



Status of State CHP Policies

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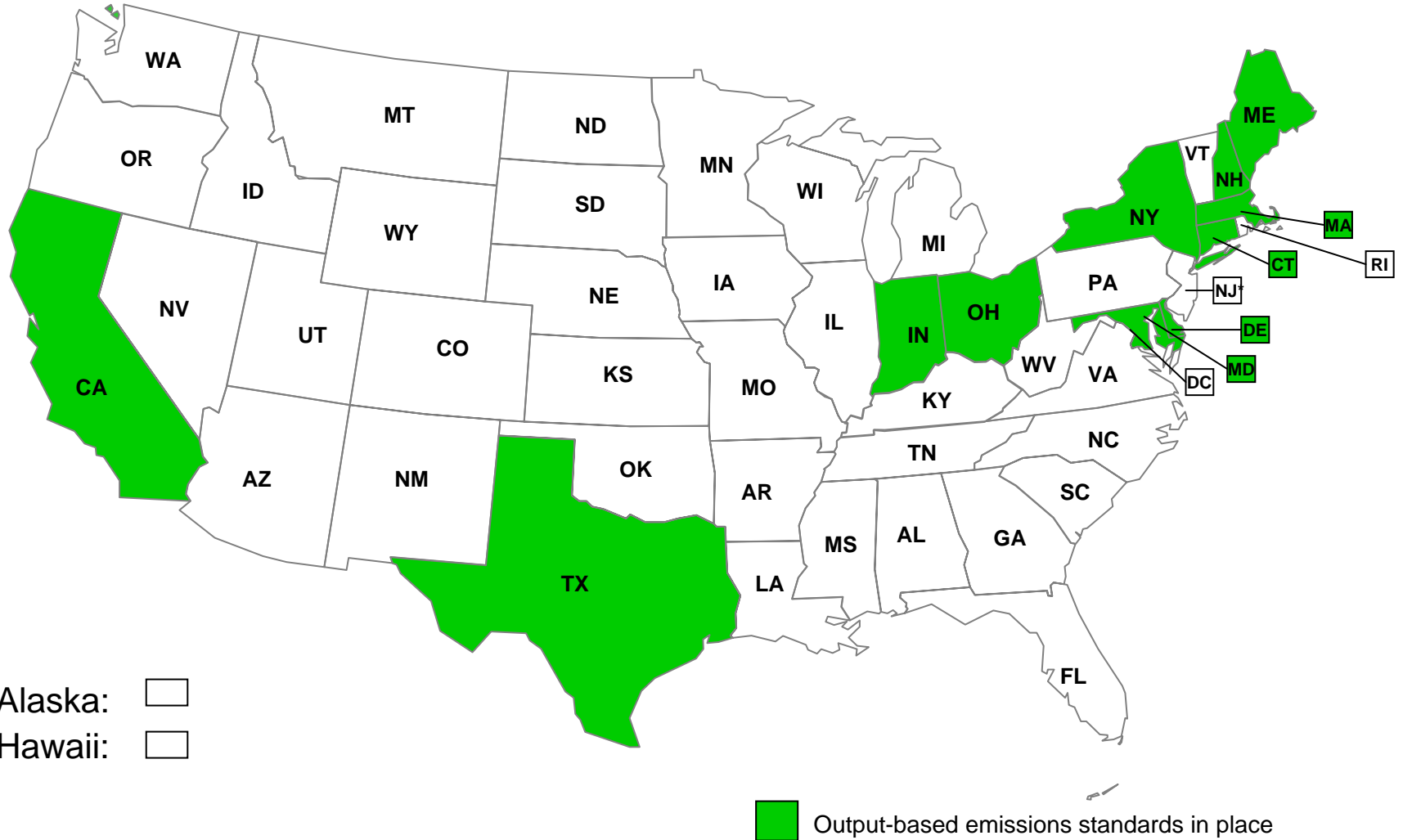
The American Council for an Energy-Efficient Economy (ACEEE)

- Nonprofit (501c (3)) dedicated to advancing energy efficiency through research and dissemination.
- 30 staffers in Washington D.C., Illinois, Delaware, Michigan, and Wisconsin
- Focus on End-Use Efficiency in Industry, Buildings, Utilities, Transportation, & National Policy
- Offer Conferences and Publications
- Funding:
 - Foundation and Federal grants (50%)
 - Specific Contract work (20%)
 - Conferences and Publications (25%)

Where are we 10 years later?

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- Progress on output-based standards
 - Progress on interconnection standards
 - Inclusion of CHP in Energy Efficiency Resource Standards (EERS) and Renewable Portfolio Standards (RPS)
 - CHP role in climate change mitigation

Output-based emissions regulations



Interconnection Standards

- Interconnection standards are uniform procedures and technical requirements for connecting DG systems to the electric utility's grid
- Many state Public Utility Commissions (PUC) have adopted statewide interconnection standards
- Can be evaluated based on the following items:
 - Standard interconnection form
 - Simplified procedure for smaller systems (typically 10 kW or less)
 - Eligible technologies
 - Timeline for application approval
 - System size limits
 - Insurance requirements
 - Technical requirements
 - Statewide enrollment limits

Examples of current “State of the Art” Interconnection Rules

The Oregon PUC adopted interconnection standards in July 2007

- Nearly year-long stakeholder process
- MADRI based rule
 - Added “field certification” concept
 - Non-inverter-based Level 2 fast tracking up to 2 MW
 - Increases Level 1 to 25 kW
- Allows non-residential IOU customers with systems up to 2 MW to interconnect

Examples of current “State of the Art” Interconnection Rules

The Maryland PSC adopted new rules March 2008

- Include standard interconnection applications, agreements and reasonable timelines for application approval
- Four levels of interconnection and systems up to 10 MW are allowed to interconnect
- For each interconnection level, the PSC issued well-defined technical and procedural requirements, along with reasonable application fees
 - E.g.: No fee at all for the smallest (Tier 1) systems

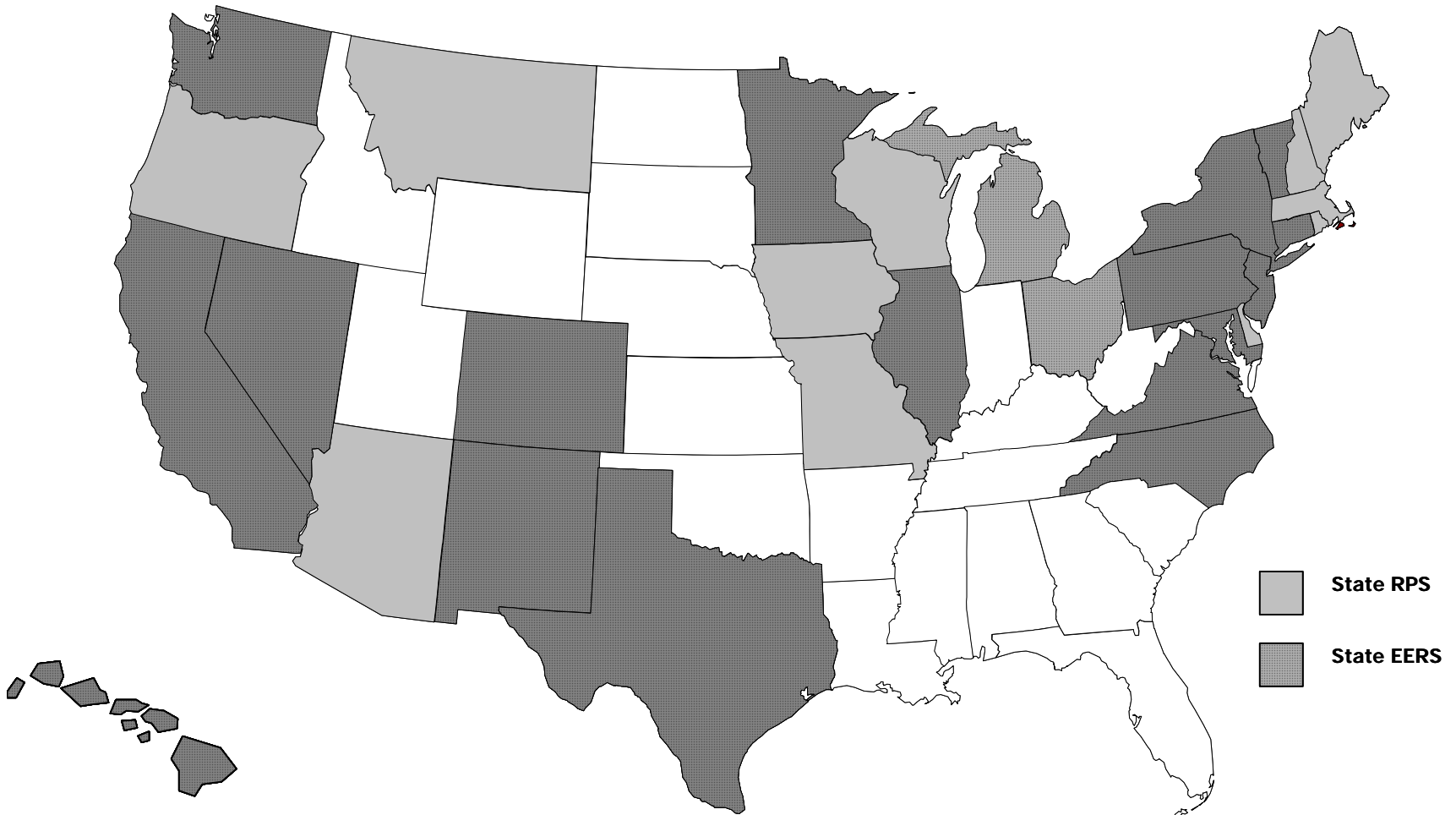
Portfolio Standards

- Renewable Portfolio Standards (RPS):
 - Require electricity providers to use renewable resources to generate a defined portion of a state’s electricity portfolio
 - Generally linked to financial incentives for participating
- Energy Efficiency Resource Standards (EERS):
 - Require electricity providers to treat energy efficiency investments as a “source” of electricity generation, much like a power plant.
 - Market-based
 - Define the percentage of new electricity demand that should be met by energy efficiency investments (instead of building more power plants)

Portfolio Standards

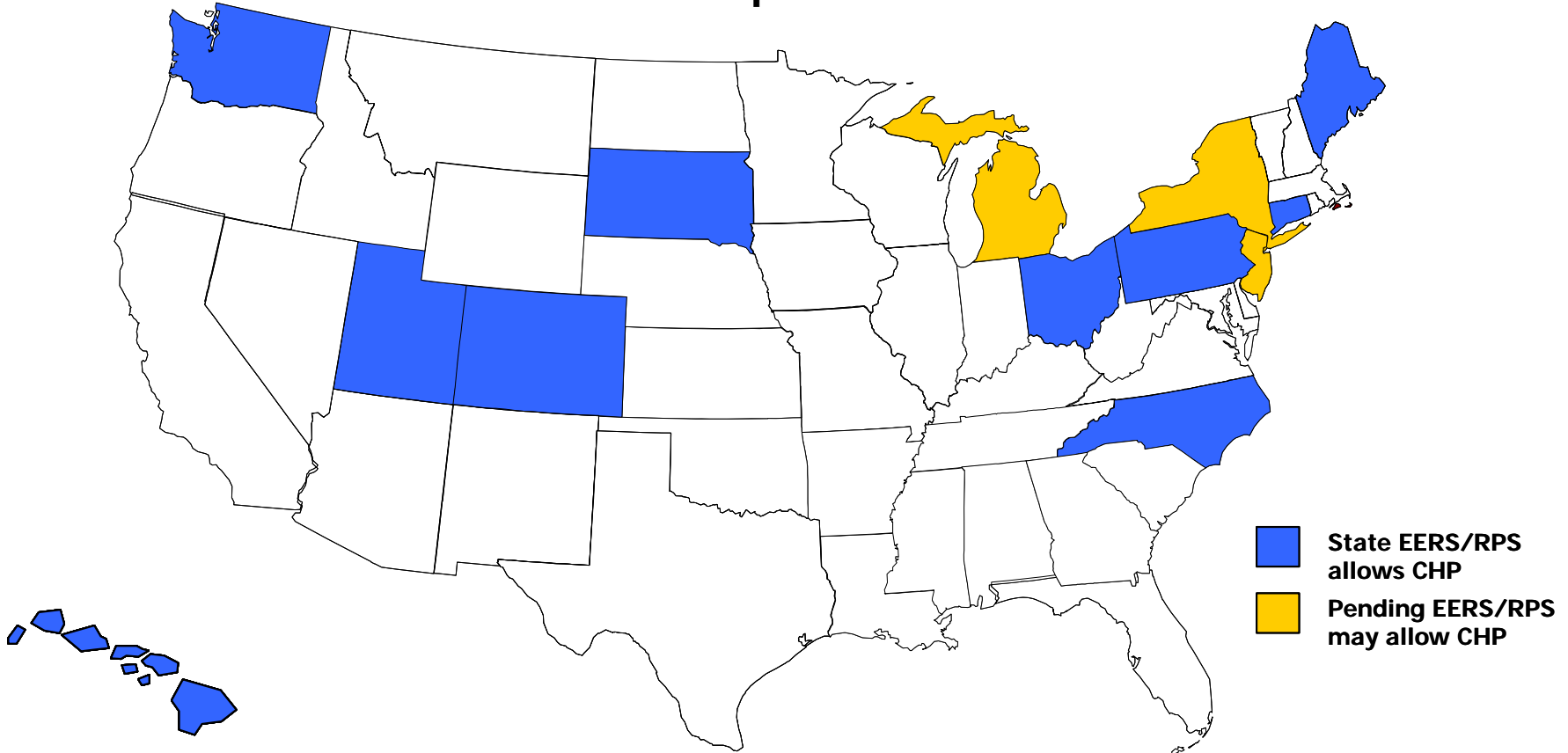
- By May 2008, 10 states had enacted RPS or EERS policies that specifically included CHP or waste heat.
- New York, New Jersey and Michigan are currently considering such policies.

Established Portfolio: Progress on renewable and efficiency standards - February 2008



Portfolio Standards: CHP in EERS/RPS

As of April 2008



New Jersey, New York and Michigan have pending EERS requirements that all consider CHP.

Portfolio Standards

Good examples of inclusion of CHP in RPS/EERS:

- Hawaii
 - Defines “renewable electric energy” as including CHP, energy efficiency technologies, etc.
 - Does not include CHP-specific target for these technologies.
- Connecticut
 - Breaks eligible technologies into three tiers, with separate targets for each. Class III includes CHP, energy efficiency technologies and waste heat recovery.
 - Class III targeted at the 4% level from 2010 on.

Avoided Energy and Emissions

Approach to estimating energy and emissions savings from avoided grid electricity:

- Incremental heat rate:

$$\text{Incremental heat rate} = \frac{\text{fuel}_{\text{CHP}} - \text{fuel}_{\text{boiler}}}{\text{total power output}}$$

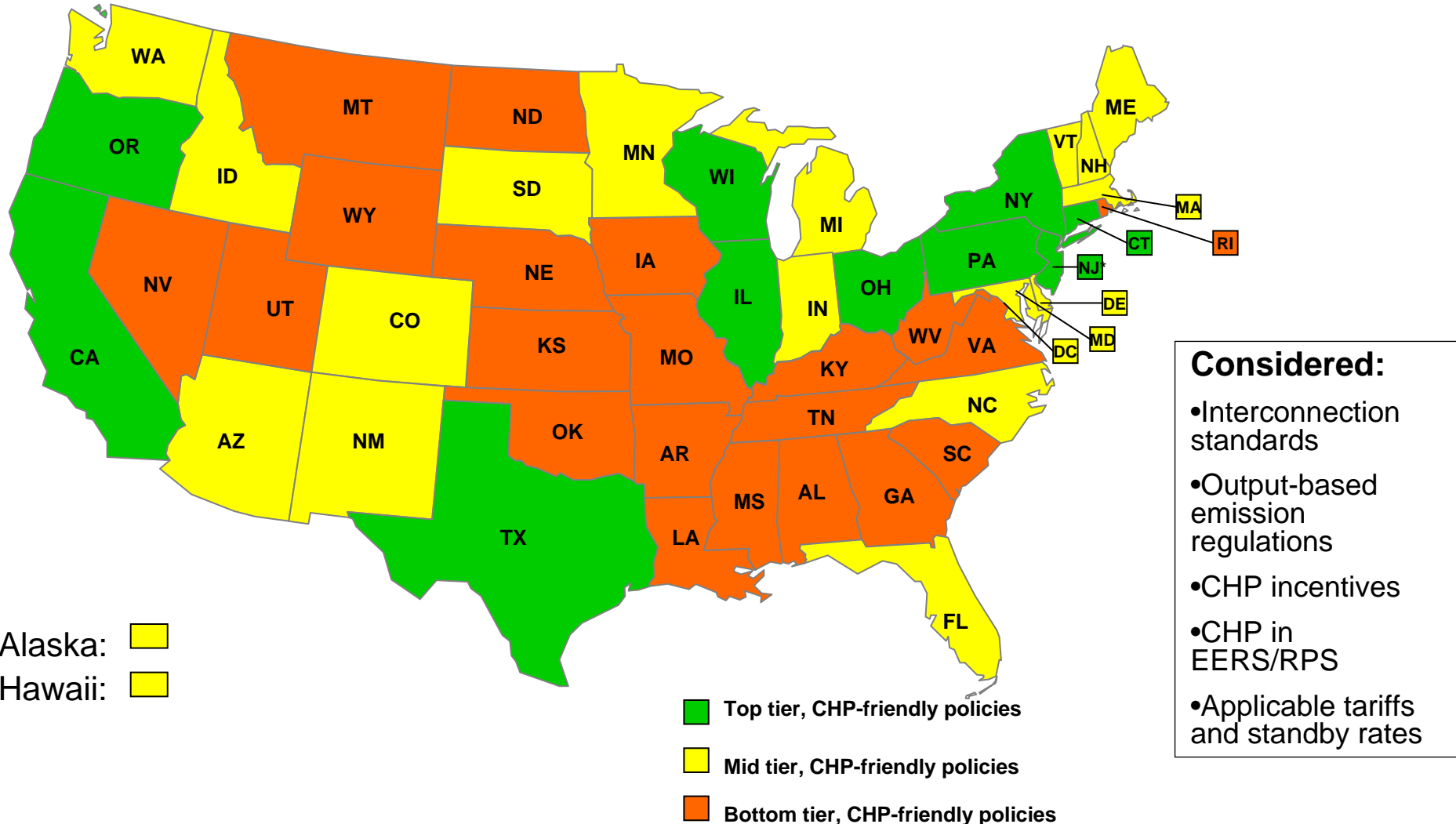
- Net avoided energy & emissions from CHP:

$$e_{\text{net avoided}} = e_{\text{grid avoided}} - e_{\text{onsite}}$$

CHP's Role in State Climate

- States assuming lead in climate policy
- Energy efficiency an important source of carbon reductions; helps contain cost of compliance
- CHP can/should play major role in EE offsets
- Important that CHP be included in climate strategies
- Creates incentives for utilities to encourage/invest in customer CHP

How States are Doing on CHP



Conclusions

As we approach the first decade of the CHP Challenge and EPA Partnership:

- We are making progress
- State-by-state efforts are paying off
- CHP market healthy where the rules are right
- CHP can/should play an important role in state climate policies

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