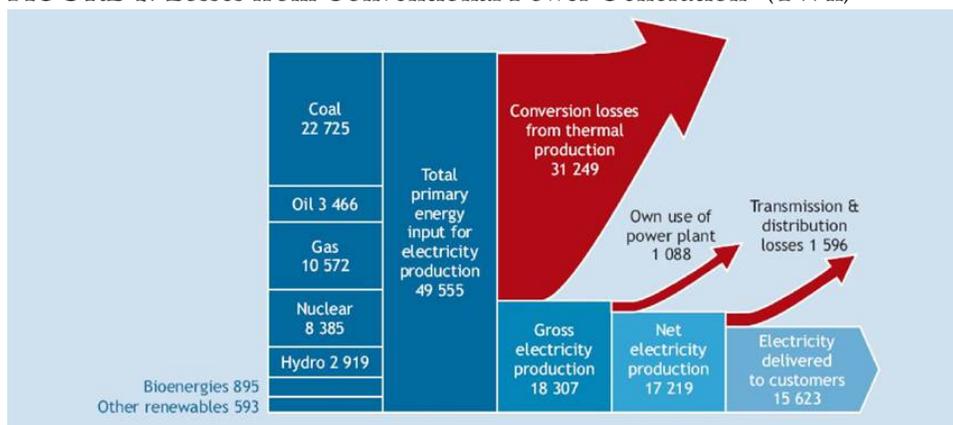


# The Alliance for Industrial Efficiency

The Alliance for Industrial Efficiency (AIE) is pleased that the Ways and Means Energy Tax Reform Working Group is soliciting comments from stakeholders on recommended changes to the current tax code. The Alliance is a diverse coalition representing the business, environmental, labor and contractor communities and is committed to enhancing manufacturing competitiveness through industrial energy efficiency. This letter elaborates the economic and reliability benefits associated with Combined Heat and Power (CHP) and Waste Heat to Power (WHP) and seeks modest changes to the current tax code to encourage greater deployment of these technologies.

U.S. power generation is woefully inefficient – and has not improved since Dwight Eisenhower occupied the White House. In fact, as Figure 1 (below) illustrates, roughly two-thirds of energy inputs (68 percent) are simply wasted, with a mere 32 percent actually delivered to customers. Ratepayers subsidize this inefficiency by paying for power that never reaches the end user. The unfortunate results are lost competitiveness and jobs, as well as increased pollution.

**FIGURE 1: Losses from Conventional Power Generation<sup>1</sup> (TWh)**

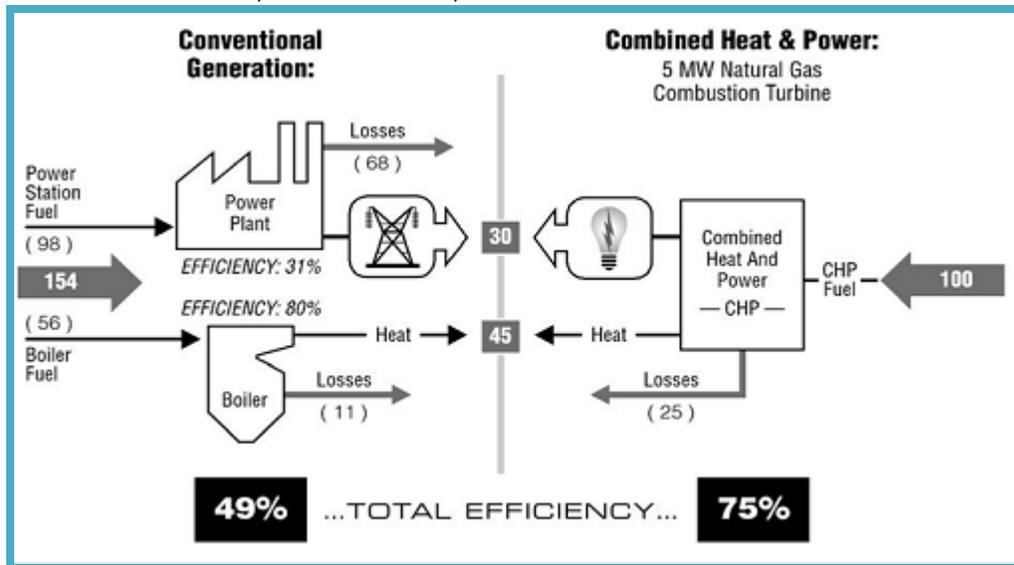


Fortunately, cleaner and more cost-effective alternatives already exist in the form of Combined Heat and Power and Waste Heat to Power. Indeed, by capturing and reusing waste heat, a CHP system can convert what would otherwise be wasted energy into additional electricity and useful thermal energy (heat). This approach reduces costs and increases energy efficiency – allowing utilities and companies to effectively “get more with less.” As Figure 2 (next page) illustrates, total energy use is significantly greater with conventional separate heat and power generation (here 154 units) than it is under combined heat and power (here 100 units).

<sup>1</sup> International Energy Agency, 2008, “Combined Heat and Power: Evaluating the benefits of greater global investment,” at 6 (Figure 3) ([http://www.iea.org/papers/2008/chp\\_report.pdf](http://www.iea.org/papers/2008/chp_report.pdf)).

The related opportunity for energy savings using Waste Heat to Power provides new sources of electricity simply by converting the heat and steam that otherwise would be emitted into the atmosphere from a variety of industrial processes.

FIGURE 2: CHP System Efficiency<sup>2</sup>



By dramatically reducing electric power demand (and related energy costs) for industrial sources, Combined Heat and Power can help make U.S. manufacturing more competitive. For instance, the ArcelorMittal steel facility in East Chicago, Indiana, reports \$100 million in annual energy savings from waste heat and CHP.<sup>3</sup> Industrial CHP facilities can use the money they save on energy to expand production and employment. Such savings are already being realized at thousands of locations nationwide. According to the Department of Energy Database, 3,850 CHP and WHP installations already produce 82 gigawatts of clean and efficient power around the country.<sup>4</sup>

What's more, CHP and WHP projects can increase the reliability of our power sector, by ensuring that manufacturers, universities and hospitals "keep the lights on" during extreme weather events that can compromise the electric grid. We witnessed these benefits this winter during Superstorm Sandy, when many communities in the Northeast and Mid-Atlantic went without power. Yet Co-Op city, a 60,000-resident community in New York with a CHP system, still had heat and light.<sup>5</sup> Similar success stories exist across the region.<sup>6</sup>

<sup>2</sup> U.S. EPA, "Output-Based Environmental Regulations Fact Sheet" ([http://www.epa.gov/chp/state-policy/obr\\_factsheet.html](http://www.epa.gov/chp/state-policy/obr_factsheet.html)) (Note that this figure is for illustration only. CHP performance relative to separate heat and power depends on numerous site- and project-specific factors).

<sup>3</sup> Chris Steiner, "Gray is the New Green," *Forbes*, Sept. 15, 2008 ([http://www.forbes.com/forbes/2008/0915/054\\_2.html](http://www.forbes.com/forbes/2008/0915/054_2.html)).

<sup>4</sup> CHP Installation Database developed by ICF for ORNL and DOE, 2012 (<http://www.eea-inc.com/chpdata/index.html>).

<sup>5</sup> Williams, Diarmaid., Nov. 11, 2012, *Lessons Learned from Hurricane Sandy* (<http://www.cospp.com/content/cospp/en/articles/2012/11/lessons-learned-from-hurricane-sandy.html>)

<sup>6</sup> Pew Charitable Trusts, *Industrial Efficiency Technology Kept the Lights on During Hurricane Sandy* (compendium of articles and key excerpts available online at [http://www.pewenvironment.org/uploadedFiles/PEG/Publications/Other\\_Resource/clean-Sandy\\_Breifing\\_Web\\_Dec2012.pdf](http://www.pewenvironment.org/uploadedFiles/PEG/Publications/Other_Resource/clean-Sandy_Breifing_Web_Dec2012.pdf)).

The potential for increased deployment of CHP and WHP is great. Indeed, in 2008, the Department of Energy's Oak Ridge National Laboratory (ORNL) found that CHP could produce 20 percent of U.S. electric capacity (or 156 gigawatts of new, clean power) by 2030.<sup>7</sup> This addition is equal to the capacity of more than 300 conventional power plants. According to ORNL, such full-scale deployment would generate \$234 billion in new investment and create nearly one million new highly-skilled, technical jobs,<sup>8</sup> in the design, construction, installation and maintenance of CHP equipment.

On August 31, 2012, the Administration took a first step to challenge the nation to realize this potential by issuing an Executive Order (EO 13624) establishing a goal of increasing CHP deployment by 50 percent (40 gigawatts) by the year 2020. We commend the Administration for recognizing the benefits of industrial efficiency; however, we believe Congress should support a more aggressive deployment goal, as reflected in The Smart Energy Act, which was introduced with bipartisan support by Representatives Bass and Matheson, and others, in the 112<sup>th</sup> Congress. A provision in this legislation contained a goal of *doubling* CHP deployment during the same period. This bold vision is needed to advance technologies that are vital to our economy and to our nation's electric reliability. This ambitious goal is also consistent with the seminal 2008 ORNL report.

CHP's and WHP's technical capacity clearly exceeds the Executive Order goal. In October 2010, ICF Consulting published a report – “Effect of a 30 Percent Investment Tax Credit on the Economic Market Potential for Combined Heat and Power” – assessing the technical market potential for CHP in the industrial, commercial/institutional, and multi-family residential market sectors in the U.S., finding that such potential approached 64 gigawatts in the industrial sector and 68 gigawatts in the commercial sector.<sup>9</sup> These findings were reaffirmed in a 2012 DOE-EPA report released alongside the industrial efficiency Executive Order.<sup>10</sup> Relatedly, analysis done for the EPA-DOE interagency Technical Assistance Program found that simply installing CHP in the industrial coal and oil boilers covered by the Boiler MACT Rule would produce in excess of 21 gigawatts of new CHP capacity – more than half of the Administration's recently announced goal.<sup>11</sup>

Unfortunately, CHP and WHP deployment to date fall far short of this technical potential. Despite the substantial long-term economic benefits, projects require a significant up-front investment with a multi-year payback period. In this economy, businesses are unlikely to have the necessary capital to support such investments. An Investment Tax Credit can help reduce the initial cost for these projects, shrinking the payback period.

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<sup>7</sup> Oak Ridge National Laboratory (ORNL), Dec. 1, 2008, *Combined Heat and Power: Effective Energy Solutions for a Sustainable Future*, at 4 ([http://www1.eere.energy.gov/industry/distributedenergy/pdfs/chp\\_report\\_12-08.pdf](http://www1.eere.energy.gov/industry/distributedenergy/pdfs/chp_report_12-08.pdf)).

<sup>8</sup> *Id*

<sup>9</sup> Commercial and Industrial CHP Potential from ICF's "Effect of a 30 Percent Investment Tax Credit on the Economic Market Potential for Combined Heat and Power (USCHPA-WAIDE ITC Study), Table 3 and Table 4, on p. 11 and p. 12 respectively ([http://www.uschpa.org/files/public/USCHPA%20WAIDE\\_ITC\\_Report\\_FINAL%20v4.pdf](http://www.uschpa.org/files/public/USCHPA%20WAIDE_ITC_Report_FINAL%20v4.pdf)). "The estimates of CHP technical potential are based on thermally loaded CHP systems sized to serve on-site electrical demands at target facilities and do not include export capacity", so the potential would be even higher if that were factored in.

<sup>10</sup> U.S. EPA and U.S. DOE, Aug. 2012, “Combined Heat and Power: A Clean Energy Solution,” at 13. ([http://www1.eere.energy.gov/manufacturing/distributedenergy/pdfs/chp\\_clean\\_energy\\_solution.pdf](http://www1.eere.energy.gov/manufacturing/distributedenergy/pdfs/chp_clean_energy_solution.pdf)).

Notably, there is an existing Section 48 Investment Tax Credit for Combined Heat and Power. It includes a variety of limitations, however, which limit its utility. The existing credit only applies to the first 15 MW of projects that are smaller than 50 MW in total. Furthermore, it is unclear that it extends to Waste Heat to Power. For these reasons, many of the most desirable projects have been unable to take advantage of the credit. For instance, the ArcelorMittal system described above would not qualify. We urge the Tax Reform Working Group to consider eliminating the 50 MW cap and extending the credit to the first 25 MW of either CHP or WHP projects. Language reflecting these changes is provided in Appendix A. We further urge the Working Group to consider providing a 30 percent investment tax credit for highly efficient CHP and a 30 percent investment tax credit for WHP. Legislative language associated with 30-percent investment tax credits can be found in H.R. 2784 for Combined Heat and Power and H.R. 2812 for Waste Heat to Power, referred to in H.R. 2812 as wasted heat to electricity.

These changes would not create significant expense. In fact, the size and capacity constraints in the existing ITC have greatly limited its use, causing its cost to fall far below the Joint Committee on Taxation's (JTC) initial estimates. In a 2007 letter to Representative Inslee, JTC estimated that the CHP ITC would cost at least \$63-million over eight years (2009-2017).<sup>12</sup> Actual costs have been far lower because the capacity constraints render it of limited value for the largest scale industrial applications. Since the ARRA was enacted in 2009, facilities without tax liability were permitted to take cash in lieu of the value of the section 48 tax credit under section 1603. Using this data as a proxy to determine use of the CHP tax credit, the ITC has cost only \$11.2-million in its first five years.<sup>13</sup> (see Appendix B for a full list of recipients) In designing the credit, Congress approved expenditures nearly six times that amount. It is exceedingly unlikely that the remaining \$51.8-million of the original JTC score will be expended before its expiration at the end of 2016 given the current design.

We also recommend extending Master Limited Partnerships (MLPs) to include CHP and WHP projects. By statute, MLPs have traditionally only been available to investors in energy portfolios such as oil, natural gas, coal extraction, and pipeline projects. We urge the Tax Reform Working Group to level the playing field by extending such Partnerships to clean energy technologies, including CHP and WHP. Expanding the definition of Master Limited Partnerships (MLPs) to include clean energy generation and efficiency projects like CHP and WHP can link these projects to a sector with a market capitalization of \$370 billion,<sup>14</sup> lower project financing costs, and provide investors with a desirable rate of return, which will advance the U.S. competitiveness position in the global clean energy sector. In fact, CHP developers estimate that access to MLPs could reduce financing costs up to 50 percent for CHP systems.<sup>15</sup> According to the White House, achieving the 40 gigawatt goal reflected in the industrial efficiency executive order would stimulate \$40- to \$80-billion in new capital investment in manufacturing.<sup>16</sup>

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<sup>12</sup> Letter from Thomas Barthold, Joint Committee on Taxation to Honorable Jay Inslee, Mar. 22, 2007 (available online at <http://www.uschpa.org/files/public/ITC%20Scoring.pdf>).

<sup>13</sup> U.S. Dep't of the Treasury, "1603 Program: Payments for Specified Energy Property in Lieu of Tax Credits" (<http://www.treasury.gov/initiatives/recovery/Pages/1603.aspx>) (visited March 20, 2013).

<sup>14</sup> Zachary Rider and Richard Rubin, Feb. 21, 2013, Bloomberg Government, "U.S. Quadruples Pipeline Taxbreak Cost to \$7 Billion" (<http://www.bloomberg.com/news/2013-02-21/u-s-quadruples-pipeline-tax-break-cost-to-7-billion.html>).

<sup>15</sup> Communication with Dick Munson, Senior Vice President for Government Affairs, Recycled Energy Development (Feb. 7, 2013).

<sup>16</sup> The White House, Office of the Press Secretary, Aug. 31, 2012, "President Obama Signs Executive Order Promoting Industrial Energy Efficiency" (<http://www.whitehouse.gov/the-press-office/2012/08/30/president-obama-signs-executive-order-promoting-industrial-energy-effici>).

Expanding the definition of MLPs to include energy efficiency investments, like Combined Heat and Power and Waste Heat to Power, would help realize these investments.

As a first step, we support the changes included in the bipartisan MLP Parity Act, which extend MLPs to technologies that are eligible for tax credits under Section 45 and Section 48. This would extend MLPs to CHP. However, because it is unclear that the existing Section 48 CHP Tax Credit applies to WHP, we recommend extending MLPs to explicitly include WHP, defined in the Energy Independence and Security Act of 2007 (42 USC Chapter 77 Subchapter III, Part C, §6341(5) and (8)) as ‘recoverable waste energy.’ (See Appendix C for proposed language)

We believe CHP and WHP provide a scalable, cost-effective approach to increasing manufacturing competitiveness and enhancing electric reliability. Unfortunately, limitations in the existing CHP tax credit and the exclusion of these technologies from Master Limited Partnerships has prevented manufacturers from realizing these benefits. We look forward to working with the bipartisan Ways and Means Tax Reform Working Group on Energy to explore policy options to help realize the full potential of CHP and WHP.

Sincerely,



David Gardiner  
Executive Director  
Alliance for Industrial Efficiency

On Behalf of

Capstone Turbine Corporation  
Heat is Power Association (HiP)  
Mechanical Contractors Association of America (MCAA)  
National Electrical Contractors Association  
Ormat Technologies  
Pew Charitable Trusts  
Recycled Energy Development (RED)  
Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)  
**Sheet Metal, Air, Rail and Transportation Workers (SMART)**  
Turbine Air Systems (TAS)  
Veolia Energy North America

## APPENDIX A

### CHP AND WASTE HEAT RECOVERY MODIFICATIONS TO SECTION 48 OF THE TAX CODE

The following is intended to address:

1. Increase the eligible MW cap from 15 MW to 25;
2. Lift the system-wide cap of 50 MW; and
3. Include waste heat technologies within the definition of CHP and eliminate the requirement that WHP meet the CHP efficiency percentage.

#### **SEC. 2. MODIFICATIONS IN CREDIT FOR COMBINED HEAT AND POWER SYSTEM PROPERTY.**

(a) **MODIFICATION OF CERTAIN CAPACITY LIMITATIONS.**—Section 48(c)(3)(B) is amended—  
(1) by striking “15 megawatts” in clause (ii) and inserting “25 megawatts”,  
(2) by striking “20,000 horsepower” in clause (ii) and inserting “34,000 horsepower”, and  
(3) by striking clause (iii).

(b) **NONAPPLICATION OF CERTAIN RULES.**—Section 48(c)(3)(C) is amended by adding at the end the following new clause:

(iv) **NONAPPLICATION OF CERTAIN RULES.**—For purposes of determining if the term ‘combined heat and power system property’ applies to technologies which comprise a system which generates electricity or mechanical power through the recovery of a qualified waste heat resource subparagraph (A) shall be applied without regard to clauses (i), (ii), and (iii), subparagraph (C) shall be applied without regard to clauses (i) and (ii).”

(B) **QUALIFIED WASTE HEAT RESOURCE DEFINED.** —The term ‘qualified waste heat resource’ means—

- (i) exhaust heat or flared gas from an industrial process,
- (ii) waste gas or industrial tail gas that would otherwise be flared, incinerated, or vented,
- (iii) a pressure drop in any gas for an industrial or commercial process, or
- (iv) such other forms of waste heat resources as the Secretary may determine.

(C) **EXCEPTION.** —The term ‘qualified waste heat resource’ does not include any heat resource from a process whose primary purpose is the generation of electricity utilizing a fossil fuel.

## APPENDIX B

| Section 1603 - Payments for Specified Renewable Energy Property in Lieu of Tax Credits (Awardees as of February 14, 2013) <sup>17</sup> |                   |                       |                 |            |
|---|-------------------|-----------------------|-----------------|------------|
| Business  | Property Location | Property Type         | Amount Approved | Award Date |
| 808 Renewable Energy Corp   | California        | Combined Heat & Power | \$230,225       | 7/9/2012   |
| Nongshim America  | California        | Combined Heat & Power | \$210,035       | 4/24/2012  |
| PowerVestors, LLC   | Connecticut       | Combined Heat & Power | \$74,100        | 11/26/2012 |
| US Surgical Corporation   | Connecticut       | Combined Heat & Power | \$1,073,715     | 7/6/2010   |
| Lakewood Ranch Golf Company   | Florida           | Combined Heat & Power | \$12,500        | 1/5/2012   |
| Low Carbon Energy Solutions LLC   | Illinois          | Combined Heat & Power | \$341,047       | 8/12/2012  |
| 4 Thought Energy LLC  | Indiana           | Combined Heat & Power | \$45,277        | 3/18/2011  |
| Evonik Stockhausen LLC  | Louisiana         | Combined Heat & Power | \$1,032,496     | 1/8/2013   |
| American DG Energy Inc  | Massachusetts     | Combined Heat & Power | \$122,975       | 12/21/2011 |
| Cambridge TRS, Inc. D/B/A The Royal Sonesta Hotel   | Massachusetts     | Combined Heat & Power | \$24,500        | 2/15/2012  |
| Clarendon Hill Somerville Limited Partnership   | Massachusetts     | Combined Heat & Power | \$134,728       | 5/23/2012  |
| Fox Hill Village Homeowners Corporation   | Massachusetts     | Combined Heat & Power | \$44,793        | 4/14/2012  |
| Simonds Industries Inc  | Massachusetts     | Combined Heat & Power | \$378,436       | 10/31/2012 |
| American DG Energy Inc  | New Jersey        | Combined Heat & Power | \$86,980        | 10/18/2011 |
| RED-Burlington, LLC   | New Jersey        | Combined Heat & Power | \$625,681       | 2/1/2013   |
| 17-85 215 Street Owners, Inc.   | New York          | Combined Heat & Power | \$104,985       | 12/29/2011 |

<sup>17</sup> U.S. Dep't of the Treasury, "1603 Program: Payments for Specified Energy Property in Lieu of Tax Credits" (<http://www.treasury.gov/initiatives/recovery/Pages/1603.aspx>) (visited March 20, 2013).

|                                     |              |                       |                  |            |
|-------------------------------------|--------------|-----------------------|------------------|------------|
| Acme Smoked Fish                    | New York     | Combined Heat & Power | \$155,814        | 7/15/2011  |
| American DG Energy Inc.             | New York     | Combined Heat & Power | \$260,701        | 4/11/2012  |
| Concord Seaside Limited Partnership | New York     | Combined Heat & Power | \$95,118         | 12/21/2012 |
| M Plaza LP                          | New York     | Combined Heat & Power | \$150,557        | 9/15/2012  |
| OfficePower, Inc.                   | New York     | Combined Heat & Power | \$1,082,885      | 5/24/2010  |
| PowerVestors II                     | New York     | Combined Heat & Power | \$133,757        | 11/23/2012 |
| PowerVestors, LLC                   | New York     | Combined Heat & Power | \$141,736        | 11/23/2012 |
| Sea Park East, LP                   | New York     | Combined Heat & Power | \$48,825         | 1/28/2011  |
| Sea Park West, LP                   | New York     | Combined Heat & Power | \$48,566         | 2/24/2011  |
| Skyview Owners Corp                 | New York     | Combined Heat & Power | \$66,976         | 9/25/2012  |
| The Third Brevoort Corp             | New York     | Combined Heat & Power | \$326,900        | 1/18/2012  |
| Ultra Flex Packing Corp             | New York     | Combined Heat & Power | \$91,213         | 10/4/2012  |
| Wagner Farms Properties, LLC        | New York     | Combined Heat & Power | \$126,103        | 1/24/2013  |
| Smart Papers Holdings LLC           | Ohio         | Combined Heat & Power | \$2,523,754      | 3/10/2010  |
| American DG Energy Inc              | Rhode Island | Combined Heat & Power | \$24,599         | 11/20/2012 |
| Gaylord Entertainment Company       | Tennessee    | Combined Heat & Power | \$271,416        | 7/28/2011  |
| Kennecott Utah Copper LLC           | Utah         | Combined Heat & Power | \$1,130,396      | 6/29/2011  |
| TOTAL                               |              |                       | \$ 11,221,789.00 |            |

## APPENDIX C

Currently, master limited partnerships do not include WHP. Proposed legislation (The Master Limited Partnership Parity Act) would expand MLPs to include certain technologies in Sections 45 or 48 of the US tax code. Since it is not clear that WHP is included in Section 45 or 48, however, it would not qualify under the proposed MLP legislation as introduced in the 112th Congress. Allowing WHP and other distributed generation resources to take advantage of MLP structures would enhance the attractiveness of WHP for investors and industrial waste heat producers.

**Current MLP Parity Act Language with proposed amendment**  
**SEC. 2. EXTENSION OF PUBLICLY TRADED PARTNERSHIP**  
**2 OWNERSHIP STRUCTURE TO ENERGY POWER**  
**3 GENERATION PROJECTS AND TRANSPOR**  
**4 TATION FUELS.**

5 (a) IN GENERAL.—Subparagraph (E) of section  
6 7704(d)(1) of the Internal Revenue Code of 1986 is  
7 amended by striking “, industrial source carbon dioxide,”  
8 and all that follows and inserting “or of any industrial  
9 source carbon dioxide; or the generation, storage, or trans  
10 mission to the electrical grid of electric power exclusively  
11 utilizing any resource described in section 45(c)(1) or en  
12 ergy property described in section 48, or the accepting or  
13 processing of such resource or property for such utiliza  
14 tion; or the generation or storage of thermal power exclu  
15 sively utilizing any such resource or property; or the trans  
16 portation or storage of any fuel described in subsection  
17 (b), (c), (d), or (e) of section 6426; or the production for  
18 sale by the taxpayer, the transportation, or the storage  
19 of any renewable fuel described in section 211(o)(1)(J) of  
20 the Clean Air Act (42 U.S.C. 7545(o)(1)(J)); or for property of resources as defined in 42 U.S.C.  
Chapter 77 Subchapter III, Part C, § 6341 (5) and (8)”