

Solar in Minnesota: Present to 2020

Solar Powering Minnesota Conference

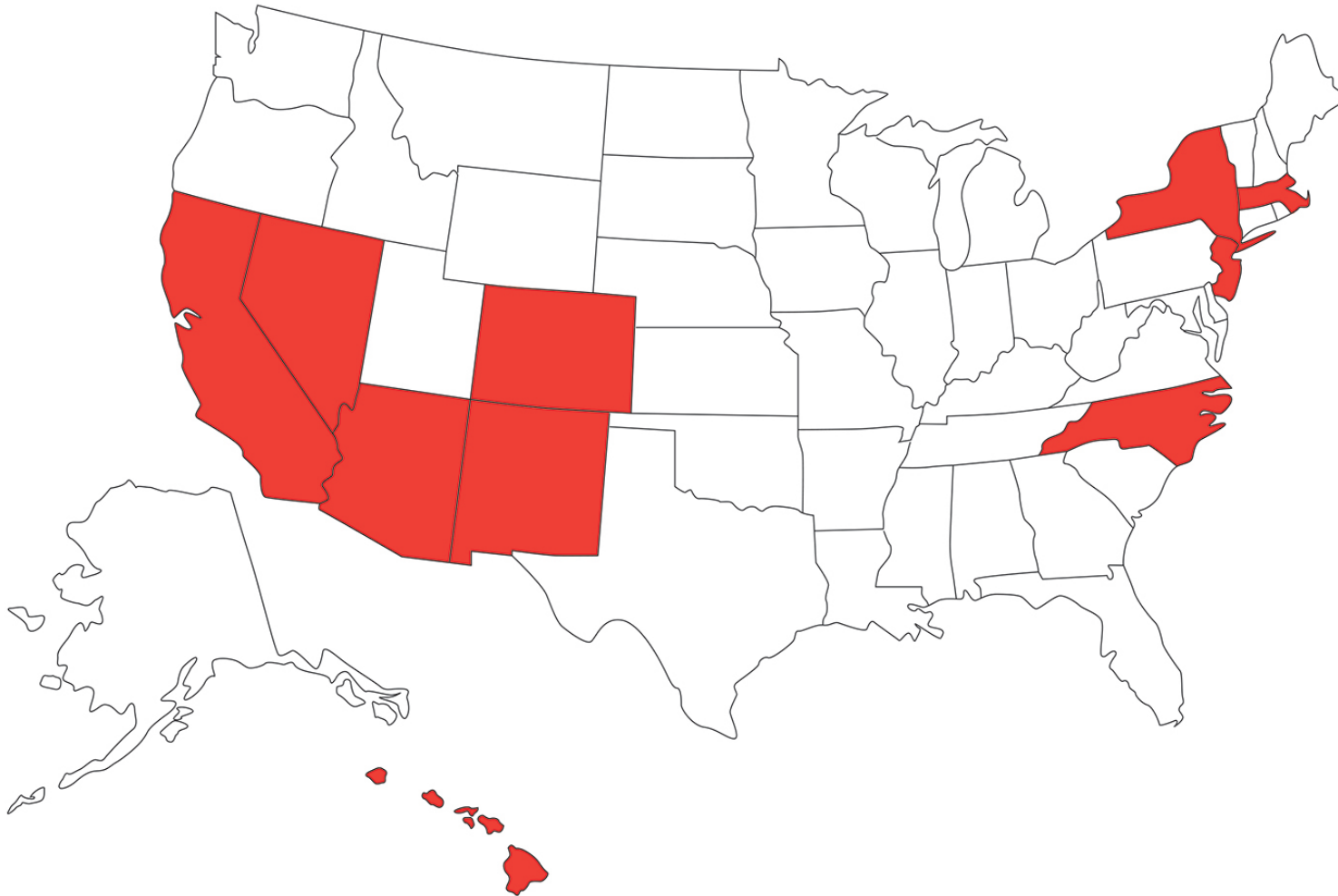
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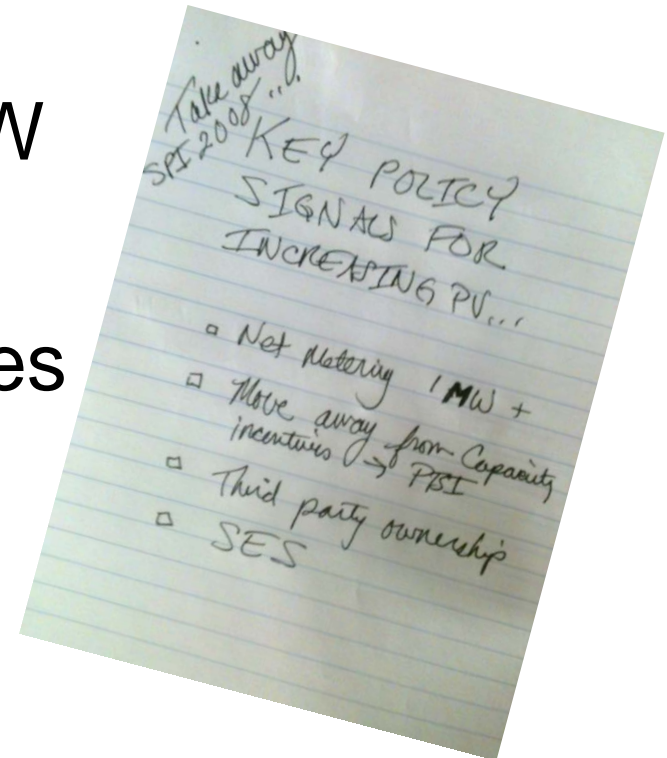
SEIA's Top 10 Solar States



Solar Deployment is Largely Policy Driven

Most common policies for developing PV markets:

- Net Metering cap of 1,000 KW
- Solar Electricity Standard
- Performance-Based Incentives
- Third Party Ownership



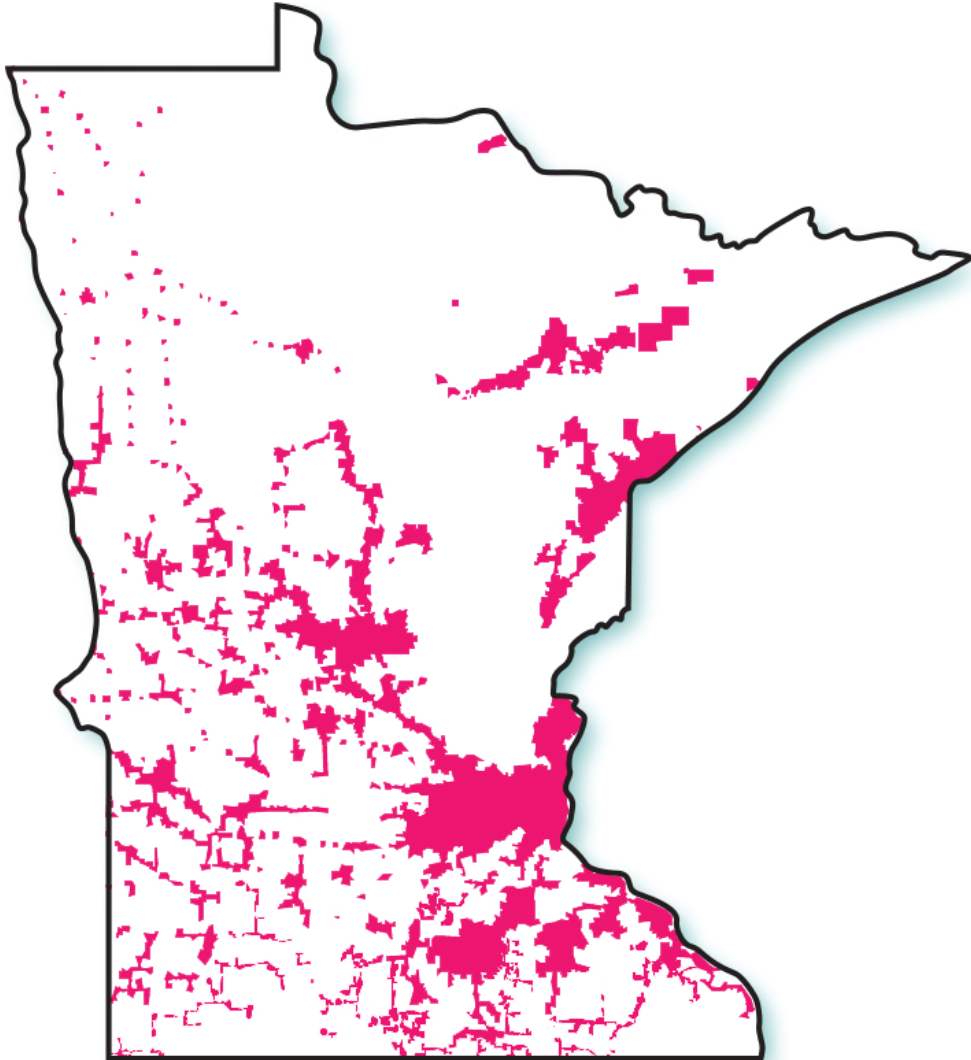
Future Solar Development

In Minnesota, in 2020:

- How much total PV capacity might we have?
- How many small vs large systems?
- How much capacity from incentive programs?
- Community solar potential
- Solar heating and cooling



Four Electric Investor Owned Utilities



Alliant
Minnesota Power
Ottertail Power
Xcel Energy



2020: How Much PV Capacity due to the 1.5% Solar Electricity Standard?

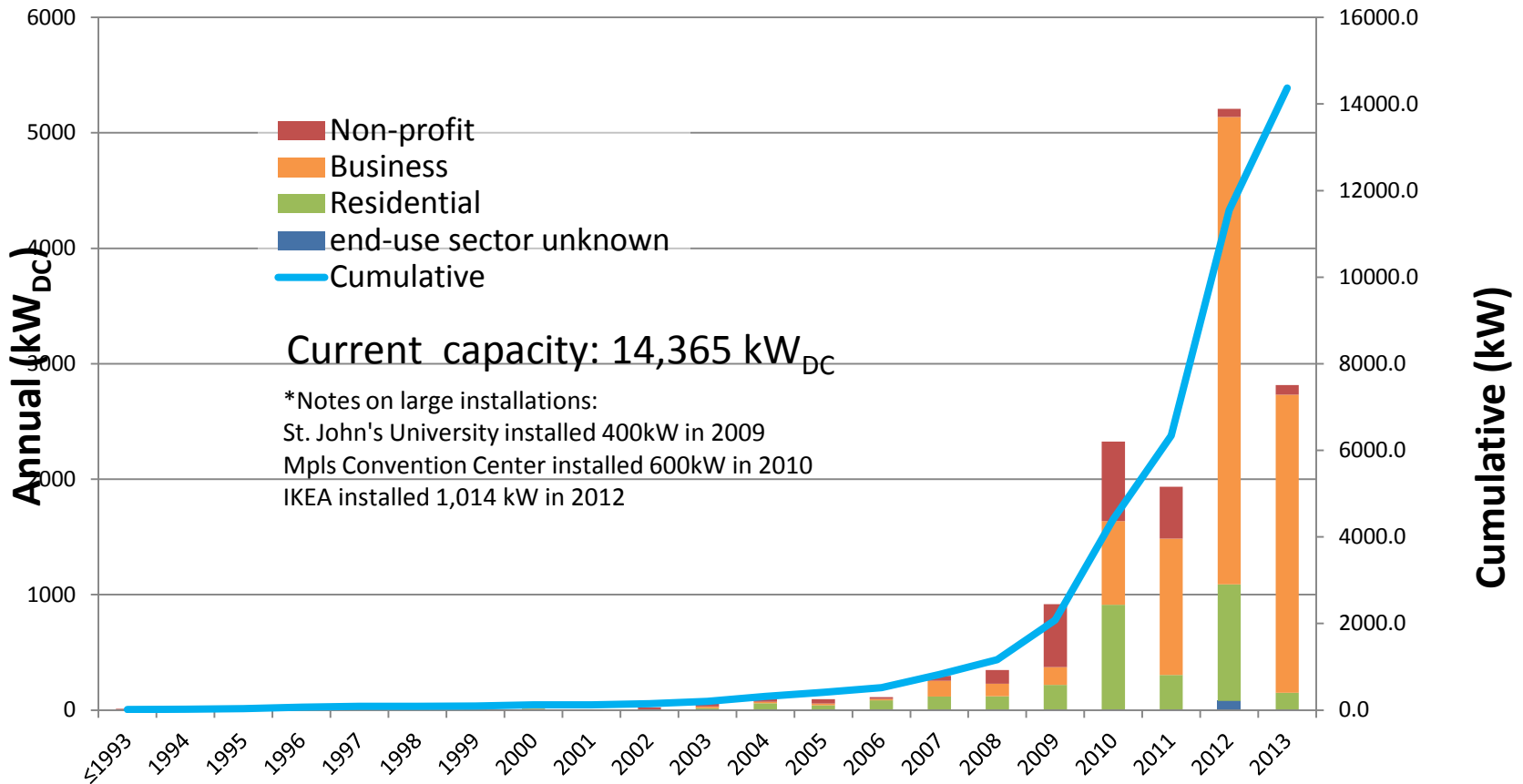
Today: 14 MW_{DC}

2020: **400 MW_{DC}**



Minnesota's Solar Capacity and Annual Installations

as of September 2013



2020: How many residential systems?

Today: 1,000 residential systems

2020: 4,000 residential systems



2020: MiM and Solar*Rewards Program Capacity

Made in Minnesota 2,700 systems: **40 MW**

Solar*Rewards 1,600 systems: **24 MW**

4,300 + New Small PV Systems
64 MW



2020: What if 0.5% of IOU electricity comes from community solar?

Today: 3 CSG Systems
0.1 MW

2020: 360 systems
180 MW



Summary of Estimated Capacity

1.5 % Solar Electricity Standard ~400 MW

– Utility Scale	265 MW
– Residential:	28 MW
– CSG	180 MW
– MiM	40 MW
– Solar*Rewards	24 MW



Solar Heating and Cooling

- SHC mitigates cost and volatility of delivered fuels and conventional resources
- Globally, SHC production exceeds solar electricity
- **500** New Systems by 2020 in Minnesota



Thank You!

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