1 POWERING OUR FUTURE

2 PUBLIC MEETING

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4

5 November 28, 2007

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8 Columbia City Council Chambers

9 701 East Broadway

10 Columbia, Missouri

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15 Before:

16 John Conway, Hearing Officer
Dan Dasho, Task Force Member
17 Ernie Gaeth, Task Force Member
Bob Roper, Task Force Member
18 Dick Malon, Task Force Member
Hank Ottinger, Task Force Member
19 Dave Wollersheim, Task Force Member
Dick Parker, Task Force Member
20 Tom O'Conner, Task Force Member
Tom Baumgardner, Task Force Member

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1 MR. DASHO: Good evening and welcome to
2 Powering Columbia's Future. This is a public meeting.
3 It's being held to review the details of the
4 Integrated Resource Plan that Water & Light is
5 currently conducting.
6 An Integrated Resource Plan, or an IRP,
7 is a great way to study our future power supply
8 options. An IRP takes into consideration how energy
9 is created, how energy's transported, the
10 environmental impact and the benefits of energy
11 efficiency. There are two components of the study,
12 the supply side and the demand side management, which
13 we will be talking about tonight.
14 The engineering firm of Burns and
15 McDonnell has begun collecting data for the Integrated
16 Resource Plan and it will be completed in the first
17 quarter of 2008. The study will give Columbia the
18 information we need to secure reliable, cost-effective
19 and environmentally sensitive power for the future.
20 We wanted to get as much input from the
21 public as we could so that the City Council -- so the
22 City Council asked that a group of citizens serve on
23 the Power Supply Task Force. The Power Supply Task
24 Force is sitting around us here up at the desk. They
25 will be working with you to make sure that your ideas

1 are incorporated into the plan.

2 With that, I'm going to ask John Conway,

3 chairman of the task force, to make a few comments.

4 John.

5 MR. CONWAY: Thank you, Dan.

6 My name is John Conway. Also serve as

7 chairman of the Water & Light Advisory Board, and the

8 Advisory Board is on as part of the task force. And

9 also, I'm acting as a chairman of the Power Supply

10 Task Force.

11 The task force has invited you here

12 tonight to learn about the process that Burns and

13 McDonnell is using to research our future power supply

14 of electricity. Another important component in this

15 study are programs that lower electrical demand and

16 energy use.

17 Once the presentation is over, we'll have

18 time for questions and comments from the public. What

19 I'd like to request from you at this time is that if

20 you have questions that you would like to have

21 addressed this evening, that you get one of the -- a

22 card -- pick up a card there that's available and to

23 submit your questions and comments after the

24 presentation.

25 We will go through -- Kiah Harris, who's

1 here tonight from Burns, McDonnell, will make a
2 presentation and on that card Kiah will be directing
3 responses of the questions. We ask that you put your
4 name and address for the record on the card and submit
5 the card. We'll collect them after the presentation
6 and then work with Kiah as far as directing responses
7 to those.
8 So at this time I'd like to welcome Kiah
9 Harris from Burns and McDonnell to give us a
10 presentation.
11 MR. HARRIS: Thank you, John.
12 Can everybody hear me in the back? Is
13 everybody okay?
14 I appreciate the opportunity to be here
15 tonight and discuss this issue with the City. This is
16 certainly an important type of analysis in the
17 development of the utility. And certainly in today's
18 environment where we have significant issues to deal
19 with in the context of global environmental issues, we
20 need to be looking at the information that -- that
21 this study will present for the city.
22 What I'd like to talk about tonight are
23 just some -- some of the current conditions that CWL
24 faces. Then we'll review the situation that -- the
25 load forecast, where some of the energy is expected to

1 come from considering the existing resources that the
2 City has and then talk about some of the supply side
3 options.
4 And a supply side option is something
5 like a gas turbine generating unit or solar panel or
6 something like that. And it's something that produces
7 electricity to provide for the needs of the consumers.
8 And then we're going to talk about some
9 demand side options. And demand side options include
10 controlling air conditioners maybe during peak load to
11 drop the demand level down or putting in more
12 conserving -- more efficient types of appliances that
13 conserve energy.
14 So on the demand side, essentially what
15 we're trying to do is remove the need for future
16 supply side resources by making the consumption more
17 efficient.
18 And then we want to solicit your input on
19 any comments or questions that you might have on the
20 process.
21 So when we talk about an Integrated
22 Resource Plan, the objective of an Integrated Resource
23 Plan is to balance the cost of supply side issues
24 versus the cost of essentially not consuming. And so
25 the different programs that we have to -- to meet each

1 side are going to be analyzed.

2 Certainly the options that are available

3 to the City of Columbia don't include certain supply

4 side options that may be available to a larger

5 utility, but what we're going to be looking at are

6 those options that are really specifically applicable

7 to the city here.

8 When we look at one of the major

9 uncertainties in this study, it's the issue associated

10 with the debated mandate to reduce the CO2 emissions

11 that are out there. So what we're looking at in this

12 study is a significant uncertainty on how to cost

13 the -- or value the reduction in carbon dioxide.

14 And what we'll do is we'll do a

15 sensitivity assessment of the various plans

16 considering, you know, variety of cost structures and

17 options to reduce the level of CO2.

18 And if we look at the various programs

19 that are out there right now, the reduction in the

20 programs is to take the level of greenhouse gas

21 reductions from the 1990 level, which is approximately

22 across here (indicating), down to the target level

23 that is mandated in 2050 by the variety of -- of

24 proposals that are in front of Congress right now.

25 So you can see that that's a pretty

1 drastic reduction and the only way that we're going to
2 get there is to significantly reduce the resources
3 that produce CO2 as well as the consumption of
4 electricity.
5 When you look at the current CO2
6 emissions from the residential, commercial, industrial
7 transportation and electric power sectors, we see
8 that, by and large, the largest CO2 emissions come
9 from the transportation and electric power sectors.
10 And these red bars across here (indicating)
11 essentially are the reduction levels that would need
12 to be achieved to get down to the levels of CO2 in the
13 2050 target.
14 So to say it's a very significant
15 challenge is an understatement, but this will be
16 incorporated in the assessment that we're doing on the
17 different options.
18 When we look at the current projections
19 for energy consumption and demand growth inside of
20 Columbia, we see that the current consumption of the
21 demand level is 278 megawatts. In 2028, that's
22 projected to grow to 399 megawatts and we have a --
23 obviously a projected increase in customers.
24 And so what that translates into is to
25 look at the demand growth, which is the projection of

1 the demand increase, which is megawatts. And so what
2 this graph shows you -- and this dashed line right
3 here (indicating) is the peak demand that is projected
4 for the city over the study period.
5 Now, all utilities, including the City,
6 are required to keep what's called reserve capacity
7 available to it. And that is a certain percentage of
8 generation and that is represented by this dark line
9 (indicating).
10 So the dashed line really is the demand
11 requirements that the City customers establish and
12 then the dark line is the resultant impact of that on
13 full resource needs that the City has to maintain to
14 meet its obligations with the utility industry.
15 Now, the resources that we have available
16 right now are represented by these different colors.
17 And you can see that some resources disappear and
18 others appear based on the current plan that the City
19 has for these options. And the units out at the
20 existing power plant, Units 5 and 6 are expected to
21 retire in 2014 and this was recommendation from an
22 earlier study and you can see that they disappear.
23 Now, what we are looking at is the
24 capacity deficit that occurs between the existing
25 resources and what the projections show. And so what

1 we're doing with the study is to look at what an
2 optimal supply side portfolio might look like with--
3 without any adjustment to the forecast. And then that
4 establishes what's called the avoided cost for the
5 utility.
6 And then we will be measuring all of the
7 efficiency and demand side options against that cost
8 to see how we can modify this projection up here
9 through encouragement of conservation and demand
10 reduction.
11 So this is an important concept to
12 understand from this graph is that these -- this is a
13 projected growth of the City without any impact -- any
14 new impact associated with demand side management
15 option. This includes the DSM projections that are
16 already included in the City's programs and that type
17 of thing.
18 The other piece of the equation is the
19 energy side. So we've got -- and the previous graph
20 was -- showed megawatts and this graph shows megawatt
21 hours. And so what this graph does is rank order the
22 hourly loads in the city. And so at the peak hour,
23 it's that level which is about 335 megawatts and at
24 the lowest time during the year it's roughly
25 140 megawatts.

1 So 800-- 8,760 hours a year this
2 represents the hourly energy consumption that the city
3 has. And these areas underneath the graph that are
4 colored represent the current sources of where that
5 energy is projected to come from at 2015 without any
6 additional supply side resources.
7 So based on the current renewable
8 portfolio standard, by 2015 you're supposed to be
9 getting 5 percent of your energy from renewable
10 options. This green area represents what would be
11 produced out of your coal-based resources. And then
12 the areas up above this, essentially the Columbia
13 Energy Center, your existing gas units out at the
14 power plant and the market, represent primarily energy
15 that is produced by natural gas resources.
16 So you can see that barring any additions
17 into the solid fuel area, that the energy would be
18 coming from gas-based resources either owned currently
19 by the City or from the market.
20 When we look at the projected Renewable
21 Portfolio Standard, the current requirements of the
22 RPS are to grow from roughly 2 percent in the 2007 mix
23 to a 15 percent value in -- in 2022. And so this
24 gives you just an idea of the relative impact of that.
25 And then the sources of the renewable

1 energy right now are Blue Grass Ridge Wind Farm, which
2 started operation this fall, and then two landfill
3 operations, which the City is participating in.
4 Now, as I mentioned, the supply side
5 options include both what you might consider to be the
6 traditional things like combustion turbines,
7 hydroplants, coal and biomass type power plants, and
8 also the wind units and the solar will be included in
9 this assessment.
10 One of the things about the wind
11 development that is currently impacting the
12 development of that resource on a broad scale is the
13 fact that the best wind resources in the country are
14 essentially where people don't live.
15 And so when these wind turbines -- their
16 full output really occurs at about a 30 mile an hour
17 wind. And if any of you have ever stood out in a
18 30 mile an hour wind for very long, it doesn't get to
19 be too -- too enticing place to stay very long.
20 So what we see is the major areas for
21 wind are in the areas of western Kansas and the
22 Panhandle all the way up into the Dakotas.
23 And so the challenge is to get
24 transmission built out of this region to be able to
25 supply this wind energy in a low-cost fashion to, you

1 know, the population centers on the east and west
2 coast.
3 And certainly the City of Columbia has an
4 opportunity to participate in these wind farms, but
5 the challenge is to actually get the transmission
6 built. And that's where the City has a challenge in
7 getting sufficient voice to really build its own
8 transmission to deliver this power.
9 So although the participation in these
10 remote wind farms can happen, it's more common that
11 you'll be seeing things like the Blue Grass Ridge
12 development up in northwest Missouri and a little bit
13 easier transmission delivery from those types of
14 options.
15 On the demand side, you know, essentially
16 what we're looking at is the situation that the only
17 place that we've got to essentially get DSM advances
18 and benefits is from this inside the City of Columbia.
19 You guys are the only ones that can
20 really affect the consumption of -- of the energy
21 inside the town. So you're really all that there is
22 that we have to go to to -- to mine essentially higher
23 efficiency appliances and those types of things to
24 reduce the requirement for increased demand and energy
25 to be supplied by CWL.

1 So essentially what we're looking at with
2 this is to essentially take the number of end uses --
3 and an end use is something like a refrigerator, a
4 washing machine, an air conditioner, you know, an
5 appliance that we can put in a more efficient type of
6 resource with and multiply that by the number of
7 resources inside of Columbia and that's the maximum we
8 can take off of the energy and demand curve. So
9 inside the city is the only place that we have to get
10 benefits out of the demand side.
11 Now, one of the things and the challenges
12 that CWL has is to meet your-all's consumption
13 patterns and your-all's requirements for energy. One
14 of the interesting things that to me is happening, and
15 not only inside of Columbia but nationwide, is the
16 concept of the homes today.
17 In 1987, the average square foot for a
18 house inside of Columbia was approximately 2,300
19 square feet. In 2006, that average was approximately
20 3,200 square feet. That's an increase of about 1,000
21 square feet per house. And along with that has come
22 higher ceilings, more volume in the house, so there's
23 just more energy to -- to heat that house.
24 Now, another statistic along with that is
25 that in 1987 the average consumption was about

1 600 kilowatt hours on an annual basis per residence.
2 Today that number is 824 kilowatt hours. And so not
3 only have the houses gotten bigger and these types of
4 things, but we've just started using more energy per
5 consumer.
6 And so this represents about a 37 percent
7 increase per residential meter inside the city. And
8 the only people that can really control that is the
9 consumer. And so this is a big challenge that the
10 City has to meet your-all's demands and yet minimize
11 its costs from the traditional resources and those
12 emissions that come out of it.
13 Now, just one example of how this usage
14 has come about and something that's rather striking,
15 is these flat-panel TV sets. When you look at the --
16 the TVs, this a curve that shows the energy
17 consumption based on different types of television
18 sets and -- and screen sizes. This is about a 32-inch
19 TV set (indicating).
20 What we're seeing is massive penetrations
21 of these types of television sets not only in homes
22 but sports bars and you name it, they're just
23 ubiquitous today. And the difficulty with these TV
24 sets, besides this drawing more power, is that in
25 their standby mode, they're just on all the time

1 essentially. And so this requires a different kind of
2 concept from the standpoint of your old TV set where
3 when you turned it off, it was off.
4 And so today we really need to be
5 thinking about the standby power. When you look at
6 what we call vampire loads -- and these are loads that
7 we really aren't getting anything out of but they're
8 just on, battery's being charged these type of things,
9 it's estimated that on a nationwide basis, these type
10 of loads are consuming about 5 to 6 percent of our
11 energy.
12 And these are things that simply just
13 need to be turned off, you know. That's -- just turn
14 it off. That's the basic way to get rid of these
15 loads. But these are the types of things that the
16 City is essentially forced to provide for but are very
17 difficult to -- to develop programs essentially to get
18 them out of the -- out of the load curve.
19 Some of the existing programs that the
20 City has, certainly the compact florescent light bulb
21 is a very popular program not only in the city but
22 nationwide to drop lights down. And these are some of
23 the savings that have accrued out of some of the
24 programs for the residential area (indicating).
25 And you can see that there's substantial

1 amount of options out there. Two of the programs that
2 are just coming about are the photovoltaic rebates and
3 getting the Energy Star Clients Development program in
4 place and so these are early in the -- the development
5 stage and they haven't gotten any savings from those
6 yet, but you can see that there's certainly a
7 substantial amount of programs that have shown
8 savings.
9 In the commercial sector -- or the
10 industrial sector, again, there's different types of
11 programs. The energy audits that the City produces,
12 specifically the load shedding and the interruptible
13 programs where on peak we can get the load off of --
14 shown about 10 megawatt reduction on peak.
15 And on the commercial side, again, one of
16 the -- the best programs are the -- the lighting
17 incentives and the building certification programs.
18 And so we're seeing that the City has
19 really got pretty active programs in the residential,
20 industrial and commercial sector and they're building
21 on their expertise in managing these programs. But,
22 again, these programs are only as successful as the
23 citizens will accept them, so . . .
24 Another area where the City is really
25 working is in just educating the population on what --

1 what programs are available, about what the
2 efficiencies mean to the consumer. And again, these
3 are estimates on -- what these programs are providing
4 to the City (indicating).
5 When we look at the different
6 opportunities to get energy out of the different
7 classes, we see that roughly 30 percent, 32 percent of
8 the city is made up of residential customers,
9 25 percent of the energy is taken by the commercial or
10 industrial, and then about 43 percent is from the
11 commercial sector. And so obviously the areas here
12 are the sources of extracting energy and demand from,
13 so these are the target areas that we have to deal
14 with.
15 One of the challenges that the City of
16 Columbia has is that you've got a residential customer
17 base that's made up of about 60 percent rental
18 properties and about 40 percent consumer occupied, you
19 know, owner-based homes.
20 And so you can imagine that the rental
21 properties are much more of a challenge to get
22 efficiency enhancements in to and higher appliances
23 in to and adducing the landlords -- the landlords to
24 improve the energy consumption as opposed to a
25 residence where you actually are there and paying the

1 bills. And so this is a challenge that we have in
2 this study, but it's certainly something that we will
3 be looking at.
4 Some of the data that the City has
5 provided to us indicates that, you know, from surveys
6 that have been taken, over half of the population is
7 aware that, you know, the City will give you a free
8 energy audit, but still this is -- a third of the city
9 isn't aware of that, which could utilize that service.
10 Energy efficient improvement loans, less
11 the half the city is aware there's some loans
12 available for these type of programs.
13 One of the programs that has been very
14 successful in -- across the country with the municipal
15 utility groups is the Tree Pr-- Tree Power Program.
16 And roughly half of the city is aware that this
17 program is in existence in the city and you can get
18 trees to help shade your home with.
19 And then load management, you know, less
20 than half of the city is kind of aware of this type of
21 program, but this is certainly something that can be
22 utilized to help shave demand off of the demand curve.
23 And then from an educational basis, The
24 Energy Guy's Conservation Tips, again, less than half
25 of the city is aware that this program is out there.

1 So even with the education and stuff that's going on,
2 there's still a lot of room for improvement in the
3 awareness level of the population.
4 Now, some of the programs that we will be
5 evaluating for the City are looking at the -- the
6 primary demand for the City of Columbia occurs in the
7 summertime with the air conditioning load. So
8 programs that can help off load that air conditioning
9 requirement are very valuable to the electric utility.
10 And certainly new insulation and windows
11 and these type of programs are things that will be
12 looked at to help reduce the consumption level. And
13 this also will be looked at in both -- as well in the
14 commercial sector.
15 So better insulation in the structures to
16 reduce the energy will be incorporated into a model
17 that we're looking at to actually model different
18 commercial and residential structures.
19 There's a huge amount of new appliance
20 options. If you go to Lowe's or any appliance store,
21 you'll see a lot of Energy Star rated appliances.
22 And so these types of appliances, replacing the
23 existing inventory that's in the city will be
24 evaluated to see how much energy we could be mining
25 out of the -- out of the appliance area.

1 More efficient motors both in the
2 commercial sector and industrial sector will be looked
3 at. And certainly lighting change-out programs to be
4 increased beyond their current level will be assessed.
5 In the HVAC area specifically, there's a
6 significant increase in the efficiencies of air
7 conditioners. You know, a typical home inside of
8 Columbia right now has a seasonal efficiency energy
9 rating of roughly 8 to 10. And there are units out
10 there right now that go beyond 20, up in the 23 level,
11 so -- but we're going to be looking at what amount of
12 energy we can mine again out of the area by replacing
13 these central air conditioning units.
14 Insulated ducts are a big area. Many
15 homes were built without ducts in -- in conditioned
16 space and so the opportunity to see what we can do
17 with increasing the insulation in the ducts is going
18 to be reviewed.
19 A new type of heating -- heating and
20 cooling that could be considered is what's called
21 geothermal. These require ground loops that circulate
22 water and take energy out of the earth to help
23 minimize the consumption.
24 This is a chiller motor for a commercial
25 building (indicating). It's run on essentially

1 magnetic bearings. And so the efficiency of these
2 units is much greater and provides some substantial
3 benefits.
4 And something as simple as using a
5 notched V-drive belt on a compressor has a
6 1 to 2 percent efficiency improvement simply because
7 of slippage of a solid fan belt. So something as
8 simple as this can be used to assist in minimizing
9 energy consumption.
10 Now, the other aspect of part of what's
11 going on in the country today is changing the way
12 consumers consume energy and pay for it. And what's
13 being promoted are things that are -- programs called
14 Pay As You Go.
15 So, you know when you have a cell phone,
16 you have -- maybe if your minutes are fixed on it per
17 month and as soon as you run out of minutes, you
18 either pay more money or you don't use your phone.
19 Well, the same concept is being moved
20 over into the electric energy industry. So you'd have
21 a meter inside your house that you would go to the
22 utility and charge up your card, plug it into your
23 meter and it would allow you to consume a certain
24 amount of kilowatt hours over the month. And as soon
25 as you ran out of that, you either didn't consume any

1 more or you budgeted through the month to make sure
2 you didn't run out, these type of things. But this
3 type of program is being looked at in a variety of
4 areas.
5 And then Smart Meters. It's hard to tell
6 from this screen, but this allows you to essentially
7 monitor consumption of clothes dryers, appliances like
8 refrigerators and these types of things so you can
9 actually decide what's using the most energy at any
10 time based on the price of electricity and choose to
11 either turn that off or not. So these types of
12 awareness consumption issues are being promoted for
13 the end-users as well.
14 Now, when we look -- look at the
15 assessment of these options, as I mentioned, the only
16 thing we have to deal with here is the number of
17 different appliances and light bulbs and all these
18 type of things inside the city to mine essentially
19 energy and demand out of those.
20 So we're going to look at the number of
21 end uses times the improvement that can be made by
22 putting in a better, more efficient device. So if
23 your old light bulb was a 60-watt bulb and you put in
24 a CFL of 15 watts, then that's 45 watts difference.
25 Multiply that times the amount of light bulbs in

1 Columbia and that's how much we think we might be able
2 to save.
3 So this will give us the expected impact
4 on the load forecast and we will then be able to look
5 at what the expected benefit of that program is in
6 reducing the energy and the demand forecast needs for
7 the City.
8 And so essentially on the cost of
9 programs for the DSM side, certainly there's the cost
10 of a device. You know, it costs more to put in a
11 high-efficiency air conditioner than a lower
12 efficiency one.
13 The cost of any rebates, any inducements
14 that the utility has to provide to entice you all to
15 buy a better appliance has to be considered in the
16 cost of the program as well as just the program,
17 operation and maintenance, the staff to deal with the
18 implementation of the program, the mailers and all
19 these kind of things that have to go on.
20 And the other important aspect of this is
21 that it's important that the City monitor and really
22 verify that the savings expected are actually being
23 achieved, because that verification process is an
24 extremely important feedback loop to make sure that
25 they do not need to all of a sudden be forced to go

1 out and put in a traditional resource.
2 So on the supply side -- or the demand
3 side, these type of costs will be looked at. And then
4 these costs will be compared to the costs of the
5 investment in a traditional resource, whether it's a
6 solar panel or a power plant, these -- these costs of
7 investments will be considered, and then the cost of
8 fuel and, as I say, the cost of emissions. And we
9 will be putting in a cost for expected CO2 values.
10 And then certainly these options have O and M costs as
11 well.
12 So at the beginning we showed the scale
13 with the dollars on the supply and demand. This is
14 where those dollars will be developed from.
15 So that's the end of the information from
16 the formal presentation and it's time now to listen to
17 some of your thoughts and entertain some of your
18 questions. John?
19 MR. CONWAY: Thank you, Kiah.
20 Before we open up the meeting for
21 questions, I wanted to review with you how your
22 comments will be incorporated into this process.
23 After this meeting, the task force will review your
24 input and incorporate them, when it's feasible, into
25 the items being studied by Burns and McDonnell.

1 At this time we'll collect the cards.
2 And for your information, the cards are at the table
3 that are here towards the doorway.
4 Let's see. Kiah, we have some that are
5 filling their cards out now. Are there any other
6 cards?
7 MR. DASHO: What we're going to do here
8 is we're going to go through the questions and have
9 Kiah Harris address those as we go along from
10 everybody. And when we get done going through that
11 process, we'll look and see if there's additional
12 comments that folks want to make and see if the
13 questions have been answered.
14 And I'm just going to jump in here and
15 read the question and have Kiah address it.
16 And the first question is, what data has
17 Burns McDonnell collected on demand side management
18 programs around the country that may work here in
19 Columbia?
20 MR. HARRIS: The City of Columbia
21 actually participated in a statewide analysis of DSM
22 programs in 2006. And that report is really forming
23 the basis for the types of programs and the expected
24 reductions that we would see from appliances that were
25 incorporated into that study. And there's about

1 32 different types of DSM opportunities that that
2 study identified.
3 In addition to that, we are looking at
4 specific programs of air conditioner replacements,
5 HVAC improvements and these type of things in the
6 residential and -- and commercial buildings and
7 actually modeling these things in a program that we
8 use and have demonstrated to the City to actually
9 produce the expected energy and demand reductions for
10 a variety of structure types and these types of
11 things.
12 And these can cover increased insulation,
13 different lighting, night setback thermostats, a
14 variety of different programs that can be considered.
15 And these programs have been typically used in places
16 where we have -- our energy services company has gone
17 in and actually incorporated savings in to
18 establishments.
19 MR. DASHO: Will the full life cycle cost
20 of each source be analyzed?
21 MR. HARRIS: Yes. Definitely. That --
22 life cycle analysis is -- incorporates all of the
23 variety of costs that are associated with any type of
24 traditional or demand side resource we might be
25 considering.

1 So as I mentioned, we'll be looking at
2 all the operating costs, the investment costs, the
3 emissions costs, every cost that's associated with the
4 program over its expected life.
5 MR. DASHO: Would you speak to the
6 dependability of wind power and seasonal variations of
7 wind power?
8 MR. HARRIS: There is quite a database
9 being developed for wind output. Certainly the more
10 popular wind sites -- we work with utilities in areas
11 up in Iowa that have had wind on their system since
12 2001, 2002. And we've got hourly output data of these
13 wind farms so we've got a very good understanding of
14 how wind varies over the year.
15 What you typically see is that wind is
16 more prevalent in the fall, winter and spring months
17 and not as prevalent in the hot summer months. So
18 it's not that the wind doesn't blow in the summer, but
19 it certainly doesn't blow to the level that it does in
20 the winter and off-peak months. And so there is that
21 variability.
22 In addition to that, there is a daily
23 variability of the wind pattern. And from this, we
24 can -- we have essentially statistical models of the
25 different wind outputs that will be used for

1 assessment of wind to assist in meeting the supply
2 side options for the city.
3 MR. DASHO: I have a question on the
4 annual energy use per resident. And they were
5 wondering if it's off by a factor of 10.
6 And I guess my response to that would be
7 that was a monthly number, not an annual number. If
8 you're interested in the annual number, you just take
9 that and multiply it by 12.
10 And the other thing is, are we going to
11 compare our energy usage in Columbia to other cities?
12 MR. HARRIS: Well, I think that the --
13 you know, certainly we can run these comparisons, but
14 like I say, the -- the main issue that we're trying to
15 deal with is what the City can do to minimize its
16 usage. And so although comparisons might be of some
17 benefit, I think that the real issue is what can be
18 done here in the City of Columbia.
19 Now, we have looked at other cities from
20 the standpoint of what types of programs that they are
21 implementing and we will bring those types of
22 suggestions to the City, but consumption is different
23 across the country, you know, depending upon whether
24 you're in warm states or cold states.
25 And so, you know, we can provide that,

1 but I'm not sure what it -- it really provides you
2 other than just an interesting factoid at the end, but
3 the real issue associated with this study is what can
4 we do to the issues here inside the city.
5 MR. DASHO: Have you considered tiered
6 billing, setting a target -- target usage per
7 household and then making usage above that level 10 or
8 20 times the normal rates?
9 MR. HARRIS: Certainly the price
10 elasticity of any product is important in its
11 consumption. I think that, you know, certainly we can
12 discuss this with the -- with the City, but we haven't
13 really incorporated a rate analysis inside of -- of
14 this effort.
15 But what is certainly being promoted in
16 different rate venues is to get rid of what's called
17 declining block rates, which makes it cheaper to
18 consume more, and to go to a more higher cost energy
19 as -- as you consume more. So I'm not familiar with
20 what the City has done in -- in that type of a rate
21 structure, but that's certainly something that's
22 common across the country today.
23 MR. DASHO: I'd just like to comment on
24 our rate structure. And we do have rates that are set
25 such that if customers use 750 kilowatt hours or less

1 per month, they have one rate. When they use more
2 than that, the rate increases. And we have two
3 additional levels of rates to send a price signal to
4 customers that our cost is going up as they use more
5 and they need to be aware of it and we send that in a
6 price signal. And we currently do that. We do not
7 have declining block rates.
8 What has been considered with regard to
9 renewable energy development, specifically in terms of
10 planned projects or proposed projects?
11 MR. HARRIS: The City right now has been
12 involved with the development of a solar photovoltaic
13 system on a commercial establishment. We're looking
14 at the landfill gas options that the City is involved
15 with, potential expansion options of the Blue Ridge --
16 Blue Grass Ridge Wind Farm.
17 So these types of things that are
18 currently ongoing are certainly going to be
19 incorporated into the analysis as well as the
20 potential to increase opportunities to advance those.
21 MR. DASHO: On the demand side, has Burns
22 and McDonnell considered alternative sources such as
23 acetylene alcohol, power generation from local
24 inventors, different kind of fuel?
25 MR. HARRIS: I can't say that we've

1 specifically included that one, but we are looking at
2 a variety of alternative fuel options for the city.
3 Biomass is certainly an option that would be
4 investigated, but we haven't gotten to the type of
5 fuel that was mentioned in the question, no.
6 MR. DASHO: Are you willing to consider
7 75 to 100 million dollar investment in demand side
8 production or conservation to be paid for through the
9 rates for building changes?
10 MR. HARRIS: One of the approaches that
11 our study does is to really set the demand side
12 programs against the traditional options. And so the
13 lower cost approaches to conservation, these type of
14 things, will be incorporated to the degree they pan
15 out to be of benefit to the city.
16 The level of investment that was
17 mentioned in the question is certainly a potential
18 and, you know, we could see that level of investment
19 being considered from the standpoint of conservation
20 and DSM.
21 The capital cost of traditional supply
22 side resources has increased significantly in the last
23 few years and certainly has made more DSM programs
24 cost effective.
25 MR. DASHO: Since the analysis proposed

1 is primarily -- primarily an economic analysis, will
2 any effort be made to cost the externalities cost in
3 terms of health effects, pollution, climate change
4 impact, etc.?
5 MR. HARRIS: We are trying to incorporate
6 best guesses on, for instance, the cost of CO2, what
7 the implication of -- of increased emissions would --
8 what the city would confront with the various
9 proposals that are in front of Congress right now.
10 Certainly the emissions of other
11 pollutants can be brought in to the degree that the
12 City wants to consider them, but we certainly have
13 been involved in studies such as up in Minnesota that
14 do include the externality values.
15 The question that really comes down is to
16 what -- how do you value those? There's a wide
17 disparity across the country of different regulatory
18 environments that have valued these at different
19 levels. So if we did incorporate those, which is not
20 difficult to do, we would certainly have to come to an
21 understanding of what value would be placed on those
22 externalities.
23 MR. DASHO: Since peak energy usage is in
24 the summertime, would solar panels be a logical
25 choice?

1 MR. HARRIS: Solar photovoltaics
2 traditionally have been a higher price alternative
3 than the traditional options.
4 What we're seeing with the projected cost
5 of -- and availability of natural gas and these types
6 of cost increases in the actual facilities, certainly
7 the value or the difference between photovoltaic
8 produced energy and that out of a peaking unit has --
9 the gap is narrow. Certainly we would be evaluating
10 whether that gap is sufficient to promote wide-scale
11 application of photovoltaics in -- in the city.
12 MR. DASHO: How can we entice the
13 industry and commercial sectors to utilize solar
14 energy when it's those sectors that have the greatest
15 square footage of roof space?
16 MR. HARRIS: The program that the City is
17 working on right now with the commercial establishment
18 in town I think is going to start setting a -- I'm not
19 sure we'd call it a blueprint, but certainly a -- kind
20 of a road map of how these programs might be promoted
21 to the commercial establishments.
22 Just today Google, for instance,
23 indicated that they would be deploying a fairly large
24 renewable energy program. If anyone has seen their
25 campus out in California, it's pretty well littered

1 with -- or not littered, but covered with solar panels
2 on their campus.
3 So there are commercial establishments --
4 Wal-Mart's big into the deployment in some locations
5 in the country, but I think that, by and large, the
6 commercial establishments can be an attractive
7 deployment of solar photovoltaics. And certainly the
8 one -- the program the City is working with right now
9 is the same, maybe a definite learning curve that we
10 can go up to help entice others to follow.
11 MR. DASHO: Does Columbia plan on setting
12 up a system to encourage residents to put in
13 photovoltaic systems and have some excess power sold
14 to the City during peak hours?
15 MR. HARRIS: I believe that the City
16 currently has a program to encourage that. There is
17 net metering in the city to a level. Whether that
18 level is sufficient to entice people to invest in the
19 photovoltaics remains to be seen. It's a fairly new
20 program from what I understand, but certainly that
21 would be a target area.
22 MR. DASHO: There's much talk about the
23 demand on the part of residential consumers. How can
24 laws or codes or incentives be used to reduce
25 commercial and industrial demands; for example,

1 outdoor lighting for businesses? And also, the City
2 needs to mandate, not just encourage, and it needs to
3 work on the County too and shouldn't the City just
4 forbid energy appliances that aren't Energy Star?
5 MR. HARRIS: Well, that's certainly a --
6 outside the purview of this study, but I would say
7 that to the degree that the citizens of Columbia want
8 to, you know, promote these type of things to the --
9 to the City Council and the people that are involved
10 in setting these rules and regulations, that there are
11 certainly building codes available that encourage, you
12 know, more sustainable type of -- of approaches to
13 architecture and -- and building construction.
14 And to the degree that, you know, the
15 City Council can be induced to accept and adopt these
16 types of building codes and -- certainly that's, to
17 me, a -- a function of the citizens of Columbia to
18 promote.
19 MR. DASHO: Have you considered
20 co-generation in the future energy mix? And maybe you
21 could touch on what co-generation is.
22 MR. HARRIS: Certainly. Co-generation is
23 the production of electricity along with some other
24 thermal service like either a chilled water, for
25 instance, or heat to heat a building.

1 Burns McDonnell has been very active in
2 the development of what's called combined heat and
3 power projects and we will be bringing that type of an
4 assessment here to the City.
5 The places where we have found these to
6 be most attractive, for instance, are in hospitals
7 where there's a large demand for hot water and -- and
8 cooling and this type of thing as well as electricity.
9 And so these are natural gas driven devices, but
10 combined heat and power is probably the -- the more
11 attractive option that I could see from a
12 co-generation aspect that would be germane to the
13 City.
14 MR. DASHO: Is the study going to take
15 into account things like the cost of potential
16 lawsuits from people who are harmed by polluted air
17 caused by coal-fired power plants similar to
18 court-ordered cigarette and asbestos company payouts
19 of billions of dollars?
20 MR. HARRIS: I'm not aware of how those
21 types of things would be brought into the study.
22 Certainly if the utility wishes to, we can put risk
23 profiles around any type of a plan. The challenge to
24 that is just to agree on what the risk profile looks
25 like and what the extent of consideration and damages

1 might be to any type of lawsuit.

2 MR. DASHO: Is the City going to consider

3 regulating landlords to mandate greater efficiencies

4 both through insulation and appliances in rental

5 buildings?

6 MR. HARRIS: Burns McDonnell's role in

7 this study is to provide what we think could be

8 achieved by improvements in insulation and different

9 appliances. It would be obviously up to the City and

10 the City Council to implement any code changes or

11 regulations that need to be made to enforce those

12 changes to come about.

13 MR. DASHO: Why are the big lights

14 allowed to burn at the UMC athletic field so much?

15 The University of Missouri has its own

16 power supply and they provide their own electricity.

17 The model does not take into account our

18 energy needs beyond peak oil. Is it going to take

19 into consideration how we're going to meet those

20 needs?

21 MR. HARRIS: I'm not sure I understand

22 the question.

23 MR. DASHO: There's a lot of discussion

24 about we've hit the peak in oil production. And if

25 that's the case, how are we going to move forward into

1 the future and supply our energy needs?
2 MR. HARRIS: The City of Columbia, from
3 an electric utility standpoint, is really very
4 minimally dependent upon oil for production of its
5 energy requirements, so to the degree the -- from a
6 petroleum standpoint, that issue is really of small
7 concern to the -- to the City itself.
8 More -- one of a -- probably a greater
9 issue is more the supply of natural gas to provide the
10 power to combustion turbines and that type of device.
11 MR. DASHO: Is the study going to take
12 into consideration neighborhood fuel cells which are
13 being tested and it's anticipated within 10 to 15
14 years they may be cost effective? Will that be part
15 of the energy resources in the future?
16 MR. HARRIS: We have looked at fuel
17 cells. And due to the -- kind of the early commercial
18 deployment of these units, they can be included from
19 the standpoint of the future supply mix.
20 Part of what we want to do in the study
21 is to make it flexible enough to where if these types
22 of devices do become commercially available, that the
23 City has the opportunity to -- to utilize these.
24 And what that really means is that the
25 city utility avoid investing in -- or over-investing

1 in a traditional supply side resource that would make
2 it so capacity excess that it had no need for -- or no
3 ability to take advantage of future technology
4 changes. So part of the challenge here is to provide
5 but not over-provide for the needs of the city.
6 MR. DASHO: What consideration in the
7 study is being given to mandating or regulating
8 commercial usage of power in a more efficient way?
9 In other words, is consideration being can-- taken
10 into account ordinance changes that might bring about
11 energy reduction?
12 MR. HARRIS: As I mentioned earlier, one
13 of the -- not one of, but the goal of Burns, McDonnell
14 is to identify areas where different consumption
15 patterns or different efficiencies can be applied to
16 the system and to point out the opportunities that are
17 within the city to achieve savings.
18 Whether those programs are then mandated
19 by regulation or essentially purchased by the utility
20 remains to be seen, but what our role is is to
21 identify what the magnitude of benefit might be to
22 such a regulation change or investment by the City.
23 MR. DASHO: Is the study going to take
24 into consideration programs that would encourage
25 customers to install local wind generation or

1 photovoltaic installations?
2 MR. HARRIS: The installation of wind
3 turbines and residential applications is driven
4 substantially by zoning ordinances. The installation
5 of photovoltaics is typically much easier since it's
6 not necessarily in violation of any kind of zoning
7 ordinances.
8 So to the degree that small, home-based
9 wind generating units would be installed is really
10 something that has to be evaluated in the context of
11 the zoning inside the city.
12 MR. CONWAY: Okay. That's the end of the
13 submitted comments and questions. Are there others
14 that would like to address the task force?
15 I would ask you to come forward and state
16 your name and address. And we're going to try to
17 limit just to three minutes, please.
18 MR. KIND: Good evening. It's a pleasure
19 to be able to introduce -- to speak to you about these
20 important issues tonight. My name is Ryan Kind. I
21 live at 105 East Ridgely, Columbia Missouri.
22 My day job is working as the chief energy
23 economist with the Missouri Office of Public Counsel.
24 And in that role, I've had 15 years of involvement in
25 long-run planning for electric utilities in this

1 state, including working extensively with the resource
2 planning efforts at the four largest electric
3 utilities in Missouri. However, tonight I will be
4 speaking just as a resident of Columbia and not on
5 behalf of the State office where I work.
6 I've got quite a few comments that would
7 be very difficult to really say much meaningful in
8 three minutes, but I'll sure give it a shot. I
9 understand the need for time constraints.
10 I'll just say that I'm a little bit
11 disappointed in general is my general reaction to what
12 I've seen in terms of what's being considered for
13 energy efficiency options at this time. I've been an
14 interested observer of Columbia's efforts in this area
15 over the last 15 years or so, including while I was on
16 the Energy Environment Commission.
17 And while Columbia seemed to be sort of
18 in a leadership role in terms of its efforts and how
19 they compared to other electric utilities in Missouri
20 at one time, my experience at the State is that other
21 electric utilities are really getting to the point
22 where they're moving ahead of Columbia in terms of the
23 funding level and the comprehensiveness of the energy
24 efficiency programs that they're offering.
25 That would also include the City of

1 Springfield, which about a year and a half ago did a
2 200-page comprehensive study of its energy efficiency
3 options. It hired an outside consulting firm that
4 specializes in this area to perform that study.
5 And I don't think you're going to get
6 anything close to that kind of analysis from the work
7 that's being done here tonight. And that's -- that's
8 not any kind of a criticism of Burns and McDonnell.
9 They're a fine consulting firm, not any kind of
10 criticism of Kiah. I've worked with Kiah on a lot of
11 power supply, generation and transmission issues both
12 at the state and national level over the last 10 years
13 or so. I'm very impressed with Kiah.
14 But his firm is -- is not really -- is
15 not one of the leaders in this area. And -- which
16 isn't to say that he can't do some meaningful work,
17 but I'm very disappointed in the approach that I see
18 he's taken so far.
19 And that disappointment's not based just
20 on what I've heard here tonight, but I also attend the
21 last meeting of the Power Supply Task Force where they
22 delved into a much greater detail of the type of
23 analysis that's going to be done. And there's just a
24 lot of room for improvement. Obviously don't have
25 time to get into all those details here tonight.

1 I would say that we have an experience
2 here in Columbia with our utility not getting very
3 aggressive about confronting some of the important
4 environmental issues and just challenging issues that
5 occur.
6 There seemed to be a need several years
7 ago for a citizen initiative to encourage the Columbia
8 electric utility to take renewable resources
9 seriously, and I'm starting to think a similar
10 initiative or City Council action might -- might be
11 important to see that in this area as well.
12 I would note that in 1999, the Austin
13 City Council passed a resolution stating that, quote,
14 Cost effective energy -- cost effective conservation
15 programs shall be the first priority in meeting new
16 load growth requirements for their city utility.
17 And since that time, the municipal
18 utility in Austin has, as many people know, become one
19 of the leaders nationwide in its energy efficiency
20 efforts.
21 Anyway, I guess I just will close with --
22 obviously my time's running out. Mr. Dasho made a
23 statement earlier about Columbia not having any
24 declining block rates. I think there's kind of a
25 caveat to that. We have declining block rates for

1 heat pump customers. And -- in Columbia for
2 residential heat pump customers. And I think it would
3 be important to evaluate whether that makes sense with
4 likelihood of carbon regulation in the near future.
5 Thank you.
6 MR. DASHO: Would you like to leave your
7 comments with us for the task force?
8 MR. KIND: I will provide some comments.
9 I understand that you've -- I think there's a date of
10 early December or something by which you'd like to
11 receive comments and I'll be glad to make my outline
12 that I came with tonight a little bit more
13 understandable. Thank you.
14 MR. MIDKIFF: I will also make my written
15 comments available. I do have them in written form.
16 Members of the Water & Light staff -- and
17 I know there's several here and members of the
18 Columbia Power Supply Task Force --
19 MR. DASHO: Would you identify yourself
20 please?
21 MR. MIDKIFF: -- my name is Ken Midkiff,
22 M-i-d-k-i-f-f. I reside at 1005 Bellevue Court here
23 in Columbia. I'm speaking on behalf of the Osage
24 group of the Sierra Club as I'm the conservation chair
25 of that group.

1 And while I agree with the positions I'm
2 about to relay, the positions are not just mine, but
3 those of the national, state and local Sierra Club.
4 And I didn't know we had a time limit until Ryan Kind
5 mentioned it. I timed my comments. They're about
6 five -- five minutes.
7 The first thing I would like to address,
8 and I'm talking about the demand side, is what seems
9 to be an over-reliance on traditional coal-fired power
10 plants, almost to the exclusion of every other source
11 except that which is mandated by the renewable energy
12 standard we have in the city.
13 There is a passing nod to natural gas
14 facilities which also rely on a fossil fuel and which
15 emit carbon dioxide. And while there are many schemes
16 and dreams about the sequestration, scrubbing or other
17 ways of dealing with carbon emissions, the fact
18 remains that this is all unproven technology.
19 The facts also are that the Earth is
20 getting warmer with all the dire consequences that
21 holds, inconvenient consequences.
22 Not only that, but the world's most
23 eminent climate scientists in the UN's inter-go--
24 inter-governmental panel on climate change, the IPCC,
25 have determined that this warming is primarily due to

1 human causes, particularly the releases of various
2 greenhouse gasses, as we've heard. The chief culprit
3 is carbon dioxide from burning fossil fuel, plus in
4 power plants or automotives.
5 So what is one of the proposals? Burning
6 more fossil fuels and releasing more CO2 and warming
7 up the planet even faster.
8 We can do better. It is true that right
9 now, as Dan has told me and many others have, there is
10 a transmission bottleneck in the Kansas City area and
11 that right now it is difficult to obtain electricity
12 from wind generators that are located in places on the
13 Great Plains where the wind is constant. If it isn't
14 blowing in Texas, it's blowing in Wyoming. So
15 consistency is not a problem.
16 The bottleneck will remain unless and
17 until the transmission lines are expanded to transport
18 that energy east of Kansas City. As long as Columbia
19 and other cities east of Kansas City continue to state
20 we can't get energy from Kansas, things will stay that
21 way. A self fulfilling prophecy.
22 But if Columbia decides to purchase wind
23 energy from Kansas and the Great Plans and other
24 cities then follow suit, that bottleneck will be there
25 no longer. All it takes is money.

1 But by relying on energy from coal-fired
2 power plants and other fossil fuel services, the
3 consultants hired by the City are incredibly short
4 sighted. Albert Einstein is credited with saying,
5 "Insanity: Doing the same thing over and over again
6 and expecting different results."
7 Yet Burns and McDonnell primarily lists
8 electricity from coal-burning power plants as a source
9 for increasing demand. Burning coal not only
10 contributes mightly to global warming, but also emits
11 mercury and compounds of sulfur, respectively causing
12 human health problems and acid rain.
13 The federal government, as we have heard,
14 is proposing their various proposals to institute a
15 carbon tax. Tax means that the rates are going to go
16 up. If we obtain our electricity from plants that
17 emit CO2, rates will skyrocket. Chances are, in fact,
18 that rates will go up no matter what is done, but we
19 can minimize that increase.
20 In addition to wind energy from areas
21 west of Missouri, there is also, as we've heard, much
22 potential for obtaining wind energy from northwest
23 Missouri. There are also a number of wind generators
24 with sufficient transmission lines in Illinois and
25 Iowa.

1 Why is it that we keep doing the same
2 things over and over? We say we do not wish to
3 contribute to global warming nor pollution, yet
4 everything recommended to date has taken that
5 approach.
6 We recommend -- the Sierra Club
7 recommends that sources of energy be identified and
8 used that don't pollute, don't contribute to higher
9 electric rates and don't place our planet at risk.
10 I have much more on the -- on the --
11 on the demand side, but I'll save that for written
12 comments. Thank you.
13 MR. PECKHAM: Hello everybody. I'm Nick
14 Peckham. I'm a member of the American Institute of
15 Architects, member of the Board of the US Green
16 Building Council and a member of the Think Tank called
17 The Design Futures Council.
18 I'll be brief so I'll make up for some of
19 Ken's important remarks.
20 MR. MIDKIFF: Verbosity.
21 MR. PECKHAM: One of the things that I
22 was a little disappointed in in an otherwise very
23 interesting presentation was some confusion about how
24 to value the environmental factors of what we're doing
25 to produce energy.

1 It seems to me that the value of the
2 environment is paramount to the existence of life,
3 whether that's human life or any other sort. So I
4 hope that that confusion about how we value that goes
5 away.
6 Buildings worldwide and in the United
7 States use approximately 48 percent of the energy
8 consumed. Obviously this is a place of low-hanging
9 fruit. And I hope this committee can make some early
10 recommendations to the City Council to adopt a lead
11 the leadership in energy and environmental design
12 metric for a requirement for getting a building permit
13 in our community. This would go a long way toward
14 reducing the energy consumption in buildings and
15 creating other environmental benefits as well.
16 In addition, the American Institute of
17 Architects has adopted a policy that was initiated by
18 a single individual in Santa Fe, New Mexico, a
19 gentleman named Ed Mazria, which is called
20 Architecture 2030. And the goal of this movement is
21 to reduce the carbon footprints -- footprint of the
22 environment to zero within the next 23 years.
23 Very aggressive program.
24 And last but not least, I hope that the
25 study doesn't overlook another natural source of

1 energy quite nearby; namely, the Missouri River in
2 particular and rivers in general. And I've spoken to
3 you, Dan, about the Rio-Gen, a device that I've
4 patented to do just this sort of thing. So I hope
5 these comments are useful.
6 MS. GREEN: I'm Linda Green (phonetic
7 spelling), 206 Anderson Avenue in Columbia, private
8 citizen.
9 I sympathize with the task force in
10 trying to make very difficult decisions regarding
11 Columbia's future energy needs. I'm concerned that
12 coal plants may attract potential carbon penalty taxes
13 or even litigation costs for producing dirty air.
14 The International Herald Tribune reports
15 that in the US, there are currently about a dozen
16 legal cases involving global warming. In one case,
17 dozens of gas and oil companies are being sued for
18 global warming emissions raising the temperature of
19 sea water which intensified the strength of Hurricane
20 Katrina.
21 In another case, native people of the
22 North Arctic are exploring suing the US government or
23 US corporations due to global warming pollution
24 causing the permafrost to melt so their land erodes
25 and slides into the ocean.

1 The Arctic and New Orleans may seem far
2 away, but Columbia would not be immune from global
3 warming lawsuits. For example, health problems traced
4 to coal plants anywhere could involve billion dollar
5 payouts similar to the debacle in asbestos company
6 cases.
7 In this book, The Weather Makers,
8 scientist Tim Flannery says, Climate change could
9 spawn a whole new industry of litigation against those
10 who pollute it knowingly and without concern.
11 All aspects of climate change are well
12 researched in this book and there are two copies in
13 the Daniel Boone Regional Library.
14 Also, conscientious companies may begin
15 choosing to locate in areas where renewable energy is
16 developed and to avoid locations using dirty or
17 dangerous power. An example is the Google company
18 which you mentioned a little bit ago, which is now
19 taking steps to avoid using coal and nuclear plants.
20 And one comment about nuclear power.
21 Nuclear plants, new ones, are so costly and so risky,
22 that without public insurance money, no new nuclear
23 plants would be built. We taxpayers need to tell our
24 representatives and Congress that we refuse to provide
25 public insurance money to cover nuclear accidents or

1 cost overruns for the nuclear power industry.
2 Columbia first needs more education and
3 incentive to stop wasting the energy we have, then do
4 all we can to promote renewable energy; the only safe,
5 long-term, non-polluting, sustainable path which will
6 save us money, boost the economy, create jobs, improve
7 public health and combat global warming.
8 Finally, it's not only a financial issue.
9 It's also an ethical issue. Who do I give my comments
10 to?
11 MR. HEIM: Good evening. Mark Heim
12 (phonetic spelling), 1402 Richardson, Columbia. I'm
13 here representing Missourians for Safe Energy. I'll
14 try to keep my comments very brief.
15 I echo the sentiments already expressed
16 by the four previous speakers. I think the key at
17 this point is to make our energy future based on
18 efficiency and renewables and to eschew any
19 investments in any new fossil generating facilities or
20 nuclear facilities.
21 At this point it's something that's not
22 necessary and it's something that is not in our
23 interest either from a financial and economic
24 standpoint or from a environmental standpoint and we
25 need to recognize that.

1 I also would like to make a couple of
2 specific comments. Without getting into too much
3 detail, it seems like a lot of the programs the City
4 has already implemented are involving peak shaving.
5 And peak shaving's a good thing, it saves money
6 because peak power is very expensive power.
7 But if we're really interested in the
8 maximum environmental savings, we need to go to
9 reducing base load consumption. So essentially what
10 we want to do is cut down on consumption that's going
11 on all the time.
12 If you better insulate homes, that's
13 going to save energy and resources all year round. It
14 will obviously save during peak periods, but I'm not
15 saying just turn your air conditioner off during a
16 peak day. It will actually reduce our consumption of
17 electricity throughout the entire summer months and
18 our consumption of electricity or gas, whatever we
19 heat with, during the winter months.
20 So those kinds of investments are the
21 most important ones. I'd love to see the City putting
22 its resources into those sorts of programs rather than
23 building any new power capacity at this point.
24 And whatever power capacity we do need
25 and do build, after we've gotten our community really

1 energy efficient, should be renewable capacity. And I
2 really think wind is a key resource. We need to be
3 looking at getting the wind power to our city's
4 customers.
5 Beyond that, the one other thing I'll say
6 is that the question that I had raised on one of those
7 little cards about cost externalities, I wasn't
8 talking about the cost externalities that might be
9 internalized through Congressional action.
10 I was talking about the environmental and
11 health impacts which we might never be actually asked
12 to pay for, although Linda's right, we might get sued.
13 But whether or not we're asked to pay for those things
14 in our electric rates or our city's electric utility
15 has to internalize those costs, collectively we bear
16 those costs with the rest of humanity and the rest of
17 the planet. And as such, it's in all of our interests
18 to reduce those costs even if it means we pay a little
19 extra for our power. Thank you.
20 MR. FAKEN: Hi. I am -- I'm sorry. I am
21 Mark Faken (phonetic spelling). I'm a private
22 citizen. I live at 416 Alexander.
23 In -- in the summer of 2005, California
24 was able to -- to shave its electrical demand by
25 11 percent without spending a cent. And the -- they

1 simply turned off blocks of customers for one to two
2 hours every day. That's the easiest kind of peak
3 shaving I know.
4 And it cost nothing and it reminds
5 people. It reminds people that they have to unplug
6 the lights, to turn -- to turn off the unused lights,
7 turn the air conditioner up a little bit, you know.
8 It's not that hard and it's very simple and it costs
9 nothing. Thank you.
10 MS. WELCH: Good evening. I'm Monta
11 Welch (phonetic spelling) and I reside at 2808
12 Greenbrier Drive.
13 I want to thank the City and the task
14 force for giving the citizens this opportunity. And I
15 do want to reiterate that everyone has made comments
16 tonight that I know many, many people here in this
17 city would agree with.
18 I happen to be the founder of the
19 Columbia Climate Change Coalition. And while
20 everything I say is not speaking for every one of our
21 members, it clearly is the general feeling of the
22 members that we have and many of the other people that
23 we've worked with here in this city such as members of
24 the League of Women Voters, members for Missourians
25 for Safe Energy and even the Sierra Club.

1 So I know there are lots of people who in
2 this city would feel the statements tonight would
3 reflect a great deal of what they feel we would want
4 to encourage the City in terms of a direction.
5 I think that a lot of us are willing to
6 possibly pay a little bit more rather than see
7 ourselves go in a direction that would be heavily on
8 the fossil fuel area even though right now it is more
9 inexpensive. I realize we did talk about balancing
10 the costs with the expected risks of potential of
11 fossil fuels going higher, which numerous people have
12 mentioned tonight that there is a peak fossil fuel
13 situation.
14 There was the city town hall meeting
15 where Conoco Phillips stated that, you know, their
16 industry understands that we have 100 years left of
17 fossil fuels and only 75 years left of uranium. So,
18 again, I would reiterate that we should be careful
19 about moving very much at all in either of those
20 directions.
21 We should heavily, as most people have
22 said, go with conservation, including how we build our
23 buildings. And we probably should consider mandates
24 for our building codes, as Mr. Peckham mentioned
25 earlier, as well as other kinds of potential mandates

1 if need be, but also zoning, deregulation so that we
2 can have wind in our individual residential capacities
3 as well as around the city and industrial right here
4 so the transmission issue with wind isn't as much of a
5 concern.
6 And there are other ways, of course, to
7 do, you know, some consideration for storage in the
8 regard of wind. I know there are some solutions that
9 have been fluttered around the city here including
10 Mr. Parker's recommendation.
11 Additionally, my group, the Columbia
12 Climate Change Coalition, our group, we have been
13 discussing some alternatives to the proposal that's
14 been also being floated called Solar One that we would
15 love to share and offer for the City to consider some
16 different possible options in how they are considering
17 what is being called a potential road map for this
18 type of opportunity for the city.
19 One of the things -- I can also leave
20 comments or supply them later, but one of the things
21 in that regard, we think it would be really good to
22 consider how we can include more individuals besides
23 just the industry -- industrial/commercial part of
24 Columbia in these kinds of programs, the residential
25 people and considering both small business as well as

1 moderate and larger businesses, understanding that
2 there are federal subsidies at the business level that
3 are different than residential or individual subsidies
4 which, of course, are available in a differing ratio
5 of subsidizing.
6 So we'd like to consider a plan that
7 includes residentials -- residential individuals as
8 well and certainly keeps in mind low-income people and
9 what possibilities we might offer in terms of
10 percentages of -- of paying for the solar
11 installations.
12 I understand that the City would be
13 essentially paying for via the selling of the green
14 credits so that no money comes out of the City's own
15 budget, but paying for approximately 70 percent, which
16 would be along with 30 percent from the federal and
17 provide 100 percent of the cost of this installation
18 in terms of any business.
19 So we'd like to see something that would
20 be potentially maybe not that large of an incentive,
21 but still incentivizing for -- for businesses, but
22 also something that would be just as incentivizing for
23 people of individual and also low-income folks.
24 And there -- that's most of the comments.
25 And we've had a lot of good comments earlier that

1 we're just reiterating, so thank you very much.
2 MS. BRECKUS: Hi. I'm Racheal Breckus
3 (phonetic spelling), 703 Hilltop Drive. And I'd like
4 to really thank all of the members of the group for
5 putting in their time and energy to all of the study.
6 One question or comment perhaps is I was
7 in Germany last summer and I hadn't been there for
8 10 years and I was just amazed how much -- how many --
9 how many houses -- individual little houses in eastern
10 Germany in particular had solar panels on them on
11 their steep roofs.
12 And Germany is not necessarily the
13 world's sunniest country, but they all seemed to have
14 them. There were wind turbines everywhere you went on
15 the highw-- not on the highways, but you can see them
16 from the highways.
17 Clearly there are some incentives going
18 on over there. And I would hope that we Americans
19 could do as well as the Germans on that and look to
20 some other countries and what they're doing. Not only
21 just looking within this country but see what --
22 what's being done elsewhere. Thanks.
23 MS. CALDWELL: Good evening. I'm Winfred
24 Caldwell, energy chair for the League of Women Voters
25 of Columbia and -- and Boone County. I live at 1417

1 North Countryshire Drive.

2 I agree with what -- I agree with what

3 many of the speakers have already said. Top priority

4 should be given to energy efficiency, energy

5 conservation. Clearly these are our most available,

6 most economical and environmentally de-- benign new

7 power sources.

8 I would counter one comment, that I -- I

9 do believe curbing peak demand is something that

10 should be concentrated on to start with. Peak demand

11 caused by heavy use of air conditioners summer, we

12 know pushes up -- is pushed up by the air

13 conditioners, causing the use of high-cost energy and

14 pushing electric costs higher.

15 To counter this trend, existing rebates

16 for the air conditioners should be widely promoted and

17 rebates added for duct repair and air conditioners,

18 some of the other proposals that have been made by

19 Burns and McDonnell.

20 Also, we know that the load management

21 switches have been very effective in holding down peak

22 demand growth and the City should req-- consider a

23 requirement that every air conditioner installed in

24 new buildings should have those -- should be required

25 to have those switches.

1 Cash rebates should be offered for
2 programmable thermostats, replacement of old
3 refrigerators, occupancy centers in our office
4 buildings and motor upgrades.
5 Communities around the country are
6 funding such energy environment initiatives in a
7 variety of ways such as public benefit funds and
8 set-asides from capital project bond issues.
9 Columbia could also utilize DNR's
10 revolving loan program for energy conservation. The
11 school district has done this and saved hundreds of
12 thousands of dollars.
13 I was glad to hear that rentals are going
14 to be further evaluated, what might be done with those
15 as the study continues. One option that might be
16 considered, would have to be considered by the City
17 Council, would be a time-of-sale energy efficiency
18 upgrades for rental housing. Burlington, Vermont
19 instituted this for many years successfully.
20 The -- the impact of any power source
21 should definitely be evaluated and costs assigned to
22 that as has been done in other states. The full life
23 cycle cost, including construction, operation,
24 maintenance and fuel and disposal of that source need
25 to be -- at least need to be considered.

1 When all these factors are taken into
2 account, renewable energy sources, especially wind and
3 solars, are the clear winners. Columbia's already
4 expressed its -- its overwhelming desire for renewable
5 energy when it passed the renewable energy ordinance
6 back in 2004. And the Water & Light Department
7 deserves great credit for achieving the 2008 targets
8 early.
9 Since wind generation is the most cost
10 competitive, the renewables, the City should continue
11 to vigorously pursue wind energy sources wherever they
12 are available and further evaluate pumped
13 hydroelectrics and other storage systems. Solar
14 voltaics can help reduce summer peak and compliment
15 the wind energy.
16 A last point -- I think the City should
17 look into Berkeley, California's recently devised
18 innovative program to finance PV systems.
19 The last point I want to make is that the
20 point of the proposal to construct 110-megawatt
21 coal-fired plant conflicts with Columbia's commitment
22 to reduce global warming emissions called for in the
23 US Mayor's Climate Protection Agreement.
24 The current local plant produces nearly
25 half of Columbia's total to global warming emissions

1 and a larger plant would simply add to that.
2 Commitment to the coal plant that will operate for
3 40 or more years is also risky, which has been pointed
4 out by others considering the carbon pen-- potential
5 carbon penalties.
6 If, after all demand side and renewable
7 systems have been exhausted, the -- any -- any other
8 type is needed, the only thing that might be
9 considered would be the small, natural gas-fired
10 reciprocating engine, the 8 megawatt that could be
11 added as needed.
12 But we think Columbia should continue to
13 have the flexibility to take advantage of future
14 advantages in renewable energy and energy
15 technologies. Thank you for this opportunity.
16 MR. CLARK: Hello there. My name's John
17 Clark. I live at 403 North Ninth Street. And I want
18 to thank you for doing all this work. Really sorry
19 that Mr. Dasho is leaving. But actually, there --
20 there's several things I wanted to reinforce.
21 I'm not sure if somebody mentioned, but
22 I'm trusting that when somebody really talks about
23 full life cycle costs, certainly around nuclear,
24 they're going to include the cost of decommissioning
25 plants and getting rid of the stuff even though that

1 may be paid by somebody else.
2 When you add those into it, nuclear has
3 never been economical. And even though we might not
4 have to add that to our rate-base, that really needs
5 to be considered.
6 The second thing -- I -- I must admit I
7 was very pleased Mr. Kind was here and mentioned the
8 study in Springfield and so I'm quite curious as to
9 what process was used to develop the parameters for
10 this study, the goals of the study, the assumptions to
11 be used in the study that went into the RFP. Who
12 developed those? Who was involved in that process?
13 For instance, you haven't been in
14 existence long enough to have done that work, I mean
15 as a study group. Because I think actually there's a
16 major problem with how the City in general, not just
17 the Water & Light, has done some of these things. And
18 it really involves a lack of significant input from a
19 variety of interests at the very beginning.
20 And, in fact, I happen to be running for
21 City Council and this will be one of my major issues.
22 Council can't do all that, but can have a lot of
23 effect on really providing the staff with much more
24 guidance in what should be the goals of these studies.
25 And I think that might lead us to having better

1 studies regardless of who the winning participant in,
2 but actually I think the way we're doing that has not
3 worked out well. And I wonder whether that might not
4 be the case here.
5 The fourth thing I wanted to mention was,
6 I would like you to take to heart a philosophy that
7 many of you probably do not believe in at all and
8 would reject out of hand, but the fact is what you --
9 whoever that you is out there -- do, costs me money.
10 And that has to do with electric power.
11 The fact is there's -- you know, whether
12 we build a plant, invest in a plant or buy a contract
13 for a fixed amount, if somebody uses too much power at
14 the wrong time, it's going to cost me money. It --
15 there's nothing about somebody being in their own
16 iso-- isolated little place and they should have all
17 the standards going in the direction of over-taxing
18 people for certain kind of things.
19 But I'd ask you to approach this as a
20 philosophy. What other people do, given there is only
21 a certain amount of power to be had at certain prices,
22 basically costs the other people money. And that
23 means that no individual, no one segment or no one
24 group really gets to say, well, this is infringing on
25 our rights. Unfortunately, we're in a game now where,

1 in fact, we're all affected by these things and you
2 need to pay attention to that.
3 The notion about the equivalent of
4 property rights really should begin to take a much
5 smaller role in this kind of thinking because we are,
6 in a sense, all in this together. And in an economic
7 sense, we're all -- if we take in the peak rates,
8 we're all basically getting taxed on that.
9 Now, there may be some differentials
10 about tiers and so forth, but actually we're all
11 paying for that. And I hope you would take that as
12 one of your fundamental philosophies.
13 The other thing is -- and I must admit I
14 heard about power generation and so forth, but I was
15 interested in the Kansas City story. There must be a
16 number of cities east of Kansas City that might be
17 interested in buying power generated in -- in the
18 Great Plains.
19 So are any municipalities looking into
20 the business of creating municipal corporations that
21 are more than just one city and basically building the
22 transmission facilities so they own the transmission
23 facilities? And is this kind of thing as part of this
24 study?
25 It might actually be a kind of, in some

1 ways, market reaction to this. So if nobody's yet
2 doing it, maybe Columbia ought to take the lead in
3 suggesting that a number of cities -- number of cities
4 east of Kansas City could use an investment to open up
5 that gateway. Thank you.
6 MR. WINDSOR: My name is Jim Windsor. I
7 live at 200 Manor Drive. I do work for the Water &
8 Light Department, but I am certainly not speaking for
9 the Water & Light Department. I am a citizen of
10 Columbia. I intend to live here hopefully for another
11 30 or 40 years maybe.
12 But I am concerned about a lot of the
13 statements made tonight that -- that there seems to be
14 conventional wisdom that we can just do wind and solar
15 and suddenly our problems are gone away. This is a
16 very serious issue that all citizens of Columbia need
17 to really think about and look at.
18 While wind and solar may provide some
19 options for us, the people that have spoken tonight
20 need to realize that they are -- those sources are
21 significantly unreliable. And -- and by that I mean
22 capacity factors in the 20 percent range.
23 In other words, the time we've been in
24 this room, solar wouldn't have provided anything and
25 wind maybe would have provided 20 percent of the light

1 that we're using right now. Those are issues that
2 have to be addressed. It's fine to say that, to write
3 that in the paper and say that this can be done. The
4 reality is something else. That's what you have to
5 deal with, that's what the consultant has to deal
6 with.
7 Certainly I support aggressive
8 conservation measures that are -- that make sense, but
9 I think that we need to have a real good dialogue in
10 this community about what we are doing and where we're
11 going and not start from the standpoint of this is the
12 better way, this is a better way to do it because we
13 can't be arguing about this. It's too important of an
14 issue. We have to educate each other about these
15 things and address them.
16 We also have to look at the low-income
17 people that can't afford right now to pay their
18 electric bills, let alone investing on -- in huge
19 amounts of cost of energy from certain sources that --
20 that they -- that may not be able to be available to
21 them. How are we going to address those issues?
22 So I would hope everybody just steps back
23 and -- and really looks at what are the issues
24 surrounding that and go a little bit deeper than --
25 than saying we can solve this with wind or we can

1 solve this with solar and look at what we're doing.
2 And if we -- right now it seems to me the
3 technology requires us to burn something. If that's
4 biomass, if it's some -- if it's coal, then what does
5 that do? Do we replace a less efficient plant with
6 something that's more efficient? These are all issues
7 that we need to talk about and we need to come
8 together as a community to address it. So I just
9 wanted to say that. Thank you.
10 MR. CONWAY: Are there others that would
11 like to address the task force?
12 MR. WATTS: Howdy, folks. My name is
13 Bruce Watts. I'm at 1403 Berwick Court here in town.
14 As the gentleman just said before me, we
15 don't want to be talking necessarily in terms of
16 what's better, but we do want to see what everyone is
17 interested in in these questions. And as
18 conversations with common sense, there's not a better
19 way, there's another way. And there are a lot of
20 other ways to be generating our energy.
21 And I don't want to be ending up at the
22 end of what I say here ashamed of how I come across to
23 you or how I analyze anything that's been presented
24 today, but I'm -- I too am ashamed and -- and
25 disappointed at our generation at this point after

1 40 to even perhaps 50 years of -- as the gentleman
2 before me said, during the amount of time we've been
3 in this room, certain things have happened.
4 During the time that we've been on this
5 Earth, we've had actually decades and decades worth to
6 consider these questions in terms of pollution; not in
7 terms of the controversials like climate change or
8 other -- other things that people are -- are arguing
9 over right now.
10 We know, however, that the production
11 of -- of burning coal is -- mercury -- mercuric oxide
12 and other terrible gases, we know the incredible waste
13 that nuclear produces. And we know that those who are
14 in positions of personal and governmental and social
15 power and authority have had a long time to be able to
16 begin to consider seriously and put themselves to the
17 task of dealing with these issues on a much higher
18 level.
19 We're in a city that has an immense
20 amount of economic and educational resources. In this
21 town, we do have energy councils that could have been
22 being mined by Burns and McDonnell. And the task
23 force is indeed, I'm assuming, a task force so I'm
24 understanding this is on everyone's part a beginning
25 effort.

1 And now that we have a freshman level
2 overview we've had presented to us, we can perhaps
3 knuckle down and with our personal and social and
4 governmental political power actually settle ourselves
5 in a balanced fashion and serious fashion, as the
6 gentleman that preceded me, approach what everyone
7 here that has turned out, except a few it appears, are
8 most concerned about and that is the environmental
9 impact of our energy production.
10 And perhaps all those who presented
11 themselves to this task now will certainly begin to
12 understand that not just federally and globally, but
13 locally the people are ready for you to be serious
14 about approaching these issues from an environmentally
15 friendly and proactively renewable energy approach.
16 When we, as a city, much less a state
17 locality, are in danger of being given accelerative
18 whiplash from the behemoth federal mandated
19 guidelines, then we are way behind the times,
20 especially in a University city.
21 We have extension offices at the
22 University that can be mined in terms of guidance and
23 resources, we have, again, energy councils and many,
24 many people who have given themselves privately and
25 publicly to these studies.

1 And if we, as the larger task force are
2 really interested in understanding what the real move
3 of the times is and the real concerns of the times are
4 and what we really need to be studying and generating
5 and proposing and planning and moving in, I think that
6 the majority of the comments tonight would give us an
7 idea of what that impetus and direction should be.
8 I --
9 MR. DASHO: If you'd like to wrap your
10 comments up, please.
11 MR. WATTS: Thank you all. And I don't
12 want to be ashamed of our generations any longer,
13 guys. Let's really use our heads and not just our
14 emotions. This is not merely emotional. We, as men,
15 can really apply ourselves to these problems and
16 issues. Thank you.
17 MR. CONWAY: Are there others that would
18 like to address the task force?
19 MS. DELL: Very briefly. And do I --
20 as -- as you know, there has been a --
21 MR. DASHO: Could you identify yourself?
22 MS. DELL: I'm sorry. I am Amy Dell
23 (phonetic spelling). I live at 1402 Richardson in
24 Stephens neighborhood, Columbia.
25 I want to agree with the first person who

1 came up and spoke, saying that I'm pretty disappointed
2 with -- with the findings. I wanted to put in a
3 little bit of an emotional and sobering fact.
4 As you know, there's been a group of
5 scientists that have been put together as a global
6 group that are studying global climate change. As you
7 know, they have decided that definitely global climate
8 change is happening currently.
9 As you know, they have decided that
10 definitely humans have -- have created it. They have
11 also decided that if we don't get our act together
12 within seven years, 30 percent of the species on this
13 planet will be gone. That to me is terrifying. And
14 this little 5 percent of renewable energy, that's not
15 getting our act together.
16 We've really got no choice. We have got
17 to do something better than that. And there are
18 alternatives out there. We've just got to find a way
19 and we've got to lead the way. And that's what I have
20 to say.
21 MR. CONWAY: Are there others that would
22 like to have public input with the task force?
23 If not, on behalf of the task force, I'd
24 like to thank everyone for attending this evening's
25 public meeting and providing public input to this --

1 our process. Additionally, on behalf of the task
2 force, I'd like thank Kiah Harris for addressing the
3 questions and comments.
4 Please be advised that the task force
5 will be reviewing your comments at our next meeting
6 and will forward the recommendations to Burns and
7 McDonnell. Once they have finished the extensive
8 research in the first quarter of 2008, they will
9 supply us with the draft report.
10 At that time we will share the draft
11 report with you again and ask for your input at that
12 time. This will happen before the final report and
13 our recommendations are sent to the City Council. The
14 City Council is the elected body charged with making
15 these types of decisions for Water & Light issues.
16 And I'll ask Dan to conclude the meeting.
17 MR. DASHO: Well, thank you for
18 participating tonight. We appreciate your time and
19 your input. We will be accepting comments from the
20 public through Monday, December 10th. And you can
21 send your comments to the Water & Light
22 Administration, PO Box 6015 here in Columbia at 65205.
23 The e-mail address is WLmail@GoColumbiaMo.com. Again,
24 that's w-l-m-a-i-l@GoColumbiaMo.com.
25 If you missed any portion of this

1 meeting, it will be re-broadcast right here on
2 Columbia Channel at 7:00 a.m. and 7:00 p.m. through
3 December the 12th. Thank you very much for your input
4 and good night.
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CERTIFICATE OF REPORTER

I, Tracy L. Thorpe Taylor, a Certified Shorthand Reporter, within the State of Missouri, do hereby certify that the witness whose testimony appears in the foregoing deposition was duly sworn by me; that the testimony of said witness was taken by me to the best of my ability and thereafter reduced to typewriting under my direction; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this deposition was taken, and further, that I am not a relative or employee of any attorney or counsel employed by the parties thereto, nor financially or otherwise interested in the outcome of the action.

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Tracy L. Thorpe Taylor, CSR, CCR