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Hydrogen Enabling Reliable, Carbon-Free Electrification: Palomar Energy Center

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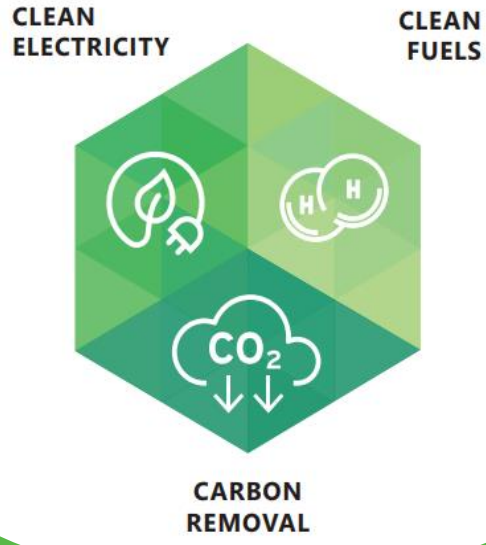
Hydrogen Electric Generation Demand for CA, 2045

The Path to Net Zero

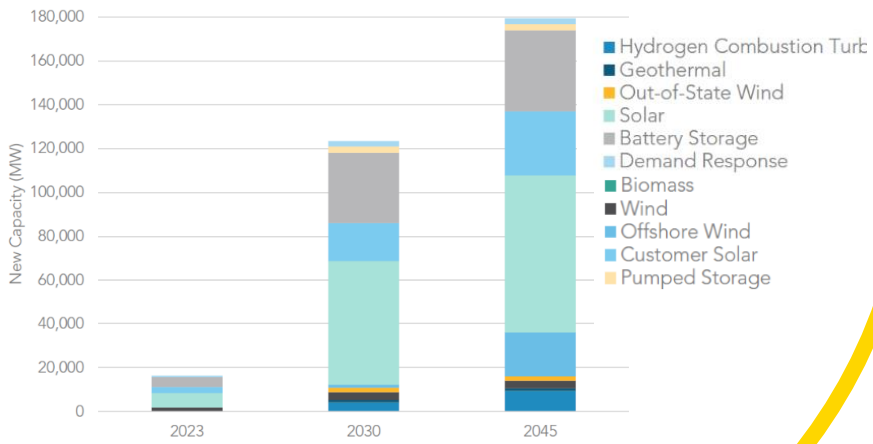
A DECARBONIZATION ROADMAP FOR CALIFORNIA

SDGE™ BCG BLACK & VEATCH



CARB 2022 Scoping Plan

Figure 4-5: Projected new electricity resources needed by 2045 in the Scoping Plan Scenario[372]



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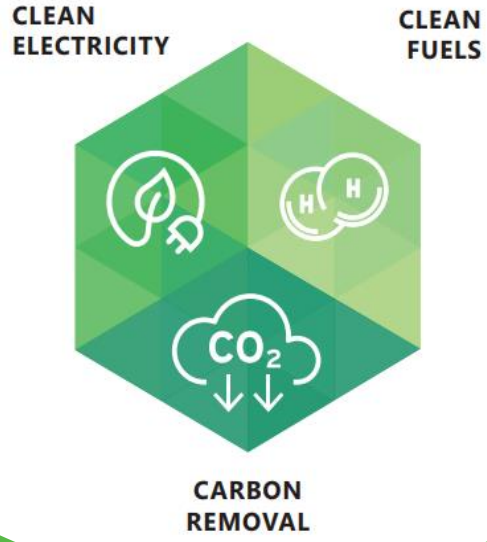
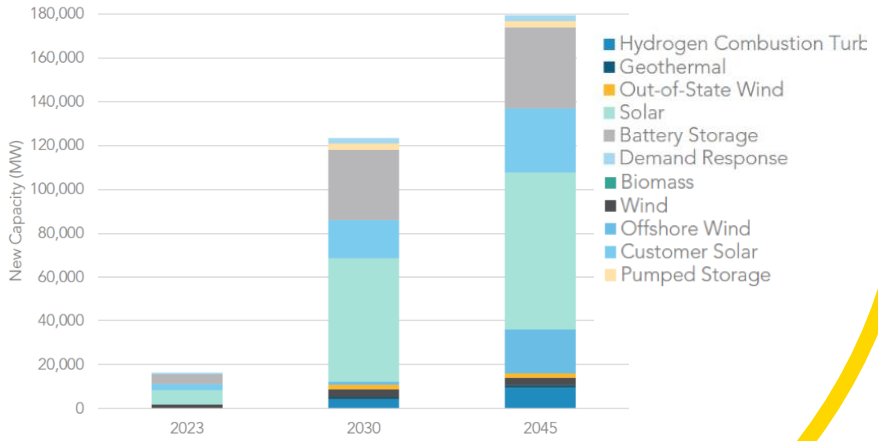


	GW	
H2 for Power	**2030**	**2045**
CARB	0.00	9.2
SDG&E PTNZ	0.01	20.0

CARB 2022 Scoping Plan

Figure 4-5: Projected new electricity resources needed by 2045 in the Scoping Plan Scenario[372]



Hydrogen Adoption Timeline for the Power Sector

2020s

Decade of Pilots

High costs, immature technology and industry, unclear policy directives, overcome reputational hurdles

2030s

Decade of Adoption

Technology and industry matures, H2 pipelines enter into service, energy transition mandates, grid emissions decline

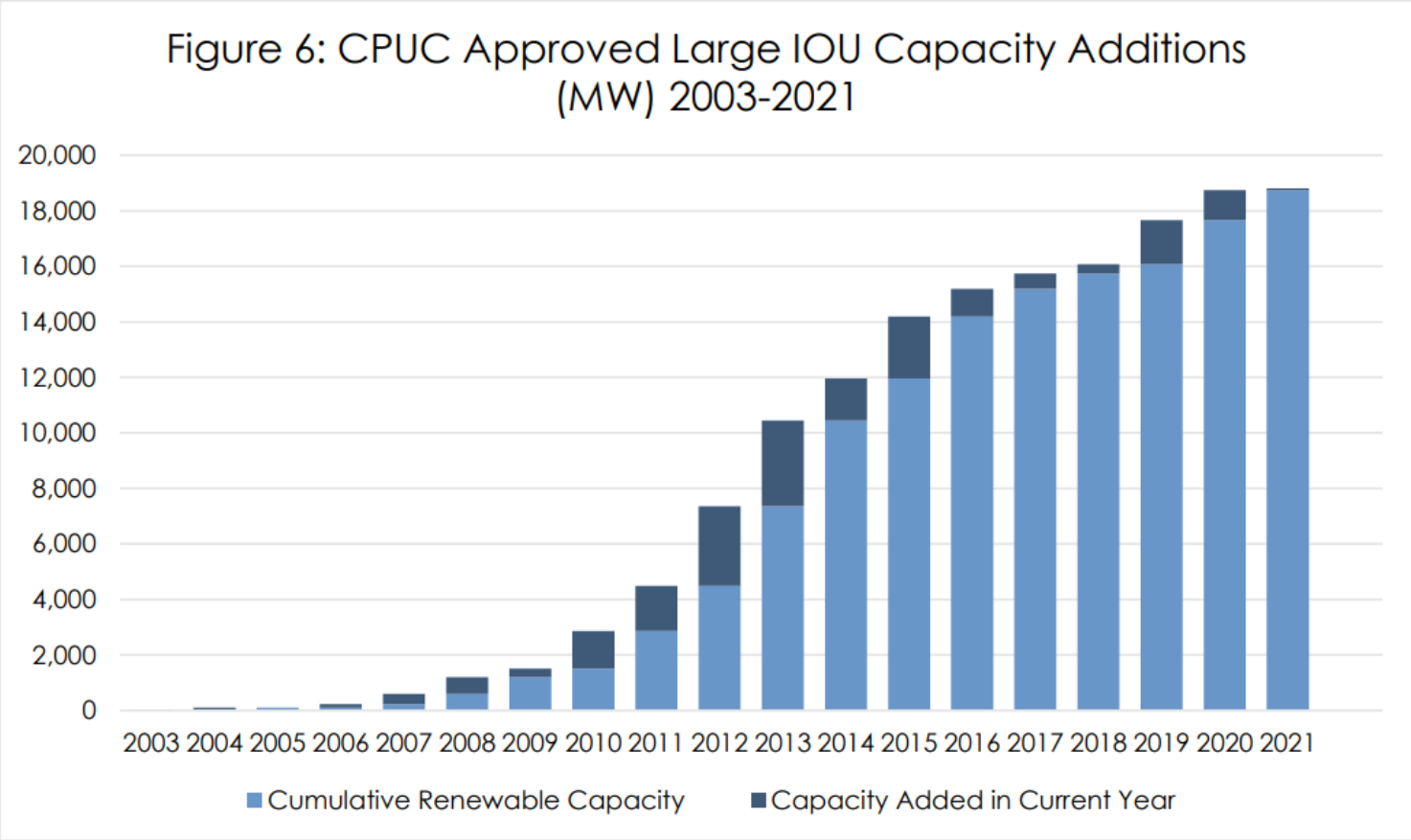
2040s

Decade of Mass Deployment

Costs reduce from scale, competitive with alternatives, storage and transport issues are overcome

The Transition Must Begin Now

IOUs took 19 years to make 19 GW of RPS eligible capacity additions; to achieve 9-20 GW of hydrogen capacity, utilities must begin today.



Source:
CPUC, 2022 California Renewables Portfolio Standard Annual Report, Nov 2022

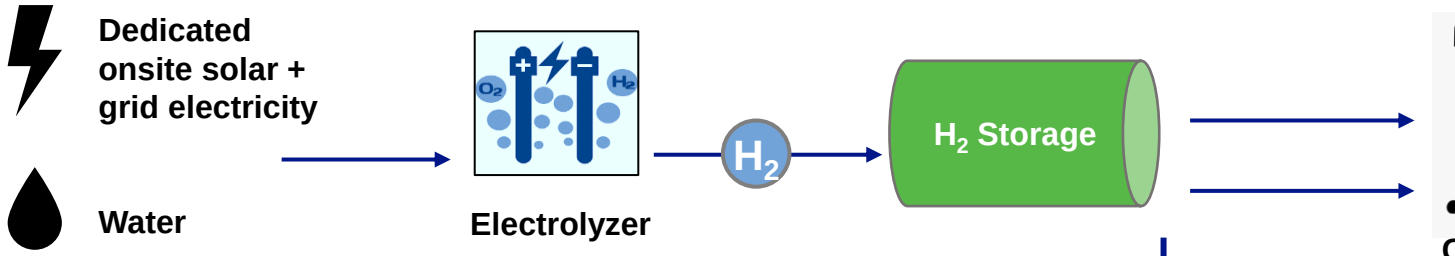
Palomar Energy Center Hydrogen Systems

Location	Co-located with SDG&E's Palomar Energy Center (PEC), Escondido, CA
About	PEC is a 588 MW natural gas combined-cycle plant and the largest generator in SDG&E's fleet
Hydrogen System Details	• 274 kW solar generating canopies • 1.25 MW electrolyzer with H_2 compression and storage) producing up to 500 kg/day • H_2 vehicle fueling system • Blending Skid • Storage vessel
Use Cases	• Power-to-gas H_2 fuel blending • Generator cooling with H_2 gas • Light-duty vehicle H2 fueling

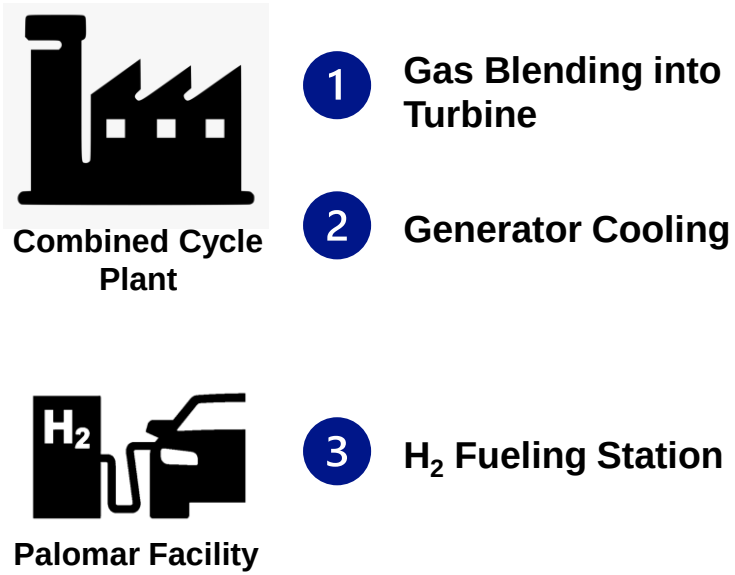
Electrolyzer Delivery, August 2023
Palomar Energy Center, Escondido, CA

Palomar Hydrogen System Demonstrates Multiple Use Cases

System Design:



End Uses for Clean H2:



Project is expected to be online and operating by the end of 2023.

Thank you