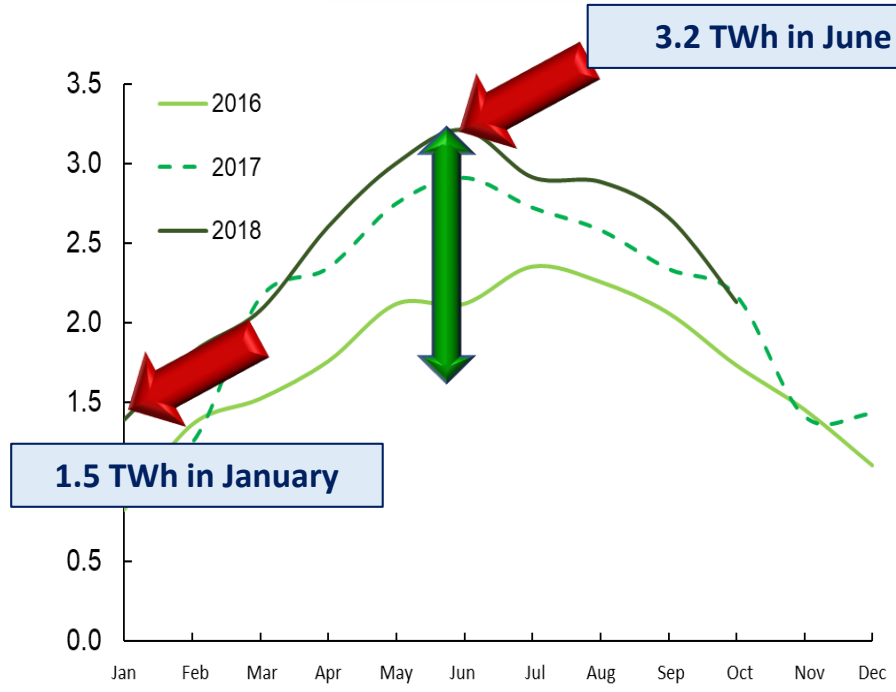
U.S. Environmental Protection Agency (2019). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017



# CA Seasonal Variation in Solar & Wind

### Metered Solar Generation

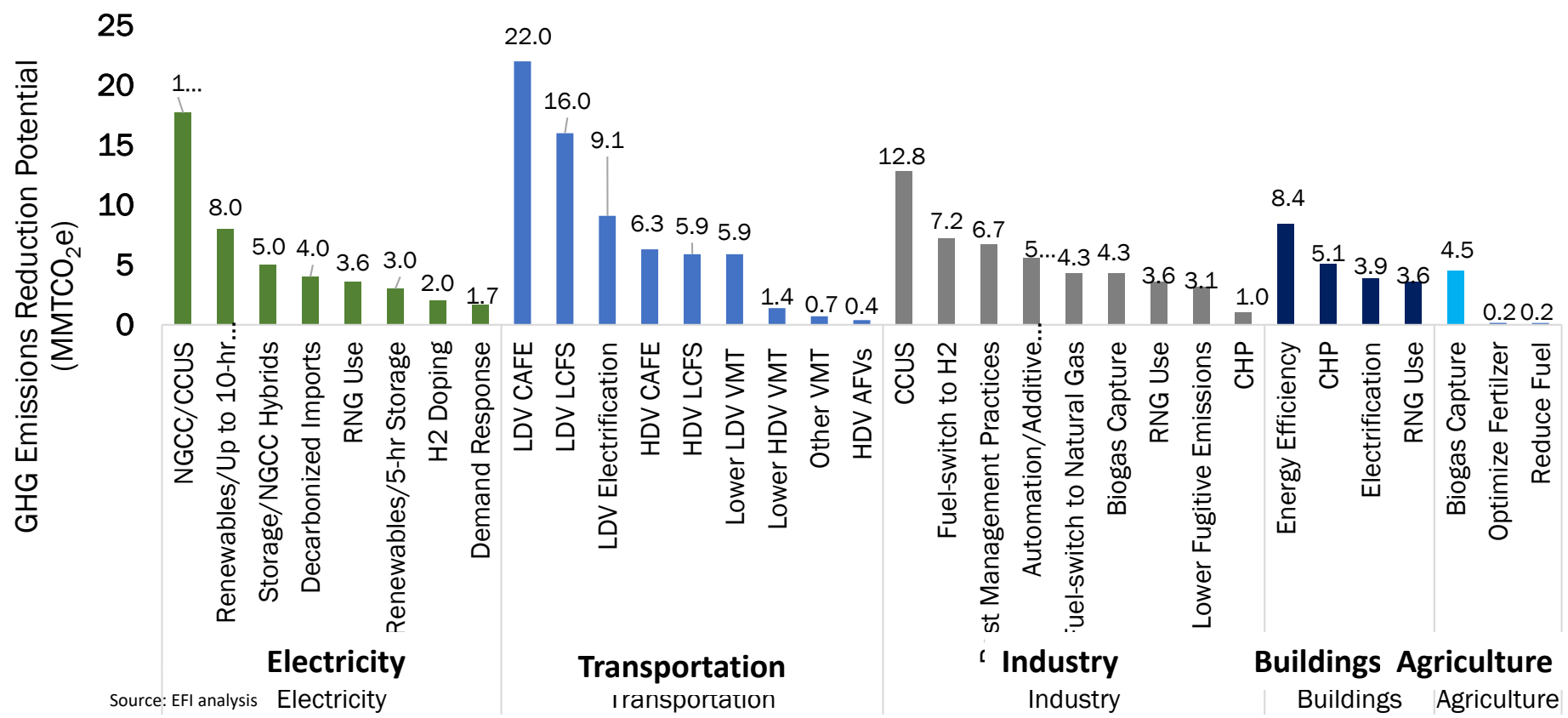
### Wind Generation



Source: EFI, compiled using data from CAISO



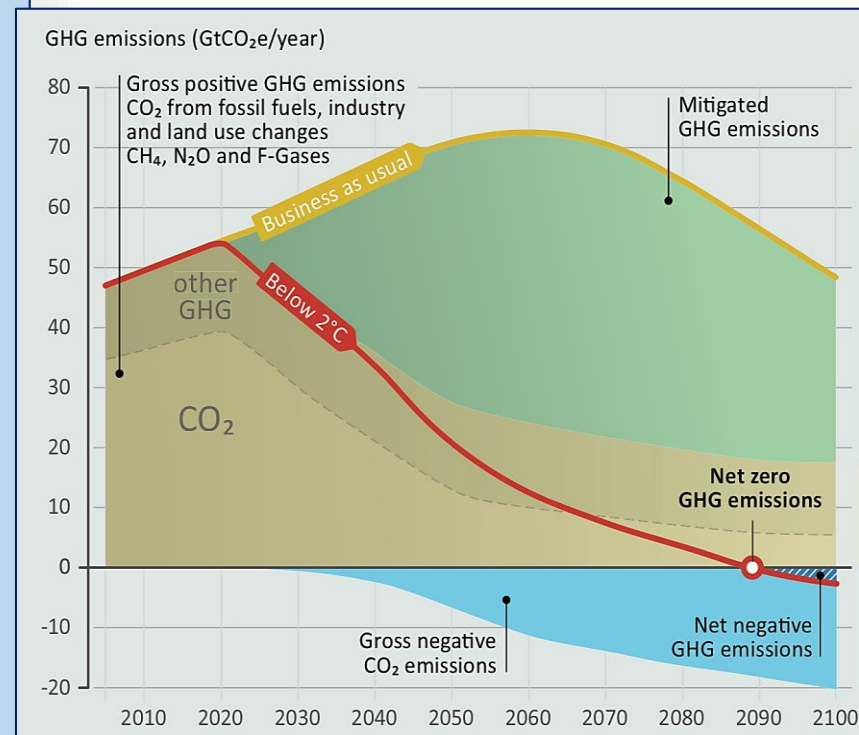
# CA Technology Pathways to Meet 2030 Targets



Source: EFI analysis

## The Imperative for Carbon Dioxide Removal

- CDR is ***needed*** to complement mitigation measures to limit warming to 2.0°C  
(required in 87% of IPCC AR5 scenarios)
- CDR provides ***flexibility and optionality***, e.g. compensation for residual emissions in difficult-to-abate sectors
- CDR ***co-benefits*** can include greater food and fiber productivity, fuel and power production, fisheries restoration, and national security
- CDR offers ***economic opportunities*** (new industries, jobs, and export markets)



Source: UN Emissions Gap Report, 2017.