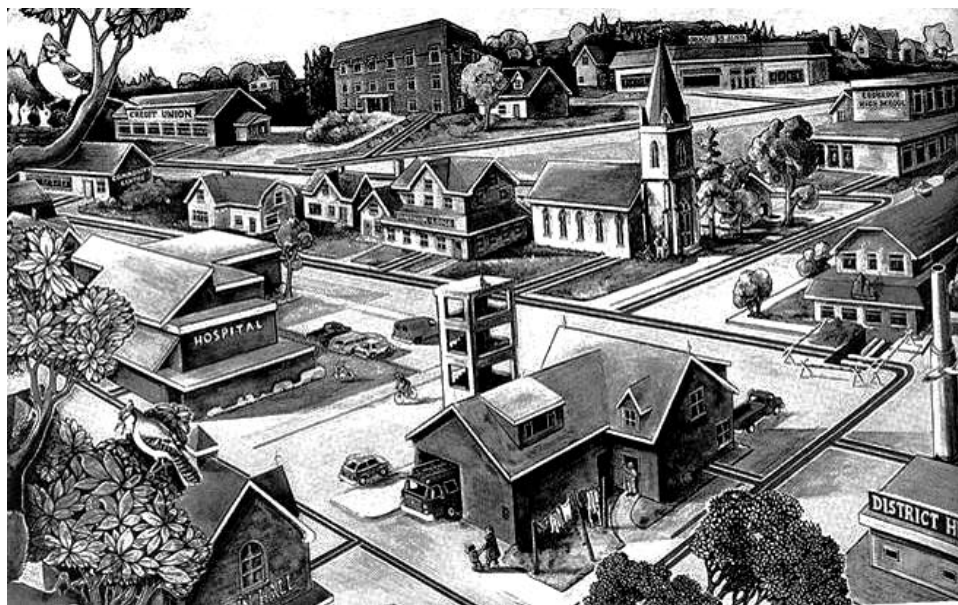


# Forming, Financing, and Permitting a District Energy Facility in Vermont



**BERC**

Renewable • Reliable • Resourceful

**Biomass Energy  
Resource Center**

This white paper discusses the formation, financing, and permitting of biomass district energy facilities in the State of Vermont. The paper was commissioned by the Biomass Energy Resource Center (BERC) and was prepared by Mark Saunders and Geoff Hand at Shems Dunkiel Raubvogel & Saunders PLLC, with assistance from Todd Daloz, Sara Kelly, and Kristin Hines.

**Section I** of the paper discusses the formation and financing of district energy facilities, with a focus on developing such facilities as either municipal entities or alternatively as private ventures.

**Section II** of this paper identifies and discusses the different federal and state programs that may provide grants or other incentives for the development and operation of district energy facilities in Vermont.

**Section III** of this paper provides an overview of the permitting process for district energy facilities in Vermont, and describes the different permitting schemes that will likely apply to either a combined heat and electrical power facility (CHP) or a purely thermal district energy facility.

**Section IV** looks specifically at the provisions of town plans and zoning ordinances in Montpelier, Randolph, Brattleboro, and Burlington, Vermont, that may relate to development of a district energy facility in those individual municipalities.

## **Biomass Energy Resource Center**

The mission of the Biomass Energy Resource Center (BERC) is to achieve a healthier environment, strengthen local economies, and increase energy security across the United States by developing sustainable biomass energy systems at the community level.

BERC is an independent, national non-profit organization that assists communities, colleges and universities, schools, state and local governments, businesses, utilities, and others in making the most of their local energy resources. With expertise in institutional and community-scale wood energy systems, BERC helps initiate and implement biomass projects for heating and power needs.

Front cover illustration courtesy Prince Edward Island Department of Economy, Development and Tourism.

Printed on 100% post-consumer recycled paper manufactured using 100% wind-generated electricity.

© Copyright August 2009 Biomass Energy Resource Center. All rights reserved.

---

# Forming, Financing, and Permitting a District Energy Facility in Vermont • August 2009

## Contents

|  |           |
|--|-----------|
| <b>I. Overview of Forming and Financing Municipal or Private District Energy Facilities</b>      | <b>I</b>  |
| A. Municipal Ownership Model   | 1         |
| B. Private Ownership Model   | 2         |
| C. Public / Private Partnership Model  | 4         |
| <b>II. Federal and State Incentives for Biomass District Energy Facilities</b>                   | <b>5</b>  |
| A. Federal Grants and Loans  | 5         |
| B. Federal Tax Credits   | 7         |
| C. Related State Incentive Programs  | 9         |
| <b>III. Overview of the Permitting Process for Biomass District Energy Facilities in Vermont</b> | <b>12</b> |
| A. Section 248 Review for CHP Facilities   | 13        |
| B. Permitting for Thermal Facilities: Act 250 & Local Zoning                                     | 17        |
| C. Overview of State and Federal Air Permits   | 22        |
| <b>IV. Review of Specific Local Municipal Land Use Regulations in Vermont</b>                    | <b>28</b> |
| A. Montpelier Regulations and Local Plans  | 28        |
| B. Randolph Zoning Regulations and Town Plan   | 29        |
| C. Brattleboro Zoning Regulations and Plan   | 30        |
| D. Burlington Zoning Regulations and Plan  | 31        |



## I. Overview of Forming and Financing Municipal or Private District Energy Facilities

The appropriate structure for any given district energy facility is dependent on many factors, and it is certain that no one structure will work for all projects. Nonetheless, there are certain types of entities that bear consideration in most situations. Generally, projects can be thought of as taking the form of municipal ownership or private ownership. However, private ownership need not exclude municipal involvement and municipal ownership need not exclude private involvement. Public and private partnership, using one or more entity types, may be appropriate to a project.

### A. MUNICIPAL OWNERSHIP MODEL

A municipal ownership model of a district energy facility means ownership by one or more municipal governments. Municipal ownership can take the form of an entire facility or portions thereof, such as the underlying land or the means of transmission. A municipality is authorized by law to own and operate a facility,<sup>1</sup> including issuing indebtedness.<sup>2</sup>

The extent or location, or the service area, of a facility may dictate a need for more than one municipality to participate in the facility. Multiple municipalities could own a facility pursuant to the existing authority of the municipalities or through an intermunicipal cooperation.<sup>3</sup> Vermont law provides for municipalities to work together through union municipal districts as well as interlocal contracts. These powers are supplementary to the existing authority of a municipality.

The formation of a union municipal district requires approval from the Attorney General as well as the voters of the municipalities. The first step is the formation of a joint municipal survey committee consisting of representatives of each participating municipality. The committee assesses and approves the creation of a union municipal district and prepares the agreement required by statute. The agreement must be approved by the voters.<sup>4</sup> Once formed, a union municipal district is a body politic and corporate with the powers of a public corporation. These powers include raising money and issuing indebtedness. Thus, the funding for a district can come through issuance of indebtedness or revenue from services, as well as money from the general revenues of the participating municipalities. Obligations incurred by a district are the joint and several obligations of the district and each municipality.

Similarly, state law authorizes municipalities to enter into an interlocal contract to perform any governmental service.<sup>5</sup> Such a contract operates similarly to a union municipal district, but in form, it is simply a contractual relationship between the participating municipalities as opposed to the creation of an entirely separate entity. An interlocal contract requires the approval of the appropriate legislative body of each municipality and expenses must be included in an approved municipal budget.

<sup>1</sup> 30 V.S.A. Chapter 79. The acquisition or construction of a plant requires approval of the municipal legislative body and the voters.

<sup>2</sup> 30 V.S.A. § 2905. Such authority is in addition to the general authority of a municipality to incur indebtedness pursuant to 24 V.S.A. Chapter 53.

<sup>3</sup> 24 V.S.A. Chapter 121.

<sup>4</sup> 24 V.S.A. § 4863.

<sup>5</sup> 24 V.S.A. § 4901 et seq.

A potentially important and valuable power of a municipality in the development of a district energy facility is the power of condemnation. Condemnation may be necessary in regard to locating a facility or the means of transmission. This municipal power may also be relevant in a private ownership model to the extent that a municipality may own some of the components of the facility.

The viability of any municipal model rests on a determination that the district energy facility will be of financial benefit to the municipality. There must also be the political will to communicate that benefit to the public and then to carry out the development and operation of such a facility. Obviously, there are examples of municipalities operating their own electric departments as well as other similar services such as cable and internet access. The viability of developing a district energy facility would follow the same path as such existing models of governmental services. The greatest disadvantages to a municipal model are the political hurdles that must be overcome in approving a facility. The political climate, such as the view of public versus private services, within municipal government as well as the population generally can be determinative.

## **B. PRIVATE OWNERSHIP MODEL**

A private ownership model can take various forms; those most typically used are a for-profit corporation or a limited liability company. These forms of ownership rely on private capital and are generally seen as the opposite of a municipal model; however, a municipality can participate in the development and operation of even a privately-owned facility. The municipality may be a financial stakeholder or the owner of some of the components of the facility, such as the land or the means of distribution. The entity structure of a privately-owned facility will be primarily driven by the ownership group involved, which can include a municipality. In a truly private sector project, a municipality would likely play less of a role than the private financial interests behind the project.

Private ownership should not be seen as detached from community involvement. Any of the various forms of private entities can be structured to involve a community, however defined, to a greater or lesser degree. The point is that proposing private ownership of a district energy facility should not be seen as divorcing the facility from the community. While such a facility would not be owned by the entire community, as defined by the municipality in question, nonetheless local participation and control can be an essential part of any privately-owned entity.

The success of any private ownership model would be largely dependent on the availability of private capital. However, private ownership could also take advantage of many of the federal and state tax incentives discussed in Section II below.

### **I. Corporation**

The most common private ownership entity is the corporation. Corporations are generally private, as opposed to public, entities. However, it is possible to make a corporation more of a community enterprise. The concept of community corporations is still relatively novel but involves setting parameters such as residential restrictions providing that only community members can own shares. The viability of a district energy facility formed as a corporation would depend largely on the size of the community to be served and the cost of the facility.

If community ownership is a desirable goal for a district energy project, it may be appropriate to consider a non-profit corporation structured as a mutual benefit corporation as opposed to the commonly understood public benefit corporation. A mutual benefit non-profit corporation is organized for the benefit of a limited number of owners as opposed to the public in general. It is not the commonly known 501(c)(3) entity that holds a special tax-advantaged status granted by the Internal Revenue Service. Consideration would need to be given to the goals of the project, such as whether it is intended to service a limited number of participating users or will sell energy beyond its ownership.

## 2. Limited Liability Company (LLC)

Another common private business model is the limited liability company. This type of entity provides limited liability protection like a corporation, but has pass-through tax characteristics like a general partnership. An LLC offers great flexibility in attributing financial and management rights to members, thus allowing for novel structures that recognize the roles and expectations of different member owners. The viability of a district energy facility formed as an LLC, like a corporate structure, would depend largely on the size of the community to be served and the cost of the facility.

A new variation on the LLC is the low profit limited liability company or L3C. Vermont was the first state to pass legislation allowing the formation of an L3C, and thus far only one other state has followed suit. An L3C combines aspects of a for-profit entity with attributes typically ascribed to a nonprofit corporation. Specifically, an L3C must be formed for a charitable or educational purpose but, unlike a nonprofit corporation, is permitted to make profit in the manner of a traditional for-profit business. This relatively new hybrid entity was created as a vehicle for private foundations to make investments that will qualify as program-related investments (PRIs). The advantage of PRIs to a foundation is that they count against the foundation's obligation to spend at least 5% of its net asset value each year while allowing the foundation the possibility of some financial return. The ability to attract foundation investment can then be leveraged to attract more conventional forms of financing, both equity and debt. The foundation investment serves as a first tier of investment that reduces the risk associated with the conventional financing. The attraction of an L3C as a structure is almost entirely dependent on the ability to attract foundation funding.

## 3. Cooperatives

A cooperative is an entity often used to permit either the producers or consumers of a product to jointly own the means of production or distribution of that product. Such products include energy. Vermont's cooperative statutes are unfortunately somewhat dated and not well structured. This can create difficulties in resolving governance and operational issues. Recent attempts to modernize cooperative law in Vermont, with particular focus on the ability to attract non-member third party investment, have not been successful. Nonetheless, Vermont has a relatively healthy number of cooperatives and the general understanding of the structure is reasonably good.<sup>6</sup>

Cooperatives are generally distinguished from other types of ownership by the fact that they are owned by their members, they are not-for-profit and their governance structure provides for one vote per member. Participation by members is a desirable characteristic to many people and could work well in an appropriately-sized district energy project.

Vermont law contains a specific statutory structure governing electric cooperatives.<sup>7</sup> The term "electric cooperative" appears misleadingly narrow. An electric cooperative can be organized under this statutory scheme for the purpose of creating or supplying energy, which is more broadly defined as including "electrical, propane, natural gas, fossil fuels and other forms of energy."<sup>8</sup> Thus, the concept should be applicable to both a CHP and a purely thermal district energy facility. The statutes contemplate a consumer cooperative, with the consumers of energy being members with governance rights including the classic cooperative characteristic of one member, one vote.

---

<sup>6</sup> It is worth noting that while a cooperative is a particular type of entity, it is possible for other types of entities to operate on the basis of cooperative principles. Both corporations and LLCs can be organized as cooperatives and can qualify for cooperative tax treatment under Subchapter T of the Internal Revenue Code of 1986, as amended.

<sup>7</sup> 30 V.S.A. Chapter 81.

<sup>8</sup> 30 V.S.A. § 3001(4).

#### 4. Community Energy Trust

The concept of a community energy trust is based on allowing a community to own and operate its own renewable energy project. The premise is that renewable resources belong to everyone and should be held in trust for current and future generations. While the concept is attractive, unfortunately there are very few examples of operating entities using this type of model and thus there are few answers to many of the fundamental structural questions about ownership, governance and other responsibilities.<sup>9</sup> These questions may lead one to default back to the more commonly used entity structures. The trust concept is employed by, and best understood by reference to, community land trusts, a concept widely used in Vermont and elsewhere in the United States. However, such trusts are typically organized as non-profit corporations. Thus, the concept of a community energy trust may simply be different packaging of an already existing and understood type of entity.

#### C. PUBLIC/PRIVATE PARTNERSHIP MODEL

The municipal ownership model and the private ownership model should not be seen as a dichotomy. The two models are not mutually exclusive and employing elements of both models could be beneficial in any number of projects. For example, private ownership of a facility may mesh well with public ownership of the means of transmission/distribution. While, in a given situation, it may be most beneficial to construct a facility through private means on privately owned land, it may still be beneficial for a municipality to own the means of transmission/distribution. The municipality may be better suited to overcome the obstacles to ownership of a transmission/distribution system that overlaps a large number of publicly and/or privately owned properties.

---

<sup>9</sup>The concept of a community energy trust was explored for a specific biomass energy proposal in Santa Fe, New Mexico. See Conceptual Ownership Models for the Proposed Biomass-fired Downtown District Heating System in Santa Fe, New Mexico available at: <http://www.localenergy.org/pdfs/Document%20Library/Conceptual%20Ownership%20Models%20McGrath.pdf>. The same memo also provides a discussion of other potential ownership models.

## II. Federal and State Incentives for Biomass District Energy Facilities

Federal and related state funding opportunities for biomass district energy facilities can be divided into two broad categories: (1) grants and loans that can be applied directly to the project, and (2) tax credits and incentives based on power production. The majority of the federal programs fall into the second category and are intended for combined heat and power (CHP) systems. Eligibility for any of these programs will depend on project specifics, including what technology is used, whether the project provides only heat or heat and power, who consumes the energy, whether the energy is consumed by the developer alone or sold to multiple customers, where the project is located (rural or urban area), and more.

### A. FEDERAL GRANTS AND LOANS

There are three basic sources of federal grants and loans: the 2009 American Recovery and Reinvestment Act (ARRA), the 2008 Farm Bill, and the Energy Policy Act of 2005 (EPACT).

#### I. American Recovery and Reinvestment Act

Under the ARRA there are several potential sources of funding for both grants and loans.

- i. **Energy Efficiency and Conservation Block Grant Program.** The Energy Efficiency and Conservation Block Grant (EECBG) Program provides federal grants to local government, Indian tribes, states, and U.S. territories. A total of \$3.2 billion was appropriated for the EECBG Program for fiscal year 2009.

Activities eligible for funding include energy distribution technologies that significantly increase energy efficiency, including distributed generation, CHP, and district heating and cooling systems. The Obama Administration announced that Vermont will receive an additional \$10.5 million through the EECBG program.<sup>10</sup> This program will provide a direct allocation of funds to the ten largest cities and towns in Vermont, and the remaining funds will be allocated through either a competitive process or through the State Energy Program.

- ii. **Grants in Lieu of Tax Credits.** The second source of funding under the ARRA is the renewable energy grant program administered by the U.S. Department of the Treasury. This cash grant may be taken in lieu of the federal business energy investment tax credit (ITC) (see more below on the ITC).<sup>11</sup> Grants are available to eligible property placed in service in 2009 or 2010, or placed in service by the specified credit termination date,<sup>12</sup> if construction began in 2009 or 2010.<sup>13</sup> For CHP systems the grant is equal to 10 percent of the basis of the property for CHP. Eligible CHP properties include systems up to 50 MW in capacity that exceed 60 percent energy efficiency. The efficiency requirement does not apply to CHP systems that use biomass for at least 90 percent of the system's energy source.

<sup>10</sup> See <http://www.energy.gov/news2009/7111.htm>

<sup>11</sup> It is unclear at this time how the Vermont Department of Taxes will treat projects electing to receive a grant in lieu of tax credits under federal law. A project developer considering a grant in lieu of tax credits under federal law should consult with the Vermont Department of Taxes if the project will still be eligible for state tax incentives.

<sup>12</sup> The "credit termination" date for open and closed loop biomass facilities is January 1, 2014. Facilities which commence construction in 2009 or 2010 must be placed in service by this date to qualify for the grant in lieu of investment credits.

<sup>13</sup> As of July 31, 2009, the Treasury Department and the Department of Energy are now accepting grant applications for renewable energy facilities under section 1603 of the ARRA. The two agencies estimate distributing at least \$3 billion in financial support to approximately 5,000 biomass, solar, wind, and other types of renewable energy production facilities. See [http://apps1.eere.energy.gov/news/progress\\_alerts.cfm?pa\\_id=217](http://apps1.eere.energy.gov/news/progress_alerts.cfm?pa_id=217)



Only tax-paying entities are eligible for this grant. Federal, state and local government bodies, non-profits, qualified energy tax credit bond lenders, and cooperative electric companies are not eligible to receive this grant.<sup>14</sup>

**iii. Department of Energy Solicitations/ Funding Opportunities Specific to CHP/ District Energy Facilities.** The third source of potential ARRA funding is Department of Energy solicitations, or Funding Opportunities Announcements (FOA) that are specific to district energy and CHP facilities. For example, the Department of Energy has released a solicitation for cost-shared CHP, waste heat recovery, district energy, and industrial energy efficiency projects under ARRA. The FOA, entitled Deployment of Combined Heat and Power Systems, District Energy Systems, Waste Energy Recovery Systems, and Efficient Industrial Equipment, seeks to promote domestic CHP, waste heat recovery projects, and more efficient industrial processes, and encourage development of a skilled labor force for implementation.<sup>15</sup> The solicitation seeks proposals that identify, design, and implement energy efficient technologies and systems for institutional entities, including institutions of higher education and public school districts, local government, and municipal utilities. A major focus on this funding opportunity was the creation of new jobs and improving energy efficiency.

The Department of Energy also has other solicitations which may be applicable to district energy facilities, some of which are not funded by ARRA funds. For example, the Industrial Technologies Program (ITP), part of DOE's Office of Energy Efficiency and Renewable Energy, recently released a funding opportunity for or up to \$40 million in research, development and demonstration of combined heat and power (CHP) systems, based on annual appropriations, not ARRA funds.<sup>16</sup> This FOA seeks applications for cost-shared for CHP projects in three areas: large systems (20 MW or more), medium systems (1MW to 20 MW), and small systems (5kw to 1MW).

**iv. State Distribution of ARRA Funds.** Further funding from the ARRA may be available through the state of Vermont. To date, Vermont anticipates distributing ARRA funding through at least the following two programs. The Non-Profit Institution 0% Interest Loan Program will distribute \$10,000,000 in dedicated energy efficiency funds to Vermont colleges and hospitals in 2009-2010. Eligible institutions will be able to apply for the zero percent interest loans and projects will be ranked according to return on investment. The State Renewable Energy Project Fund will also have approximately \$17,500,000 available for distribution in 2009-2010. The fund will offer a variety of loan and grant programs to encourage construction of renewable energy projects in Vermont. These specific state programs are described in further detail below.

<sup>14</sup> It should be noted, however, that there are a number of mechanisms through which ineligible tax-exempt entities can partner with eligible entities to ensure that projects still receive some or all of these tax benefits.

<sup>15</sup> See DOE solicitation #DE-FOA-0000044, available at <https://www.fedconnect.net/FedConnect/?doc=DE-FOA-0000044&agency=DOE>

<sup>16</sup> See DOE solicitation # DE-FOA-0000016, available at <https://www.fedconnect.net/FedConnect/?doc=DE-FOA-0000016&agency=DOE>

## 2. 2008 Farm Bill

The second major source of federal grant and loan funds is the 2008 Farm Bill. The most likely source of funding here would be Section 9013, the Community Wood Energy Program. This program provides grants to state and local governments to develop community wood energy plans and to acquire or upgrade wood energy systems. The bill authorizes funds in the amount of \$5 million per year from FY 2009 through FY 2012.

Another option under the Farm Bill is the Business and Industry (B&I) Guaranteed Loan program, administered by USDA Rural Development. The purpose of the B&I Guaranteed Loan Program is to improve, develop, or finance business, industry, and employment and improve the economic and environmental climate in rural communities. A borrower may be a cooperative, corporation, partnership, or other legal entity organized and operated on a profit or nonprofit basis; an Indian tribe on a Federal or State reservation or other federally-recognized tribal group; a public body; or an individual. A borrower may be eligible if they are engaged in, or proposing to engage in, a business that will reduce reliance on nonrenewable energy resources by encouraging the development and construction of renewable energy systems.

## 3. EPACT 2005

The third major source of federal loan and grant funding is Energy Policy Act of 2005 (EPACT), which created several types of renewable energy incentives. The first is the Clean Renewable Energy Bond (CREB) program, which provides “tax-credit” bonds to renewable energy projects. Unlike typical bonds, which pay interest to the bondholder, the tax-credit bonds provide bondholders a credit against their federal income tax. The 2009 ARRA allocated an additional \$1.6 billion for this program. One third of the authorized funding will be available for qualifying projects of state/local/tribal governments, one-third for public power providers and one-third for electric

cooperatives. Potentially qualified types of projects include closed-loop biomass facilities and open-loop biomass facilities.

In addition to the CREB program, U.S. Department of Energy (DOE) released its second round of solicitations for \$10 billion in loan guarantees for energy efficiency, renewable energy, and advanced transmission and distribution projects under Title XVII of EPACT 2005. The final regulation provides that the DOE may issue guarantees for up to 100 percent of the amount of a loan, subject to the EPACT limitation that DOE may not guarantee a debt instrument for more than 80 percent of the total cost of an eligible project. A broad range of projects are eligible for funding. ARRA, extended the authority of the DOE to issue loan guarantees and appropriated \$6 billion for this program. Under this legislation, the DOE may enter into guarantees until September 30, 2011.

## B. FEDERAL TAX CREDITS

The second type of federal funding for CHP systems are tax credits and incentives based on power production. There are three primary incentive programs in this category:

### I. Production Tax Credit

The Renewable Energy Production Tax Credit (PTC) provides a production tax credit of approximately 1.5 cents/kWh (1993 dollars indexed for inflation) for owners or operators of qualifying renewable resources for the first ten years of operation. Qualifying resources include both open-loop and closed-loop biomass facilities that sell power to the public. The tax credit is adjusted for inflation and is currently about 2.0 cents/kWh for closed-loop biomass and 1.0 cents/kWh for open-loop biomass. The ARRA extended the PTC for both open-loop and closed-loop biomass projects placed into service from the end of 2010 through the end of 2013. The benefit of this production tax credit can only be realized by an entity with sufficient taxable income to take advantage of the credit;

the PTC will not provide a direct incentive to entities that do not pay federal taxes; however, it is possible to structure a project proposed by a non-federal tax paying entity to still benefit from this incentive.

## 2. Investment Tax Credit

The ARRA also recently updated another tax incentive that was included in the Emergency Economic Stabilization Act (EESA) of 2008. EESA, Division B, sections 101 and 102 created a new investment tax credit (ITC) for CHP and waste energy recovery systems. The CHP ITC is a 10 percent tax credit for the first 15MW of a system up to 50MW. The CHP ITC extends from the date of enactment through December 31, 2016.<sup>17</sup>

As discussed above, The ARRA also updated the ITC to allow taxpayers eligible for the CHP ITC to receive a grant from the U.S. Treasury Department instead of taking the business ITC for new installations. The owner of the qualified biomass facility must elect to claim the ITC in lieu of the PTC under this provision. The owner of a qualifying facility making such an election generally is entitled to a credit equal to 30% of the cost of the qualifying property that comprises the facility. The entire amount of the ITC is available for the year in which a qualifying facility is placed in service. Any unused portion of the credit can be carried back one tax year and carried forward up to 20 tax years. The tax basis of a project for which the ITC is claimed must be reduced for all tax purposes by one-half of the amount of the credit.

## 3. New Market Tax Credits

The New Markets Tax Credit (NMTC) Program could potentially provide an additional incentive for district heating and CHP facilities, depending on the location of the facility, and potentially, on the clients the facility serves. The purpose of the NMTC program is to encourage development that would benefit low income people and populations. It provides a tax credit against Federal income taxes for taxpayers making qualified equity investments in designated Community Development Entities (CDEs).<sup>18</sup> Substantially all of the qualified equity investment must be used by the CDE to provide investments in low-income communities. The credit provided to the investor can total up to 39 percent of the cost of the investment, and is claimed over a seven-year credit allowance period.

The potential application of this tax credit program to any particular project is very site specific. Only investments in certain metropolitan statistical areas (MSAs) are eligible for NMTC. These areas are often just particular subsets of individual communities. A map of NMTC qualifying areas in Vermont can be found here: <http://www.ceimaine.org/content/view/150/226/>. It may also be possible to combine the NMTC program with other tax credits or incentives discussed above; for example, the NMTC regulations do not currently limit combining NMTCs with production or investment tax credits for renewable energy, or leveraging RETC equity.<sup>19</sup>

Given the complexities of this tax credit program, each potential project and facility will need to be evaluated on a case-by-case basis to determine eligibility.<sup>20</sup>

<sup>17</sup> As noted above, there is still some question concerning how these federal tax credits will affect an entity's state tax liability.

<sup>18</sup> See Internal Revenue Code §45D; 26 C.F.R. § 1.45D.

<sup>19</sup> An accountant would need to be consulted for advice on how combining the two credits might reduce the amount of renewable energy tax credits.

<sup>20</sup> Using NMTCs for biomass CHP district energy plant does raise an interesting potential issue. It will be necessary to demonstrate that the facility benefits low-income communities and/or low-income persons. When the energy/heat from the project stays within a qualified census tract(s), there should be no difficulty in making this connection; it could be more difficult to demonstrate the benefit if the energy or heat is provided outside of the qualified census tract. If the project does serve communities or customers outside eligible MSAs, one potential approach is to consider whether it serves businesses that employ residents of low-income communities or low-income persons.

## C. RELATED STATE INCENTIVE PROGRAMS

The State of Vermont has several renewable energy incentive programs which may provide additional funding opportunities for biomass district energy facilities. The Clean Energy Development Fund (CEDF) Grant and Loan Programs will likely be the primary source of funding for biomass facilities, but other state-level initiatives may also provide funding sources, including the Vermont “Standard Offer” program and the “Vermont Village Green” program, both of which were passed as part of the Vermont Energy Act of 2009. Each of these three programs is discussed below.

### I. Clean Energy Development Fund Grant and Loan

The CEDF program is Vermont’s principle renewable energy incentive program. Over the past several years the program has provided millions of dollars to wind, solar, biomass, and other renewable energy projects in the form of grants and loans. The Vermont Energy Act of 2009 (“the Act”) clarified the scope of the CEDF to include thermal energy and geothermal resources, including CHP systems.<sup>21</sup> The state will have approximately \$29 million to distribute in 2009-2010 (\$7 million from state funding sources and \$22 million through the ARRA).<sup>22</sup>

**i. CEDF Grants.** The CEDF Grant Program seeks to promote the development and deployment of cost-effective and environmentally sustainable electric power resources – primarily renewable energy resources and CHP systems—for the long-term benefit of Vermont electric customers.<sup>23</sup> There are two grant solicitation periods for 2009.

The first round of proposals was due by February 27, 2009 and the second round of proposals will be due on or before September 1, 2009. Money from the federal ARRA program will likely be funneled through this state program, as described above.

Grant funding through the CEDF Program is available to four categories of projects: pre-project financial assistance, small-scale systems (microturbines, fuel cells, and CHP), large-scale systems, and special demonstration projects. Proposed projects are required to have an electric generation component and be grid-connected. Off-grid projects and thermal projects (except CHP systems) are not eligible. The range of maximum awards, which varies by project category, is \$60,000 to \$250,000 for individual projects. Cost-share is required for all projects. In addition, there is a special funding opportunity in 2009 for municipalities, public schools, and colleges to explore renewable energy projects and feasibility up to \$5,000.

**ii. CEDF Loans.** The CEDF Loan Program similarly seeks to promote the development of clean electric-energy technologies by providing funding for purchasing land and buildings (when specific to qualifying projects), for purchasing and installing machinery and equipment, and for working capital.<sup>24</sup> Low-interest loans with a fixed rate of two percent are available to individuals, companies, nonprofits, and municipalities. Eligible clean electric-energy technologies generally include solar, wind, biomass, fuel cells, and CHP.

The minimum loan amount is \$50,000; the maximum amount is \$1 million. Loans may

<sup>21</sup> H. 446, An Act Relating to Renewable Energy and Energy Efficiency, 2009 Leg. Reg. Sess. (Vt 2009); see [http://www.vermont.org/documents/H-446\\_001.pdf](http://www.vermont.org/documents/H-446_001.pdf)

<sup>22</sup> <http://recovery.vermont.gov/news/22mRenewable>

<sup>23</sup> 10 V.S.A. § 6523

<sup>24</sup> 10 V.S.A. § 6523

not be used for more than 90 percent of the cost of a project. All financing must be used for activities or assets directly related to the project.

The term for real estate loans is 10 years, amortized on a 15-year basis. The maximum term for machinery and equipment loans is seven years. The term for working capital loans is three years. Borrowers must pay an application fee of one percent on the loan amount, which is capped at \$1,500, after the loan is approved.

## 2. Vermont “Standard Offer” or “Feed-in-Tariff” Program.

The Vermont Energy Act of 2009 created a new program, known as the “standard offer,” or “feed-in-tariff” program. The purpose of the program is to establish a set price that utilities must pay to purchase renewable energy from certain qualifying sources. The standard offer price will be available to facilities with a plant capacity of 2.2 MW or less, and will be available until a total of 50 MW of renewable power comes on-line state-wide.

Wood biomass is included as a potential qualifying renewable energy source. In order to qualify for the standard offer price, the biomass facility must have a design efficiency of at least 50%.

The Act requires that the Public Service Board (PSB) set the price for standard offers by January 15, 2010, and has set interim prices that apply pending the PSB’s determination. For certain biomass facilities, the price is equal to the average residential rate per kWh charged by all in-state retail

electricity providers weighted in accordance with each such provider’s share of the state’s load at the time the plant first comes on line. Terms of 10-20 years will apply for biomass energy standard offers.

As required by the legislation, the Public Service Board has already opened an investigation to determine whether the initial interim prices established by the legislature are reasonable (Docket 7523),<sup>25</sup> and has opened a separate docket to determine the appropriate standard offer price going forward after January 15, 2010 (Docket 7533).

## 3. Vermont Village Green Program

The Vermont Energy Act of 2009 also created the Vermont Village Green Renewable Pilot Program, to encourage development of district heating or CHP systems to serve a downtown development district or growth center.<sup>26</sup> Randolph and Montpelier were selected as pilot communities and are eligible to apply to the PSB for at least \$100,000 in incentives to help customers connect to new district energy systems. Biomass CHP systems must meet certain requirements and efficiency minimums to qualify,<sup>27</sup> and projects must comply with all applicable national air quality standards (see discussion of Federal Regulations in Part III).

## 4. Vermont Biomass Working Group

In May of 2009, Governor Douglas signed into law H.152, An Act Relating to Encouraging Biomass Energy Production.<sup>28</sup> This bill established a “biomass energy development working group” whose mission is to “enhance the growth and development of Vermont’s biomass industry while also maintaining forest health.”<sup>29</sup>

<sup>25</sup> By September 15, 2009, the PSB is required to review and adjust the interim prices against “reasonable approximation[s]” of those it will establish in January 2010, in consideration of the statutory criteria (generic cost of form of renewable energy; and allowing for a rate of return on equity comparable to the highest rate of return received by a Vermont investor-owned utility, with broad discretion to adjust to realize development objectives).

<sup>26</sup> H. 446, An Act Relating to Renewable Energy and Energy Efficiency, 2009 Leg. Reg. Sess. (Vt. 2009); see [http://www.revermont.org/documents/H-446\\_001.pdf](http://www.revermont.org/documents/H-446_001.pdf)

<sup>27</sup> At least a 50% net annual efficiency during the heating season and a minimum conversion efficiency of 70% of all energy inputs and outputs at a normal load is required. Additionally, eligible projects using woody biomass as fuel must use procurement standards, management practices, and a third-party certified supply chain (using a performance-based audit).

<sup>28</sup> H.152, An Act Relating to Encouraging Biomass Energy Production, 2009 Leg., Reg. Sess. (Vt. 2009).

<sup>29</sup> Id.

The working group will investigate the biomass industry in order to recommend to the legislature fiscal and regulatory incentives for promoting biomass energy, as well as sustainable forestry policies including harvesting guidelines and procurement standards.

The bill requires the working group to address a number of specific issues in its final report, which is due to the house and senate committees by November 15, 2011. The working group must also submit two interim reports in November of 2009 and 2010, allowing for public and agency review and comment prior to submitting its final recommendation to the legislature.

### **5. Other State and/or Regional Incentives**

In addition to these programs, other state laws may also provide financial incentives for development or operation of district energy facilities. For example, Vermont currently provides a sales tax exemption for renewable energy systems.<sup>30</sup> The exemption initially applied only to net-metered systems but now generally applies to systems up to 250 kW in capacity that generate electricity using eligible “renewable energy” resources (as defined under 30 V.S.A. § 8002)<sup>31</sup> and to micro-CHP systems up to 20 kW. The exemption is available for grid-tied systems and off-grid systems alike.

Other state and regional programs create additional indirect market incentives for renewable energy resources, including biomass facilities. The most significant of these are state “renewable energy portfolio standards” (RPSs), which typically mandate that utilities receive a certain percentage of power from renewable resources. These state programs, as well as the Regional Greenhouse Gas Initiative (RGGI), have created a market for so-called renewable energy credits (“RECs”), which have a monetary value. The RGGI requirements for each state program vary, but under some circumstances biomass electricity facilities can qualify for RECs, thereby creating an additional revenue stream for those facilities. The details of state RPS standards in the region and the RGGI program are beyond the scope of this paper, but the implications of those programs should be considered in the design and development of any CHP facility.

---

<sup>30</sup> 32 V.S.A. § 9741 (46)

<sup>31</sup> “Renewable energy” is defined under 30 V.S.A. § 8002 as “energy produced using a technology that relies on a resource that is being consumed at a harvest rate at or below its natural regeneration rate.”

### III. Overview of the Permitting Process for Biomass District Energy Facilities in Vermont.

The final two sections of this paper focus on the permitting process for district energy facilities in the state of Vermont. There are two distinct routes for permitting such facilities in Vermont, depending on whether the proposed facility is a combined heat and electrical power (CHP) project or a purely thermal heat facility.

In Vermont the Public Service Board regulates the construction and operation of all electrical generation facilities pursuant to 30 V.S.A § 248. Any facility in Vermont which generates electricity and is connected to the electrical grid must obtain a certificate of public good (“CPG”) from the PSB prior to construction of the facility.<sup>32</sup> A combined heat and electrical power district energy facility would fall within the Board’s regulatory authority due to its production of electricity. As discussed in detail below in Section III.A, the PSB will consider a range of economic, environmental, and other issues to determine whether the proposed facility promotes the public good of the state of Vermont. If granted, the CPG will authorize construction and operation of the facility under specific terms and conditions. Facilities that are subject to PSB authority under Section 248 review are exempt from Act 250 as well as local zoning ordinances (although Section 248 does incorporate many of the same environmental criteria as are considered in Act 250).<sup>33</sup>

A separate regulatory regime would apply to purely thermal heat facilities. Such facilities would not be subject to Section 248 review – because they do not generate electrical power – but would likely be required to obtain both a state Act 250 permit as well as a local zoning permit (if the host municipality has a zoning ordinance). Section III.B provides a general outline of the Act 250 permitting process and describes the local zoning permit process.<sup>34</sup>

In addition to either a Section 248 CPG, or an Act 250 permit, both CHP facilities and thermal district energy facilities will also likely require an air pollution permit from the State Department of Environmental Conservation (DEC). The air permit process is discussed below in Section III.C. Other state permits may also be necessary depending upon the location and design of any proposed facility.<sup>35</sup>

---

<sup>32</sup> Facilities which are operated solely for on-site electrical consumption by the owner of the facility do not require a CPG. 30 V.S.A. § 248(a)(2).

<sup>33</sup> It should be noted however that the relationship between PSB authority and Act 250 jurisdiction becomes complicated in scenarios where facilities subject to § 248 review are located on, or impact land that is already subject to, a pre-existing Act 250 or municipal zoning permit.

<sup>34</sup> Section IV of this paper identifies and briefly evaluates the relevant provisions of several town plans and zoning ordinances (including Burlington, Montpelier, Brattleboro, and Randolph).

<sup>35</sup> Such permits include, for example, stormwater permits (for stormwater runoff associated with construction, operations, or both), conditional use determinations (CUDs) (if the project will impact certain classes of wetlands), and direct discharge and stream alteration permits (if the project involves discharges of cooling water into a body of water). Determining whether one or more of these permits is required is a fact-specific analysis that will be based on the particular location and design of each facility. Discussion of these permits is beyond the scope of this paper.

## A. SECTION 248 REVIEW FOR COMBINED HEAT AND POWER (CHP) FACILITIES

As explained above, any proposed project that involves cogeneration of heat and electricity requires a CPG from the Vermont Public Service Board under 30 V.S.A. § 248 (if it is connected to the grid). The Board has authority over proposals to construct new CHP facilities and proposals to add thermal generation capacity to an existing electrical plant—such as the McNeil facility in Burlington. The prior case will require a new CPG; the latter case will likely require an amendment to the electrical plant’s existing CPG in order to authorize the addition of thermal generating capacity. The CPG must be obtained prior to construction or modification of the facility.<sup>36</sup> Once obtained, the CPG governs the planned siting, construction and operations of the facility.

### I. Section 248 Criteria

In order to issue a CPG, the Board must ultimately determine that the proposed project will “promote the general good of the state.”<sup>37</sup> To reach this conclusion, the Board is required to consider ten specific criteria listed in Section 248(b). The Board will grant a CPG upon finding that all ten criteria are satisfied and may attach conditions to ensure that the Project promotes the public good of the state. The 10 statutory criteria the Board considers are as follows:

- (1) with respect to an in-state facility, will not unduly interfere with the orderly development of the region with due consideration having been given to the recommendations of the municipal and regional planning commissions, the recommendations of the municipal legislative bodies, and the land conservation measures contained in the plan of any affected municipality;
- (2) is required to meet the need for present and future demand for service which could not otherwise be provided in a more cost effective manner through energy conservation programs and measures and energy-efficiency and load management measures, including but not limited to those developed pursuant to the provisions of subsection 209(d), section 218c, and subsection 218(b) of this title;
- (3) will not adversely affect system stability and reliability;
- (4) will result in an economic benefit to the state and its residents;
- (5) with respect to an in-state facility, will not have an undue adverse effect on esthetics, historic sites, air and water purity, the natural environment and the public health and safety, with due consideration having been given to the criteria specified in subsection 1424a(d) and subdivisions 6086(a)(1) through (8) and (9)(K) of Title 10;
- (6) with respect to purchases, investments, or construction by a company, is consistent with the principles for resource selection expressed in that company’s approved least cost integrated plan;
- (7) except as to a natural gas facility that is not part of or incidental to an electric generating facility, is in compliance with the electric energy plan approved by the department under section 202 of this title, or that there exists good cause to permit the proposed action;
- (8) does not involve a facility affecting or located on any segment of the waters of the state that has been designated as outstanding resource waters by the water resources board, except that with respect to a natural gas or electric transmission facility, the facility does not have an undue adverse effect on those outstanding resource waters;

<sup>36</sup> Section 248 expressly prohibits any company from “begin[ning] site preparation for or construct[ing] . . . an electric generation facility . . . within the state” and also prohibits alteration of an existing CGP in a material manner “[e]xcept for the replacement of existing facilities with equivalent facilities in the usual course of business . . . .” 30 V.S.A. § 248(a)(2).

<sup>37</sup> 30 V.S.A. § 248(a)(2)



- (9) with respect to a waste to energy facility, is included in a solid waste management plan adopted pursuant to 24 V.S.A. § 2202a, which is consistent with the state solid waste management plan; and
- (10) except as to a natural gas facility that is not part of or incidental to an electric generating facility, can be served economically by existing or planned transmission facilities without undue adverse effect on Vermont utilities or customers.

### 30 V.S.A § 248(b)(1)-(10)

The Board's evaluation of each of these ten statutory criteria is fact-specific and the importance of each individual criterion will likely vary depending upon the facts and circumstances of each case. The scope of the inquiry will also vary depending upon whether the petition seeks a CPG for a new facility, or just an amendment to an existing CGP to authorize the addition of district energy capacity. Although it is impossible to determine in advance which issues will present the most significant concerns in any individual case, prior CPG petitions for biomass energy facilities give some indication of the criteria that may require close attention for any district energy facility proposal.

The PSB has reviewed and approved two major biomass facilities in the state – the McNeil facility in Burlington and the Ryegate facility. In McNeil, the testimony, evidence, and Board's discussion focused primarily on issues related to the need for the facility under criterion (b)(2) and the impacts of the project under what is now criteria (b)(5) (no "undue adverse effect on esthetics, historic sites, air and water purity, the natural environment and the public health and safety").<sup>38</sup>

The Board discussion of need was focused on issues related to projected power supplies, the make-up of Burlington Electric Department's specific power supplies, and the cost and availability of alternatives. These issues of need are likely to be less relevant to a new CHP project, particularly if the facility is a renewable energy facility certified under the sustainably-priced energy enterprise development ("SPEED") program. 30 V.S.A § 8005.<sup>39</sup> With respect to specific impacts, noise, air pollution, and traffic impacts were identified as concerns. The Board conditioned its approval on implementing reasonable noise limitations, and found that air pollution impacts would be properly limited by the state air pollution permit. The Town of Winooski opposed the project because of the increase in truck traffic through that community. The Board ultimately required the McNeil facility to bring 75 percent of its fuel resources in by rail to address traffic impacts.

The Board addressed other criteria with little discussion: it concluded that the project would result in an economic benefit given the greater cost and volatility of fossil fuel resources. It also found that the project would not have an adverse impact on system stability or on the orderly development of the region. In the context of its evaluation of the project, the Board did emphasize that the facility was proposed by a municipal utility, that at least 60% of the output not used by BED would be purchased by other public power authorities and that there was broad public support for the project in the community.

<sup>38</sup> Petition of Burlington Electric Department, Docket No. 4450 (Vt. PSB, Sept. 14, 1981).

<sup>39</sup> Projects certified as SPEED facilities do not need to demonstrate compliance with §248(b)(2) (need). See 30 V.S.A. § 8005(b)(9); see also Petition of Deerfield Wind, LLC, Docket No. 7250 at 21-25 (Vt. PSB, April 16, 2009); and see Petition of UPC Vermont Wind, LLC, Docket No. 7156 at 28-29 (Vt. PSB, Aug. 8, 2007) (discussing importance of renewable resources)

In the *Ryegate* case, the dispute generally focused on aspects of criterion (b)(5) and the absence of evidence on decommissioning and economic viability. With respect to particular impacts, the Board's discussion highlighted concerns over water quality impacts (related to the discharge of heated water necessary for cooling the facility) and air pollution impacts, as well as the public health and safety impacts associated with increased truck traffic.<sup>40</sup> The Board also addressed aesthetic concerns related to views of the project from sensitive locations, such as the Connecticut River. It bears emphasizing that the Board initially denied the CPG petition because the applicant had not proposed a specific decommissioning plan, had not provided sufficient assurances that the facility's impacts would be mitigated, and failed to provide evidence that the facility would be economically viable.<sup>41</sup> Questions of decommissioning have become more important to the Board, and any proposed facility will likely need to have a complete plan for both mitigating unavoidable impacts and decommissioning the facility at the end of its useful life.

Other specific concerns that arose in the McNeil and Ryegate cases—including noise, air pollution, water pollution, traffic impacts, and aesthetics—may very well arise in any new proposal for a CHP facility. In addition, the general parameters of such a facility indicate that there may be some impacts beyond those previously considered by the Board in the context of basic biomass facilities. For example, any district energy facility will likely

require substantial ground-disturbing activities to bury water pipes between the generating facility and customer locations. This disturbance may raise basic erosion and run-off concerns under criterion (b)(5) (which requires the Board to give “due consideration” to water quality and erosion impacts under Act 250 criteria 1 and 4). Depending on the location, significant ground disturbance may also raise historic and archeological resource concerns implicated under Criterion (b)(5) (and its “due consideration” of Act 250 criterion 8). Construction of the piping system may also directly impact existing roadways, and, if extended over a number of years, could have traffic and public safety implications that would require review.

## 2. Procedure for Obtaining CPG

To obtain a CPG the entity proposing the CHP facility must petition the Board for approval. The CPG process is a “contested-case” proceeding, which involves technical evidentiary hearings before the Board.<sup>42</sup> In these proceedings, the Petitioner and other parties present evidence to the Board and the Board issues its decision based on the record before it.

The process is initiated when the Petitioner submits its formal petition along with supporting evidence. This evidence consists of written or “pre-filed” expert testimony and reports addressing each of the ten statutory criteria. This evidence usually includes testimony from a range of expert witnesses, including, among others, an economist,

<sup>40</sup> See Petition of Decker Energy International, Inc., Docket No. 5217 (Vt. PSB, Sept. 22, 1988); and Re Ryegate Wood Energy Company, Inc., Docket No. 5217-A (Vt. PSB, Dec. 6, 1991). In these two Ryegate decisions, issues related to criteria (b)(1) (orderly development), (b)(2) (need), (b)(3) (system stability), (b)(4) (economic benefit), (b)(7) (compliance with state electric plan), and (b)(10) (service by existing transmission facilities) were not significantly contested by the parties and the Board concluded without much discussion that the project satisfied these criteria. See *id.* It should be noted that section 248 has been significantly amended and reorganized since the Ryegate decisions, and thus the sub-heading numbers in the Board's discussion of issues do not directly correspond to the present section 248 sub-headings.

<sup>41</sup> The issue of economic viability in Ryegate was largely tied to the petitioner's failure to demonstrate that the facility could meet its obligations under a long-term levelized rate contract. It is unlikely that this issue would arise in current cases, assuming the facility is able to enter into power purchase agreements with local utilities.

<sup>42</sup> Section 248 also offers an expedited procedure for projects which do not have the potential for significant impacts under any of the Section 248(b) criteria. 30 V.S.A. § 248(j). If the amount of ground disturbance and development necessary for a CHP is significant this provision is unlikely to apply. There may be smaller projects where this route should be considered.

an aesthetic expert/land use planner, a traffic expert, one or more environmental experts (to evaluate water, air, and other natural resource impacts), a historic preservation expert, and an electrical systems expert. Smaller projects that do not have the potential to cause significant impacts may not need extensive expert testimony and could potentially be handled simply by a project manager.

Several state agencies, including the Department of Public Service and the Agency of Natural Resources, are considered “statutory parties” and will participate in the hearing process (which, depending on the agencies’ position, may include presenting testimony in favor of, or in opposition to, the project). Other parties supporting or opposing the project may also be given permission to participate in the proceeding. The state agencies and other parties will be provided an opportunity to conduct discovery on the Petitioner’s case, and then will file their own testimony and evidence on the statutory criteria relevant to their interests (either supporting or opposing the Project). Additional rounds of filings from the Petitioner and other parties may follow.<sup>43</sup> After submission of written testimony, the Board will conduct live “technical hearings” to consider the evidence and allow parties to cross-examine each other’s witnesses. The process can be shortened through stipulations and agreements between the parties on issues that are not disputed. The parties submit written briefs following the conclusion of the hearings and the Board then issues its decision based on the facts found from the evidence presented by the parties. Decisions of the Public Service Board may be appealed directly to the Vermont Supreme Court.

### **3. Drawbacks and Benefits of Section 248 Review.**

Section 248 review can be a lengthy process for substantial projects, often requiring a year or more from the time of filing a petition to receiving a CPG. The process generally requires both legal representation and significant expert testimony, and can be resource intensive, particularly if heavily litigated by well funded opposition groups. However, there are certain advantages. The Public Service Board has primary jurisdiction over all CPG projects, and review of the project is therefore largely consolidated before one administrative body.<sup>44</sup> CPG projects are exempt from Act 250 as well as local land use regulation.<sup>45</sup> This consolidation of the principal permitting decision before one Board often makes for both a shorter and more predictable process. In comparison (and as discussed below), the typical land use permitting process requires both Act 250 and local zoning permits, each from separate bodies (the local Development Review Board (DRB), or similar municipal entity, and the local Act 250 District Commission). Each of these decisions are separately appealable to the Environmental Court, which typically reviews both DRB and District Commission decisions “de novo” – effectively requiring the prospective applicant to put on its case two or three times (before the DRB and the District Commission, and then again before the Environmental Court).<sup>46</sup> And, of course, the Environmental Court’s decision is then itself appealable to the Vermont Supreme Court.

<sup>43</sup> The Board will also hold a non-technical public hearing in the county in which the project is proposed. 30 V.S.A. §248(a)(4)(A).

<sup>44</sup> Although, as noted above, and discussed further below, other state permits, such as air pollution permits, must still be obtained from the relevant state agency.

<sup>45</sup> See 10 V.S.A. §6001(3)(D) (the term “development” under Act 250 does not include: “construction of improvements for an electric generation or transmission facility that requires a certificate of public good under section 30 V.S.A. § 248...” and 24 V.S.A. § 4413(b) (“a bylaw [relating to municipal planning and development] shall not regulate public utility power generating plants and transmission facilities regulated under 30 V.S.A. § 248.”).

<sup>46</sup> If appropriate mechanisms are put in place, municipalities can elect to have zoning decisions reviewed “on the record” by the Environmental Court, rather than “de novo,” thus obviating the need for an additional trial on zoning issues before the Court. 24 V.S.A. § 4471(b)

Under section 248, this lengthy permitting process is consolidated before one Board, with a direct appeal to the Supreme Court. Once issued, the CPG becomes the controlling permit for the siting and development of the project. If a municipality were to enact an ordinance or issue a decision in conflict with the terms and conditions contained in a CPG, the Board's section 248 order would control and would treat the municipal ordinance or decision as merely advisory.<sup>47</sup> If any such conflict between the CPG and a local land-use enactment or decision did arise, CPG recipient has a right to appeal directly to the Board for relief, thereby also consolidating disputes over conditions and jurisdictional authority before one body.<sup>48</sup>

The section 248 process also provides the additional benefit of general condemnation authority. Title 30 provides a mechanism for companies under the jurisdiction of the PSB to condemn property that is necessary to accomplish the public service authorized by the PSB. This could be particularly useful for private entities that need to install significant piping for heating and cooling systems associated with district energy facilities, but do not otherwise already have inherent condemnation rights (as municipal entities would).

## **B. PERMITTING FOR THERMAL FACILITIES —ACT 250 AND LOCAL ZONING**

Section 248 applies only to electrical generation facilities. As a result, purely thermal district energy facilities will likely not be regulated by the Public Service Board.<sup>49</sup> Instead, these facilities will likely require a state Act 250 land-use permit as well as a local zoning permit (if the host municipality has zoning regulations). Each of these permitting schemes is discussed below.

### **I. Overview of Act 250**

An Act 250 permit is required prior to the commencement of construction of any “development” in the state of Vermont.<sup>50</sup> “Development” is defined broadly to include the “construction of improvements” for “commercial or industrial purposes” on tracts of land larger than ten acres, unless the municipality where the project is to be built has enacted an ordinance requiring review on parcels one acre or larger.<sup>51</sup> It also includes development for municipal purposes on more than 10 acres of land. Facilities that do not meet this acreage threshold may not require an Act 250 permit.<sup>52</sup>

Act 250 permit applications are reviewed by local district commissions. In granting a permit, the District Commission must ensure that the proposed development will not result in undue impacts under ten specific criteria.<sup>53</sup> The 10 criteria considered under Act 250 are discussed as follows:

<sup>47</sup> See *City of South Burlington v. Vermont Electric Power Co.*, 133 Vt. 438, 447 (1975) (“local municipalities should play a secondary role where a clash of authority appears to exist between state control and local control of a public utility furnishing a state-wide service.”); In *Re: Vermont Elec. Power Co., Inc.*, 179 Vt. 370, 385 (2006). This is not to say that municipalities are without any formal voice in the process. Criterion (1) of section 248 specifically looks to the “recommendations” of the municipality and any applicable local and/or regional plans. What’s more, plans for construction of such a facility “must be submitted by the petitioner to the municipal and regional planning commissions” in advance of the petition for the CPG. 30 V.S.A. § 248(f). This subsection further authorizes the municipality to hold a public hearing and submit recommendations to the Board. *Id.*

<sup>48</sup> 30 V.S.A. § 223 (limiting such appeals to a period of 30 days).

<sup>49</sup> Nothing in Chapter 5 of Title 30—dealing with powers and duties of the PSB—speaks directly about thermal generation facilities. Chapter 5 does address cogeneration plants, but offers no clear foundation for Board jurisdiction over strictly-thermal plants. See 30 V.S.A. § 209(a)(8) (granting authority to regulate sale of electricity to electric companies from certain-sized cogeneration plants, i.e. smaller than 80 MW); *id.* at § 209(d) (encouraging the Board to “propose, develop, solicit and monitor energy efficiency and conservation programs and measures, including appropriate combined heat and power systems that result in the conservation and efficient use of energy . . .”).

<sup>50</sup> 10 V.S.A. § 6081.

<sup>51</sup> 10 V.S.A. § 6001 (3)(A).

<sup>52</sup> It should be noted, however, that the amount of land counted toward the acreage threshold will include all so-called “involved land” related to the facility. For a district energy facility this will include the land on which the generating plant is located, and also may include land on which the necessary piping infrastructure is located.

<sup>53</sup> 10 V.S.A. § § 6086(a).

i. **Criterion (1) deals with a range of air and water impacts.** Air pollution is understood broadly to encompass chemical and particle emissions as well as dust and operational noise.<sup>54</sup> Much of this inquiry is similar to that undertaken by the Air Pollution Control Division, however the cost of control technology is not considered.<sup>55</sup> Under Act 250 Rules, permits received from a state agency—such as an air pollution permit—provide a so-called “rebuttable presumption” of compliance under the relevant Act 250 criteria.<sup>56</sup> Thus, if a project were to obtain an air pollution permit from Vermont Agency of Natural Resources (ANR), that permit would meet the applicant’s initial burden on Criterion (1)(air). As discussed extensively below, air impacts are likely to be a significant.

Criterion (1) also encompasses a range of water impacts, including the impact on headwaters and protection of ground and surface waters.<sup>57</sup> Other water resources considered include floodways, streams, shorelines, and wetlands.<sup>58</sup> Applicants must also show that the proposed project will meet water conservation and waste disposal standards. As noted above, compliance with Criterion (1)(water) may be satisfied in part by obtaining necessary state water pollution permits (including, among others, a construction or operational stormwater discharge permit, a direct or indirect discharge permit, a wetlands conditional use

determination, a stream alteration permit, or other state water permits). Depending on the location and design of the proposed facility, water impacts may be a significant concern, particularly if there is significant ground disturbance or if the project creates significant amounts of impervious surfaces.

ii. **Act 250 Criterion (2) looks at the adequacy of water available for both the construction and operation of the proposed development.**<sup>59</sup> The applicant must demonstrate that there is sufficient water to meet the development’s needs. The reference to “sufficient” refers to both the quality and quantity of water appropriate to serve project’s purpose.<sup>60</sup> As with Criterion (1), obtaining other state permits establishes a presumption of compliance.<sup>61</sup> Depending on the final engineering of the plant, this factor may be a significant issue, particular if water is a necessary component of any cooling system.

iii. **Much like the above standard, Criterion (3) seeks to ensure that the project “[w]ill not cause an unreasonable burden on an existing water supply[.]”**<sup>62</sup> This provision generally focuses on how the project impacts existing water sources and the needs of existing users.<sup>63</sup> The criterion is often implicated in quarry cases where the project may have an impact on groundwater and neighboring wells, or in residential subdivision projects where the

<sup>54</sup> Re: Pike Industries, Inc. and Inez M. Lemieux, #5R1415-EB, FCO at 31 (6/07/05) (fumes, contaminants, dust, noise); Re: Vermont RSA Limited Partnership, DR #441, MOD at 2 (5/11/05) (noise); Re: City of Montpelier and Ellery E. & Jennifer D. Packard, #5W0840-6-WFP, FCO at 20 (5/22/00) (dust, noise).

<sup>55</sup> See Burlington Street Dep’t, #4C0156-EB (4/13/83).

<sup>56</sup> 24 V.S.A. § 6086(d); see, e.g., In re Hawk Mountain Corp., 149 Vt. 179, 182 (1988) (waste system permit); Nile and Julie Duppsstadt, #4C1013-EB, FCO at 28 (4/30/99) (stormwater). National Resources Board, Land Use Panel, Act 250 Rules, Rule 19(B) (“If the applicant obtains applicable permits, approvals or certifications . . . prior to filing an Act 250 application, he or she shall attach copies of such permits, approvals or certifications to the application. Such permits, approvals and certifications, when entered in the record . . . will create presumptions of compliance with the applicable criteria of the Act . . .”)

<sup>57</sup> 10 V.S.A. § 6086(a)(1)(A).

<sup>58</sup> 10 V.S.A. § 6086(a)(1).

<sup>59</sup> 10 V.S.A. § 6086(a)(2); Killington, Ltd., #1R0525-EB and #1R0530-EB (12/4/86).

<sup>60</sup> Vermont Division of Buildings, #8B0318-EB (11/14/84).

<sup>61</sup> See Raymond Duff, #5W0921-2R-EB (Revised) (6/14/91).

<sup>62</sup> 10 V.S.A. § 6086(a)(3).

<sup>63</sup> See Re: Pike Industries, Inc. and Inez M. Lemieux, #5R1415-EB, FCO at 33 - 34 (6/07/05).

facility will significantly increase the demand for water. This criterion may be implicated for district energy facilities if the facility requires substantial water resources on an ongoing basis (either for cooling the electrical unit, or for delivery of heated water to customers).

**iv. Criterion (4) requires a showing that the project “[w]ill not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result[.]”<sup>64</sup>** This

criterion generally requires the applicant to prepare and present specific erosion control plans. As noted above under the section 248 discussion, the question of soil erosion may present particular concerns for district energy facilities if construction involves substantial ground disturbance, but adequate erosion control plans should ensure compliance with this criterion. If the facility is proposed in an already densely developed area, soil erosion concerns are likely to be limited.

**v. Criterion (5) deals with traffic safety, mostly focusing on the creation of hazardous traffic conditions.** The district commission must find that the project “[w]ill not cause unreasonable congestion or unsafe conditions with respect to use of the highways, waterways, railways, airports and air ways, and other means of transportation existing or proposed.”<sup>65</sup> The relevance of this criterion here largely depends on the siting of the facility and the potential delivery methods for the wood fuel source.

As noted above under the section 248 discussion, prior wood-fired electrical facilities have raised significant traffic concerns. Those concerns will likely be raised for any district energy facility. It should be noted however, that a permit cannot be denied based Criterion (5) impacts; it can only be conditioned.<sup>66</sup> Such conditions can include, among other things, restrictions on the number of truck trips, alternate means of fuel delivery or requiring road improvements to ensure safety.

**vi. Criterion (6) focuses on the impact of the project on the ability of the municipality to provide educational services.**<sup>67</sup> This can

include an increase in population as well as a decrease in the tax base.<sup>68</sup> As with the above criterion, a permit cannot be denied based on this element, only conditioned.<sup>69</sup> Conditions under this criterion are often in the form of impact fees. This criterion is not likely to be a significant issue for a district energy facility.

**vii. Criterion (7) provides that the project must not unduly impact the ability of the local government to provide services.**<sup>70</sup>

Such services can include maintenance of roadways and provision of emergency services.<sup>71</sup> This criterion is most commonly implicated by major residential developments or major commercial shopping facilities; it is not likely to be a significant issue for a district energy facility (if a municipality is proposing the facility, the impact on government services may actually be positive).

<sup>64</sup> 10 V.S.A § 6086(a)(4).

<sup>65</sup> 10 V.S.A § 6086(a)(5).

<sup>66</sup> 10 V.S.A § 6087(b); see *In re Agency of Transportation*, 157 Vt. 203, 207 (1991).

<sup>67</sup> 10 V.S.A § 6086(a)(6).

<sup>68</sup> See *Mill Lane Development Co., Inc.*, #2W0942-2-EB (12/17/99) (population); *In re St. Albans Group and Wal-Mart Stores, Inc.*, 167 Vt. 75, 81 (1997) (tax base).

<sup>69</sup> 10 V.S.A § 6087(b).

<sup>70</sup> 10 V.S.A § 6086(a)(7).

<sup>71</sup> See, e.g., *Barre Granite Quarries, LLC and William and Margaret Dyott*, #7C1079(Revised)-EB, FCO at 78 (12/8/00) (applicant sharing cost of roadway maintenance and upgrade not an undue burden); *Waterbury Village Shopping Center Inc.*, #5W1068-EB (7/19/91) (project would require additional police coverage).

**viii. Criterion (8) prohibits undue adverse aesthetic impacts as well as undue adverse impact on historic and archeological resources and rare or irreplaceable natural areas. It also limits impacts on “necessary wildlife habitat” or endangered species.<sup>72</sup>**

With respect to aesthetics, the district commission must consider whether the project will fit with the “character of the area”, and if not, the Commission will then consider whether the project violates in clear, written community standards or is otherwise shocking and offensive. It will also consider whether the applicant has taken reasonable steps to mitigate the aesthetic impacts. These impacts can include both visual and noise impacts. Depending on the location and design of the facility, this criterion may play a significant part in a district energy permitting process. Prior Public Service Board decisions (which consider the same standard) have noted visual impacts associated with cooling towers at wood-fired electrical facility. Careful attention should be paid to mitigating the aesthetic impact of the facility, and, in particular, limiting the visibility of the project from sensitive areas—such as scenic locations and rivers. The Project’s potential impact on historic and archeological resources may similarly be a concern, depending on the location and amount of ground disturbance (the impact on archeological resources may be less of a concern if the facility is proposed in an already intensively developed area). Given the nature and likely location of these facilities close to downtown or urban centers, the aspects of criterion 8 that relate to rare and irreplaceable natural areas, necessary wildlife habitat, and endangered species are not likely to play a significant role (although they should be evaluated early in a planning process).

**ix. Criterion (9) addresses a wide range of issues, including, among others, the impact of growth caused by the project (9)(A), the impact on primary agricultural soils (9)(B), the impact on forests and secondary agricultural soils (9)(C), consideration of energy conservation (9)(F), reliance on public or private utility services (9)(G)&(J), and the impact on public investments (9)(K).<sup>73</sup>**

It is difficult to determine which of these sub-criteria will be most relevant to any particular district energy facility. Careful attention should be paid to avoiding prime agricultural soils in siting the facility under 9(B). Criterion 9(K) is often implicated in projects that have significant truck traffic, and may be a concern for a district energy facility. If significant construction is required on public road ways or right-of-ways to bury heat delivery pipes, that impact may also implicate Criterion 9(K).

**x. Criterion (10) requires that proposed projects be in conformance with duly adopted town plans and regional plans.<sup>74</sup>**

This analysis is focused on whether the town plan contains specific, mandatory language that would prohibit the project. Recent rulings by the Vermont Supreme Court have substantially restricted the application of this criterion. The specific policy must be stated in language that “is clear and unqualified, and creates no ambiguity.”<sup>75</sup> Town Plan policies which are vague or “those that delegate standardless discretion to the [factfinder]” are unenforceable.<sup>76</sup> The analysis is obviously very specific to each individual town plan. Careful attention should be paid to mandatory language in the relevant town plans early in the permitting process.

<sup>72</sup> 10 V.S.A § 6086(a)(8).

<sup>73</sup> 10 V.S.A § 6086(a)(9).

<sup>74</sup> 10 V.S.A § 6086(a)(10).

<sup>75</sup> In re John A. Russell Corp., 2003 VT 93, ¶¶16-24.

<sup>76</sup> In re Appeal of JAM Golf, LLC, 2009 VT 100, ¶17.

District commissions will consider evidence and testimony from the applicant and opposing parties on all of these criteria, and will issue a written determination based on the evidence presented to the Commission. Decisions of the district commission can be appealed to the Vermont Environmental Court, which typically hears such appeals on a “de novo” basis. This requires the Court to reconsider all of the relevant evidence and reach its own determination as to whether a permit is allowed. Environmental Court decisions can then be appealed to the Vermont Supreme Court. The Supreme Court will not re-hear all of the evidence in the case, but will determine whether the Environmental Court’s decision is supported by the evidence, and will review the Court’s conclusions of law to determine whether they are correct.

## 2. Local Zoning Regulations

In addition to an Act 250 permit, any thermal district heating facility will likely require local zoning permits (if located in a town with local zoning).<sup>77</sup> Vermont municipalities have concurrent jurisdiction to regulate certain aspects of development within the municipality.<sup>78</sup> To implement this authority, municipalities must first adopt a town plan, and then develop and adopt a specific zoning ordinance (sometimes called zoning regulations or zoning bylaws).<sup>79</sup> The municipal plan must include “a statement of objectives, policies and programs of the municipality to guide the future growth and development of land, public services and facilities, and to protect the environment,” and must also include certain general policies and plans, including a land-use plan.<sup>80</sup>

The Vermont Supreme Court has described the town plan as the “overall guide to community development.”<sup>81</sup> Zoning bylaws adopted by the municipality must be “in conformance” with the plan.<sup>82</sup> In towns with zoning bylaws, projects must obtain a zoning permit prior to development.

Zoning bylaws generally divide the municipality into several separate zoning districts, and then specifically identify the types of use or development allowed in each district – either as a “permitted use” or “conditional use.” Permitted uses are typically allowed in each district so long as the project meets general development standards, including, for example, certain dimensional requirements (height, etc.) or setbacks. Zoning permits for permitted uses are usually issued directly by the municipal zoning administrator. Conditional uses, on the other hand, require a more detailed review, and will typically only be authorized when the local development review board (DRB) or similar entity finds that the project will not have an adverse impact on certain criteria, including the “character of the area” in which the particular project is proposed, among other considerations.<sup>83</sup> In some instances the DRB may also grant “variances” from the specific terms of the zoning ordinance.

Under state law, certain uses must be allowed under all zoning regulations. These include public utility power generating plants and “state or community owned and operated institutions and facilities.”<sup>84</sup> Local bylaws may limit such uses to certain districts, and may generally regulate the use with respect to size, height, bulk, yards, courts,

<sup>77</sup> As noted above in Section III(A), combined heat and power facilities would likely be exempt from local zoning regulation.

<sup>78</sup> See 24 V.S.A., Chapter 117.

<sup>79</sup> See 24 V.S.A., Chapter 117.

<sup>80</sup> 24 V.S.A. § 4382

<sup>81</sup> *Kalakowski v. John A. Russell Corp.*, 137 Vt. 219, 225-26 (1979).

<sup>82</sup> See 24 V.S.A. § 4410. But it should be noted that the Vermont Supreme Court has emphasized that this “conformance” requirement is not strict, that the zoning bylaws may only partially implement the plan, and that the plan itself is generally not legally enforceable through zoning applications. See *A. Russell Corp.*, 137 Vt. at 225-226.

<sup>83</sup> See 24 V.S.A. § 4414(3).

<sup>84</sup> 24 V.S.A. § 4413.



setbacks, density of buildings, off-street parking and loading facilities and landscaping or screening requirements, but only to the extent that regulations do not have the effect of interfering with the intended functional use.<sup>85</sup> The state statute requiring bylaws to allow “community-owned facilities” may also be helpful for district energy facilities that are owned by the municipality (particularly where the relevant bylaws are silent or vague with respect to whether, or where, such facility are allowed). Careful attention should be paid to whether such regulations interfere with the intended functional use of such municipal facilities.

Decisions of local zoning administrators and local DRBs can be appealed to the Vermont Environmental Court, which typically hears such appeals on a “de novo” basis. Environmental Court decisions can then be appealed to the Vermont Supreme Court.

While state law requires zoning bylaws to include or address certain issues, the substance and form of bylaws vary greatly among municipalities. It is impossible to determine whether a particular district energy facility is consistent with the bylaws in a particular community without looking at the details of the proposal under the specific terms of that community’s zoning ordinance. It is possible, however, to broadly identify sections of zoning ordinances and town plans which support or discourage such facilities. Section IV of this paper provides this type of broad review of the town plans and zoning regulations in Montpelier, Randolph, Brattleboro, and Burlington.

### C. OVERVIEW OF STATE AND FEDERAL AIR PERMITS

In addition to either a CPG, or state and local land use permits, any proposed wood-fired district energy facility will also require a state air pollution permit. The laws governing air pollution that will likely apply to a district energy proposal are a combination of state and federal regulations. The 1970 Clean Air Act and later amendments (1977 and 1990) control air pollution on the national level, but for the most part delegate air quality permitting (and thus regulatory authority) to the states.<sup>86</sup> In Vermont, the Agency of Natural Resources (ANR) has primary responsibility for regulating clean air and does so through its Air Pollution Control Division (“Division”).<sup>87</sup> Air permits issued by the Division under Vermont’s air pollution program satisfy state and federal clean air act requirements.<sup>88</sup>

Any project involving a large-capacity biomass generating facility will require some level of permitting from the ANR. Vermont Air Pollution Control Regulations (VAPCR) Regulation 5-401 specifically designates “[w]ood fuel burning equipment of greater than 90 [Horse Power] rated output” as an “air contaminant source” requiring a permit. Because any proposed biomass plant, whether a cogeneration or purely thermal generation plant, would thus be considered an air contaminant source under this regulation, it would require both a construction and an operating permit.<sup>89</sup> Construction permits would even be required to modify an existing generation facility if the modifications were to increase the actual emissions rates at the facility.<sup>90</sup>

<sup>85</sup> Id.

<sup>86</sup> 42 U.S.C. § 7404 (Clean Air Act codified at 42 U.S.C. Ch. 85). Other applicable federal regulations are noted below.

<sup>87</sup> 10 V.S.A. § 551 et seq.

<sup>88</sup> See 10 U.S.C. § 7410 (requiring State Implementation Plans); 40 C.F.R. Pt. 70; Vermont State Implementation Plan Information, <http://www.anr.state.vt.us/air/planning/htm/StateImplementationPlan.htm> (last visited: April 10, 2009); see also VERMONT ANR, Air Pollution Control Handbook, at iii (1999) (“Handbook”), available at: [http://www.anr.state.vt.us/air/Permitting/docs/permitting\\_handbook.pdf](http://www.anr.state.vt.us/air/Permitting/docs/permitting_handbook.pdf).

<sup>89</sup> See 10 V.S.A. § 556 (construction) and § 556a (operating); see also VAPCR 5-501(1) (construction) and 5-1003 (operating).

<sup>90</sup> See VAPCR 5-101 (defining “modification” to include “any physical change in, or change in the method of operation of, a stationary source which increases the actual emission rate of any air contaminant, regardless of any emission reductions achieved at the source.”).

## I. Construction Permit<sup>91</sup>

The Division recommends that applicants begin the permitting process no later than 250 days before the beginning of the proposed construction date.<sup>92</sup> As part of the initial process, an applicant must notify the Division of its proposed project, including the responsible parties, the planned location and a brief description of the project.<sup>93</sup> Assuming the Division determines that the project will require a permit, the applicant must prepare and submit a complete application.<sup>94</sup> The most important piece of the application is the quantification of all air contaminants likely to be released in the construction and operation of the project.

The Division's Regulations limit all such emissions and use the quantity of such emissions to determine the scope of review it will impose on a given permit application. A "Major Stationary Source" is "any stationary source or modification whose allowable emissions of any air contaminant, are equal to or greater than 50 tons per year . . ." and a "Major Modification" refers to "any modification of a major stationary source that would result in a significant<sup>[95]</sup> increase in actual emissions of any air contaminant."<sup>96</sup> In reviewing such projects, the Division will contact the local District Commission, the PSB and other stake-holders to determine the scope of impact the project may have.<sup>97</sup>

Beyond this broader review, the Division can require more stringent emissions rates and control technology.<sup>98</sup> New major projects can additionally require monitoring of ambient air conditions for up to a year in advance of construction.<sup>99</sup>

If a project does not rise to the level requiring this more exhaustive review, the applicant still must demonstrate that the project will remain within certain emissions limitations.<sup>100</sup> Among these express limitations are restrictions on emitting visible air contaminants (VAPCR 5-211),<sup>101</sup> particulate matter (5-231), nitrogen oxides (5-251), sulfur dioxide (5-252) and the creation of nuisance or odor (5-241). Beyond these more stringent prohibitions, the applicant must complete an evaluation for any air quality impacts for various emissions and show that the project will not cause or significantly contribute to a significant deterioration in the ambient air quality.<sup>102</sup>

If the project's proposed emissions rates are above the permissible threshold for the project site or will result in a significant deterioration to the ambient air quality, the project must obtain a "most stringent emissions rate" (MSER).<sup>103</sup> This rate is determined by the Secretary on a case-by-case basis.<sup>104</sup>

<sup>91</sup> For a thorough overview of this phase of the permitting process, see Handbook at I – 24.

<sup>92</sup> See Handbook at 7.

<sup>93</sup> See id. at 8-9; VAPCR 5-501.

<sup>94</sup> Application available at: <http://www.anr.state.vt.us/air/Permitting/index.htm> (last visited May 7, 2009). See also AIR POLLUTION CONTROL DIVISION, Air Pollution Control Permit Application Requirements (2001), available at: [http://www.anr.state.vt.us/air/Permitting/docs/Construction Permits/appl-nsr.pdf](http://www.anr.state.vt.us/air/Permitting/docs/Construction%20Permits/appl-nsr.pdf).

<sup>95</sup> "Significant" means increasing the source's allowable emissions to a level exceeding: 40 tons per year of nitrogen oxides ("NOx") and sulfur dioxide ("SOx") and 25 tons per year for most particulate matter ("PM"). See VAPCR 5-101.

<sup>96</sup> VAPCR 5-101. The aggregate impact of a group of minor modifications can also require this heightened review process. See VAPCR 5-502(1)(b).

<sup>97</sup> See Handbook at 12. As noted above, the impact review of these additional agencies will depend somewhat on how the project is ultimately characterized, i.e. if the project receives a CPG, it will not need to undergo Act 250 review by the District Commission.

<sup>98</sup> See VAPCR 5-503.

<sup>99</sup> See Permitting Requirements at 27. In areas where such data is already available, e.g. for the McNeil plant, such monitoring would likely be unnecessary.

<sup>100</sup> See VAPCR 5-211 – 271.

<sup>101</sup> The VAPCR 5-211 (prohibiting visible air contaminants) has a lesser requirement for "wood fuel burning equipment" increasing the amount of time visible air contaminants may be emitted. VAPCR 5-211(3).

<sup>102</sup> VAPCR 5-406; see also id. at Table 2 (listing increments used to measure "significant deterioration" for subject emissions).

<sup>103</sup> VAPCR 5-501(5).

<sup>104</sup> VAPCR 5-101 (at "Most Stringent Emissions Rate").

In arriving at this rate, the Secretary will consider “the lowest emission rate achieved in practice by [other sources of the same] category[.]”<sup>105</sup> The Secretary can shift this rate if the economic impacts and costs of achieving the MSER are too high, however, this factor is weighed in the context of project location.<sup>106</sup> The MSER can never be at a rate higher than that allowed under federal regulations or the maximum allowed under the VAPCR.<sup>107</sup>

Once an applicant submits the complete application and pays the necessary fees<sup>108</sup> and the Division deems the application technically complete,<sup>109</sup> the Division will either issue or deny the permit within 30 days.<sup>110</sup> The Division will also make the application and analysis available to the public and invite public comment on the proposed project and may even hold a public informational meeting if one is requested.<sup>111</sup> Once a construction permit is granted, work can begin on building the project, but the applicant still must obtain an operating permit to establish ongoing compliance with the state and federal air pollution control regulations.

## 2. Operating Permit<sup>112</sup>

Any subject source operating within the state—as noted above, under VAPCR 5-401(6)(b), a wood-burning facility with over 90 horsepower output is a subject source—must apply for an operating permit within its first twelve months of activity.<sup>113</sup> In most cases, an operating permit and a construction permit can be combined into the same process.<sup>114</sup> Following the initial permitting process, all pollution sources must submit a renewal application twelve months prior to the expiration of their existing permit. The term of any operating permit is based on the application and is within the discretion of the Division, but in any event will not exceed five years.<sup>115</sup> If the plant can show that its actual emissions for the previous calendar year were fewer than 10 tons, it can apply to the Division and receive an “opt-out” of the permitting program, so long as it submits an annual report confirming its yearly emissions levels.<sup>116</sup>

---

<sup>105</sup> Id.

<sup>106</sup> Id.

<sup>107</sup> Id.

<sup>108</sup> See VAPCR 5-504.

<sup>109</sup> Over the course of the application process, the Division may request additional information from the applicant until it deems the application “administratively complete.” VAPCR 5-501.

<sup>110</sup> VAPCR 5-501(3).

<sup>111</sup> 10 V.S.A. § 556; VAPCR 5-501(4).

<sup>112</sup> For a thorough overview of this step in the permitting process and requirements, see Handbook at 25 – 38.

<sup>113</sup> VAPCR 5-1004.

<sup>114</sup> VAPCR 5-1005(b); Handbook at 30.

<sup>115</sup> VAPCR 5-1011.

<sup>116</sup> This “opt-out” also assumes that the source is not subject to the New Source Performance Standards (40 C.F.R. Pt. 60—burning less than 250 BTU/hr for electric generation; less than 29 MW input for steam-generation, though the standards are unclear for wood heat), or the National Emission Standards for Hazardous Air Pollutants (40 C.F.R. Pts. 61 and 63—likely inapplicable).

In applying for an operating permit the applicant must provide a narrative description for all activities performed at the source, identifying locations where emissions are generated.<sup>117</sup> The applicant must also supply emissions-related information (e.g. list of contaminants, allowable emissions rates, applicable emissions control technology, emissions monitoring protocol) and a compliance plan.<sup>118</sup> Following the submission of an application, the Division will determine whether the application is administratively and technically complete. Within 30 days of that determination, the Division will issue a proposed ruling to grant or deny the operating permit (a “draft operating permit”).<sup>119</sup> Following this preliminary determination, the public will have an opportunity to comment on the application.<sup>120</sup> This can include a public meeting in the area where the source is located. The Secretary must act within eighteen months of receiving a complete application,<sup>121</sup> though for non-Title V sources (see below), the Division makes its determination within ten days of the close of the public comment period.<sup>122</sup>

Operating permits do offer some measure of flexibility. Minor changes that do not rise to the level of “modifications” under VAPCR 5-101, do not violate an express permit condition and do not produce a violation of any other applicable clean air statute are permissible without a permit amend-

ment, presuming that the applicant gives the Division adequate notice (at least 15 days).<sup>123</sup> Likewise, routine maintenance and increased hours of operation do not require a permit modification.<sup>124</sup> The Secretary, within her/his discretion, may also alter a permit without public comment if the project operator properly applies to make a “minor modification.”<sup>125</sup> Such modifications are those which do not involve an alteration to the lowest achievable emissions rate, do not violate applicable requirements under the permit, and do not significantly modify the permit but still require a greater degree of change than can be found under VAPCR 5-1014 (above).<sup>126</sup>

The Secretary may only deny or refuse to renew operating permits on limited grounds.<sup>127</sup> These include: applicant’s failure to submit all necessary paperwork, applicant’s failure to disclose all relevant facts, applicant’s failure to pay outstanding fines or penalties.<sup>128</sup>

Beyond the requirements of the Division, some sources may additionally fall under the regulations of Title V of the Clean Air Act.<sup>129</sup> Such projects include sources with allowable emissions greater than 100 tons per year of nitrogen oxides (NO<sub>x</sub>), Sulphur dioxides (SO<sub>x</sub>), carbon monoxide or particulate matter (PM).<sup>130</sup> If Title V is applicable to the project, following preliminary approval by

<sup>117</sup> VAPCR 5-1006(e).

<sup>118</sup> *Id.*

<sup>119</sup> VAPCR 5-1007.

<sup>120</sup> *Id.* For minor matters and amendments, the Secretary can waive this comment period. VAPCR 5-1007(b).

<sup>121</sup> VAPCR 5-1009.

<sup>122</sup> Handbook at 36.

<sup>123</sup> VAPCR 5-1014.

<sup>124</sup> See VAPCR 5-101 (under “modification”).

<sup>125</sup> VAPCR 5-1013.

<sup>126</sup> VAPCR 5-1002 (under “minor permit amendment”).

<sup>127</sup> See VAPCR 5-1008.

<sup>128</sup> *Id.*

<sup>129</sup> 42 U.S.C. § 7661 et seq.

<sup>130</sup> See 40 C.F.R. § 70 (requirements of state implementation of Title V permit program).

the Division, the Division forwards the application as well as its own technical findings and recommendations to the EPA.<sup>131</sup> The EPA then has 45 days to respond.<sup>132</sup> Failure by the EPA to respond within this time frame deems the project approved, but the EPA can still object at a later time.

### 3. Important Emissions Regulations For Wood-Fired Facilities

For a wood-fired generator, the most important pollutants to evaluate will likely be NO<sub>x</sub> and PM. At the threshold, emission of these pollutants is expressly prohibited at certain levels without adequate control technology. For NO<sub>x</sub> these limitations apply to “any fuel burning equipment with a heat input capacity of 250 million BTU’s per hour or more[.]”<sup>133</sup> NO<sub>x</sub> emissions are capped at 1.26 grams per million calories of heat input for solid fossil fuel input.<sup>134</sup> There appears to be no similar regulation for wood inputs, and gas turbines are expressly outside the scope of the regulation.<sup>135</sup> In a wood-burning operation, the allowable quantity of PM “in the effluent gas stream shall not exceed 0.14 grams per cubic meter (0.06 grains per cubic foot) of undiluted exhaust gas at standard conditions on a dry basis.”<sup>136</sup> These standards apply even when wood is burned in combination with another fuel source, so long as the additional source constitutes less than 50% of the total BTU input.<sup>137</sup>

Beyond the direct chemical and particulate emissions, permitted sources are also limited by nuisance and odor regulations. Specifically, a source cannot discharge or allow a quantity of air contaminants that “will cause injury, detriment, nuisance or annoyance to any considerable number of people or to the public or which endangers the comfort, repose, health or safety of any such persons or the public or which causes or has a natural tendency to cause injury or damage to business or property.”<sup>138</sup> Moreover, the Division regulates odor-causing materials and requires a significant level of mitigation. This is unlikely to be a problem for a wood-fired operation.<sup>139</sup>

### 4. Expected New EPA Rules for Wood Boilers

Additional federal air pollution regulation for wood boilers is forthcoming.<sup>140</sup> The EPA is under a court order to propose an area source rule for boilers, which would limit the amount of hazardous air pollutants (“HAP”) that may be emitted by smaller institutional/commercial boilers, including those that burn wood. The EPA has indicated that wood boilers less than 20 million Btus per hour (MMBtu/hr) will likely be required to comply with the new area source boilers rule.<sup>141</sup> The limits will apply to both new and existing sources, but it is not yet known whether the emissions standards will differ for new and existing sources.

<sup>131</sup> 42 U.S.C. § 7661d; VAPCR 5-1008(b).

<sup>132</sup> VAPCR 5-1008(b).

<sup>133</sup> VAPCR 5-251 (NO<sub>x</sub>) and 5-252 (SO<sub>x</sub>).

<sup>134</sup> VAPCR 5-251.

<sup>135</sup> *Id.* at 5-251(2).

<sup>136</sup> VAPCR 5-231 (b). This limitation is the only one generally applicable, assuming that all PM emissions come from the proposed project’s “stack” (a “chimney, flue, conduit, or duct arranged to conduct emissions to the ambient air.” VAPCR 5-101), otherwise the operation would require a fugitive PM control system. See VAPCR 5-231(4). If the proposed plant will have a “soot-blowing cycle” additional requirements may be required. VAPCR 5-231(4)(b).

<sup>137</sup> *Id.*

<sup>138</sup> VAPCR 5-241 (a) (emphasis added).

<sup>139</sup> This presumes that the responsible state official has not deemed burning wood an “odoriferous process per se.” VAPCR 5-241 (a)

<sup>140</sup> Update on Federal Air Pollution Regulations for Smaller Commercial/Institutional Boilers, EPA, Jan. 29, 2009, available at <http://www.epa.gov/woodheaters/pdfs/20090129BriefingPaper.pdf>.

<sup>141</sup> *Id.* (stating that such boilers “would most likely meet the definition of ‘area source’ in the Clean Air Act and would therefore need to comply with the area source boilers rule.”).

In addition to the emissions standards, the EPA has also indicated that it is exploring requirements for annual tune-ups, work practice standards, and operator training for both new and existing boilers, among other things.<sup>142</sup> New boilers (those that commence construction after the date of the proposed rule) will be required to comply with the new limitations either on start-up or the date of the final rule, whichever is later. The compliance deadline for existing boilers will be established in the final rule, but no later than three years after the standard's effective date.<sup>143</sup>

The deadline for the EPA's proposed rule has been postponed from July 15, 2009 to October 2009. It is likely that the State of Vermont will ultimately implement the new federal rules through ANR's Air Pollution Control Division.

---

<sup>142</sup> Id.

<sup>143</sup> As required by the Clean Air Act (existing boilers must comply with the area source rule as "expeditiously as practicable" but no later than three years after the effective date of the standards). Id.

## IV. Review of Specific Local Municipal Land-Use Regulations in Vermont

The following section identifies portions of the Montpelier, Randolph, Brattleboro and Burlington municipal zoning ordinances that may be relevant to development of a district energy facility in those towns. This is not intended to be an exhaustive evaluation of each zoning ordinance, nor is it specific to any particular project. This overview may serve as the foundation for an initial evaluation of potential opportunities in each municipality, but more detailed analysis will be required for an individual project based on the specific parameters and location of each facility. Additional information on the likely location of potential customers will also help focus review of specific proposals.

### A. MONTPELIER ZONING REGULATIONS AND LOCAL PLANS

Montpelier exempts electrical generation facilities that receive a CPG from local zoning requirements.<sup>144</sup> If the proposed project is limited to a biomass district heating facility it will be regulated by the Montpelier Zoning Ordinance (MZO) and will likely be classified as a “Major Utility” and/or a “Minor Utility.”<sup>145</sup> A Major Utility includes generating plants and “similar facilities [which] provide the public with . . . heat, steam . . . or other similar service.”<sup>146</sup> Similarly, a “Minor Utility” is defined as “services and facilities necessary to development involving minor structures, such as underground . . . steam, water, sewage collection and other utilities; and the equipment and appur-

tenance necessary for such systems to furnish an adequate level of service for the area in which they are located.”<sup>147</sup>

Both Major Utilities and Minor Utilities are approved conditional uses in all zones and are permitted uses in the Industrial zone.<sup>148</sup> If proposed as a permitted use in the Industrial zone, the facility will be allowed if it complies with the dimensional requirements in Article 6, and the general development requirements in Article 7 of the MZO. If proposed as a conditional use, the project would require specific approval from the Montpelier Development Review Board.<sup>149</sup> Among other things, the DRB must conclude that the proposed conditional use does not adversely affect:

- a. the capacity of existing or planned community facilities;
- b. the character of the area affected, as defined by the purpose or purposes of the zoning district within which the project is located, and specifically stated policies and standards in the Montpelier Municipal Plan;
- c. traffic on roads and highways in the vicinity;
- d. the Zoning and Subdivision Regulations in effect; and
- e. the utilization of renewable energy resources.<sup>150</sup>

<sup>144</sup> See Montpelier Zoning Ordinance § 202 at 2-1.

<sup>145</sup> MZO at 13-19.

<sup>146</sup> *Id.* (emphasis added).

<sup>147</sup> MZO at 13-20.

<sup>148</sup> MZO § 606 (Table) at 6-15.

<sup>149</sup> MZO § 304

<sup>150</sup> MZO §304.D(1).

Application of these zoning concepts to a district energy facility may be challenging given that portions of the facility will likely span different zoning districts. For example, while the main generating facility may be located in the Industrial Zone (where it is a permitted use), associated parts of the facility, including heat delivery pipes, will travel through other zoning districts in which such facilities may be a conditional use.

The Montpelier Master Plan, last updated comprehensively in 2000,<sup>151</sup> also provides support for a district heating station within the city. The Master Plan specifically notes the high number of homes heated with electricity and states its support for “life-cycle costing” of renewable energy technology for the city.<sup>152</sup> Most importantly, the Plan supports improvements for direct-heat plant technology and an increase in scope for the existing biomass direct-heat plant, currently serving the 19 buildings in the Capital District.<sup>153</sup> Alongside this support, the Master Plan specifically sets a goal of investigating the feasibility of a cogeneration plant for the Montpelier’s commercial district.

The 2008 Central Vermont Regional Plan offers further support for a district-heat and/or cogeneration plant. The Regional Plan specifically supports the expansion of biomass electrical generation as an alternative to the increasing use of imported fossil fuels.<sup>154</sup> It specifically highlights

Vermont’s leadership in small-scale biomass use.<sup>155</sup> Two of the Regional Plan’s goals are to: (1) conserve energy through increased efficiency, and (2) to advocate for increased use of local, renewable energy sources.<sup>156</sup> It specifically encourages use of biomass energy in Central Vermont.<sup>157</sup>

Beyond these general plans, two other planning documents focus on energy production in Montpelier and provide support for district energy facilities. The first is the District Energy Plan, contained in the larger Capital District Master Plan.<sup>158</sup> This plan, finalized in 2000, discusses the current direct-heat plant in Montpelier and the possibility of its relocation.<sup>159</sup> It also suggests that any changes to the plant or its location should include an upgrade to a cleaner bio-mass cogeneration plant serving more of Montpelier.<sup>160</sup>

An outgrowth of the Capital District’s Energy Plan is the privately produced “Report on District Energy” from 2001.<sup>161</sup> This document details the benefits and challenges of relocating the existing direct-heat plant and expanding it to include a cogeneration capacity. The report highlights the challenges of siting such a project with sufficient proximity to the bulk of Montpelier’s businesses and offices. The Biomass Energy Research Center also completed a more detailed feasibility study for a CHP facility in Montpelier in 2008.<sup>162</sup>

<sup>151</sup> There are updates to the plan from 2005, but the version online shows no changes to the “Energy” or “Land-Use” sections. The amended sections were unrelated.

<sup>152</sup> Montpelier Master Plan at 50, 52.

<sup>153</sup> *Id.* at 52.

<sup>154</sup> Central Vermont Regional Plan, Energy at 4, 7 – 8.

<sup>155</sup> *Id.*, Energy at 8.

<sup>156</sup> *Id.*, Energy at 17 – 18.

<sup>157</sup> *Id.*, Energy at 18.

<sup>158</sup> Available at: [http://www.montpelier-vt.org/docs/plans/CDMP\\_Energy.pdf](http://www.montpelier-vt.org/docs/plans/CDMP_Energy.pdf).

<sup>159</sup> *Id.*

<sup>160</sup> *Id.*

<sup>161</sup> Available at: [http://www.montpelier-vt.org/docs/districtheat\\_concepts.pdf](http://www.montpelier-vt.org/docs/districtheat_concepts.pdf).

<sup>162</sup> Available at: [http://www.montpelier-vt.org/docs/reports/EnergyPlant\\_study\\_appendices.pdf](http://www.montpelier-vt.org/docs/reports/EnergyPlant_study_appendices.pdf)



## B. RANDOLPH ZONING REGULATIONS AND TOWN PLAN

Much like Montpelier, Randolph's zoning ordinance echoes the municipal limitations of 24 V.S.A. § 4413(b) and does not appear to regulate the location of utility power generating plants.<sup>163</sup> As noted elsewhere in this memorandum, it is unlikely that a district heating plant would fit into the definition of "power generating plants" and thus would be subject to Randolph zoning regulations.

Application of the Randolph Zoning Regulations (RZR) begins with determining how district energy facilities will be classified. The closest category in the table of uses appears to be "utility service facilities," which is identified as a "conditional use" in all zoning districts but the overlay Flood Protection District.<sup>164</sup> However, the term "utility service facilities" is not defined in the bylaws.

The RZR was amended in 1990 to create the Mixed Use District ("MXD"), near the intersection of Route 66 and Interstate 89. The MXD does not mention "utility service facilities" but does identify "essential services" as a conditional use.<sup>165</sup> "Essential services" are defined as:

"construction, alteration or maintenance by public utilities or municipal or other governmental agencies of public buildings and generation or processing plants, . . . underground gas, electrical, steam or water transmission or distribution systems, including . . . mains, drains, sewers, pipes, conduits, . . . and other similar equipment and accessories in connection therewith, reasonably necessary for the furnishing of adequate services for the public health or safety or general welfare."<sup>166</sup>

Thus, a direct-heat plant in the MXD appears to meet the definition of "essential services" and could be considered as a conditional use. What is less clear is how many local businesses or residents would be in close enough proximity to make such a project viable.

Whether considered "essential service" in the MXD or a "utility service facility" in other districts, it appears that district energy facility would be a classified as a conditional use. Conditional use permits require approval of the Randolph DRB, which must determine that:

- (a) the proposed use is consistent with the objectives of the comprehensive plan and the purposes of this ordinance.
- (b) that the proposed use will not cause any hazard to health or property through: fire, traffic, accident, unsanitary conditions, excessive noise, vibration, odor, other nuisances
- (c) that the proposed use will not add a volume of traffic to the highways beyond their reasonable capacity.
- (d) that access and exit points are limited to one location which is sufficiently wide and so related to highways to insure safety and efficiency of circulation of vehicular and pedestrian traffic.
- (e) proposals must meet Town of Randolph road standards once adopted. (amended July 19, 2000)
- (f) unsightly uses will be properly screened.
- (g) an adequate system of surface runoff control will be required.
- (h) a continuous strip not less than six (6) feet wide shall be maintained between the right-of-way line and the balance of the lot which strip shall be suitably landscaped.<sup>167</sup>

<sup>163</sup> See Randolph Zoning Regulations § 5.9.1 at 20. This provision does suggest that Randolph may seek to regulate the size, height, bulk, yards, courts, setbacks, density of buildings, off-street parking, loading facilities, landscaping and screening.

<sup>164</sup> See id. at 35-39.

<sup>165</sup> See id. Appendix at 2.

<sup>166</sup> Id.

<sup>167</sup> RZR § 3.4.1.

Dovetailing with the RZR, the Randolph Town Plan (2004) provides some support for the development of a direct-heat plant within the town. Within its first pages, the Town Plan recognizes the value of Vermont's traditional development pattern of compact villages surrounded by unspoiled farmland and makes it an express goal.<sup>168</sup> In specifically dealing with energy needs, the Town Plan sets out goals to (1) "eliminate the need for costly sources of energy" and (2) "encourage the development of local renewable energy sources and to reduce dependence on outside and foreign energy sources[.]"<sup>169</sup> Both of these goals can be read to support the development of a locally sourced biomass direct-heat plant.

More specifically the Town Plan supports the use of biomass as a heating source: "Wood is a renewable, local resource, which contributes to the local economy. Increased reliance on wood as a heating source can offset some demand for expensive and non-renewable alternative sources."<sup>170</sup> Though much of this emphasis is on individual homeowners' use of wood, taken alongside the Town's desire to support energy-efficient, compact growth, a district-heat project fueled with locally sourced biomass would fit within the goals and objectives of the Town Plan.<sup>171</sup>

### C. BRATTLEBORO ZONING REGULATIONS AND PLAN

There are several categories of uses in the Brattleboro Zoning Ordinance (BZO) that may apply to a proposed district energy facility. If the town owns or operates the facility, the project would fit under the "town facility" category, which is broadly defined as "any facility owned or operated by the town."<sup>172</sup> Town facilities are a permitted use in the Commercial Office (§ 2346), Village Center (§ 2347), Urban Center (§ 2348), Suburban Commercial (§ 2349), Industrial (§ 2352), and in the North End Recreational (§ 2356) zones. Town facilities are also a conditional use in the Rural (§ 2341), Rural Residential (§ 2342), Residential (§ 2343), Multiple Residential (§ 2344), Residential Office (§ 2345), Commercial (§ 2350), Commercial Industrial (§ 2351); West River Waterfront (§ 2353), West River Residential (§ 2355), and North End District Five (§ 2357) and North End District Six (§ 2358) zones.

If the facility is not owned or operated by the Town, it may still qualify as a "Public Utility/Facility," which is a permitted use in the Industrial zone (§ 2352) and a conditional use in the Rural (§ 2341), Rural Residential (§ 2342), Commercial (§ 2350), West River Waterfront (§ 2353), and North End Recreational (§ 2356) zones.<sup>173</sup>

<sup>168</sup> Randolph Town Plan at 17.

<sup>169</sup> Id. at 75.

<sup>170</sup> Id. at 76.

<sup>171</sup> See id. at 76 (specific recommendation regarding support for such growth); id. at 77 (energy policies supporting use of energy efficient planning and use of renewables, but also noting possible "negative visual impacts" of generating plant siting).

<sup>172</sup> Brattleboro Zoning Ordinance at 6-16

<sup>173</sup> See also BZO Appendix A at 4.

The term “public utility” and “public utility facility” are not entirely clear as defined by the BZO. “Public Utility” is defined as “[a] business organization performing some public service and subject to governmental utility regulations.” The term “governmental utility regulation” is not defined. It may or may not exclude purely thermal district heating facilities. The related term of “Public Utility Facility” indicates that the term “utility” extends beyond just electrical utilities. The BZO defines “Public Utility Facility” as “[s]tructures used by utilities in the generation, distribution or collection of their products, including but not limited to electrical generating and transforming substations, satellite dish or antenna receivers and senders; water pumping facilities; gas tanks; and similar mechanisms [.]”<sup>174</sup> This open-ended definition suggests that a district heat facility could properly be considered a “Public Utility Facility” under the BZO.<sup>175</sup>

Like Randolph, the Brattleboro Town Plan recognizes the twin aims of compact development and energy efficiency.<sup>176</sup> The Town Plan additionally notes that heating of town buildings is one of the highest energy costs the Town incurs.<sup>177</sup> As one of its enumerated goals, the Town Plan advocates for future town facilities to be a part of a “high-efficiency energy infrastructure.”<sup>178</sup>

The Town Plan also notes that wood consumption is a small part of the energy mix in Windham County, but that supply is limited by the lack of active loggers.<sup>179</sup> It also notes the present use of wood to heat facilities in town, including at the Brattleboro Kiln Dry and Milling Facility.<sup>180</sup> The Town Plan also suggests that with increased demand for energy, the region may need to look for alternate sources of electrical generation.<sup>181</sup> These new sources could include a co-generation facility.

The Town Plan does focus on a perceived need to control permitting of new Public Utility Facilities in various zones within the town, specifically noting the need to develop performance standards.<sup>182</sup> It is unclear what the desired performance standards might be. At the same time, the Brattleboro Town Plan recognizes that the Town may not regulate a facility which has received a CPG.<sup>183</sup>

#### **D. BURLINGTON ZONING REGULATIONS AND PLAN**

Like other ordinances, the Burlington Comprehensive Development Ordinance (BCDO) expressly exempts from review facilities that receive a CPG.<sup>184</sup> In addition, it generally encourages renewable energy development in the city. Included in the list of purposes of the BCDO is the intent “to encourage the conservation, utilization and development of renewable energy resources[.]”<sup>185</sup>

<sup>174</sup> BZO at 6-12 (emphasis added).

<sup>175</sup> See also BZO § 2322 (“Uses which are not listed in any district or in the list of prohibited uses in Section 5300 of this Bylaw may be permitted upon a finding by the Board that such use is of the same general character as those permitted within the district and will not be detrimental to the other uses within the district or to the adjoining land uses. Having received positive findings by the Board, the use in question must receive a conditional use permit from the Board.”).

<sup>176</sup> See Brattleboro Town Plan at 67 – 68; id. Goal 7.3 at 71.

<sup>177</sup> Id. at 67.

<sup>178</sup> Id. Policy 7.5.e at 72

<sup>179</sup> Id. at 66.

<sup>180</sup> Id.

<sup>181</sup> See id. at 70.

<sup>182</sup> Id. at 69 – 70; id. Goal 7.4 at 71 – 72.

<sup>183</sup> See id at 69.

<sup>184</sup> Burlington Comprehensive Development Ordinance (“BCDO”) at §3.1.2(c).

<sup>185</sup> BCDO at 1-1.

The ordinance does not appear to have a specific category of use in the “Use Table” that would apply to thermal district energy facilities. However, one entire district in the BCDO focuses on the use of renewable energy, the Agricultural Processing and Energy (E-AE) district, one of the Enterprise Districts.<sup>186</sup> This district is focused on supporting enterprises which manufacture, process and distribute agricultural products as well as “those related to the generation of energy from renewable sources.”<sup>187</sup> The BCDO defines “Renewable Energy Resources” to include energy collected or converted from wood or from waste heat.<sup>188</sup> The E-AE district is specifically located in the area surrounding the McNeil Generating Station and nearby businesses are “encouraged to build linkages between themselves to coordinate the flows of energy and materials for maximum efficiency.”<sup>189</sup>

Beyond this specific district, the BCDO provides a general variance for Renewable Energy Resource Structures.<sup>190</sup> This variance allows the Development Review Board to permit an otherwise nonconforming use within a zone if the following criteria are met:

- (a) It is unusually difficult or unduly expensive for the appellant to build a suitable renewable energy resource structure in conformance with the regulations; and,
- (b) That the hardship was not created by the appellant; and,

- (c) That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located, substantially or permanently impair the appropriate use or development of adjacent property, reduce access to renewable energy resources, nor be detrimental to the public welfare; and,
- (d) That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the lease deviation possible from the zoning regulation and from the municipal development plan.<sup>191</sup>

This variance seems to allow not merely the construction of a small wind turbine, but also a much larger renewable energy project, such as the projects addressed in this memorandum. This variance might be useful for small renewable energy cogeneration facilities that are not connected to the grid. If connected to the grid, such facilities would require a § 248 CPG, and thus would be exempt from regulation under the BCDO.

Much like the Montpelier Master Plan, the Burlington Municipal Development Plan specifically recognizes the value of district heating and supports the creation of such a project, envisioning “biomass-fueled district energy technologies[.]”<sup>192</sup> In its stated policies, the Development Plan expressly states the City’s desire to “aggressively pursue the transition to renewable sources, cogeneration, and district heating.”<sup>193</sup>

<sup>186</sup> Id. § 4.4.3 at 4-30.

<sup>187</sup> Id.

<sup>188</sup> See id. at 13-42.

<sup>189</sup> Id. at 4-30 – 31 (map of district location).

<sup>190</sup> See id. § 12.1.2 at 12-2.

<sup>191</sup> Id.

<sup>192</sup> Burlington Municipal Development Plan, Energy Plan at VIII-1.

<sup>193</sup> Id.

In discussing district heating in more detail, the Development Plan mentions the ongoing feasibility study the City has undertaken.<sup>194</sup> The study has evaluated several regions in the City as prime locations for district heating, including the University of Vermont, Fletcher-Allen Health Center, the City Center, the Waterfront, and the industrial area around Pine Street.<sup>195</sup> To provide the necessary inputs (namely water and heat), the Development Plan suggests “utiliz[ing] excess city water capacity, combined with energy and excess heat produced by McNeil Station.”<sup>196</sup>

Elsewhere, the Development Plan envisions other uses for the “waste heat” from the power plant, suggesting an “Eco-Enterprise zone” at the Intervale, surrounding McNeil and outside the floodplain.<sup>197</sup> While a seemingly a smaller scale project than those noted elsewhere in the plan, the Eco-Enterprise Zone suggests the City’s diversified commitment to making district heating a reality.

---

<sup>194</sup> Id. at VIII-4 – 5.

<sup>195</sup> Id.

<sup>196</sup> Id. at VIII-5.

<sup>197</sup> Id., Economic Development Plan at VI-11.



**BERC**

Renewable • Reliable • Resourceful

**Biomass Energy  
Resource Center**

**PO Box 1611, Montpelier, VT 05601-1611**  
ph 802-223-7770 x121 • fax 802-223-7772  
info@biomasscenter.org • www.biomasscenter.org