

**FAIRFAX COUNTY ENVIRONMENTAL QUALITY ADVISORY COUNCIL  
MINUTES**

**DATE:** Wednesday, November 9, 2011  
**TIME:** 7:15 P.M.  
**PLACE:** Conference Room, Hidden Oaks Nature Center

**MEMBERS PRESENT**

Stella Koch (Chairman, At-Large)	Robert McLaren (At-Large)
Linda Burchfiel (At-Large)	Kat Pfleeger (Student Member)
Frank Crandall (Dranesville)	Rich Weisman (Sully)
Frank Divita (Braddock)	Glen White (Mason)
Angela Greenberg (Springfield)	Larry Zaragoza (Mount Vernon)

**MEMBERS ABSENT**

George Lamb (Vice Chairman, At-Large)	Johna Gagnon (Lee)
Marie Flanigan (Providence)	Patricia Greenberg (Hunter Mill)

**STAFF**

Kambiz Agazi	Noel Kaplan
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**GUESTS**

Leo Schefer (Washington Airports Task Force)  
Stephen Walz (Northern Virginia Regional Commission)  
Steve Sinclair (Department of Cable and Consumer Services)  
Susan Hafeli (Department of Cable and Consumer Services)  
Jim McGettrick (County Attorney's Office)  
Michael Long (County Attorney's Office)  
David Molchany (Deputy County Executive)  
Steven Bruckner  
Ken Lawrence  
Tim Stevens  
Flint Webb  
Jeff Weisman

**Overview of the efforts of the Chairman's Private Sector Energy Task Force and its Interim Report**

Leo Schefer, President, Washington Airports Task Force and Chairman of the Chairman's Private Sector Energy Task Force, provided an overview of the task forces's work and its interim report to the Board of Supervisors. He reviewed the task force's mission statement, discussed

several reasons for pursuing energy efficiency and outlined the principles underlying the task force's discussions. He highlighted results of the county's community-wide greenhouse gas inventory.

Mr. Schefer noted that the task force had discussed identifying a goal based on assumptions that, by 2040, there would be a 50% reduction in energy use in buildings and fueling of motor vehicles using biofuels that are carbon neutral. He noted efforts by the military and by airlines to push hard for vastly reduced carbon emissions through use of biofuels and suggested that this would translate into a significant reduction in greenhouse gas emissions throughout the transportation sector.

Mr. Schefer noted that the task force's interim report was being presented in three sections:

- Commercial and residential buildings, together with their energy sources.
- Transportation.
- Proposed short and long term goals.

He indicated that the report that had been presented to the Board of Supervisors in October covered the first section, and that the task force was now working on an interim transportation report.

With respect to energy use by commercial and residential buildings, he summarized the findings of the report in regard to a number of issues relating to such energy use. He indicated that the largest potential for near term energy savings was from pre-2000 buildings, as design of such buildings pre-dated energy efficiency concerns and that heating and cooling systems in such buildings would need to be replaced at some time. With respect to new construction, he indicated that, by 2040, 40% of the building inventory would consist of newer buildings constructed during the era of more energy efficient buildings, assuming an average 2% per annum for new construction. Mr. Schefer identified educational promotion of energy efficiency as a key strategy, particularly in light of the challenge that energy costs in Virginia are relatively low.

In regard to a task force goal, he noted that the per capita greenhouse gas emission rate today is roughly 10 tons per year<sup>1</sup>, and he suggested three tons per capita per year as a possible interim goal. He noted that the task force would be discussing this in the future.

Mr. Schefer continued by providing thoughts regarding the district energy concept. He presented a graphic illustrating two trends: (1) as the size of energy generating facilities increase, the cost of energy generation decreases; and (2) as the distance from the energy generating facility increases, energy loss associated with transport also increases. He highlighted a need to find the proper balance between facility size and transport distance and cited the point at which the two trend lines cross as an important economic consideration. He also noted that, because the Washington, D.C. area is in an air quality nonattainment status, it may be difficult to site new power plants here.

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<sup>1</sup> Note: While a figure of 10 tons per capita per year was referenced in this discussion, the latest numbers in the county's greenhouse gas emissions inventory indicate a figure closer to 12 tons per capita per year.

Mr. Schefer identified the Lorton area as providing a particular opportunity for energy generation, citing waste-to-energy, waste heat collection and the potential for geothermal, wind and solar energy sources. He noted that modern power plants need not be ugly or produce smokestack emissions.

Mr. Schefer concluded his remarks by encouraging EQAC members to review the task force's interim building report and to review notes and presentations from task force meetings, which are available on the task force's website at [www.fairfaxcounty.gov/chairman/energytaskforce.htm](http://www.fairfaxcounty.gov/chairman/energytaskforce.htm).

### **Panel Discussion on shared energy/district energy systems**

Stephen Walz, Susan Hafeli and Steve Sinclair each gave a presentation providing his/her perspective on the district energy concept. Patrick Buchanan, University Energy Manager, George Mason University, who was scheduled to participate in the panel, could not attend, but he sent a fact sheet with some details of George Mason's system.

Stephen Walz, the Director of Regional Energy Planning with the Northern Virginia Regional Commission, gave an overview of district energy in Northern Virginia. He discussed NVRC's regional energy strategy efforts and then provided a definition of district energy. It:

- Provides heating and cooling – sometimes electricity, compressed air, other energy – and serves multiple buildings from a common system.
- Is often an integrated network of energy sources and distribution.
- Often includes, but is not required to include, waste heat recovery.
- Is typically sized to accommodate the load requirements of the specific site/area and typically does not generate excess energy for sale.
- Often supports a diversity of fuel sources as a way of mitigating price shocks associated with the use of just one fuel type; examples can include:
  - Natural gas
  - Biomass
  - Waste-to-energy
  - Coal
  - Solar
  - Geothermal

He noted that the district energy concept is generating increasing interest among localities and businesses as a means of pursuing energy efficiency at a larger scale than single buildings. He also cited air pollution and peak electric demand control benefits that can be associated with district energy systems. He indicated that district energy today is common on campus-like settings (colleges such as George Mason University), hospitals (such as INOVA Fairfax Hospital), campus-like office complexes and some municipal systems (legacy systems such as Baltimore and modern systems such as St. Paul, Minnesota and North Vancouver, British Columbia). He identified the Lorton and Tysons Corner areas as two areas where this concept could be applied in Fairfax County but noted that dense development areas in general would become target areas, particularly where waste heat is available. He cited several studies under way in the area.

Mr. Walz described what district energy facilities in Fairfax County may look like, showing schematic diagrams. He then noted that district energy is generally not being done in northern Virginia; he pointed out that there is limited business/regulatory history with district energy and that many questions need to be answered, such as:

- Is district energy cost effective?
- Who will finance, build and operate such systems?
- What authority do localities have under the “Dillon Rule”?
- Would district energy utilities be regulated by the State Corporation Commission?
- What will be the legal form of public district energy? Private? Public? Public-Private? Utility?
- How would electricity be sold?
- Are there issues regarding exclusive territory rights?
- Would hookups be mandatory or voluntary?
- How would developing a building in a district energy system affect the development process?
- Are there issues in terms of access to public rights-of-way for pipes?
- What would happen to existing building heating and cooling systems?
- Is there sufficient demand to anchor a start-up system?
- Are there permitting issues?
- Is there space available in the area for the needed systems?

Mr. Walz noted that a study by McGuire Woods made a series of recommendations aimed at resolving legal questions. The study concluded that district energy is feasible in Virginia, subject to what would likely be a complex legal framework. The study report also included a number of recommendations pertaining to the Code of Virginia, as well as the following recommendations to localities that may have an interest in district energy systems:

- District energy systems should be addressed within comprehensive plans.
- Zoning ordinances should be reviewed for what district energy system approvals are needed.
- Definitions of “utility” should be reviewed to determine if they adequately address district energy systems.

He noted that the study report also recommended collaboration among localities, major energy suppliers and major developers.

Mr. Walz reviewed some of the business questions raised by district energy, as covered in a study conducted for the Metropolitan Washington Council of Governments by FVB Energy, Inc. Included were considerations of cost effectiveness of combined heat and power, as well as other energy concepts, in relation to electricity costs. Other business questions, including financing issues, were also noted.

Mr. Walz concluded by noting two upcoming forums on district energy.

Steve Sinclair, Chief of the Public Utilities Branch of the Fairfax County Department of Cable and Consumer Services, provided an overview of his perspectives on district energy, referencing a community energy planning perspective that has been offered by Peter Garforth (a consultant

who has assisted both Arlington and Loudoun Counties with development of their community energy plans); the application of this concept in Denmark; economic/business case considerations; and impediments and constraints. He noted that Susan Hafeli would continue with a discussion of the state legislative and regulatory framework.

Mr. Sinclair began by presenting a number of slides from presentations that Peter Garforth has given in northern Virginia. He noted that greenhouse gas emissions are an indicator of energy efficiency and provided Mr. Garforth's slide comparing per capita annual greenhouse gas emissions of several specific geographic areas, noting that the overall figure for the United States is 22.8 metric tons CO<sub>2</sub> equivalent per year, compared with 14.1 for Denmark, 3.0 for the City of Copenhagen, 14.6 for Arlington County, and 14.2 for Loudoun County. He noted that the figure for Fairfax County (not presented on this slide) was 11.3 (for the year 2010). He presented Mr. Garforth's community energy planning framework, which highlights district energy as an essential "game changer" in reducing emissions. He noted that Mr. Garforth has identified district energy as a critical component of Copenhagen's successful effort to reduce its carbon footprint. Mr. Sinclair continued by presenting some details regarding Copenhagen's program, highlighting key differences between Copenhagen's situation and that of northern Virginia. He referenced the use of waste heat from industrial processes in Copenhagen, noting the lack of heavy industrial uses in northern Virginia. He added that Copenhagen had four combined heating and power plants (generating 70% of the city's energy needs) and four waste-to-energy plants (generating 27%). He also noted climatic differences (little or no need for air conditioning in Copenhagen) and indicated that the cost of electricity in Denmark is roughly four times that of Virginia; he cited other experts in their identification of high electric rates as supportive of good district energy applications.

Mr. Sinclair reviewed the district energy/combined heating and power concept and noted that, in the United States, there are 85 downtown district energy systems and 330 college campus district energy systems. He expressed his view, however, that it would not be appropriate to assume that district energy is always "green," citing a local example of a struggling system in Reston. He concluded his overview of district energy/combined heating and power concepts by highlighting the following characteristics of successful programs:

- Government ownership of utilities.
- Strong governmental and societal commitment.
- Government financial assistance.
- High energy prices.
- Energy infrastructure in place.
- Proximity to waste heat fuel sources.

With respect to the economics/business case for this concept, Mr. Sinclair highlighted the following:

- Siting of generation plants/community acceptance.
- Energy costs.
- Ownership.
- Costs/prices of old generation vs. new.
- Competitiveness with Dominion Virginia Power's prices, considering costs of operating combined heating and power facilities.

- Ability to attract financing.
- Start-up issues.
- Opportunity costs (e.g., value of land for other uses).
- Operational issues (e.g., reliability).
- Technology risk.
- Few examples in U.S.
- Little attention on the Web or in the press.
- Poor track record of public officials directing energy industry organizational changes.
- Widespread deployment not embraced by energy professionals.

Mr. Sinclair concluded by citing the following impediments:

- Siting issues/community opposition.
- Air quality permitting in a nonattainment area
- Water access and cost.
- Security.
- Zoning.
- Building codes (e.g., Denmark vs. Virginia).
- Financial attraction to an unproven model.
- Virginia statutes and regulations.

Mr. Sinclair indicated that Fairfax County does not have waste energy sources available for use that would make a district energy system process economically viable. Also, there are significant and costly infrastructure requirements that would need to be in place for a district energy system, and none of this infrastructure is currently in place. A basic conclusion is that there exist many substantial obstacles for district energy to be economically viable in Northern Virginia.

Stella Koch asked Stephen Walz if he had any thoughts regarding Steve Sinclair's presentation. Mr. Walz replied that there are many opportunities available to apply the district energy/combined heating and power concept but that the path to doing so will not be easy. While he indicated that he was not as skeptical about the concept as Mr. Sinclair, he agrees that there are numerous hurdles that would need to be overcome in order to apply this concept successfully. He cited an example of a generating facility in Silver Spring that has been very successful, although has had to mitigate noise at neighboring properties.

Susan Hafeli, also with the Department of Cable and Consumer Services, provided an overview of the legal and regulatory framework for district energy in Fairfax County. She noted that the county had limited authority, in that Virginia is a "Dillon Rule" state and in that there is no local authority for a county to adopt or amend building codes. She added that the state regulates the provision of energy services, noting that the State Corporation Commission has been granted broad and extensive powers to regulate and control utilities.

Ms. Hafeli continued by describing key provisions in the Code of Virginia that define "public utilities" and that grant electric and natural gas utilities exclusive service territories; this exclusivity is recognized by the state as a valuable property right that is entitled to judicial

protection. She indicated that the effect of this exclusivity is to eliminate competitive threats that can spur innovation; she added that rate regulation causes utilities to focus on “tried-and-true” investments and strategies in order to avoid jeopardizing cost recovery.

Ms. Hafeli noted that the Code of Virginia does establish several exclusions to the monopolization of energy supplies, including the following:

- Generation and distribution of electric energy exclusively for one’s own consumption.
- Furnishing of geothermal resources or water to less than 50 customers.
- Using a central plant to provide electric service, together with heating and cooling services, to tenants and lessees, but only if:
  - The building(s) is/are located on a single tract of land undivided by a publicly-maintained road when the central plant was installed; and
  - The owner does not charge separately or by meter for electric energy used by any tenant, except as part of a rental charge.

She added that, once a central plant provides service to 100 or more customers, state regulation will be triggered.

Ms. Hafeli noted that a typical application of district energy is for campus environments, where a property owner is providing utility service for its own consumption (and is therefore not considered to be a public utility). She added that a property owner who is providing utility service for the consumption of tenants or lessees is not considered to be a public utility when service is purchased from a regulated utility or licensed competitive provider, or when the central plant exclusion (described above) applies. With respect to multi-owner/multi-property sites, she noted the difficulty associated with the establishment of district energy systems due to the need to establish that the incumbent utilities are providing inadequate service and due to regulatory barriers to the retail sale of electricity, even if technically feasible. She did, however, indicate that niches may be available for other energy services, such as domestic hot water and heating and/or cooling.

With respect to heating and cooling, Ms. Hafeli indicated that there is, presumably, no exclusive territory issue because heating and/or cooling services are different than electric or natural gas service. She noted that there is one heating and cooling utility in the county (RELAC), with a limited service area in Reston.

Ms. Hafeli stated that service providers would be subject to utility regulation, except in the following circumstances:

- A chilled water air conditioning cooperative serving residences in an area that is less than one square mile in size; and
- Provision of geothermal resources or water to less than 50 customers.

She concluded by noting that regulations appear to allow access to and occupancy of public street rights-of-way.

Leo Schefer noted that he had held a conversation with a representative of Dominion Virginia Power, who indicated that, if combined heating and power was to be pursued, Dominion would seek to be an operator of the facility. Steven Bruckner asked if there was interest within Dominion in doing this. Mr. Schefer replied that there were two camps at Dominion on this

question. Ms. Hafeli suggested that there may be an incentive for Dominion to pursue this idea, in that recent legislation defined combined heating and power as an energy efficiency program.

Larry Zaragoza requested copies of the reports that Mr. Walz referenced. Mr. Walz indicated that he could provide the McGuire Woods report to Noel Kaplan but that the FVB Energy report was undergoing review by the Metropolitan Washington Council of Governments. He noted that a study of the Moorefield Station project in Loudoun County is still under way, and that a study in Crystal City is just getting started.<sup>2</sup>

Larry Zaragoza expressed interest in hearing about legislative options. Leo Schefer indicated that he was not sure if the task force would be developing legislative recommendations. He indicated that, at the county level, proposals would more likely focus on processes (e.g., builder incentives) than regulations, although he recognized that there may be limitations in regard to process incentives.

Larry Zaragoza noted that coal-fired power plants have finite life spans and will need repairs after certain periods of time. He asked if our assumptions regarding the costs of coal facilities are considering this reality. Stella Koch echoed this concern, noting the expense associated with maintaining older generating facilities. Steve Sinclair noted that, it is commonly accepted in the power generating industry that power plants that are completely paid off generate kilowatt hours at a much lower cost than new power plants.

Mr. Zaragoza noted that greenhouse gas emissions issues may add costs to the operations of coal-fired plants and asked if this was being considered. He expressed his general view that people may be unrealistically optimistic in regard to coal power. Leo Schefer expressed his view that Dominion may build new, more efficient larger (“mega”) plants to replace some older ones. Stephen Walz noted that Dominion is taking smaller plants off-line and constructing new biomass and natural gas plants. He also noted the possible construction of a new nuclear plant at Lake Anna.

Linda Burchfiel expressed her view that efficiency is the cheapest and fastest approach; she asked why this concept is getting lost. Stephen Walz replied that there are several tests applied in Virginia to evaluate efficiency programs and that primary use of the Rate Impact Measure test has limited the implementation of utility-sponsored energy efficiency programs; he stressed that the decision how to evaluate utility energy efficiency programs is ultimately a public policy question subject to direction from the Virginia General Assembly.

Stella Koch expressed concern that it seemed to her that the county was looking for a high degree of certainty in regard to district energy systems that other localities are not requiring.

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<sup>2</sup> The referenced McGuire Woods report is available on the Northern Virginia Regional Commission website at <http://www.novaregion.org/index.aspx?NID=1219>. The FVB Energy report is available on the Metropolitan Washington Council of Governments web site at [http://www.mwcog.org/committee/committee/documents.asp?COMMITTEE\\_ID=265](http://www.mwcog.org/committee/committee/documents.asp?COMMITTEE_ID=265). Additionally, the Integrated Energy Plan for the Loudoun County Government Support Center, that includes an assessment of district energy, is available on the Loudoun County website at <http://www.loudoun.gov/Portals/0/docs/Energy/Dewberry%20Study%20Final,%20Support%20Services%20Site.pdf>

Steven Bruckner referred to the earlier discussion regarding Dominion's possible interest in district energy, noting that, if both the county and Dominion would support legislative changes, the chance of success would be much higher.

Leo Schefer stated that Dominion has expressed interest in renting large roof areas for solar arrays—he indicated that this was very close to being cost effective for accommodating peak power demands.

Flint Webb raised two points:

- With respect to renovating power plants as opposed to replacing them with wind facilities, he expressed his view that the argument that wind is a less stable source is a specious one. He expressed his view that, with good forecasting, electricity could be generated from wind power with good certainty.
- He asked if anyone was banking GenOn emissions credits (associated with the proposed closure of a coal-fired power plant in Alexandria); he suggested that this may be a resource that could be used to ease many of the regulatory permitting issues in terms of air quality. Stephen Walz indicated that this was a good question, but he did not know the answer and whether this would free up emissions under the cap associated with regional air quality attainment planning.

Stephen Walz indicated that natural gas would be the primary fuel that would be used for district energy systems if one or more such systems were to be established in Tysons Corner. He indicated that biomass fuel would likely not be workable in such a suburban/urban environment.

Larry Zaragoza noted that renewable energy projects are being pursued on individual homes in Maryland and the District of Columbia and expressed concern that, in Virginia, where energy prices are cheaper and where there is a different legal context, it will be more difficult for homeowners to pursue such projects. Steve Sinclair noted that Maryland has a mandatory renewable energy portfolio requirement, whereas Virginia's approach is voluntary. Stephen Walz added that Maryland is a member of the Regional Greenhouse Gas Initiative, which is pursuing reductions in greenhouse gas emissions from the power sector between Maryland and Maine. He noted that states that have joined this initiative have costs they need to account for that Virginia does not have in its regulatory structure.

Steven Bruckner referenced Steve Sinclair's discussion of the Denmark example and noted that Denmark made the decision to require that new power plants be sited where waste heat could be re-used; he noted that this requirement has resulted in smaller, more widely distributed plants near load centers.

Stella Koch concluded the discussion by noting the challenge between stressing short-term costs over longer-term costs.

### **2011 Annual Report on the Environment**

Noel Kaplan presented the status of the report preparation. All chapters are in with three left to edit. All inputs for the scorecard are in. The goal is to have the report printed and ready to

transmit to the Board of Supervisors before Thanksgiving. Noel reviewed his proposed level of report production (hard and CD copies) and noted that the report was scheduled for presentation to the Board of Supervisors at 11:00 AM on December 6.

### **Approval of meeting minutes**

Consideration of the minutes of the September 15 and October 12, 2011 meetings was deferred until December.

### **Chairman's items**

Stella Koch noted that George Lamb and Johna Gagnon were both absent from the meeting, but she commended both for their reelection to the Northern Virginia Soil and Water Conservation District Board.

### **Council member items**

There were no member items.

### **Staff items**

Noel Kaplan discussed the following items:

- The next meeting of the Planning Commission's Environment Committee—November 17, 2011 at 7:00 PM (green building policy).
- Supervisor Herrity's staff has expressed interest in EQAC's views regarding state regulatory mandates of concern.
- Watershed management plan community update—November 30, 2011, 7:00 PM
- Review of upcoming EQAC meeting agendas
  - Noel was asked to add to the December 14 agenda a brainstorming session on the identification of issues for future EQAC consideration.

Kambiz Agazi noted Stella Koch's earlier comment regarding risk aversion by the county. He noted the efforts of Steve Sinclair and Susan Hafeli in the rate case suit against the City of Falls Church and their lengthy history of protecting county residents from being taken advantage of. He also noted that the county was the first in the area to add text to its comprehensive plan supporting district energy. He stressed that the county supports this concept and is asking Tysons Corner zoning applicants to at least study the concept for possible application on their sites. He expressed his view that other localities do not have the resources to identify the risks and impediments to the application of this concept. He did note, though, that Arlington County is on the cutting edge in researching this issue and that he was looking forward to seeing the outcome of those efforts. He described Crystal City as a unique situation that may be particularly conducive to district energy—a single property owner controlling a large area of land. Stella Koch expressed her concern that the Plan language for Tysons Corner may have raised expectations that the county is not willing to meet. There was further discussion.

### **Adjournment**

The meeting was adjourned at 10:30 PM.