Climate Policy Options

An analysis of the policies proposed to combat climate change

Andrew W. Ash

Albuquerque, New Mexico, United States

August 3, 2017
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:

✗ Consumers remain dependent on hegemonic utility companies which fail to create local jobs or promote local ownership and control of energy resources
✗ Centrally generated electricity remains the dominant form of power: A dramatic expansion in renewable energy production would likely necessitate costly upgrades to the grid
<table>
<thead>
<tr>
<th>RPS: Evaluative Criteria</th>
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<tbody>
<tr>
<td><strong>Progressive:</strong> N/A</td>
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<tr>
<td><strong>Horizontal Equity:</strong> N/A</td>
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<tr>
<td><strong>Promotes Local Ownership &amp; Control:</strong> No</td>
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<td><strong>ROI for individual consumers:</strong> No</td>
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<td><strong>Net Job Creation:</strong> No</td>
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<tr>
<td><strong>Incentivizes Conservation:</strong> No</td>
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<tr>
<td><strong>Deficit Neutral:</strong> N/A</td>
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<tr>
<td><strong>Applicable at the:</strong></td>
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<tr>
<td><strong>Local level:</strong> Yes</td>
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<td><strong>Federal level:</strong> Yes</td>
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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 of 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:

☒ 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

☒ 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

☒ Limited in scope: only affects the public sector
## Constitutional Amendment: Evaluative Criteria

<table>
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<tr>
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<tr>
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<td>Yes</td>
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<tr>
<td>Deficit Neutral</td>
<td>Yes, (net surplus)</td>
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<tr>
<td>Applicable at the:</td>
<td></td>
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<tr>
<td><strong>Local level</strong></td>
<td>Yes (if the municipality has a constitution)</td>
</tr>
<tr>
<td><strong>State level</strong></td>
<td>Yes</td>
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<td><strong>Federal level</strong></td>
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</table>
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:

✗ Consumers are still dependent on the grid and hegemonic utility providers to meet some of their energy needs
✗ The benefits of net metering will disproportionately accrue to upper class households who can afford to invest in solar modules
### Net Metering Mandate: Evaluative Criteria

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<td>Deficit Neutral</td>
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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:
  o 18 were operated by IOUs
  o 10 were rural electric co-ops or municipally owned
  o 46 were operated by independent operators
  o 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 approach tackling climate change since there are many other activities which contribute to global warming besides driving
**Gasoline Tax: Evaluative Criteria**

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<td>No</td>
<td>Yes, net surplus</td>
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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

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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

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<tr>
<th><strong>Pros:</strong></th>
<th><strong>Cons:</strong></th>
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<tbody>
<tr>
<td>✔ Advances local control over the power supply and helps lessen dependency on centrally distributed electricity</td>
<td>✗ 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</td>
</tr>
<tr>
<td>✔ Promotes conservation: communities don’t want to purchase more solar panels or wind turbines than they need</td>
<td>✗ Low-income communities may be unable to afford shared renewable energy without public assistance</td>
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<tr>
<td>✔ More affordable for consumers to install as a group than as individuals</td>
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<tr>
<td>(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)</td>
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</table>

| 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 △ ▪
- Voucher to low-income families for investments in energy efficiency/renewable energy • △ ▪

△ applicable at the local level
▪ applicable at the state level
• applicable at the federal level
GHG Tax: Evaluative Criteria

- Local Ownership & Control
  - Voucher to low-income persons for investments in energy efficiency
  - Reduction in sales tax rates

- Conservation
  - Corporate income tax rebate for investments in renewable energy & energy storage
  - Dividends issued to low-income households

- Horizontal Equity
  - Voucher to low-income persons for investments in renewable energy
References


