

16 MR. PALMER: THANK YOU, BOTH. MOST
17 ILLUMINATING.

18 WE WILL OPEN IT UP TO QUESTIONS. IF YOU
19 HAVE A DIRECTED QUESTION TO ANY OF THE INDIVIDUALS UP
20 HERE, DIRECT IT, AND I WON'T INTERVENE; AND IF YOU'VE
21 GOT AN OPEN QUESTION, THEN I WILL CALL BALLS AND
22 STRIKES ON IT, AND MAYBE PITCH IN MYSELF.

23 DR. FUNG: INEZ FUNG FROM THE UNIVERSITY OF
24 CALIFORNIA, BERKELEY.

25 I'M REALLY PLEASED TO HEAR THE PRIVATE
0252 INDUSTRY TAKING CLIMATE CHANGE SERIOUSLY. I WOULD

1 LIKE TO KNOW YOUR OPINIONS ABOUT OUR GOVERNMENT'S
2 POSITION IN THE UPCOMING BALI CONFERENCE.

3 MS. HOWES: THAT WAS POLITICALLY LOADED.
4 (LAUGHTER)

5 MR. PALMER: DEFINITELY.

6 DR. FUNG: PERHAPS IN A DIFFERENT WAY, HOW
7 CAN WE PERSUADE OUR GOVERNMENT TO PARTICIPATE IN THE
8 BALI DISCUSSIONS?

9 MR. PALMER: WHY DON'T WE JUST WORK DOWN
10 THE TABLE HERE.

11 MS. HOWES: THAT'S A GOOD IDEA. I WILL
12 START.

13 I BELIEVE THAT THE U.S. HAS TO SHOW
14 LEADERSHIP, AND IT HAS TO MAKE A COMMITMENT TO REDUCE
15 GREENHOUSE GAS EMISSIONS. I THINK THAT THOSE THAT
16 ARE HEADING TO BALI ALREADY HAVE THEIR MARCHING
17 ORDERS. I AM AN OPTIMIST. I HOPE THAT WE SEE SOME
18 PROGRESS AT BALI. IF YOU LOOK AT THE NUMBER OF
19 PIECES OF LEGISLATION THAT HAVE BEEN INTRODUCED SINCE
20 NOVEMBER OF LAST YEAR, I THINK IT IS ROUGHLY
21 150 DIFFERENT BILLS THAT HAVE SOME CLIMATE FOCUS,
22 LARGELY IN THE SENATE, BUT WE'RE SEEING A FEW BILLS
23 IN THE HOUSE. I THINK THE MOMENTUM IS THERE. IT
24 WOULD BE A TERRIFIC SWAN SONG FOR THE PRESIDENT TO
25 MAKE A COMMITMENT TO REDUCE GREENHOUSE GAS EMISSIONS.

0253 1 BUT HE HASN'T PHONED TO ASK.
2 (LAUGHTER)

3 MR. BRAINE: AND I DON'T HAVE THAT MUCH TO
4 ADD TO THAT. I GUESS I WOULD SAY THAT, YOU KNOW, ONE
5 OF THE THINGS THAT IS CLEARLY HAPPENING IN THE UNITED
6 STATES IS YOU'RE GOING TO SEE -- I MEAN, WE'VE ALWAYS
7 SAID IT'S A MATTER OF WHEN THERE WILL BE LEGISLATION,
8 NOT IF. IT'S COMING. IT WILL PROBABLY NOT HAPPEN
9 BEFORE THE PRESIDENTIAL ELECTION JUST BECAUSE OF THE
10 WAY POLITICS WORKS IN THE UNITED STATES. AND NO ONE
11 MOVES IN CONGRESS ON ANYTHING IN AN ELECTION YEAR.
12 BUT AFTER THE ELECTIONS, IF YOU LOOK AT THE
13 CANDIDATES WHO ARE OUT THERE, MOST OF THOSE
14 CANDIDATES WILL PROBABLY SUPPORT A CLIMATE BILL, AND
15 I THINK THAT WILL MAKE A DIFFERENCE AS FAR AS
16 SOMETHING GETTING PASSED RELATIVELY QUICKLY AFTER
17 THAT POINT.

18 MR. PALMER: FROM MY STANDPOINT, I DON'T
19 THINK YOU'LL SEE MUCH CHANGE IN THE ADMINISTRATION'S

20 POSTURE IN BALI. I THINK, YOU KNOW, TO THE CREDIT OF
21 THE ADMINISTRATION, THE ADMINISTRATION, PRESIDENT
22 BUSH DID CONCEDE ON FUTUREGEN, AND FUTUREGEN IS
23 PROGRESSING, AND THAT'S A BILLION-DOLLAR COMMITMENT
24 ON THE PART OF THE UNITED STATES, WHICH IS REAL MONEY
25 AND WAY BEYOND WHAT THE EUROPEAN UNION IS DOING, FOR

0254

1 EXAMPLE, WHICH TALKS ABOUT HARD CAPS BUT DOESN'T MEET
2 THEM AND IS NOT INVESTING MONEY.

3 I ALSO THINK THAT COMING OUT OF BALI THAT
4 WHOEVER IS ELECTED PRESIDENT NEXT YEAR, I THINK YOU
5 WILL SEE AT THE END OF THE DAY, I DO THINK THERE WILL
6 BE CARBON MANAGEMENT LEGISLATION, BUT I DO NOT THINK
7 IT WILL BE LEGISLATION WITH HARD CAPS WITHOUT
8 TECHNOLOGY PASSED SO THAT ELECTRIC RELIABILITY AND
9 REASONABLY PRICED ELECTRIC POWER IS MADE AVAILABLE TO
10 THE AMERICAN PEOPLE. AND I THINK AT THE END OF THE
11 DAY, WHERE CONGRESS COMES OUT ON THIS AFTER A YEAR OR
12 TWO OF TUGGING AND PUSHING AND PULLING WILL BE VERY
13 SIMILAR TO WHAT WE HAVE TODAY IN TERMS OF POLICY; AND
14 THAT IS, A GRADUAL MOVEMENT TO A LOW-CARBON ECONOMY,
15 INCLUDING CARBON CAPTURE AND SEQUESTRATION. BUT THAT
16 PIECE OF IT, WHICH ALL THREE OF US TALKED ABOUT, IS
17 SOMETHING THAT IS GOING TO COST MONEY, AND THE
18 GOVERNMENT HAS TO BE INVOLVED IN IT AND IS GOING TO
19 HAVE TO PUT IN PLACE A LEGAL FRAMEWORK TO DO IT AND
20 INVEST MONEY AND INCENTIVIZE PEOPLE TO DO IT. AND
21 COMING IN WITH HARD CAPS, THAT JUST AIN'T GOING TO DO
22 IT. IT DOESN'T MEAN IT WILL HAPPEN. I THINK IN THAT
23 KIND OF SCENARIO THE MOST LIKELY OUTCOME IS PEOPLE
24 JUST TURN OFF MACHINES, AND WE HAVE EXCEEDINGLY HIGH
25 ELECTRICITY PRICES AND RELIABILITY PROBLEMS.

0255

1 SO FOR THOSE REASONS I THINK YOU WILL SEE
2 MORE OF THE SAME, WITH A LOT OF RHETORIC, BUT AT THE
3 END OF THE DAY, AN OVERALL FEDERAL POLICY THAT PUTS
4 US ON A GRADUAL DECARBONATION PATH OVER TIME.

5 DR. FIELD: MY NAME IS CHRIS FIELD. I'M
6 FROM THE CARNEGIE INSTITUTION.

7 I WANT TO ASK ALL THREE OF YOU A
8 HYPOTHETICAL THAT BASICALLY TAKES UP ON THE POINT YOU
9 LEFT, AND IT'S ONE I'M SURE YOU'VE THOUGHT ABOUT. IF
10 THE POLITICAL LANDSCAPE SHIFTS AND IF IN TWO TO FOUR
11 YEARS WE'RE LOOKING AT MANDATED REDUCTION RATES THAT
12 ARE, SAY, TWICE AS FAST AS WE EXPECT OR OF ANY OF THE
13 SCENARIOS THAT WE'VE TALKED ABOUT SO FAR, WHAT IS THE
14 INDUSTRY RESPONSE GOING TO LOOK LIKE?

15 MR. PALMER: FROM MY STANDPOINT, IT DEPENDS
16 ON THE STRUCTURE OF THE BILL. IF IT'S IN AN
17 ENVIRONMENT WHERE YOU JUST COME IN AND SAY, YOU CAN'T
18 DO THIS ANYMORE, YOU FIGURE OUT HOW YOU'RE GOING TO
19 DO IT, WITHOUT GOVERNMENT INCENTIVES FOR CARBON
20 CAPTURE AND SEQUESTRATION, I THINK PEOPLE WOULD WALK
21 AWAY FROM INVESTING AND MAINTAINING THE EXISTING COAL
22 FLEET; AND I THINK THE OUTCOME WOULD NOT BE A GOOD
23 ONE FOR THE COUNTRY.

24 ON THE OTHER HAND, IF YOU COME IN WITH A

25 CALIFORNIA APPROACH AND SAY, FOR EXAMPLE, THE

0256

1 EMISSIONS RATE HAS TO LOOK LIKE NATURAL GAS, WHICH IS
2 WHAT THEY HAVE SAID THERE ON ELECTRICITY GENERATION,
3 AND YOU PROVIDE INCENTIVES FOR CARBON CAPTURE AND
4 SEQUESTRATION, I THINK YOU WILL SEE THE CREATION VERY
5 QUICKLY OF A CCS INDUSTRY.

6 ONE OF THE THINGS THAT I HAD IN MY SLIDE,
7 AND I DIDN'T HAVE A LOT OF TIME TO TALK ABOUT IT, BUT
8 IT IS SUBSTITUTE NATURAL GAS WITH CARBON CAPTURE AND
9 SEQUESTRATION. THE NUMBERS WE HAVE SEEN ARE NOT
10 \$40 A TON FOR SEQUESTRATION. THE NUMBERS WE HAVE
11 SEEN GIVES YOU A 99 PERCENT CARBON CAPTURE, PRODUCING
12 PIPELINE QUALITY NATURAL GAS, IDENTICAL TO NATURAL
13 GAS, IT HAS CARBON IN IT, BUT IDENTICAL TO NATURAL
14 GAS, AT A PRICE UNDER CURRENT HENRY HUB CASH COSTS,
15 AND THERE ARE 200,000 MEGAWATTS OF LOW, OF
16 UNDERUTILIZED NATURAL GAS COMBINED CYCLING THAT'S
17 SITTING ON THE GROUND TODAY IN THE CONTINENTAL UNITED
18 STATES, AND I THINK YOU WOULD GET A LOT OF SNG
19 ACTIVITY RIGHT AWAY IN THAT SPACE, AND I THINK THAT
20 KIND OF A PATH IS WHAT CONGRESS WILL PROVIDE
21 ULTIMATELY.

22 MR. BRAINE: I THINK THAT AS FAR AS THE
23 RESPONSE, IF LET'S SAY CONGRESS IN TWO TO FOUR YEARS
24 MAINTAINED A BILL WHERE THERE WAS PRETTY RAPID
25 REDUCTIONS IN EMISSIONS OVER THE -- PARTICULARLY OVER

0257

1 LIKE THE NEXT DECADE OR SO, YOU KNOW, THE BIGGEST
2 LIKELY RESPONSE THAT YOU WOULD SEE -- AND I KNOW YOU
3 WOULD SEE IT AT AEP -- IS THAT WE WOULD CHANGE OUR
4 DISPATCH, AND WE WOULD START RUNNING OUR GAS UNITS
5 VERY, VERY HARD AND OUR COAL UNITS MUCH LESS. AND
6 THE PROBLEM WITH THAT, OF COURSE, IS THAT IT'S A VERY
7 EXPENSIVE DISPATCH, AND YOU END UP WITH VERY HIGH GAS
8 PRICES AND A LOT OF OTHER NOT-SUCH-GOOD CONSEQUENCES.

9 SO THAT'S WHY WE'VE ALWAYS SAID THAT YOU
10 NEED SORT OF A REDUCTION WITH TARGETS AND TIMETABLES
11 THAT IS CONSISTENT WITH BEING ABLE TO BRING IN CARBON
12 CAPTURE TECHNOLOGY, AND THAT IS ABSOLUTELY CRITICAL
13 FOR US IN BEING ABLE TO RESPOND SO THAT WE DON'T HAVE
14 50-TO-100-PERCENT RATE IMPACTS OR THINGS LIKE THAT
15 HAPPENING, WHICH POLITICALLY WILL LEAD TO ITS OWN
16 BACKLASH; AND THAT, I THINK, IS VERY IMPORTANT THAT
17 GOING TOO FAST MAY END UP ULTIMATELY RESULTING IN US
18 NOT GOING ANYWHERE AT ALL AS FAR AS REDUCING CO2
19 EMISSIONS IN THE LONG RUN.

20 MS. HOWES: THIS IS GOING TO BE STRANGE
21 COMING FROM A COMPANY THAT HAS A LOT OF NUCLEAR
22 GENERATION: UNLESS WE INVEST HEAVILY IN CARBON
23 CAPTURE AND SEQUESTRATION TECHNOLOGY, WE WOULDN'T GET
24 THAT RAPID DECLINE THAT YOU'RE TALKING ABOUT. IF YOU
25 REMEMBER ONE OF BRUCE'S SLIDES THAT SHOWED AEP IS

0258

1 THE -- I'M SORRY -- EPRI'S RESEARCH AND DEVELOPMENT,
2 A GOOD DEAL OF THAT IS TECHNOLOGY THAT IS NOT
3 AVAILABLE NOW. WE NEED TO GET THERE, WHICH MEANS

4 HEAVY INVESTMENT IN R AND D. BUT I THINK WHAT YOU'LL
5 SEE IN THAT INTERIM PERIOD IS A GREATER FOCUS ON
6 ENERGY EFFICIENCY AND A WHOLE LOT MORE USE OF
7 RENEWABLES, AND I AGREE WITH BRUCE, A WHOLE LOT MORE
8 USE OF GAS.

9 MR. PALMER: A COUPLE OF POINTS JUST ON
10 THAT. THE EPRI SLIDE WHICH HAD 64 GIGAWATTS OF
11 NUCLEAR BY 2030, HELEN HAD US WITH ONE PLANT BY 2020,
12 WHICH MEANS ANOTHER 63 PLANTS IN 10 YEARS AFTER THAT.

13 MS. HOWES: WELL, YOU KNOW YOU'LL BE
14 BETTER.

15 MR. PALMER: I DON'T THINK SO. SO THAT
16 AIN'T GOING TO HAPPEN.

17 NUMBER TWO, ON NATURAL GAS, ON HARD CAPS,
18 AEP SAID THEY'RE GOING TO DISPATCH NATURAL GAS BEFORE
19 COAL IN THAT ENVIRONMENT. THE NATURAL GAS WILL COME
20 FROM QATAR, IRAN, AND RUSSIA. SO WE WILL BE DOUBLING
21 DOWN ON IMPORTED OIL FOR OUR ELECTRICITY GENERATION,
22 WHICH IS WHERE THE COAL PLANTS CAME FROM AND THE
23 NUCLEAR PLANTS CAME FROM IN 1977 WITH JIMMY CARTER'S
24 PROJECT ENERGY INDEPENDENCE, BECAUSE 17 PERCENT OF
25 OUR ELECTRICITY GENERATION THEN WAS IMPORTED OIL.

0259

1 THAT WAS NOT A TRANSPORTATION DEAL. THAT WAS AN
2 ELECTRICITY PLAY. SO HARD CAPS ON THE U.S. COAL
3 FLEET TODAY LEADS TO LNG. THE LNG ENVIRONMENTAL
4 FOOTPRINT, BY THE WAY, FOR CARBON IS MIDWAY BETWEEN
5 NATURAL GAS AND COOL BECAUSE OF FLARING WHEN YOU
6 LIQUIFY IT, FLARING WHEN YOU TRANSPORT IT, AND
7 FLARING WHEN YOU REGASIFY IT, PLUS THE U.S. ARMY AND
8 THE SIXTH FLEET IN THE MIDDLE EAST. NOT A GOOD IDEA.

9 NEXT QUESTION.

10 DR. TAYLOR: MY NAME IS BRIAN TAYLOR. I'M
11 FROM THE UNIVERSITY OF HAWAII.

12 YOU'VE ALL ACKNOWLEDGED THE LATENCY
13 INHERENT IN THE TECHNOLOGY DEVELOPMENT TO GET TO
14 WHERE WE NEED TO BE, MEANING THE TIME WE NEED TO BE
15 DOING THINGS IS THE TIME WE'RE STILL TRYING TO GET
16 THEM DEVELOPED. BUT ALSO, IT SEEMS TO ME A TOTAL
17 DISCONNECT BETWEEN WHAT FRED TOLD US THIS MORNING,
18 WHERE CHINA IS LOOKING AT A BILLION TONS OF CO2 COMING
19 ADDITIONALLY ON LINE IN THE NEXT FOUR YEARS AND WE'RE
20 TALKING ABOUT TENS OF MILLIONS OF TONS OF CARBON
21 CAPTURE AND SEQUESTRATION UNLESS SOMETHING CHANGES
22 RADICALLY. SO FROM A GLOBAL PERSPECTIVE, ALTHOUGH WE
23 NEED TO HAVE MANY THINGS IN THE BASKET TO DO MANY
24 THINGS TOGETHER, THE SORTS OF THINGS WE HAVE BEEN
25 TALKING ABOUT PALE IN RELATION TO THE SORT OF

0260

1 INDONESIA TAKING OVER INDIA TAKING OVER CHINA AS THE
2 DOMINANT GLOBAL PRODUCERS.

3 MR. PALMER: FIRST OF ALL, IT IS A BILLION
4 TONS OF COAL, WHICH I THINK IS A COUPLE BILLION TONS
5 OF CO2, BUT MINOR POINT.

6 I THINK THERE IS GOOD NEWS ON THE CHINA
7 FRONT. CHINA IS IN FUTUREGEN, AS WE SAW IN HUANENG.
8 AND EVERYBODY IN CHINA, EVERY BIG COMPANY IN CHINA IS

9 THE GOVERNMENT OF CHINA. THAT'S WHY THEY HAVE
10 \$1.4 TRILLION IN THE BANK, WHICH THEY DO.

11 NUMBER TWO, CHINA IN TWO WEEKS WILL BE
12 ANNOUNCING A PROJECT CALLED GREEN GEM, WHICH IS THEIR
13 COUNTERPART TO OUR FUTUREGEN, AND THERE WILL BE A
14 LIST OF COMPANIES THAT WILL SURPRISE PEOPLE THAT ARE
15 IN THAT, MOSTLY CHINESE BUT NOT EXCLUSIVELY CHINESE.
16 SO CHINA IS TAKING VERY SERIOUSLY THE ISSUE OF CO2.
17 BUT AT THE SAME TIME, IF YOU SIT DOWN WITH THEM AND
18 HAVE A CANDID DISCUSSION WITH THEM, THEY WILL TELL
19 YOU THEY'RE GOING TO INDUSTRIALIZE, AND THAT'S THE
20 WAY IT IS. AND YOU CAN'T ARGUE WITH THAT. I MEAN, I
21 JUST SAY EVERY HUMAN ON EARTH HAS THE RIGHT TO LIVE
22 AS WELL AS EVERY ONE OF US LIVE. AND I BELIEVE THAT
23 WITH EVERY FIBER OF MY BEING. AND THERE ARE A LOT OF
24 PEOPLE ON EARTH AND THERE ARE A LOT OF PEOPLE THAT
25 DON'T HAVE ANYTHING. SO THE ONLY PATH, THE ONLY

0261

1 CONCEIVABLE PATH -- AND I THINK THE AEP PRESENTATION
2 WE SAW IS REALLY ENCOURAGING -- IS THE DEVELOPMENT OF
3 THE TECHNOLOGY AND THE DEPLOYMENT OF IT BOTH ON
4 POST-COMBUSTION CAPTURE AND ON GASIFICATION, IN THE
5 FIRST INSTANCE, ALONG WITH RENEWABLES, ALONG WITH
6 NUCLEAR, A WHOLE HOST OF THINGS THAT PUTS US ON A
7 GLIDE PATH WHERE WE STABILIZE HERE AND START DOWN, WE
8 TAKE THAT OVERSEAS TO THEM, AND SAY, YOU GOT THE
9 MONEY, YOU GOT TO START DEPLOYING IT. AND THEY WILL
10 DO THAT. BUT YOU CANNOT TELL THEM THEY CAN'T
11 INDUSTRIALIZE. AND YOU CAN'T TELL INDIA THEY CAN'T
12 INDUSTRIALIZE. THEY'RE GOING TO.

13 I ALSO HAPPEN TO BELIEVE WE'RE IN PEAK OIL.
14 AND, YOU KNOW, MATT SIMMONS WHEN HE TALKS ABOUT PEAK
15 OIL, HE DOESN'T TALK ABOUT BEING AT 85 MILLION
16 BARRELS A DAY FOREVER. HE TALKS ABOUT GOING DOWN TO
17 60 MILLION BARRELS. SO WHAT DOES THAT DO TO THESE
18 PROJECTIONS ON ENERGY USE, BY THE WAY. THAT'S A
19 REALLY INTERESTING QUESTION. HOW MUCH CO2 IN THE
20 25 MILLION BARRELS A DAY OF DECLINE BETWEEN NOW AND
21 2030, IF HE IS RIGHT, IS THERE? AND IS THERE ENOUGH
22 COAL TO MAKE THAT UP? I'M IN THE COAL BUSINESS. I
23 TELL YOU THERE IS NOT.

24 SO I THINK WE'RE IN A CARBON-CONSTRAINED
25 WORLD IN A SENSE. I DON'T DESPAIR OVER ANY OF THIS.

0262

1 BUT IT IS GOING TO TAKE A LOT OF HARD WORK, A LOT OF
2 TIME, AND A LOT OF INVESTMENT WITH A LOT OF DIFFERENT
3 PARTS TO ANSWER THE PUZZLE. BUT IN THE MEANTIME,
4 PEOPLE HAVE THE RIGHT TO LIVE THEIR LIVES, AND THE
5 INDUSTRIALIZING COUNTRIES HAVE THE RIGHT TO
6 INDUSTRIALIZE, AND WE HAVE TO KEEP THAT SQUARELY IN
7 FRONT OF US.

8 DR. BISHOP: I'M JIM BISHOP; UNIVERSITY OF
9 CALIFORNIA, BERKELEY.

10 AND I WANTED TO RESPOND AND ACTUALLY
11 RESONATE WITH A REMARK THAT HELEN MADE; AND THAT IS,
12 ACTUALLY MOST PEOPLE ACTUALLY DON'T HAVE A CLUE WHAT
13 THEIR ELECTRICITY BILL IS.

14 MS. HOWES: YOU'RE RIGHT.
15 DR. BISHOP: AND I JUST THOUGHT THAT
16 CALIFORNIA HAD THIS ENERGY CRISIS, THREATENED ROLLING
17 BLACKOUTS; AND AT LAWRENCE BERKELEY LAB, WHERE I
18 WORK, WE FOUND THAT JUST BY POSTING THE ENERGY USAGE
19 OF THE BUILDING THIS MONTH THIS YEAR VERSUS LAST
20 YEAR, THEY ACTUALLY ACHIEVED A CONSCIOUS 20-PERCENT
21 REDUCTION IN POWER USAGE AT THIS NATIONAL LAB, WHICH
22 HAS A LOT OF SYSTEMS THAT HAVE TO BE ON ALL THE TIME.

23 SO I JUST WONDER IF EXACTLY THE
24 DEMONSTRATION THAT WE DID, WITH OUR HANDS UP, MEANS
25 THAT WE COULD KNOCK OFF 20 PERCENT WITHOUT ANYONE

0263

1 GIVING UP ANYTHING, JUST BY COMMUNICATING TO THE
2 PUBLIC EFFECTIVELY. AND I KNOW THAT MY ELECTRICITY
3 BILL ISN'T ON AUTO PAY. AND IT WOULD BE WONDERFUL IF
4 ACTUALLY ON THE TELEVISION NIGHTLY NEWS OR SOMETHING
5 THEY'D SAY, SAN FRANCISCO'S POWER CONSUMPTION WAS
6 THIS YEAR AND LAST YEAR IT WAS THAT. WOULDNT'T THAT
7 BE WONDERFUL? IT WOULD PROVIDE POSITIVE FEEDBACK.
8 NO ONE REALLY HAS TO DO ANYTHING EXCEPT TURN OFF A
9 FEW MORE LIGHTS, MAYBE MAKE A FEW CONSCIOUS DECISIONS
10 ABOUT MILEAGE IN CARS, ET CETERA, ET CETERA.

11 WHAT DO YOU THINK? I WOULD LIKE EVERYONE
12 ON THE PANEL TO ADDRESS THAT.

13 AND BY THE WAY, WITH GRAYING HAIR, I ALSO
14 SEE THAT THERE IS NO SIMPLE SOLUTIONS. SO I TOTALLY
15 AGREE WITH EVERYTHING THAT'S BEING SAID HERE. BUT I
16 WOULD LIKE YOU TO JUST INTERACT.

17 MS. HOWES: YEAH, I THINK YOU'RE RIGHT
18 ABOUT THE CHALLENGES OF ENERGY EFFICIENCY. I MEAN,
19 IT MAKES SENSE. IT CAN HELP YOU SAVE SOME MONEY.
20 BUT WHY AREN'T PEOPLE DOING IT NOW? AND I THINK ONE
21 OF THE REASONS IS THEIR ELECTRICITY BILLS AREN'T HIGH
22 ENOUGH FOR THEM TO REGISTER THAT THEY NEED TO MANAGE
23 THEM. I THINK, SECONDLY, THERE ARE MANY OTHER THINGS
24 THAT THEY ARE CONCERNED ABOUT.

25 ONE OF THE INTERESTING THINGS FOR ME IS THE

0264

1 ELECTRICITY CONSUMPTION OF FLAT SCREEN TV. OKAY.
2 HOW MANY OF YOU HAVE FLAT SCREEN TV'S? HOW MANY OF
3 YOU ASPIRE TO FLAT SCREEN TV'S?

4 ELECTRICITY CONSUMPTION IS SIGNIFICANTLY
5 HIGHER IN FLAT SCREEN TV'S, BUT WE MAKE OUR CHOICES
6 BASED ON WHAT WE WANT, NOT THE ENERGY CONSUMPTION
7 ASSOCIATED WITH IT.

8 I THINK YOU'RE RIGHT, THERE IS A LOT TO BE
9 SAID FOR COMMUNICATING HOW MUCH ELECTRICITY
10 CONSUMPTION. I THINK YOU'RE RIGHT. I THINK WE CAN
11 PROBABLY GET 10 TO 15, AND MAYBE I CAN STRETCH IT TO
12 20 PERCENT IF PEOPLE CONSCIOUSLY MADE THOSE CHOICES.

13 AND LET ME USE AN ANECDOTE. WE HAD A
14 COUPLE OF BUILDINGS IN THE CHICAGO AREA. OUR
15 CLEANERS CAME IN SORT OF ROUGHLY AT 10:00 AT NIGHT,
16 AND THEY LEFT ABOUT 3 IN THE MORNING, AND THEY HAD
17 THE LIGHTS ON ALL THE TIME. SECURITY GUARDS CAME IN
18 ABOUT 4:00, TURNED ON THE HEATING OR COOLING,

19 DEPENDING ON THE SEASON, AND THAT LOAD WAS THERE ALL
20 DAY. WE EDUCATED THE CLEANERS TO TURN OFF
21 FLOOR-BY-FLOOR. WE EDUCATED THE SECURITY PEOPLE TO
22 ONLY TURN ON HEATING AND COOLING AN HOUR BEFORE THE
23 FIRST PERSON ARRIVED. SAVINGS: 10 PERCENT. IT CAN
24 BE DONE. IT CAN BE DONE.

25 MR. PALMER: WE'RE RUNNING OUT OF TIME

0265

1 HERE, BUT I WANT TO LET CHUCK JUST GIVE US HIS
2 THOUGHTS HERE BASED ON WHAT HE'S HEARD. I KNOW HE IS
3 GOING TO ADDRESS THE GROUP LATER. AFTER THAT, WE GOT
4 TO GET ON TO THE NEXT SPEAKER.

5 DR. KUTSCHER: ALL RIGHT. THANKS, FRED.

6 I WILL BE TALKING ABOUT RENEWABLE ENERGY ON
7 FRIDAY. I WOULD LIKE TO ADDRESS YOUR POINT. I
8 BASICALLY AGREE WITH YOU. YOU KNOW, WHEN
9 PHOTOVOLTAIC MODULES GET INSTALLED ON PEOPLE'S HOMES
10 AND THEY SIMULTANEOUSLY GET AN ENERGY MONITOR THAT
11 SHOWS HOW MUCH ENERGY THEY'RE USING, THE DATA SHOWS
12 THAT THEY REALLY CONSERVE ENERGY, AND SO THEY USE A
13 LOT LESS ENERGY THAN THEY DID BEFORE. OF COURSE,
14 THEY LOVE TO SEE THAT ELECTRIC METER RUNNING
15 BACKWARDS. THEY THINK THAT IS REALLY COOL.

16 SO THE MORE WE CAN TELL CUSTOMERS ABOUT HOW
17 MUCH ENERGY THEY'RE USING, THE BETTER THAT THEY WILL
18 RESPOND. SIMILARLY, IF CUSTOMERS KNOW WHERE THEIR
19 ELECTRICITY COMES FROM -- MOST CUSTOMERS DON'T KNOW
20 WHERE THEIR ELECTRONS COME FROM -- BUT IF THEY KNOW
21 WHERE THERE ELECTRICITY COMES FROM, CUSTOMERS TEND TO
22 BE VERY ENVIRONMENTALLY CONSCIOUS, AND THEY WILL
23 CHOOSE CLEANER FORMS OF ELECTRICITY IF GIVEN THE
24 CHOICE, IF THEY HAVE THAT KNOWLEDGE.

25