

The interaction between efficiency programs and climate: A state-by- state analysis



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Introduction:

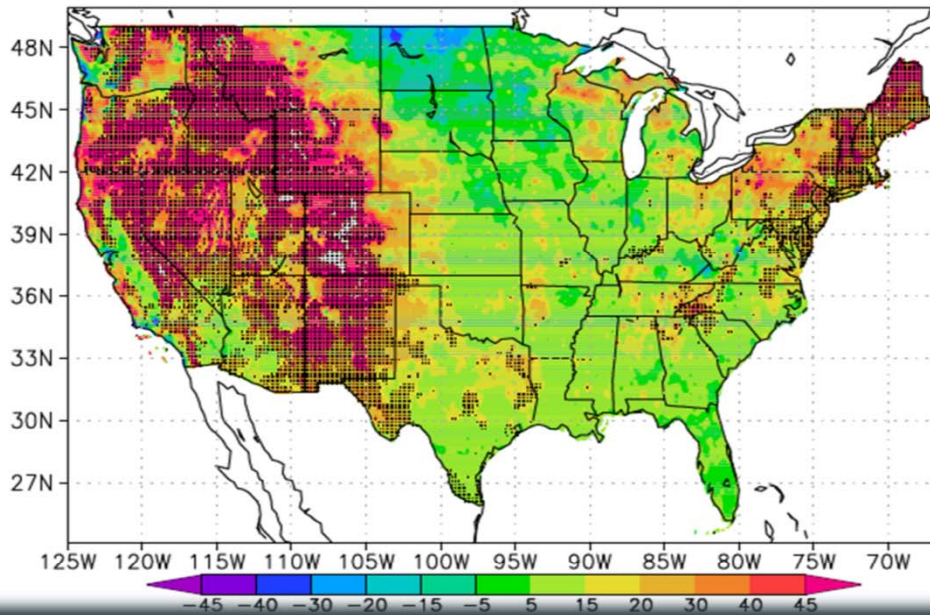
Climatic Variability + Extreme
Events =

Increased electricity demand, consumption,
generation, and GHG emissions

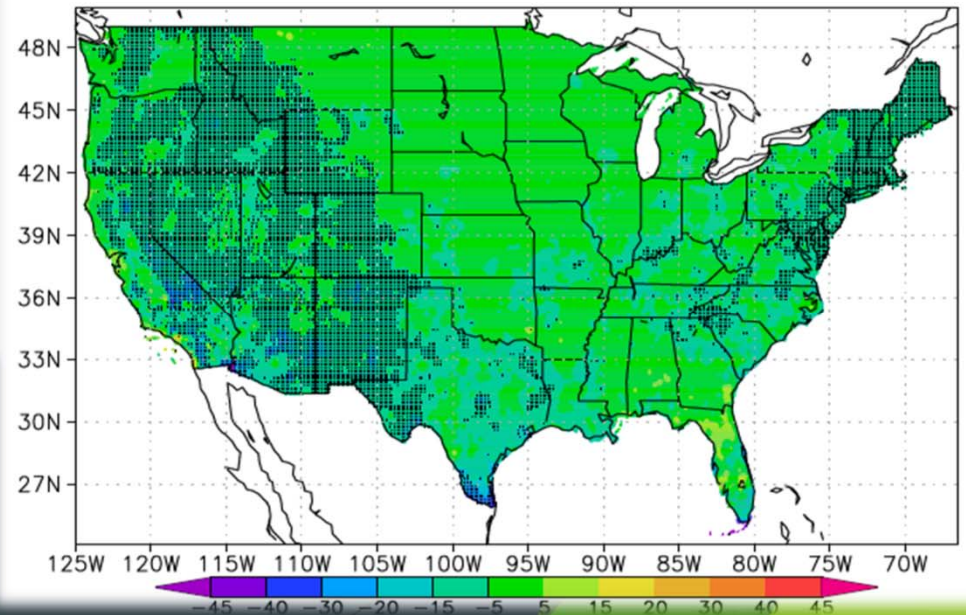
(Craig, 2016; Craig & Feng, 2016; Javanovic et al., 2015; McFarland et al., 2015; Mideska & Kallbekken, 2010)

HDD and CDD Trends

Trend in CDD (1981–2014)



Trend in HDD (1981–2014)



(e.g., Craig & Feng, 2016)

Energy utility organizations:

Energy Efficiency effectiveness?

“Deemed savings” \neq climatic
interaction / rebound effect

(e.g., Asensio & Delmas, 2015; Craig, 2016; Craig & Allen, 2014; Delmas et al., 2013; Gillingham et al., 2013)

Residential electricity consumer:

Largest consuming segment (EIA, 2015)

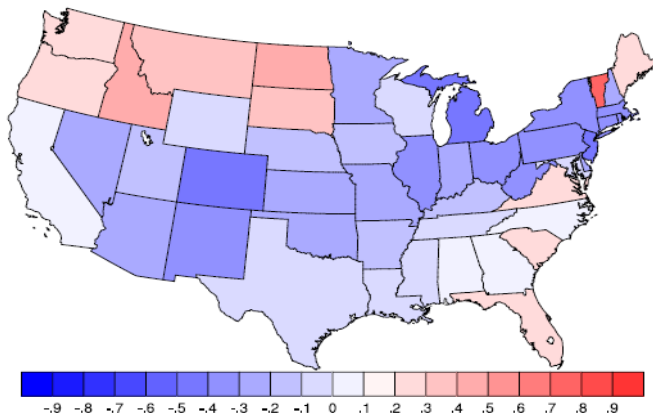
Fossil fuels / GHG emissions (Craig & Feng, 2016a; Langevin et al., 2013)

Consumption  EE\$  (Craig, 2016; Craig & Feng, 2016a, b; EIA, 2015)

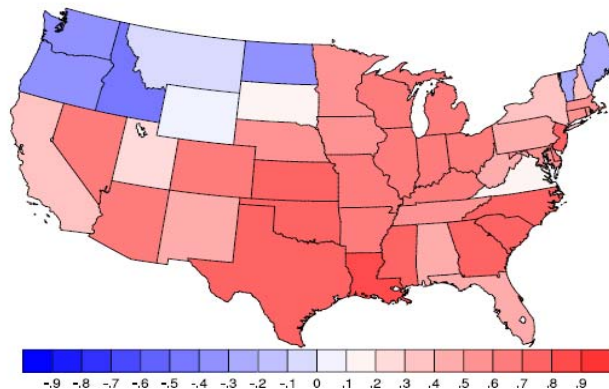
(Behavior + Incentive) > Incentives
(Allcott & Mullainathan, 2010; Craig & Allen, 2015; Herring, 2006; Sovacool, 2009; Thaler & Sunstein, 2008)

Relationships between climate, EE, and consumption

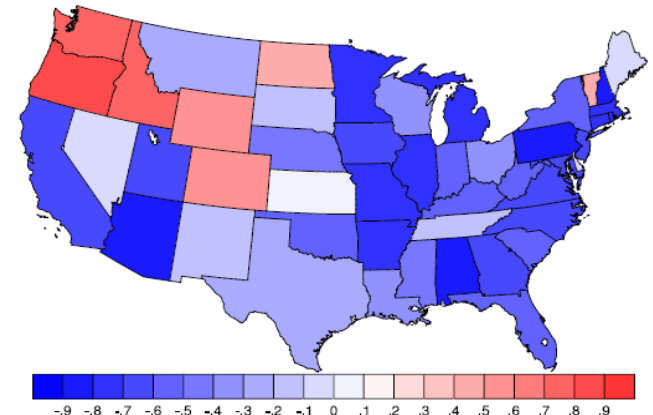
kWh per consumer correlation (r) with HDD



kWh per consumer correlation (r) with CDD

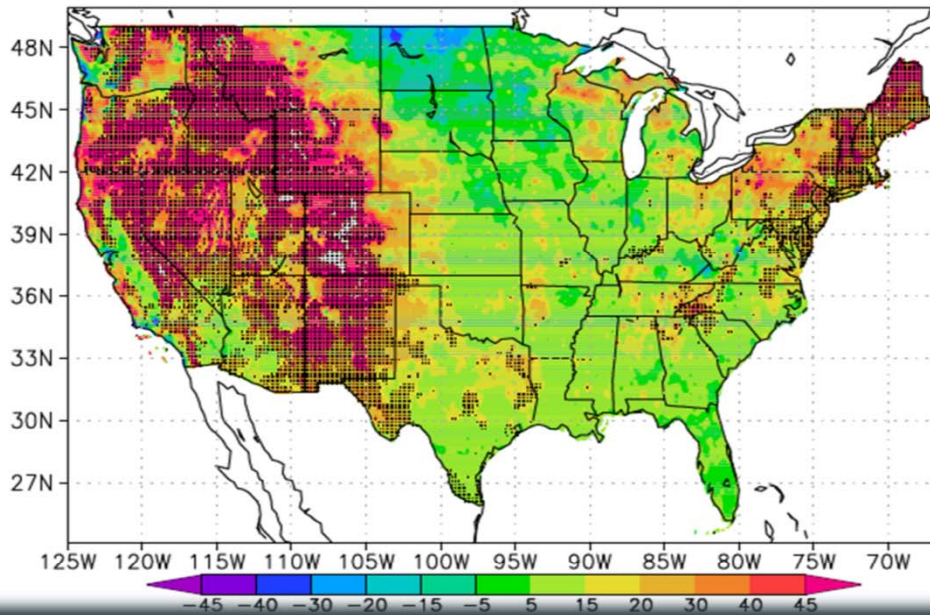


kWh per consumer (r) correlation with EE annual

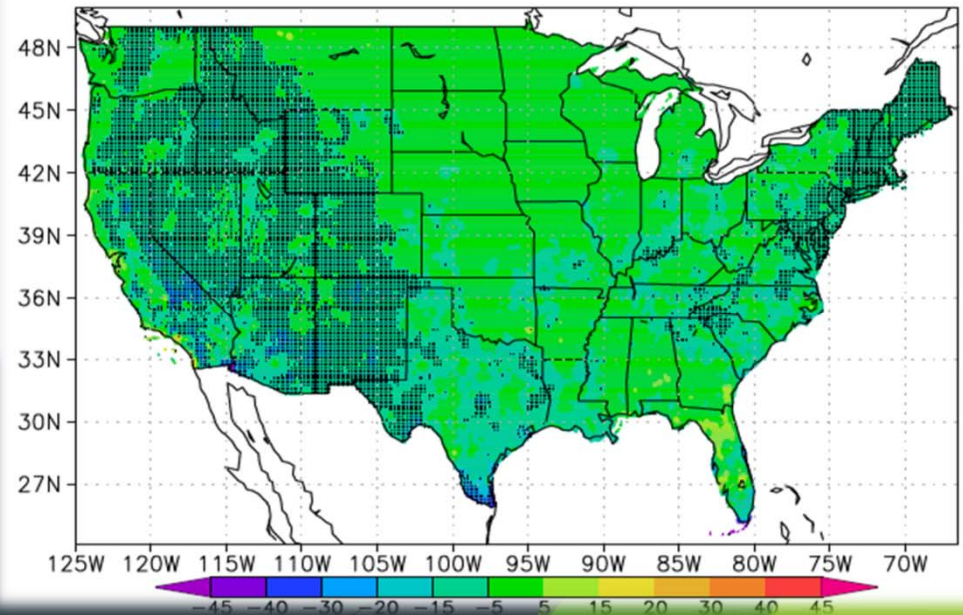


HDD and CDD Trends

Trend in CDD (1981–2014)



Trend in HDD (1981–2014)



(e.g., Craig & Feng, 2016)

Implications:

How effective is EE? Accountability!

Holistic approach (behavior / economic)



Best practices (Northwest US)

Partnerships (e.g., NOAA, EPA)

QUESTIONS?



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