Climate Policy Options

An analysis of the policies proposed to combat climate change

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Important Considerations

- Large investor owned utility (IOU) providers generally operate through centrally generated distribution networks where the jobs, money and decisions surrounding energy production are highly centralized
- Although IOUs remain powerful, there are ways for consumers and cities to defect from them (see Option 7 and Option 8)
- Corrective policies such as gasoline and carbon taxes are often regressive, meaning they disproportionately hurt the poor. However, this regressivity can be offset by combining regressive taxes with progressive measures
- Energy efficiency initiatives may result in the Jevon's Paradox, whereby improved efficiency leads to increased consumption

Evaluative Criteria Terms

Deficit neutral: policy in which the government's expenditures equal its revenues

Energy Conservation: a net reduction in energy consumption

Horizontal Equity: exists if different people with identical financial circumstances are treated the same under the tax code (i.e. an *unmarried* couple without children making $30,000 a year is taxed the same as a *married* couple without children making $30,000 a year)

Progressivity: the extent to which a policy provides relief to the poor

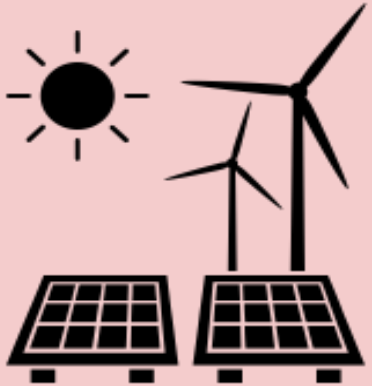
Return On Investment (ROI): The return than an asset generates to its owner(s)

Option 1: Renewable Portfolio Standards (RPS)

- Expand New Mexico’s RPS and shorten deadlines for compliance

- Strengthen enforcement mechanisms and impose stricter penalties for non-compliant utilities

* New Mexico’s current RPS requires renewable energy to compose at least 20% of investor owned utility (IOU) retail sales by 2020



RPS: Pros & Cons

Pros:

- ✓ No public financing is required
- ✓ An existing RPS framework is already in place
- ✓ May speed up the transition to renewable energy by setting a deadline for compliance
- ✓ Covering large, geographically diverse area helps address intermittency issues

Cons:

- x Consumers remain dependent on hegemonic utility companies which fail to create local jobs or promote local ownership and control of energy resources
- x Centrally generated electricity remains the dominant form of power: A dramatic expansion in renewable energy production would likely necessitate costly upgrades to the grid

RPS: Evaluative Criteria

Progressive: N/A

Horizontal Equity: N/A

Promotes Local Ownership & Control: No

ROI for individual consumers: No

Net Job Creation: No

Incentivizes Conservation: No

Deficit Neutral: N/A

Applicable at the:

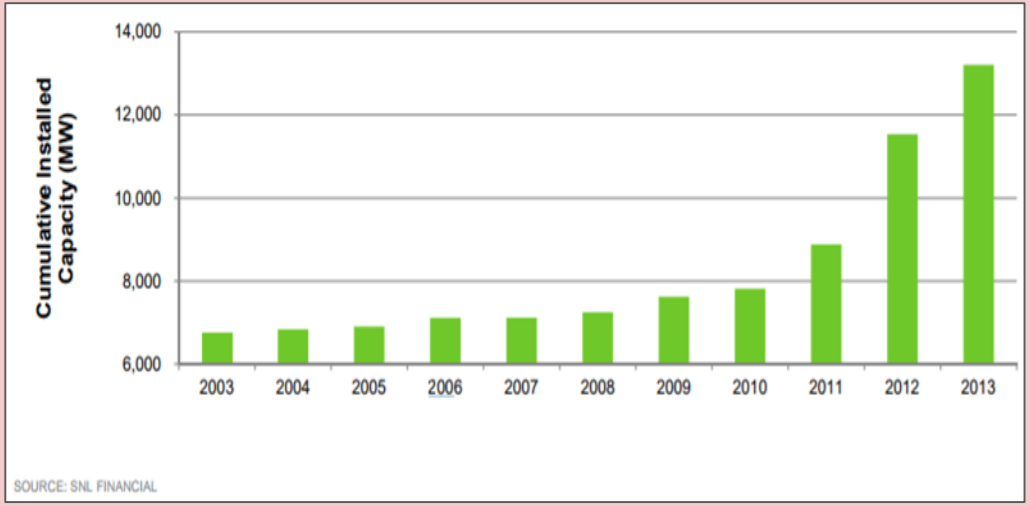
Local level: Yes

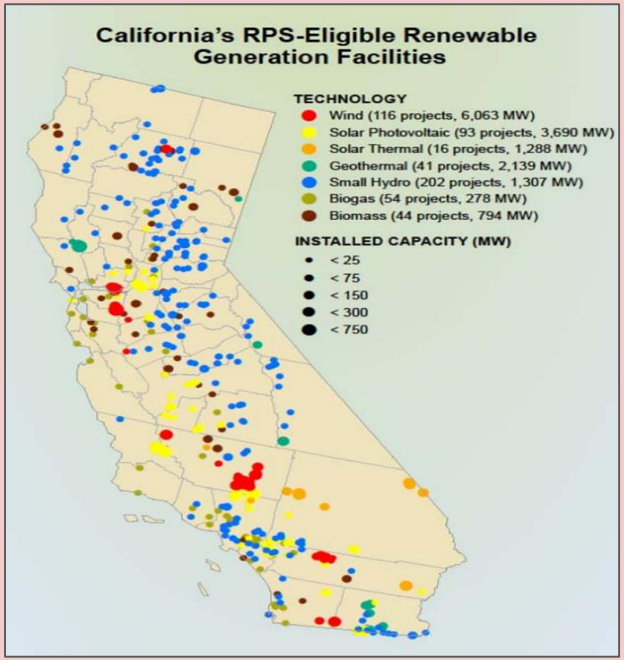
State level: Yes

Federal level: Yes

RPS Case Study: California

- First established in 2002
- Seeks to produce 33% of its retail electricity from renewable energy by 2020
- California has witnessed a 200% increase in installed renewable generation capacity





Option 2: Amendment to the New Mexico State Constitution

- Mandates state agencies to invest in energy storage and renewable energy on government buildings when cost effective or otherwise prudent
- Authorizes bureaucrats to allocate funds towards renewable energy and energy efficiency
- Requires governmental cost-benefit analysis reports to account for long-term energy costs/savings
- Amendment is voted on in an election and requires a simple majority for ratification

Constitutional Amendment: Pros & Cons

Pros:

- ✓ Eliminates bureaucratic uncertainty over whether or not state agencies can use public funds to advance the use renewable energy
- ✓ Insulated from the political fluctuations accompanied by election cycles
- ✓ Could save taxpayer money in the long run by reducing public sector energy costs

Cons:

- X The financial viability of capital investments in renewable energy may be heavily dependent on the state's overall fiscal condition and credit rating, which could deteriorate over time
- X Some agencies may be slow or unwilling to adopt renewable technologies. A universal transition to renewable energy will be difficult to accomplish in the short-term
- X Limited in scope: only affects the public sector

Constitutional Amendment: Evaluative Criteria

Progressive: N/A

Horizontal Equity: N/A

Promotes Local Ownership & Control: No

ROI for individual consumers: No

Net Job Creation: No

Incentivizes Conservation: Yes

Deficit Neutral: Yes, (net surplus)

Applicable at the:

- **Local level:** Yes (if the municipality has a constitution)
- **State level:** Yes
- **Federal level:** Yes

Option 3: Net Metering Mandate

- Require Investor Owned Utilities (IOUs) to engage in net metering for all new and existing solar installations

- Customers with solar installations can sell their surplus electricity back to their utility provider

* New Mexico allows net metering up to 80,000 kilowatts for existing owners of solar modules, but has discontinued the deal for future owners

Net Metering Mandate: Pros & Cons

Pros:

- ✓ Reduces the payback period for investments in solar energy
- ✓ Encourages conservation… greater reduction in energy usage yields greater compensation for surplus energy generation

Cons:

- X Consumers are still dependent on the grid and hegemonic utility providers to meet some of their energy needs
- X The benefits of net metering will disproportionately accrue to upper class households who can afford to invest invest in solar modules

Net Metering Mandate: Evaluative Criteria

Progressive: N/A

Horizontal Equity: N/A

Promotes Local Ownership & Control: No

ROI for individual consumers: Yes

Net Job Creation: No

Incentivizes Conservation: Yes

Deficit Neutral: N/A

Applicable at the:

- **Local level:** Yes
- **State level:** Yes
- **Federal level:** Yes

Option 4: Tax Credit for Investments in Renewable Energy

- Re-introduce tax credits for investments in renewable energy

- Tax credits help to offset the costs associated with renewable energy by lowering income tax liabilities

* A 30% federal tax credit is still available for solar installations, however, New Mexico’s 10% tax credit expired at the end of 2016

Tax Credit: Evaluative Criteria

Progressive: No

Horizontal Equity: No (income tax does not treat people with the same ability to pay equally)

Promotes Local Ownership & Control: No

ROI for individual consumers: Yes

Net Job Creation: No

Incentivizes Conservation: Yes

Deficit Neutral: No

Applicable at the:

- **Local level:** No
- **State level:** Yes
- **Federal level:** Yes

Renewable Tax Credit Case Study: Wind Energy Production Tax Credit in Iowa

- Established in 2005 (updated since)
- Worth 1 ¢ per kilowatt hour
- From 2000 to 2014, Iowa's wind energy capacity grew by a factor of more than 28, exceeding the national average
- By 2014, wind power made up 27% of Iowa's energy portfolio, outpacing all other states
- In 2012, Iowa was home to 75 wind power plants with ≥ 3,000 individual turbines of which:
  - 18 were operated by IOUs
  - 10 were rural electric co-ops or municipally owned
  - 46 were operated by independent operators
  - 1 was operated for commercial/industrial use

Option 5: Gasoline Tax

- Tax gasoline to compensate for infrastructure investments AND environmental externalities
- Price the tax equal to the marginal external cost (MEC) of gasoline consumption
    - Add this amount to the existing gas tax, which exists primarily for road & highway funding

* The United States and New Mexico already have a 18.88 ¢ /gallon and 18.4 ¢ /gallon gas tax respectively, but these taxes do not account for environmental factors

Gasoline Tax: Pros & Cons

Pros:

- ✓ Motivates drivers to conserve gas or seek alternatives to driving
- ✓ Pressures auto manufacturers to produce more fuel-efficient cars in order to meet consumer demand for improved gas mileage
- ✓ Reduces GHG emissions while also collecting tax revenue (more economically efficient than rationing or mandating reductions)

Cons:

- ✕ The incidence of a higher gasoline tax would be regressive because lower income individuals pay a higher proportion of their earnings on gas than do wealthier individuals
- ✕ A gasoline tax alone would not be a comprehensive towards approach tackling climate change since there are many other activities which contribute to global warming besides driving

Gasoline Tax: Evaluative Criteria

Progressive: No

Horizontal Equity: Yes

Promotes Local Ownership & Control: No

ROI for individual consumers: No

Net Job Creation: No

Incentivizes Conservation: Yes

Deficit Neutral: Yes, net surplus

Applicable at the:

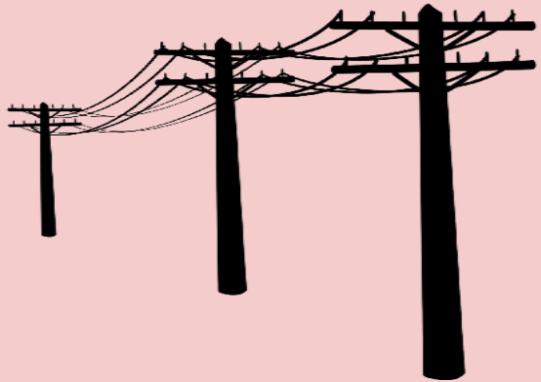
- **Local level:** Yes
- **State level:** Yes
- **Federal level:** Yes

Option 6: Aggregate Power Distribution

- Multiple parties team up to collectively bargain with their utility providers in order to achieve certain objectives such as:
  - Cost savings
  - Expanded renewable energy output

- Parties may be composed of municipalities or commercial & industry (C&I) partners

- Demand aggregation is used by consumers to increase their negotiating power



Aggregate Power Distribution: Pros & Cons

Pros:

- ✓ Collective bargaining strengthens negotiating power, leading utilities to be more responsive to the demands of its customers
- ✓ Parties unable to afford renewable energy when acting alone may able to through aggregating demand
- ✓ Utilities benefit from grid balancing

Cons:

- ✕ Empowers large utility providers and reinforces dependence on the grid
- ✕ May involve long-term binding agreements which make it difficult for localities to break away from their utility provider
- ✕ Adding large amounts of renewable energy to centrally distributed energy systems could require costly upgrades to the grid

Aggregate Power Distribution: Evaluative Criteria

Progressive: N/A

Horizontal Equity: N/A

Promotes Local Ownership & Control: No

ROI for individual consumers: No

Net Job Creation: No

Incentivizes Conservation: No

Deficit Neutral: N/A

Applicable at the:

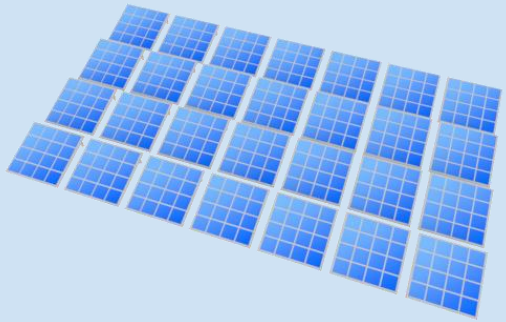
- **Local level:** Yes
- **State level:** Yes
- **Federal level:** No

Option 7: Shared Renewable Energy

- Enables households unable to install on-site renewable energy to access it through distributed electric generation

Two types:

1. Virtual Net Metering: offers conventional net metering to multiple customers at a time
2. Community Renewables: group purchases solar modules or wind turbines for the purpose of sharing renewable energy



Shared Renewable Energy: Pros & Cons

Pros:

- ✓ Advances local control over the power supply and helps lessen dependency on centrally distributed electricity
- ✓ Promotes conservation: communities don't want to purchase more solar panels or wind turbines than they need
- ✓ More affordable for consumers to install as a group than as individuals

Cons:

- ✕ Individuals will be less inclined to reduce their energy consumption if the financial rewards of net metering are spread across a group. Similarly, heavy users of electricity will be less likely to conserve energy if they know that some of their utility costs will be absorbed by a larger group
- ✕ Low-income communities may be unable to afford shared renewable energy without public assistance

Shared Renewable Energy: Evaluative Criteria

Progressive: N/A

Horizontal Equity: N/A

Promotes Local Ownership & Control: Yes

ROI for individual consumers: Yes

Net Job Creation: Yes

Incentivizes Conservation: Yes (however this could be offset by over consumption if energy costs are split evenly amongst the group because consumers will know that they can externalize their individual costs to a larger pool of ratepayers)

Deficit Neutral: N/A

Applicable at the:

Local level: Yes

State level: Yes

Federal level: No

Option 8: Locally Controlled Utilities & Rural Electric Co-ops

- Municipalities could defect from the grid to establish their own public utilities

- Cities could (a) buy out existing IOUs and rapidly enhance their solar and wind production capacity OR (b) construct a new distributed energy system which functions independently from the grid

Locally Controlled Utilities: Pros & Cons

Pros:

- ✓ Local autonomy and complete independence from large IOUs
- ✓ Local skills and jobs must be procured for installing and maintaining a new system of energy distribution
- ✓ With profit motives eliminated, public utilities can provide customers with the most affordable rates for electricity

Cons:

- ✕ Intermittency issues: a complete transition to renewable energy will require mass redundancy in order to compensate for inconsistent energy production
- ✕ Smaller cities and towns cannot depend on the economies of scale that large energy producers use to drive down production costs

Locally Controlled Utilities: Evaluative Criteria

Progressive: N/A

Horizontal Equity: N/A

Promotes Local Ownership & Control: Yes

ROI for individual consumers: No

Net Job Creation: Yes

Incentivizes Conservation: Yes

Deficit Neutral: N/A

Applicable at the:

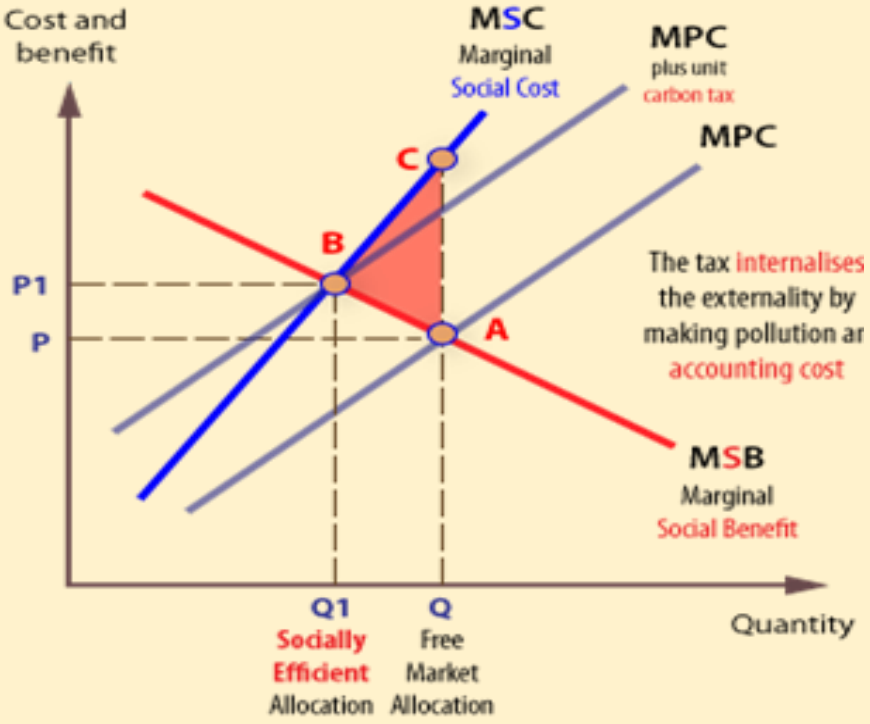
- **Local level:** Yes
- **State level:** No
- **Federal level:** No

Locally Controlled Utilities Case Study: Kit Carson Electric Co-op (KCEC)

- Originally controlled by Tri State Generation and Transmission (TSGTA)
- Under TSGTA, KCEC could not produce more than 5% of its electricity from locally sourced clean energy
- In 2016, Guzman Renewable Energy Partners bought out KCEC's contract from TSGTA
- Now, KCEC aims to produce 100% of its electricity from solar power during summer peak-season by 2023

Option 9: Comprehensive Greenhouse Gas (GHG) Tax

- Absent of a GHG tax, GHG emissions will exceed their socially optimal level
- A GHG tax uses price signals to discourage the consumption of GHGs, while simultaneously generating a stream of tax revenue
- However, because low-income households spend a higher proportion of their earnings on GHG-intensive goods, the incidence of a GHG would ultimately be regressive



How to Allocate the GHG Tax Revenue?

Ideas:

- Reduction in Personal Income Tax rates?
- Reduction in the Property Tax rate?
- Reduction in the Corporate Income Tax rate?
- Corporate Income Tax rebate for companies investing in renewable energy/energy storage technology?
- Personal Income Tax rebate?
- Payroll Tax rebate?

*** However, none of the options listed above are progressive. In order to offset the regressivity of a GHG Tax, revenue must be specifically targeted to low-income households ***

Offsetting the Regressivity of a GHG Tax

The regressivity of a GHG tax could be offset by redistributing the tax revenues to low-income families and individuals

Policy Options:

Fixed payment for households eligible for SNAP ●

Increase EITC payments ● ▪

Dividends issued to low-income households Δ ▪

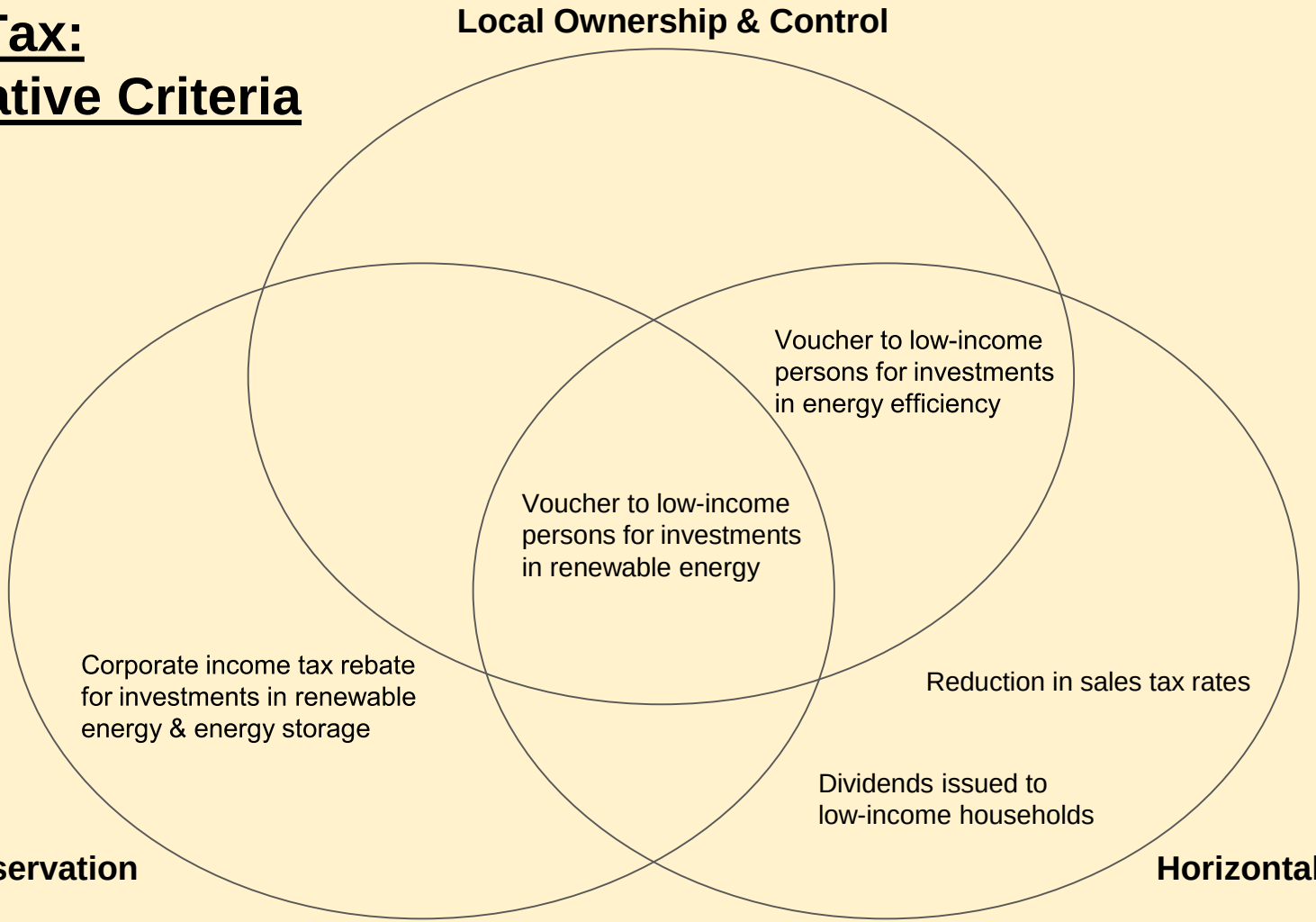
Voucher to low-income families for investments in energy efficiency/renewable energy ● Δ ▪

Δ applicable at the local level

▪ applicable at the state level

● applicable at the federal level

GHG Tax: Evaluative Criteria



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