



PIER Renewable Energy and Advanced Generation Research

Linda Spiegel
EGR Office Manager

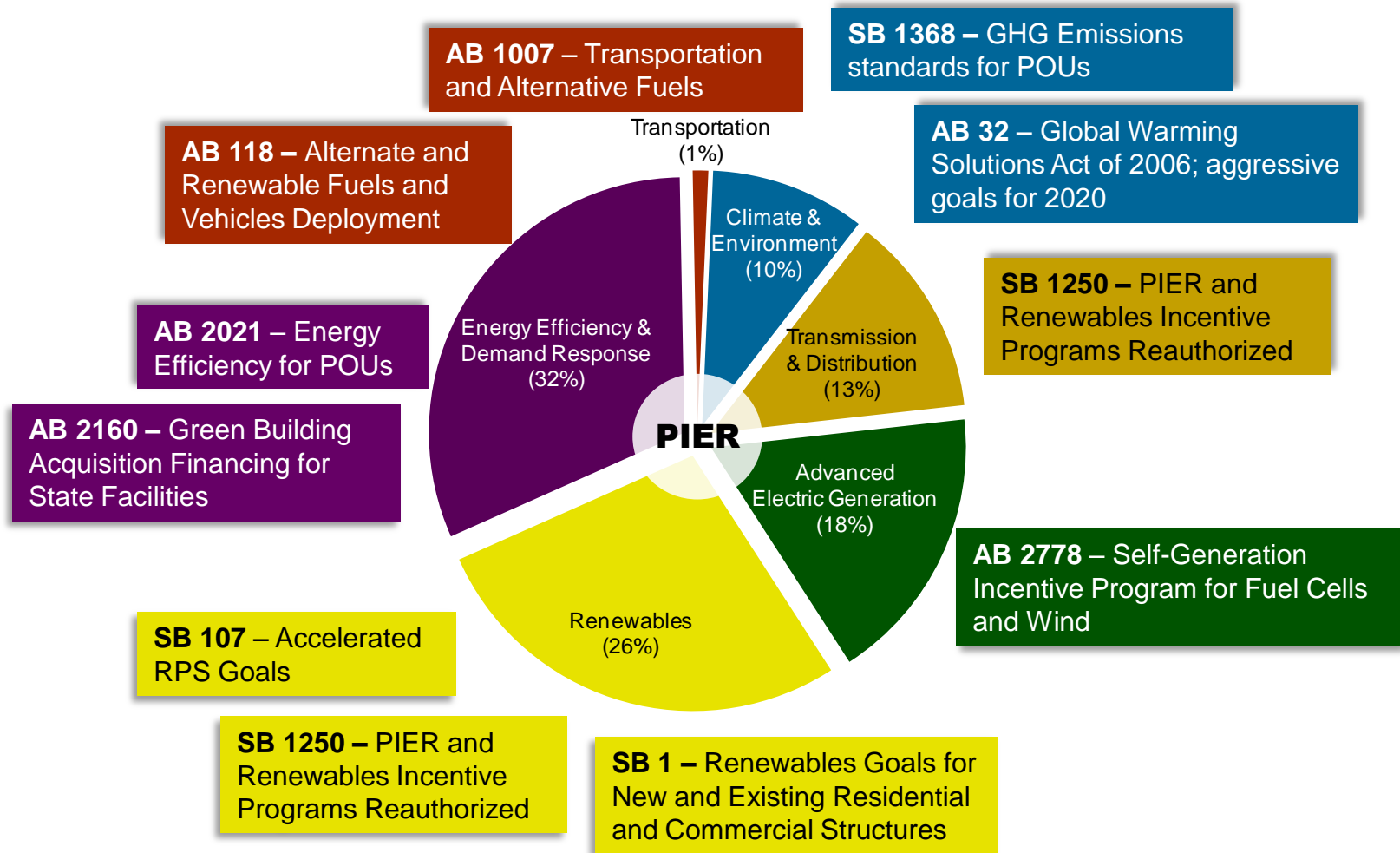
Sandra Fromm
Supervisor

Technical Program Leads

Prab Sethi
Rizaldo Aldas

Technical Project Managers

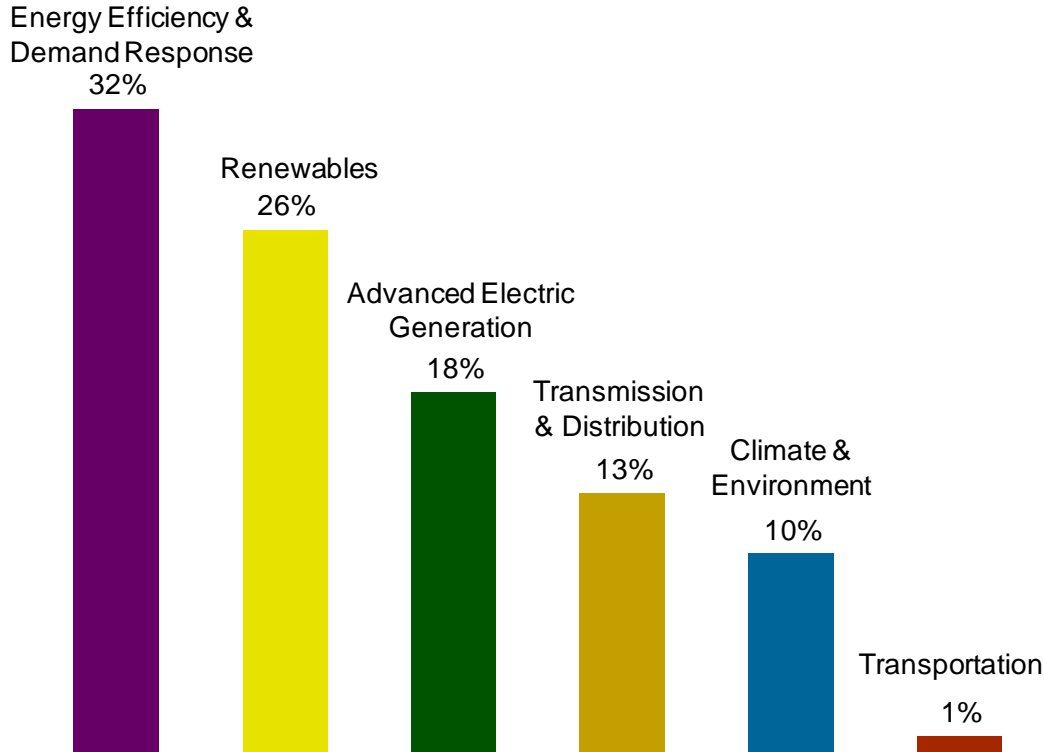
Abolghasem Edalati
Pablo Gutierrez
John Hingtgen
Michael Kane
Hassan Mohammed
Zhiqin Zhang
Michael Sokol



PIER Investments Follow Energy Policy



**“Loading Order” by Program
(\$587.7 million from 1997 -- 2008)**



Meeting Energy Needs with Efficiency and Demand Response

Using Efficiency to Reduce GHG Emission Levels

Potential Savings from Demand Response

Using Renewable Resources to Meet Energy Needs

Deliverability and Transmission Upgrades

Dispatchability and Reliability

Barriers to Renewable Energy Market Development

Clean Fossil Energy Generation

Distributed Resources

Transmission & Distribution

Smart Grid

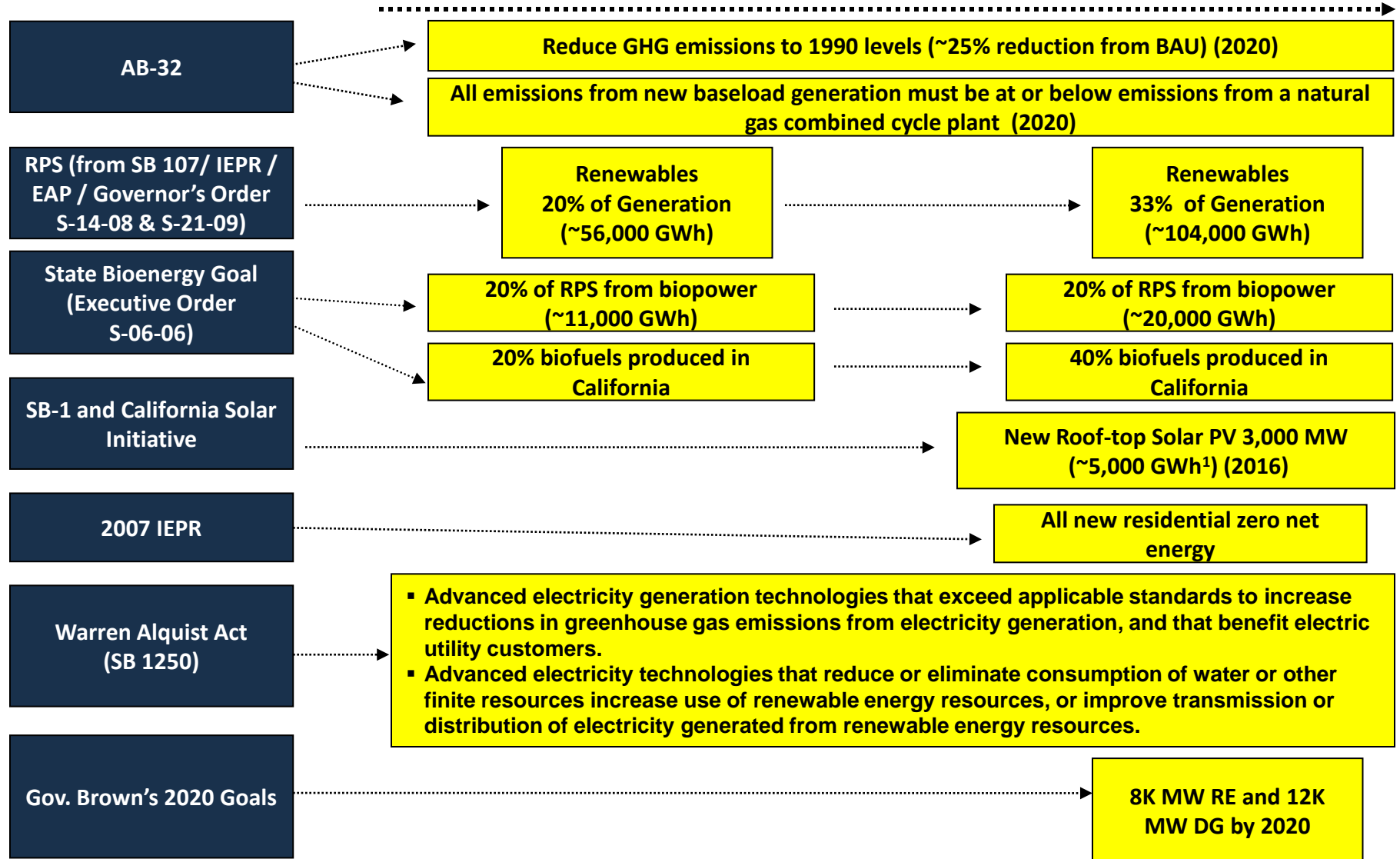
Demand Response to Meet Electric System Peaks

Renewable Research Policy



2016

2020



RE Research Team Previously used a “Classical Research Approach”

- ✓ Resource conversion focused (solar, wind, biomass, geothermal)
- ✓ Emphasis on technology development
- ✓ Demonstrations to gain operational experience

✓ Transmission Integration

- RE resources located in remote areas

✓ Permitting

✓ Cost

✓ Reliability

✓ Strong need to reduce technical integration barriers to increase reliable access to renewable energy

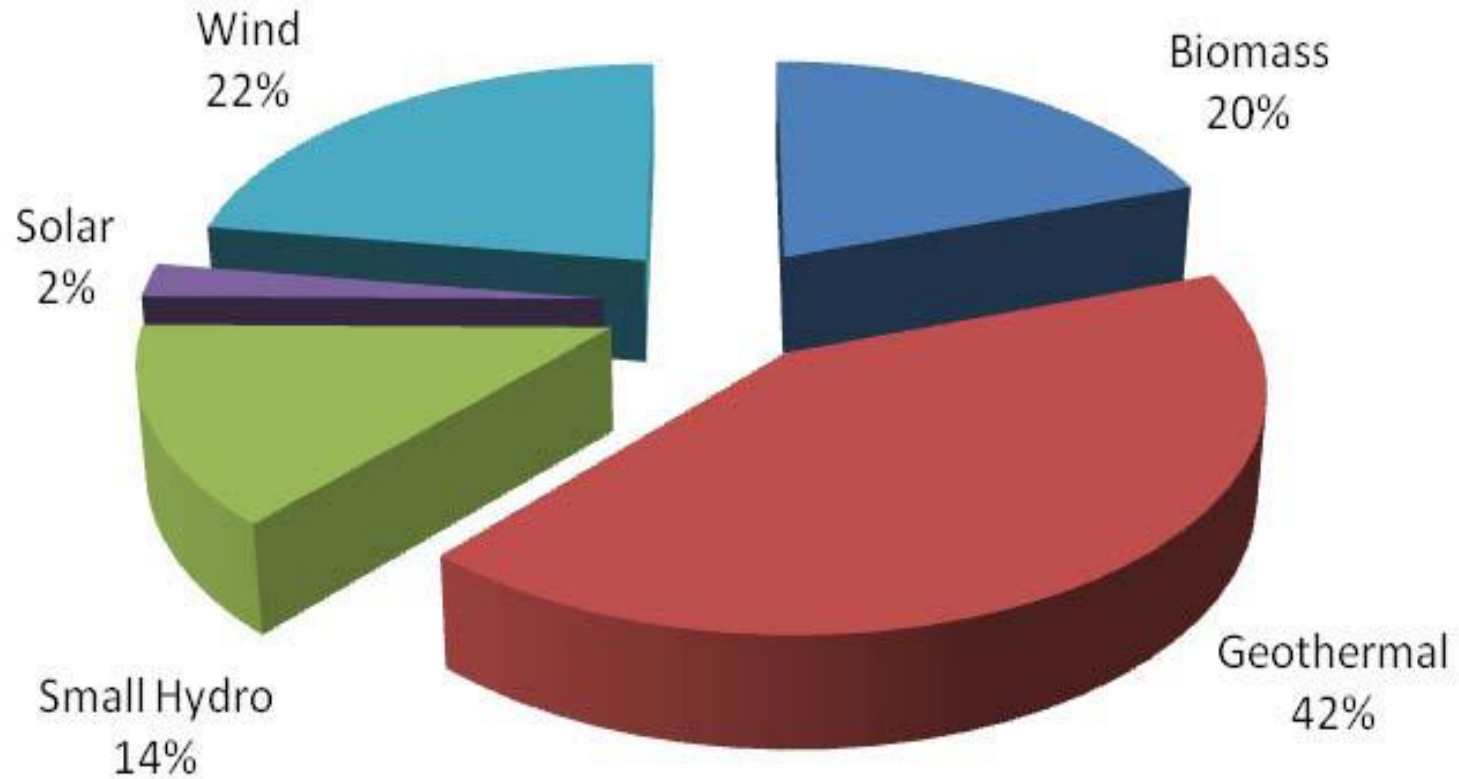
Renewable Integration Approach



- **Focus on market scales**
 - **Utility**
 - **Community**
- **Combined RE technologies with grid integration, storage, demand response, smart grid, combined heating and cooling, and efficiency to improve technical integration and lower RE energy use costs**
- **R&D to maximize resources, infrastructure, coordination, and collaboration among planners, energy providers/developers utilities and communities, and advance renewable science and technology**



Geothermal in CA



Geothermal Research

Goals

- Promote the research, development, demonstration, and commercialization of California's enormous earth heat energy sources.
- A major program goal is to continue to develop a portfolio of near to long-term R&D projects in California.



Geothermal research provides funding for:

- RD&D projects that reduce the life-cycle cost of geothermal electricity generation.
- RD&D projects that reduce the uncertainty and cost of enhancing geothermal reservoir systems.
- Projects that mitigate the adverse impacts of geothermal development.
- Projects that provide significant environmental enhancement.



Photo of Geysers Geothermal Power Plant courtesy of Calpine



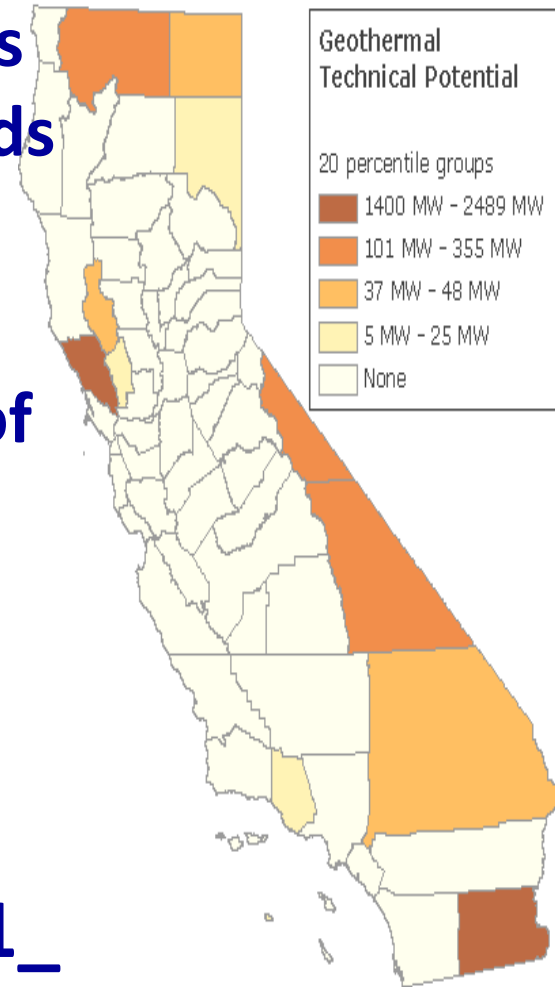
What next?

Continue to support geothermal activities using Geothermal Resource Account Funds and through utility/community scale solicitations

- ✓ **Encourage continued exploration of geothermal resources**
- ✓ **Promote geothermal technologies**

Encourage the geothermal industry to participate in state policy activities

[http://www.energy.ca.gov/2011_energypolicy/index.html]



CEC Proposes a New Planning and Permitting Grant Program

- Provide local governments with planning and permitting assistance to help them evaluate and expedite renewable energy development.
 - ❖ The proposed program will provide local governments assistance from state agencies with planning and permitting experience and expertise.
- The first phase of the proposed grant program will provide assistance to the local governments in the planning and permitting process for RE energy facilities. The grants will target cities, counties, and other local jurisdictions.

For more information contact:
Sherrill Neidich, California Energy Commission
1516 Ninth Street, MS-45, Sacramento, CA 95814
E-mail: sneidich@energy.state.ca.us
Phone: 916-651-1463
Docket number 02-REN-1038

To apply to the California Energy Commission, please see our exams page:

http://energynet/Admin/hrssb/Exams/scheduled_exams.html



Thank you!!

