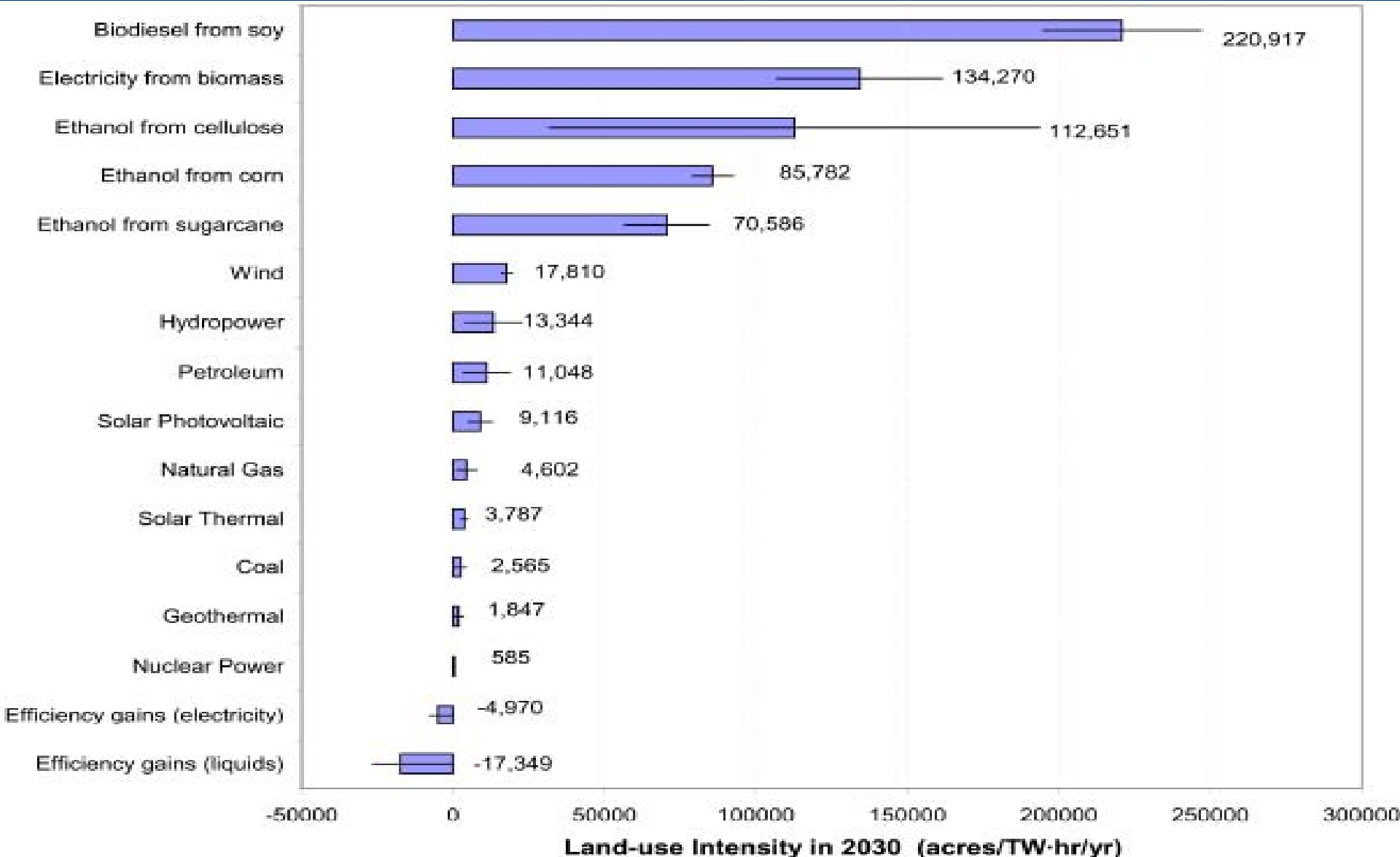
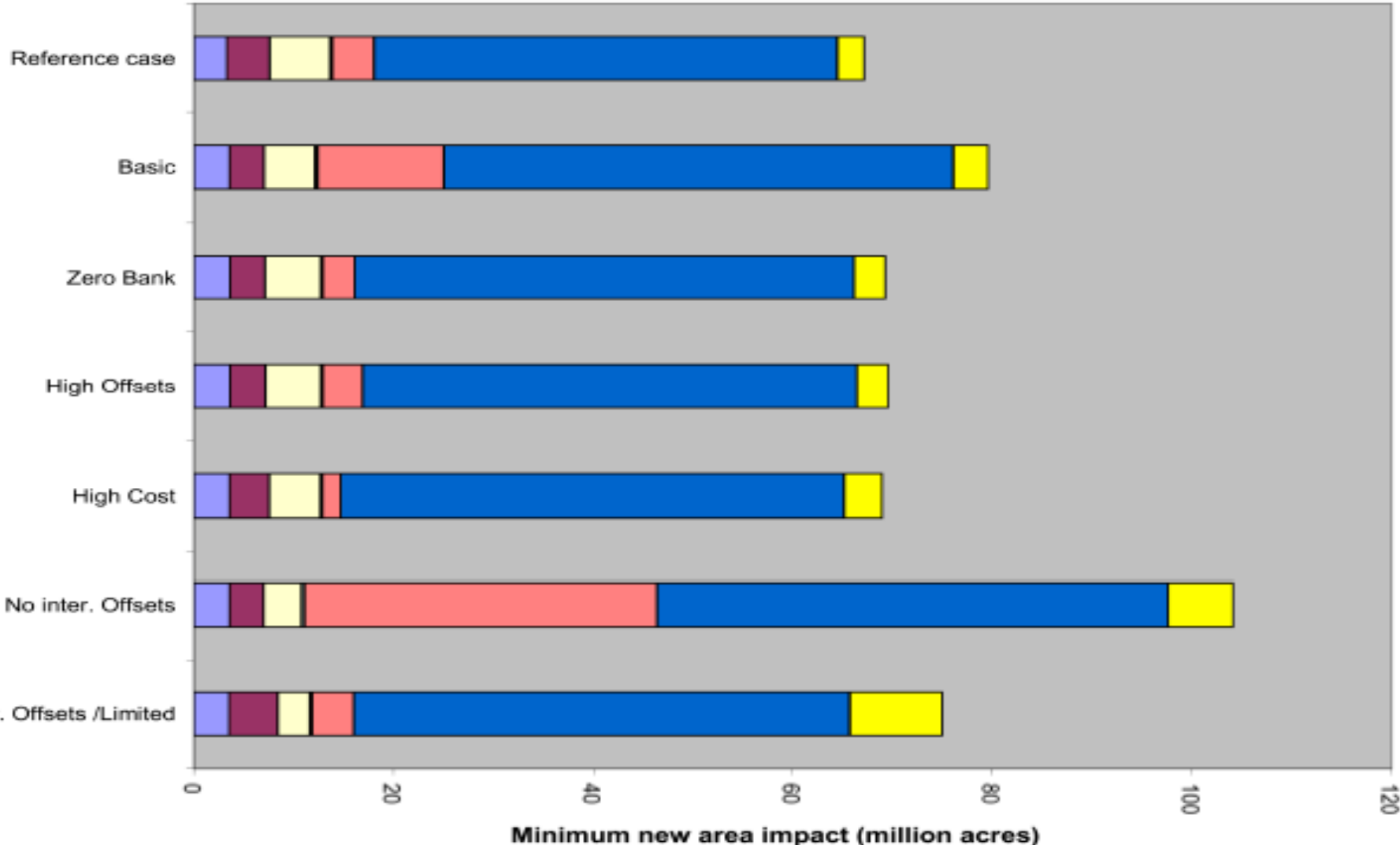
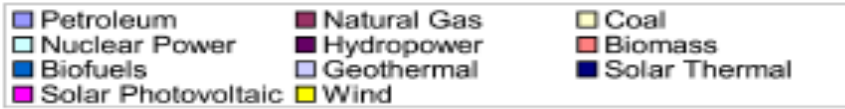




Energy Sprawl



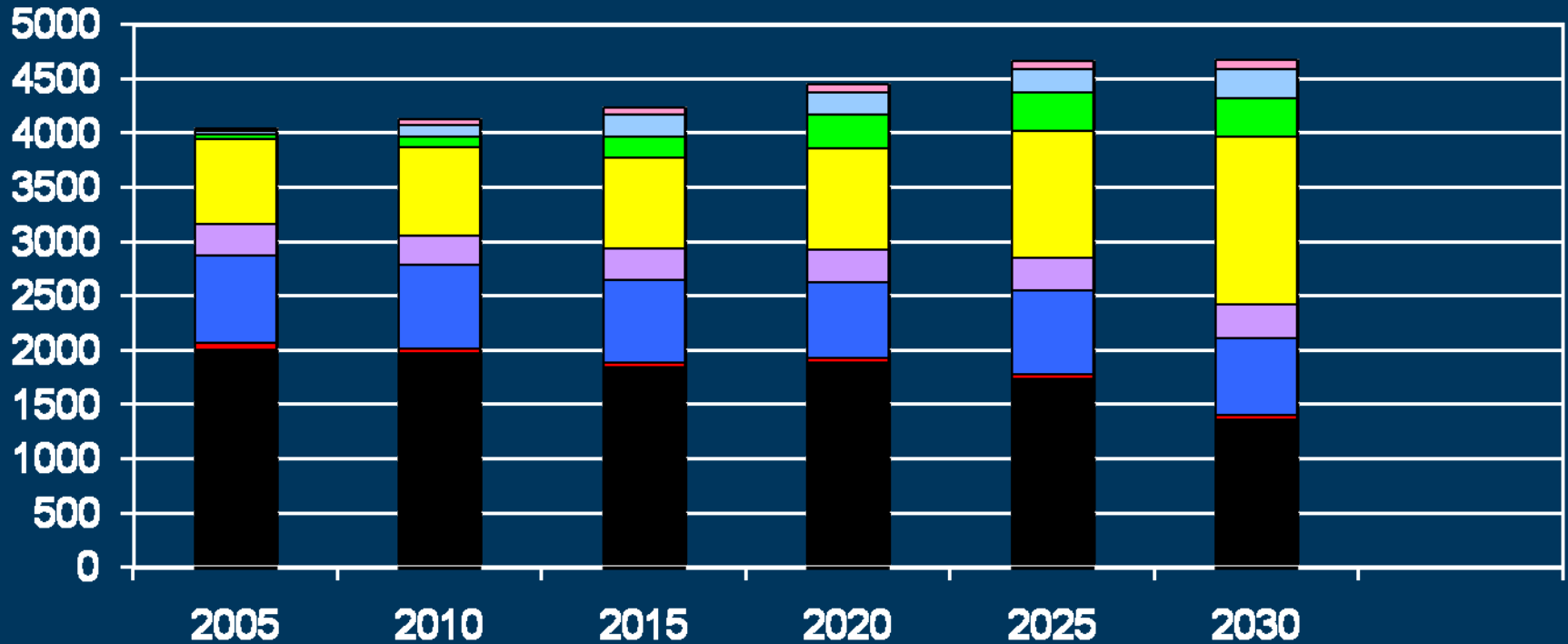
Land Use Change Impacts in 2030 EISA 2007, ARRA and H.R. 2454



Response to Cap and Trade to 2030

Source: Energy Information Administration 2009

Terawatt Hours/Year of Electricity Generation



■ Coal

■ Petroleum

■ Natural Gas

■ Hydropower

■ Nuclear

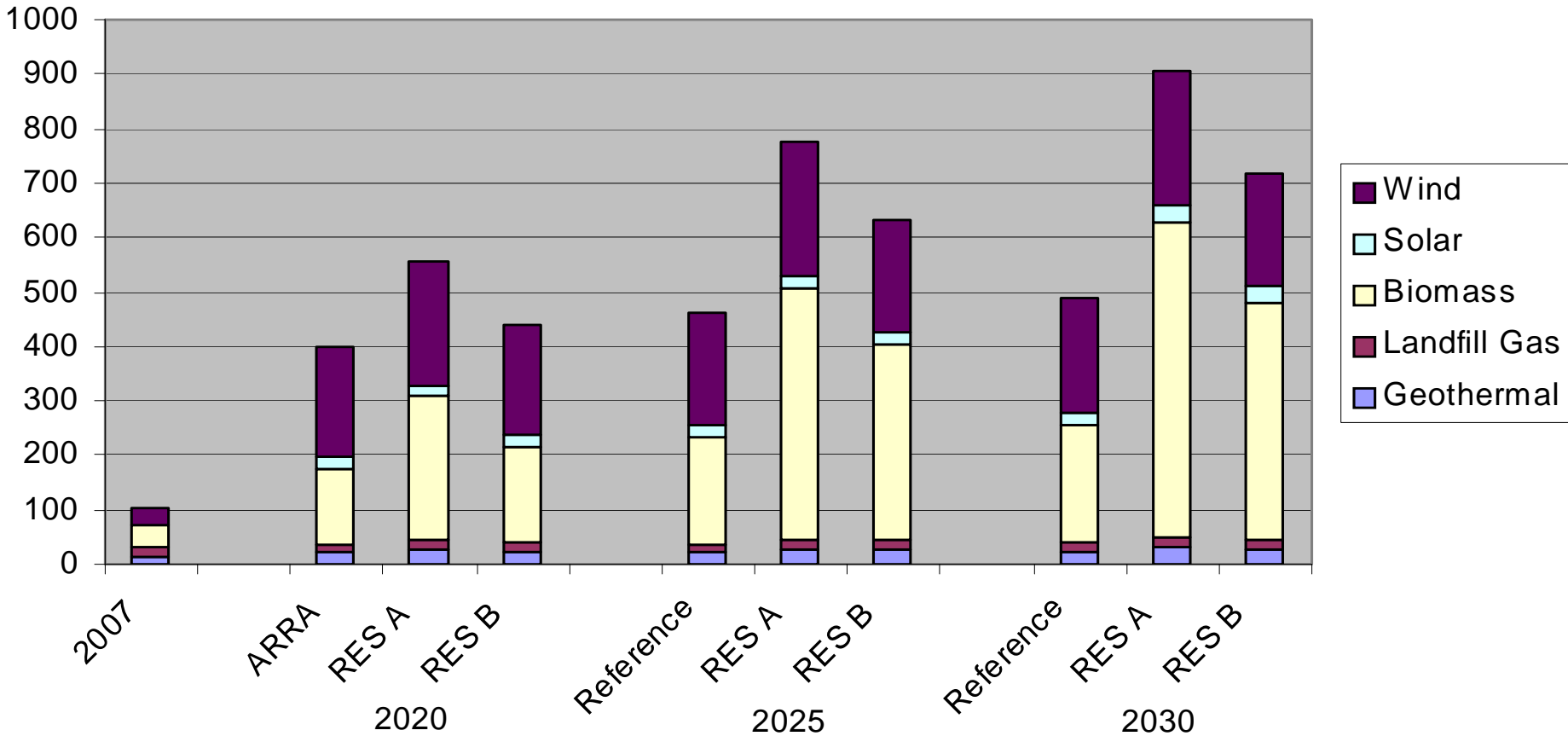
■ Biomass

■ Wind

■ Other Renewables

Renewable Generation for 25% RES (billion kWh)

Source: Energy Information Administration, 2009



RES A = No Efficiency Credits Claimed
RES B = Fully Use of Efficiency Credits

Sustainable Development Pathway

- Energy efficiency first
 - Vehicles, cities, buildings, appliances, power plants (CHP)
- New technologies to increase yield, production capacity and storage
- Intensification of other land uses
 - Grazing density, food crop yields
- Full carbon accounting for land use conversion in climate change policies
- Limits on land conversion protecting:
 - Important wildlife habitat and natural systems; high carbon ecosystems; high production food crop acreage
- Offsets to mitigate for environmental impacts

Renewable Biomass Definition

- EISA 2007
 - No conversion of naturally regenerating forest lands; and
 - Little to no material from federal forest lands.
- Farm Bill 2008
 - Open to any renewable material from private lands; and
 - No material from old growth forests and conservation areas.
- Nature Conservancy Proposal for Private Lands
 - Utility/refinery to develop biomass sourcing plan;
 - Sourcing plan submitted to state forester/DNR;
 - Forester must determine that the plan would not adversely affect wildlife, water quality and other forest services.

Thank You

