

New Efficient HVAC Drives Large Tax Deductions for Buildings

By Charles Goulding, Raymond Kumar and Kenneth Wood

Charles Goulding, Raymond Kumar and Kenneth Wood discuss how improvements in HVAC technology and products are creating opportunities for building owners to save on taxes under Code Sec. 179D.

The continuous improvement in HVAC (Heating, Ventilation and Air Conditioning) system energy efficiency is now driving large immediate tax deductions for numerous property owners. Under the Energy Policy Act¹ ("EPAAct"), which amended Code Sec. 179D effective January 1, 2006, through December 31, 2013, there is an opportunity for an immediate first-year tax deduction of 60 cents per square foot for qualifying HVAC systems or \$1.80 per square foot whole building tax deductions, which are typically driven by very efficient HVAC.

The magnitude of these opportunities is presented in the building square footage chart found in Figure 1.

Overview

Code Sec. 179D provides for three separate 60-cent-per-square-foot immediate tax deductions for energy efficient lighting, HVAC and building envelope investments when compared to a 2001 ASHRAE (American Society Heating Refrigeration Air Conditioning Engineers) building energy code standard by building category.

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During the first three years the EPAAct legislation was effective, from January 1, 2006 through December 31, 2008, we saw a tremendous amount of qualifying lighting projects and only a handful of qualifying HVAC and whole building projects. This was because the qualifying lighting products were market ready and the process for obtaining lighting tax deductions was familiar to the lighting industry. This was somewhat disappointing since HVAC is the largest energy user and almost twice that of the two other building categories meaning lighting and building envelope. The pie chart in Figure 2, provided by the U.S. Department of Energy, makes it clear how important energy efficient HVAC is to managing energy use.

The Magnificent HVAC Seven

We are now seeing seven categories of HVAC projects triggering HVAC and whole building tax deductions.

1. Highly Efficient Right-Sized Systems

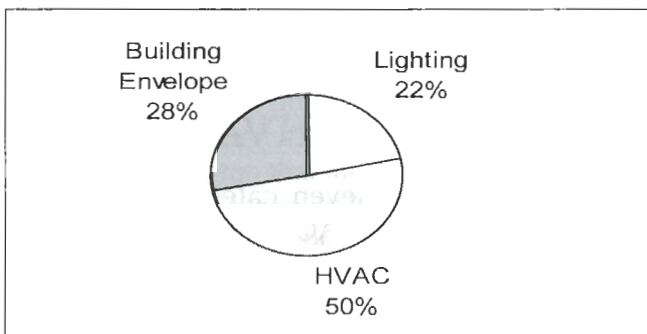
If all major components of the HVAC system are at the highest energy efficiency level meaning (a) the basic package unit or chiller are high efficiency units, (b) there are VFDs (variable frequency drives) to minimize energy use on all key motors, (c) there is a comprehensive HVAC control system, and (d) most importantly, the system is sized right (fitted properly), then we are seeing core HVAC systems qualify.

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Figure 1. HVAC Driven EAct Tax Deduction Opportunities

Building Square Footage	HVAC Maximum Deduction (\$0.60/square foot)	Total Building Deduction (\$1.80/square foot)
50,000	\$30,000	\$90,000
100,000	\$60,000	\$180,000
150,000	\$90,000	\$270,000
200,000	\$120,000	\$360,000
250,000	\$150,000	\$450,000
300,000	\$180,000	\$540,000
350,000	\$210,000	\$630,000
400,000	\$240,000	\$720,000
450,000	\$270,000	\$810,000
500,000	\$300,000	\$900,000
550,000	\$330,000	\$990,000
600,000	\$360,000	\$1,080,000
650,000	\$390,000	\$1,170,000
700,000	\$420,000	\$1,260,000
750,000	\$450,000	\$1,350,000
800,000	\$480,000	\$1,440,000
850,000	\$510,000	\$1,530,000
900,000	\$540,000	\$1,620,000
950,000	\$570,000	\$1,710,000
1,000,000	\$600,000	\$1,800,000

Figure 2. Overall D.O.E. Building Energy Use Chart



2. Thermal Storage Systems

Thermal storage systems essentially make ice that can be stored and used to cool buildings. These systems will typically qualify for EAct in electricity markets that use time-of-day pricing. With time-of-day pricing and thermal storage, electricity is purchased at night when it is substantially

Figure 3. IRS Approved Energy Models

EnergyPlus	Version 2.2.0.023 Version 2.1.0.023 Version 2.0.0.025 Version 1.4.0.025 Version 1.3.0.018
DOE-2.1E	Version 119
DOE-2.1E-JH	Version 130
EnergyGauge Summit	Version 3.14 Version 3.13 Version 3.11 Version 3.1
EnerSim	Version 07.11.30
Green Building Studio	Version 3.1 Version 3.0
Hourly Analysis Program (HAP)	Version 4.34 Version 4.31
Owens Corning Commercial Energy Calculator (OC-CEC)	Version 4.31
TRACE 700	Version 6.1.2.0 Version 6.1.1.0 Version 6.1.0.0 Version 6.0.2.1
VisualDOE	Version 4.1 build 0002

Figure 4. Major HVAC Manufacturers

Parent Company	HVAC Manufacturers
Ingersoll-Rand	Trane Commercial
Johnson Controls	YORK Products
United Technologies Corp.	Carrier Corp.
Daikin Industries Ltd.	McQuay International
Lennox International Inc.	Lennox International Inc.

cheaper and this night-time electricity is then used to create ice. The resultant ice is used to cool the building during the day when electricity rates are much higher. These systems are much more likely to qualify for EAct when used in conjunction with the highly efficient right-sized systems described above.

3. Decentralized Systems

Decentralized systems use smaller systems to handle the building's day to day normal energy use instead of having one large system. Coupled with occupancy sensors, these smaller decentralized systems can turn on and off based on the individual occupancy of the spaces. There is no better energy savings than a system that can be turned off. Due to the ability to individually control spaces,

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is sold to a person other than the specific purchaser.” If a person modifies or enhances computer software that they did not create, the person is the author/creator only of the modifications or enhancements. In addition, prewritten computer software or a prewritten portion of computer software that is modified or enhanced to any degree to the specification of a specific purchaser remains prewritten computer software. If, however, there is a reasonable, separately stated charge or invoice for the price of the modification or enhancement, the modification or enhancement is not considered prewritten computer software.

This change took effect March 6, 2009.

Digital Goods

Effective October 1, 2009, sales and use tax is imposed on the sales price from the sale, lease, license or rental of specified digital goods (*i.e.*, digital audio works, digital audiovisual works and digital books) and additional digital goods (*i.e.*, electronically transferred: greeting cards, finished artwork, periodicals, video or electronic games) at retail for the right to use these goods on a permanent or less-than-permanent basis, regardless of whether the purchaser is required to make continued payments for such right.

ENDNOTES

- ¹ *Exelon Corp. v. Ill. Dept. of Rev.*, Ill. SCt, Dkt. No. 105582 (Feb. 20, 2009).
- ² *Farrand Coal Co. v. Halpin*, Ill. SCt, 10 Ill2d 507, 140 NE2d 698 (1957).
- ³ American Recovery and Reinvestment Act of 2009 (P.L. 111-5).
- ⁴ *Wis. Dept. of Rev. v. Menasha Corp.*, Wis. SCt, No. 2004AP3239 (July 11, 2008).

HVAC Tax Deductions

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decentralized systems normally use much less energy than traditional centralized systems.

4. Heat Recovery Ventilation

Heat Recovery Ventilation uses heat exchangers to heat or cool incoming fresh air, with the outflowing waste air, thereby recapturing 60 to 80 percent of the energy that would otherwise be lost.

5. Geothermal Heat Pumps

Geothermal systems use the natural, stable temperature of the shallow (within 10 feet of the surface) earth to provide heating in winter and/or cooling in summer. Geothermal heat pumps use the transfer of heat in contrast to typical heating devices that utilize the combustion of fuels. The reduction in fuel use is where geothermal heat pumps dramatically save on annual energy costs.

6. Demand Control Ventilation

Demand Recovery Ventilation enhances ventilation by reventilating outside air based on human occupancy CO₂ levels. The concept is to reventilate by human presence and not by physical space. The energy savings results from not blowing in fresh air or conditioning a space when humans are not present in the space.

7. ASHRAE Building Size Standards

Whenever a building is below certain square footage breakpoints such as 150,000 square feet and

75,000 square feet the use of particular technologies will trigger EPAct. For example installing highly energy efficient chillers in a building of less than 150,000 square feet will often trigger EPAct tax deductions because the building it will be compared to will be a 2001 ASHRAE reference building which will be cooled by less efficient package units.

Building Computer Simulation Modeling Requirement

To qualify for the HVAC immediate 60-cent-per-square-foot deduction or the \$1.80 whole building tax deduction the required level of energy reduction must be documented with an approved IRS building energy model. The HVAC must show at least a 16.67-percent energy cost reduction and the whole building must show at least a 50-percent energy cost reduction compared to ASHRAE 2001. These energy models are also required for LEED building projects. LEED stands for Leadership in Energy and Environmental Design, and is the marquee sustainable building certification program operated by the U.S. Green Building Council.

A list of the IRS approved energy models is shown in Figure 3.

Tax Planning—Recognizing the Big Five

With all new building projects and whenever HVAC is upgraded, a company's tax department should recognize that a major tax deduction opportunity may be available. In the HVAC industry, the big five

equipment suppliers are Carrier, McQuay, Trane, York and Lennox. Four of the big five are now owned by larger industrial companies as indicated in Figure 4.

Two of the big five, namely Trane and Carrier, have had their own versions of EPAAct qualifying building energy modeling software approved by IRS (Trane TRACE and Carrier HAP).

Conclusion

Continuous Improvements in existing HVAC equipment and new HVAC products and technologies are presenting major new tax opportunities. Tax departments will benefit from understanding who the big five are in the HVAC industry and recognizing when equipment potentially eligible for tax deduction is purchased.

ENDNOTES

¹ Energy Policy Act of 2005 (P.L. 109-58).

IRS Amnesty

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should not be dismissed without serious consideration. It would be a very, very serious error for a taxpayer to do nothing and hope that his/her potential IRS problems regarding unreported offshore income will just go away. They will not!

ENDNOTES

¹ US Treasury Department, *A Report to Congress in Accordance With §361(B) of the USA PATRIOT Act* (Apr. 26, 2002) ("Treasury Report"), at 6. The report is available at www.ustreas.gov/press/releases/reports/fbar.pdf. USA PATRIOT Act of 2001 (P.L. 107-56).

² 68 FR 26,468 (May 16, 2003) (codified at 31 CFR §103.56(g)).

³ Sarah Plass, *U.S. Among Countries Investigating Tax Evasion*, N.Y. TIMES, Feb. 27, 2008,

at D1.

⁴ Department of Justice Press Release No. 08-579.

⁵ Department of Justice Press Release No. 08-584.

⁶ *Id.*

⁷ Department of Justice Press Release No. 08-579.

⁸ Department of Justice Press Release No. 09-136.

⁹ Department of Justice Press Release No. 09-349.

¹⁰ Stop Tax Haven Abuse Act (H.R. 1265).

¹¹ IRS Memorandum: Authorization to Apply Penalty Framework to Voluntary Disclosure Requests, Mar. 23, 2009.

¹² IRS Memorandum: *Emphasis on and Proper Development of Offshore Examination Cases*, Mar. 23, 2009.

¹³ IRS Memorandum: *Routing of Voluntary Disclosures*, Mar. 23, 2009.

¹⁴ Statement from IRS Commissioner Doug Shulman on Offshore Income, Mar. 26, 2009.

¹⁵ IRS Memorandum: *Authorization to Apply Penalty Framework to Voluntary Disclosure Requests*, Mar. 23, 2009.

¹⁶ IRS Memorandum: *Emphasis on and Proper Development of Offshore Examination Cases*, Mar. 23, 2009.

¹⁷ Bank Secrecy Act of 1970 (P.L. 91-508).

¹⁸ Statement from IRS Commissioner Doug Shulman on Offshore Income, Mar. 26, 2009.

¹⁹ Rev. Proc. 2003-11, IRB 2003-4, 311; 2003-1 CB 311.

²⁰ Announcement 2006-95, IRB 2006-50, 1105; 2006-2 CB 110.

²¹ Statement from IRS Commissioner Doug Shulman on Offshore Income, Mar. 26, 2009.

²² Department of Justice Press Release No. 09-296.

²³ IRS Memorandum: *Emphasis on and Proper Development of Offshore Examination Cases*, Mar. 23, 2009.

²⁴ IRM 9.5.11.9.2

²⁵ *Id.*

²⁶ Alison Bennett, *Tax Havens: IRS Issues Comprehensive New FAQs On Offshore Voluntary Compliance Program*, BNA DAILY TAX REP., May 7, 2009, at 86 DTR G-6.

²⁷ www.irs.gov/irm/part9/ch05s13.html#d0e42500.

²⁸ IRM 9.5.11.9.3

²⁹ IRM 9.5.11.9.4

³⁰ Alison Bennett, *IRS Pressure on U.S. Investors Hiding Assets In Foreign Banks to Continue, Shulman Says*, BNA DAILY TAX REP., Feb. 26, 2009, at 36 DTR G-6; Kathleen David, *Criminal Investigation Chief Warns Against 'Quiet' Approach to Offshore Accounts*, BNA DAILY TAX REP., at 89 DTR G-8.

³¹ Alison Bennett, *Tax Havens: IRS Issues Comprehensive New FAQs On Offshore*

Voluntary Compliance Program, BNA DAILY TAX REP., May 7, 2009, at 86 DTR G-6.

³² *Id.*

EU Transfer Pricing

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can decide to apply for a unilateral APA.⁸¹ Thus, taxpayers should not be forced into a bilateral APA. However, tax administrations are entitled to turn down requests for unilateral APAs where the tax administrator concludes that bilateral APAs or multilateral APAs are more appropriate or that no APA at all is appropriate.⁸²

The rights of other administrations and taxpayers should not be affected by the existence of a unilateral APA.⁸³ The presence of a unilateral APA does not preclude a future MAP procedure. The APA Guidelines in essence serve as a "Code of Conduct"⁸⁴ for member states to spontaneously exchange the details of concluded APAs. The Exchange of Information provisions apply to any other tax administration directly concerned by the unilateral APA. The tax administrations should undertake the Exchange of Information provisions as swiftly as is possible after the conclusion of the APA.

ENDNOTES

¹ Guidelines for Advance Pricing Agreements with the EU, section 6.

² Guidelines for Advance Pricing Agreements with the EU, section 6.

³ Guidelines for Advance Pricing Agreements with the EU, section 13.

⁴ Guidelines for Advance Pricing Agreements with the EU, section 16.

⁵ Guidelines for Advance Pricing Agreements with the EU, section 17.

⁶ Guidelines for Advance Pricing Agreements with the EU, section 18; Annex, Guidelines for Advance Pricing Agreements with the EU, section 20.

⁷ Guidelines for Advance Pricing Agreements with the EU, section 19.

⁸ Guidelines for Advance Pricing Agreements