

*Paul Schreffler*

Interviewer: Michael Kline

Date: November 1, 2013

Place of Interview:

Transcriptionist: Adept Word Management

Michael Kline: **0:00:00.0** Maybe to start out, if you would, and—say, “My name is Paul.”

Paul Schreffler: Okay. My name is Paul Schreffler.

MK: And your date of birth?

PS: I was born on July 28<sup>th</sup>, 1951.

Carrie Kline: Say that again? I have a better level now.

PS: Okay. Good morning. My name is Paul Schreffler. I was born on July 28<sup>th</sup>, 1951, so I’m 62 years old.

MK: 62 years old?

PS: Yeah.

MK: And today is—is it the first?

PS: The first—the first of November.

MK: Today is the first?

PS: Of—it’s November already.

MK: 2013. And, if you would, please, Paul, start out—tell us a little bit about your people and where you were raised.

PS: Well, I was born in central Pennsylvania, but I didn’t spend much time there. My dad died when I was like 20 months old, so my mother moved back to her home. And my grandparents lived just outside of Pittsburgh, about 45 miles east of Pittsburgh in Blairsville. So I spent my early years there. My mother remarried when I was in second grade, and then we moved to Buffalo, New York. Again, that was a migration because of—of economics at that time—you know—that’s where the job was, and—and he worked in a steel mill and an auto plant.

MK: **0:01:19.1** This was your stepfather?

PS: This was my stepfather. And he worked at a Chevy plant when—my whole time of growing up in Buffalo, New York. And again—Buffalo was very much a—an eastern—now—a Rust Belt city in—in the history of industrial development in this country. But at that time, in the '50s and '60s, the—the neighborhood that I lived in was a neighborhood in a city made up of neighborhoods with very different ethnic backgrounds. You know—those folks—the Riverside was a place that was bounded by the river. It was a northwest part of Buffalo, bounded by the river, steel mills, and auto plants, and other kinds of industrial entities—and that's where a lot of those—I suppose—a blue collar neighborhood—a bar on every corner—and those—those bars were the center of the culture. You know—there were very strong Eastern European influences, whether it was Polish, Lithuanian, Serbian—you know—every one of those groups had their own social hall or their own place of gathering. There were the Poles and the Germans and the Italians, and they—they congregated together in those neighborhoods. But—yet—there was—there was a strong sense of community in those cities at that time. That's—that's changed, I think, somewhat, but the bar on the corner was the place where the family went many times, you know? Dad went after work to have a beer, and the family had dinner there. That was—that was sometimes what happened. Although we played on the street, and—and ran around like you were talking about with the kids in this neighborhood, you know? So that was another time, another place—and—and a culture that may not be exactly the same as it is today. But that's my—my upbringing. I grew up there in—in the city, but I also had strong connections back to my grandparents' home in Pennsylvania, and I went there often in the summertime and spent quite a bit of time there. And we had family there, so there was—there were things to do there as well. And—but—that's kind of the basis of—of my cultural and social upbringing.

MK: And then you found your way to West Virginia at what point?

PS: Well, I came here—I was a good student in high school. I got a free ride to college. And back in those days, they had in New York State a regent scholarship. Everybody that took the College Boards, or the highest students in each high school, were afforded a college scholarship. And I was actually accepted to Cornell—I wanted to go there, but the scholarship paid for a full ride for a state institution. So I went to the University of Buffalo. I was actually a music major there, and studied music, played clarinet, saxophone, wind instruments, and studied under the likes of people like Charlie Mingus, who was one of my visiting instructors. We—I played music—played out—and—but really didn't know what I wanted to do for a living. It was the tumultuous times of the '70s. I aspired to be a college president here—that's what I do now, I'm a vice president at a community college.

I told my—my cohorts of my program there the other day that I may be the only college president someday that took over a college president's office. (laughs) So when we went into Cambodia, there was some upheaval on the university campus, and—you know—even more than normal at that time, and we occupied the president's office for a few days. So it was an interesting time—and that really—as you know, in those days—you—you—we were all searching for our own place in—the “Back to the Lander” movement was really something that I identified with. I quit college and I started traveling around—ended up in West Virginia. I tell people sometimes that I was hitchhiking through here and ran out of money and couldn't go any

further. But it's kind of the truth—I mean—it was—we were looking to—to find a place to land and a place where land was affordable, and West Virginia was a good place—and is a good place to live. But when I got here I didn't have any money, as I said, and I was basically doing whatever I could to survive, taking whatever kind of job—many times those were laborer-type jobs. I found, though, in doing that work that I enjoyed building things, and I enjoyed the process of—of construction. And I had some jobs like that. At that time there was a—a—within the union, there was an effort to try to break the nepotism that was rampant in the union at the time.

CK: **0:07:22.2** The union?

PS: The—the—the union itself—and to do that they put in place a procedure which—in order to get into the apprenticeship program—a union apprenticeship—you had to take a test instead of just—

MK: Which union was this?

PS: Well, in this case it was the Carpenters and Joiners. So the Carpenters and Joiners and Millwrights—that was all one trade. But they were doing the same thing with the Ironworkers or whoever, you know. They were really changing that process—instead of being somebody's brother-in-law or son, you had to—you had to take a test. The test was basically a—an intelligence and aptitude test. The person who scored the highest in each county was afforded an opportunity to get into the union. And that's what I did. I went into a 4-year apprenticeship program, and it was a good thing for me at the time. I needed some structure, and that provided a structure. I needed to learn a trade, really, and that was an opportunity to do that. The apprenticeship program was such that you worked basically wherever they sent you—whatever the job was. But you also were required to go to school 2 nights a week from like 7 to 10 in the evening or whatever. And within those courses they taught you the theory, so to speak, behind the trade, but you were learning the applied knowledge out there on—in the field. And the apprenticeship program was very much the old guild model, where you—you were put with a master—the old guy—that helped you along. And—and the trade off was, you—you carried his butt, and he kept you alive. You know—basically taught you the real tips and tricks of the trade and—and mentored you on a daily basis. So that was a 4-year process, and it was a really good thing.

MK: Did you have a memorable mentor?

PS: I had several memorable mentors. (laughs)

MK: What's your most memorable mentor?

PS: Well, there was an old guy named Mape Lemley who was from just over the border into Pennsylvania, but he was—he was the kind of guy that could—he could sit down and—and talk about personal things, too, and he brought his life experiences to the—to the table and was willing to share. There were some others that really helped me out. There was one gentleman who basically helped me build my home, the—the house that I live in right now. Again, I was a young guy—I sometimes showed up a little late for work—and one day I showed up about 15

minutes late and all the members of the crew were still standing around the gang box. And that was the place that we gathered in the morning. And with a construction crew on a union job, you typically had the boss—and there were 6 carpenters, 2 laborers, and apprentice.

**0:10:49.3** So they're all standing around the box, and I said, "What's going on," when I walked up. And they said, "Oh, we've been talking—we're going to—we're going to come up and help you build your house." And I said, "Really?" And they said, "Yeah—you know—we've been—" we would sit around whenever there was a slack time, and I had expressed to them that I was—I'd bought land in Randolph County, and I was thinking about building a house, and—and would scribble on the back of a 2x4, "Here's what I think the—the floor plan should be." And they said, "No, no, you need to put this over here." You know—and we talked about that, so they knew that that was one of my goals, but I didn't really have a plan of building it immediately. I had bought the land. And so they—they thought enough of me to—you know—consider helping me with that load. So I said, "Okay, let me think about that."

So I basically took a couple of weeks off. I poured the footer, laid the blocks up, and then they all showed up on a Saturday morning and put the house up—all of us together. And that doesn't happen very much these days, but it was a really neat experience, because—you know—we worked together every day. We had a huge capacity within that, and the knowledge and experience that they had—we could do incredible amounts of work every day. And basically when we put the house up, it just pushed me to be able to keep ahead of them—to lay out the—the plates, and where the doors and windows are going to be and everything. And we had a house-raising. So—and by the end of that Sunday evening we had the roof on, and it was—it was ready to go. Now, it didn't have the inside finished, but we had the whole thing framed up and—and under roof.

And then from then I took it myself. But it was a really—a wonderful gift from those folks, and—so—in some sense, that's kind of why I do what I do today, because at some point, somebody gave me an opportunity, and that's—you know—the work that I do now in helping people learn a trade or get the education they need to work in—in a pretty constructive way—is partly because people gave me that chance at one point. So that is—that is the driver behind—you know—my mission in workforce development and vocational education that I've chosen in the later part of my—my career, is giving back in that way to try to help people get to that point where they can be self-sufficient and have the skills and knowledge they need to be able to compete in—in this—in this environment today. So that's—I think—part of what we'll be talking about as we go along in this interview. But that's been the—the reason that I have chosen to do more teaching, and now it's more administration of programs like this petroleum technology program or some of the things that we do in energy—that's just a result of, and a natural outgrowth of, my goal of being able to help people have a family-sustaining wage. To have a—a trade that they can rely on. To have something within themselves that's more than just what they would get in a typical academic program or—or in a—in a—just what you think of as education traditionally.

MK: More vocation—vocational?

PS: Right. Right. So—

MK: **0:15:10.0** Have you been able to keep this mentoring flavor that was so important to you—have you—have you been able to keep that flavor in—in your own development in programs for other people?

PS: —yeah, and that’s one of the real focuses that we have at the community college, and—and today we see that in some of the programs that we’ve developed here recently. And that ends up being typically an engagement and a partnership with business and industry to make that happen. Just like the union apprenticeships, which have their place—and still do—but that doesn’t always occur in every industry sector, you know? So we have been able to develop internships and various kinds of work-based learning components of the programs that we’ve developed that are really important. And that’s a key, and things that we have been really focusing on in some of the things that we’ve developed recently. Whether it’s just a short-term capstone kind of experience or a built-in apprenticeship—those things really help build the capacity, not only in the student to know what the job is, but also for the companies to know and help select their—their best talent. So the companies that understand that—the ones that get that—are usually very interested in developing those kinds of programs.

An example that we have that we developed several years ago is a partnership with—then—Allegheny Energy—and now FirstEnergy. They had a challenge with finding people that could operate their power plants. It’s—it’s a specific skill and set of—a base—a set of knowledge. But what we did was—they certainly couldn’t find people like that off the street, and even when they would take people and they would go through a selection process and they would have an internal training process, they were not very successful in—in getting the kinds of people that they needed to do that. A critical skill, right? To be able to run a coal-fired power plant, for example. So we went and sat down with the company—went very deeply into what the—the specific outcomes needed to be.

We developed a program, and within that, there’s a 10-week period that they—they go out and actually operate—work in the plant—work beside people that have various jobs within that—that operation section of the generation station, and it’s a paid internship, so they—they have a good chance of seeing what the job really is. But then on the other side, the company has a 10-week interview, basically, with those people that they see not only what their skills are, but what their attitude is as well. And so that helps them be able to select the right people, and thus reduce turnover, find the talent that they need for the long-term operation of the company. So it’s—it’s a real partnership.

I work every day at that intersection of business and industry in higher education, and it’s an interesting place to be, because there are 2 distinct languages used in those places. The language of education is very different than that of business and industry. And that—you know—when I talk to a businessperson, they say, “Well, we need something quickly.” Well, “quickly” in higher ed speak is like—you know—2 years from now, we might be able to develop a program, you know—we’ll go through all the processes necessary to get something that—but we really work diligently to shortcut that. Sometimes we do those things on a non-credit basis to start with to get the thing up and running and avoid some of the—the academic rigor and requirements. But all

along, as we build these programs, then we can—we can make sure that we have that in place and then move it over into a credit-bearing program.

**0:19:52.6** But there's different techniques to do that, but really—the key for—for the work that I do is really be in that place that—that is that intersection between the job and—and the skills and the knowledge and the attitudes needed to do the job—but also being in a place that's—that's—needs to be—I guess—a neutral space that's non-threatening, that—as you know—in some of these industries are very controversial, and we'll probably talk a little bit more about some of those issues as we go in this interview. But I can't come into that discussion with—with a bias. You know—everyone has a bias, right? But I have to really try to make sure that I am coming as a neutral party and understand the needs of all the people around the table, and then really work towards meeting those needs—the ones that we can. So it often becomes a compromise. It often becomes a—a real understanding of what the needs of the business is in order for them to be competitive, and to understand the environment in which they work and the need that they have for employees—but then also the needs of those potential students and those graduates of ours to have a real family-sustaining wage, a career—you know—all those kinds of things that are not just a short-term need for business and industry, either.

So it's—it's a very interesting dance, and it's a very interesting process, but the goal, really, is to be able to have programs that are educational programs that lead to outcomes that meet the goals of both the company and the people that work for them. And those are sometimes in conflict from the beginning, right? But looking at the bigger picture is part of the—my goal and part of my job is seeing where does that really fit economically, culturally, and those sorts of things. And then the bottom line is—okay—what is the—what is the degree, what is the set of skills that they need to have in order to gain employment? And sometimes we have to walk away from the table, you know?

Many times companies come and say, “We need people,” but when we start asking the real questions about—what is your turnover, what do you pay those folks, what—what—what is the career path, what is the real opportunity for those folks to progress? If it's not there, then sometimes that's not a path that we need to go down. And so we see that often. Sometimes we see some real opportunities, and that's where we focus. The focus for those community college programs that we've developed—and the technical fields recently—are really—they've got to be paying decent wages, and they have to have benefits, and they have to have a career path that—that is sustainable in the future, and that's hard to see sometimes, down the road. I'm often looking in that crystal ball of Department of Labor statistics—what are the—what is the potential for this job, not only short-term, but long-term—and what is the—what is the demand for those positions? We can have—we can develop all kinds of degree programs, but if there isn't an audience for it—if there's not a market for it—it's not going to work, because the college itself is a business, and we've got to make money, too.

The community colleges—at one time—were pretty revolutionary. They were open-access—as long as you had a college—or high school diploma, you could come to the community college, and even if your grades were really poor, we—we accept you into the community college and then provide remedial courses in order to get your skills up to be able to take college-level courses. But more and more, community colleges started out as state-supported institutions,

where 60, 70, or more percent of the actual operating revenue came from the tax base and came from government funding. That's totally flipped these days, in that, more and more, the—the revenue required to run the college is tuition. And the state support has dropped to 30, 20—I think Arizona has like 4% of the money that runs community colleges come from the government.

**0:25:31.1** So we've gone from state-supported to state-sponsored to state-located, I think. (laughs) Some of these schools. But the mission is still the same. Open access, trying to get people through a higher education experience—sometimes all they need is some remedial work and they'll transfer on to a university or some other higher education institution, and that's fine. Transfer is good for us, right? But, more and more, that focus is—especially in difficult economic times—is career training programs. Things that are focused on being able to have a set of skills that you can go out and trade on the market, so to speak.

CK: I didn't understand that you worked at a community college. What is the institution you work for?

PS: I work at a community college in north-central West Virginia, and it was, at one time, part of another college. You know, the community college movement started in the '70s, and at my college it was basically a department of another college—the community college with the open access mission. That college started out—like a lot of other schools—started out as a normal school—a teacher's college way back when. It grew and became a college, and then it added some master's programs and became a university. And that's kind of a trend these days—you've got to be a university to be—be valid. But the community colleges in West Virginia—some of them started out that way, as part of another school. Some of them were started as a—a—kind of a geographic area, like Southern Community College, focused on a—a need in a certain region. And some sprang full-blown from the head of some legislator, as things often do.

But the one that I work at was part of a—a university. The state—about 10, 12 years ago—decided it might be good to have a system that had some—some coordination between all those disparate community colleges, and legislatively separated them out from their parent institutions if they were so, like ours. So the college is a separately accredited—separate institution, even though we still share some resources of the university and have courses on the university campus—but we have courses in other places as well. So we serve a whole geographical region of north-central West Virginia. It comes down as far as Randolph County, it goes over as far as Doddridge County. In the south it goes to Gilmer County, and all the way to Marion County in the north.

So it's a huge geographic area, and we provide basic general education courses in various places—like here, we do it at the vo-tech center or at the high school—and that's often how we do those first-level—entry-level—gen ed courses. But the career programs have to have specialized labs and—and we often do those on campus or at some specific location. I mean, we have an aerospace center. Most people don't know it, but at the Bridgeport airport we have an aerospace education center that has airframe and power plant mechanic programs, and we have our own airplanes and flight simulators and everything there. And so there's an industry sector there at

that airport where Aurora Flight Sciences and Bombardier and Pratt & Whitney and those companies are around that airport, and that's—we supply the workforce for those companies.

**0:29:45.5** So that's kind of how I do my work is that, not only am I out there at that intersection of business and industry, but we try to segment those industries in natural groupings. There's manufacturing, and there's energy, and there's aerospace, and there's healthcare, and those things are where we look at and say, "Where are the jobs now? Where are they going to be in the future? And what kind of programs do we need to have to have those major sectors taken care of?" So we'll have the nursing program, or a LPN program, or we'll have an aerospace A & P program, or we'll have a petroleum technology program because of this—this big new play in the Marcellus. But that's kind of the—the work that I do, and it's interesting now as a vice president I get to look at all those sectors and as—as I said, try to figure out how best to meet the needs of the companies and of the people that—that natural connection is the employment, right? And that is a changing landscape. The—the—the land's always shifting under our feet as the economics changes, and it's an interesting place to be.

MK: You—you mentioned—was it Allegheny Power?

PS: Yep.

MK: Well, when they came to you, what was—what was the range, roughly and generally—what was the range of the skills they were looking to fill?

PS: They had a problem, just like a lot of industries—the baby boomers retiring—and so they see 50% of their workforce going away in the next 5 to 10 years. And they are smart enough to figure out that that's going to be a real challenge for their survival as a business. And the range of skills are—just like a lot of industries today—in—in manufacturing and facilities maintenance and—those kinds of technical programs, where it used to be that you had somebody that was an electrician or somebody that was a maintenance mechanic or somebody that knew about boilers or whatever. And they all had their own specialized skill.

Today, all those things are technologically changed into some electromechanical system. So that is what we see—whether it was for Allegheny or whether it's Mylan Pharmaceuticals or whether it's a chemical manufacturer down the road or whatever—there's a—some commonalities there that you need to know not only electrics—electricity—but electronics, and mechanical systems, and the—the—the system itself is connected to a computer, right? And the computer is—is the control system for all those other pieces that used to be—you know—that I just know electricity. Well, now you need to know the electromechanical components and the sensors and how that connects to the INC—or the instrumentation and control system—that's run by a computer. So that has changed that landscape very much. It's upped the bar for the set of skills that that person needs to have as well as—you know—it's constantly changing as well.

But Allegheny needed that kind of person. They're sitting in a control room with a bunch of screens there and they're seeing thermodynamics, and they're seeing what the boiler output is, and they're seeing the generation of electricity, and they're seeing all these different pieces and parts of the—of a very complex system where you have heaters, and de-superheaters, and tanks,

and flow and—and thermal interconnections that have to be controlled in order for that light to be on, okay? And so that is the piece that we provide for that company. We teach those students all those components and then the bigger picture of how it all interconnects to make the power plant work. And another example is—same—same company—we've developed a program for the line workers—the folks that—

CK: **0:34:45.5** The what?

PS: —the line workers. The linemen, and the folks that are running those trucks when the power goes out—those folks that either install the power transmission and distribution system and the folks that work on those substations and—that part of the electrical grid. And so that's a deal where those—the company has said, "In order to be employed by FirstEnergy, we want you to have an associates degree." The reason for that is, they want not only the technical skill, but they want those soft skills. They want to make sure that you know English and math, but you also—when that truck is going down the road past your house, and the power line's been out—the power's been out 3 days in this bad winter storm, and they pass by your house, they want to—you're not going to be real happy with them, right? So they also need to be able to communicate with the customer, saying, "Well, we've got to go down here and fix this first, for—so that we can then fix your—your line."

But the company understands that they need not only technical workers, but people who are skilled in those general intellectual and social skills, and—and that they want to make sure when they hire them as an entry-level person, they also have the—the capacity to move up in the company and become the supervisor and lead a team and—and get the work done, because in today's environment it's all teamwork. We don't have—we don't have the luxury of having one person just to know a very narrow little piece of the puzzle.

So that's another example of a program that was developed because we need line workers, we need substation workers—but the companies made a commitment to say, "Go work with the community college to make sure that these folks have an associates degree, they have the general education." Some of the general education courses we've customized to make sure that the communications is business communications. You know, the kind of emails that they use. The kind of work reports that they file. It's not just composition or how to cite a research paper—it is the kinds of communications that's done in business and industry.

So—but that is interesting, because they go to school Monday, Tuesday, and a half a day Wednesday. And then Wednesday afternoon, Thursday, and Friday, they're out at the—at the company's training site learning the technical skills—how to climb the pole, how to do all those pieces of it that are the technical side. We don't even deliver the technical piece—that—that partner delivers their specialized training. But between the two—and a summer internship in which they're paid—they get a great workforce, and the students get a great job. So that's—that's the kind of partnership that we really try to create within these technical programs, and it's really a different way of thinking about education, because it's not just theory from us, and then they go out and get a job and don't have any practical skills, so then the companies are challenged with trying to do their own internal training and then have a lot of turnover in the process.

**0:38:24.4** So those are a couple of examples of—of a good partnership with a major electrical supplier, and—again—I try—and understand—I can I guess say this—I’m as green as you can get. I live out in the country on 25 acres and I live there intentionally, and—like you—I—we grow our own food and—and—as much as we can, and can—can beans and—and press apple cider and all those kind of things. And I understand clearly that we all breathe the same air and drink the same water and have to consider seriously those environmental effects of industries like a power generation station, right? But in the meantime, I don’t see anybody turning the lights off, you know? I mean, the—one of the key issues, I think, is conservation and trying to figure out how we best—how we best do that. But that’s the—that’s the challenge that I face every day. I’m out there working with businesses and industries that often are seen as—as the problem. But I don’t see that as the root cause. And so we have to look at some of those other things very—very—very circumspectly and try to make sure that we understand the—the gray, because that stuff isn’t always black and white.

And so—just kind of an aside—but looking at the bigger picture—you look back in history when—when the lifespan was under 40 and—and we’ve gone a long way since then, and that’s a positive thing that the lifespan is up around 70 now, I think. And that people’s income has increased over time—but a lot of that’s been due to—ever since the Industrial Revolution—that progression of—of technology and industry that certainly has its bad components. But we’ve got to figure out how we can do this in the most positive way that we can. And quite honestly, working with those companies and working with the people that—working within those companies—they often have that same mentality. They really don’t—they’re not the evil kingdom out there that a lot of people think they are. But they are constrained by economics, they’re constrained by the technology that we have to work with today, and they’re also constrained with trying to provide a product—like—like the electricity for the light bulb—that is in great demand—and if—without that supply, humankind would be in a lot worse shape.

So that—that’s the context that I always try to look at and say, they’re out there—they’re trying to meet—yeah, they’re in a marketplace and they’re trying to produce a product, but why is—why is there a demand for that product? And so it’s with the—the oil and gas and some of the things that are in quite a bit of controversy today—we’ve got to look at all those pieces and look at that together to try to move forward. From my perspective, I’m trying to make sure that those folks who not only have a career, but when they’re working on the workplace that they’re safe, that they know what they’re doing, and they have an opportunity to come home at the end of the day to their families. And I’ve been in places where that didn’t happen. And that’s my experience, and that’s another reason that I do what I do—because I’m a survivor of one of the worst workplace accidents in this country yet. And I’ve seen what happens when the combination of a bad actor, as far as the company goes, and the influences of human nature in trying to make as much money and get it done as quickly as possible, and then environmental influences and environmental factors that caused the Willow Island cooling tower to go down and kill 52 men at one time. And so—

CK: What plant did you say? Willow Island?

PS: Willow Island.

CK: 0:43:27.0 Willow Island.

PS: And so I was there that day. And—and those were my friends. And—and I saw—and—and have seen many times where things that aren't done correctly cause great grief and pain and sorrow. So that's the other piece of trying to contribute to a training program for whatever industry is really critical. We've got to teach people how to do it right no matter what the other influences and pressures on them are, and then be able to do it correctly, which means—for example, in the gas drilling industry, that can be done right. It's been done thousands of times. I mean, there's been fracking since the 1950s, and they've been doing it for a long time. It can be done correctly, but if it's not done correctly then there's all kinds of negative ramifications. So—but if you don't know how, you certainly can't. And without—there will always be other influences and pressures to maybe not do it correctly, but people that are working in—in that workplace is—is my focus and the focus of the technical programs that we have is to try to make sure that they have that knowledge and skill and know how to do it correctly.

So—I mean—it's amazing to me the efforts that some of the companies have gone to—yeah. And there's been—there's been situations where people's water has been corrupted and there's been places where coal slurry ponds have burst, and those are all typically—maybe can relate that to a totally different industry—over time, in the airline industry—the research that they've done on accidents has said it usually comes down to either mechanical failure or human failure, you know? The industry itself is going now down the path of, they're taking the human out of the factor—the human factor out of the equation. They're—if you're flying in an airplane, it's probably not being piloted by a human at this point. It's—that human is monitoring the process, but there's been too many times when a human failure has contributed to major accidents, and they're just trying to engineer that out of there, okay?

So the same thing in many of these industries where you're drilling 6—7,000 feet down into the earth. People say, “Well, you're corrupting the water table.” Well, that's a potential as you go through the water table, but surface water is called that because it is close to the surface. And if you take care, and they do—and even going to different kinds of air drilling and not using water in other kinds of processes—casing it multiple times and then taking every precaution to make sure that that—that water table is not interacted with in the drilling process—and then get down way below any water to actually do the fracturing process. And I just don't think there's enough—because of the—the emotional factor, many people jump onto an opinion one way or the other and don't take the time to research and understand what the process really is. There are—then people get on one side of an issue or another, and that's typically what I've seen in the coal industry and in the—the oil and gas industry. I like to try to look at all of those sides and recognize that, yeah, there's—there's human nature, and there's factors that cause the—the problems that we see.

And—but the process itself, after sitting in and watching and learning and being in the trailer when they're doing the frac job, I can see that they're actually—you can see on the computer screen the fracturers developed within that reservoir—they've—they drill other holes around that site where they can—they drop microphones in, and you can actually hear the rocks cracking down there. But they have a vested interest in not expanding that fracture zone beyond the

reservoir. If they do, they lose all their—all their product, you know? So there's a lot of technology, there's a lot of effort, and there's a lot of focus on doing it right. We have to teach people how to do it right. And then there's the role of government in making and—regulation, and making—looking over the shoulder, and making sure that the process is done correctly—that the—the byproducts are dealt with correctly and all those sorts of things.

**0:49:20.2** But from an educational viewpoint, my goal is trying to make sure that we have the programs—whether it's the entry level coal mining classes that we do, or the—the—the petroleum programs that we do, or the electrical generation programs that we do, or the nursing programs that we do—are structured so that folks come out of those with the knowledge and skills that they need—that we've assessed their ability to do that, certified them to be able to do it—and they know how to do it right. And that's—that's the only thing that I can control at this point. But I like to really look at the bigger picture, too, because my responsibility is to be really developing some partnerships with those businesses to work together to increase the capacity of the workforce, to be functional, to be productive, and to be able to allow those companies to compete in a much more competitive global environment.

MK: Where have—where has the workforce thus far come from? If West Virginians don't know how to do this, who does, and where are those workers coming from?

PS: Well, it depends on the industry. But it's—

MK: Where were you—if you were talking about fracking—

PS: Right.

MK: —generally—

PS: And the oil and gas industry, that's a very—obviously most of those folks that have come in early in the play are coming from places that already have that experience built up, okay? So a lot of those folks that came in early in this play are coming from, and employed by, companies that do that. So they're coming from Texas, Oklahoma, Arkansas, and some out west in the—in the Rockies that have experience in that—pieces of that industry. And that's—that's a typical pattern when there's a new play—they're going to pull people from wherever to do that job because they have that set of skills.

Some industries are more that way than others. Pipeliners are notorious for that. I mean—a pipeline job is such that it's only going to be in one place for a short period of time, and those guys are peripatetic. They're on the road, you know? But they're very highly skilled, and they go wherever the job is. There has been a real focus by companies that are working in the Marcellus to develop that workforce. And that's one of the things that they've come to the community college and said, “We want to help you develop a program, we want to provide resources, we want to provide expertise,” and they've been very involved with developing the curriculum. They sit around the table and we—we brought expertise in ourselves from other places that—as far as the faculty—that have done this before. So we're not starting from scratch there. But it would be counterproductive to try to start—reinvent the wheel, so we all look out to wherever

the expertise is and then bring it in. But there's been a real focus to try to build up that local workforce. It's interesting that—and there was a study done in Pennsylvania with a group up in —out of Penn State, and—and Penn College of Technology in Williamsport were involved with a program called ShaleNET that's been federally funded.

MK: **0:53:34.8** ShaleNET?

PS: ShaleNET. And it's basically a consortium of community colleges that are trying to respond to this workforce need. And they did a study up in Pennsylvania and tried to figure out what that set of skills is—what those jobs are—because—it's interesting, the—for each well that is drilled —each—each horizontal well that's done, there are approximately 400 people that will be on that site at one point or another, okay? And that may be a 2-month process, from when they first start pushing a road into it and making a site to when they actually complete the well and get it—get it into production. But throughout that whole process there's lots of little pieces to it, and specific skill sets of those 400 different people that would be on that site for a day or a week or whatever, there—we identified about 125 different specific skill sets in that process. Everything from—like, say—going out and researching the deeds in the courthouse, to the person that's the —driving the truck, to the person that's in the trailer running the fracking job. But the challenge with those kinds of industries and those kinds of pieces of that industry is that that is very temporary. So that crew, or that well, might have—of those 400 people and 125 different skills—there's about 11 full-time equivalent jobs per well, okay? But that's not permanent. That's just—those 11 go over here and drill this other well, and they go over here and drill this other well. So there really aren't an aggregate of 11 new jobs per well, all right? So the real permanent jobs are the ones that—and the industry is separated into upstream, midstream, and downstream. So upstream is all the activity around the—excuse me. Around that well.

MK: I'm sorry—don't worry—don't worry—don't worry about it.

PS: Around that well development. Midstream is where you actually take that and gather that product or that gas and then start compressing it and separating out all the component parts, the ethanes and methanes and all the stuff that's useful products. And—and then the downstream is the actual storage and delivery to your—your home, okay? So the—the biggest opportunity and where those local jobs are and the long-term jobs are in that compression—that midstream—and the downstream work—the production side, what's called production. And those are the people who monitor the wells and monitor the pipelines and do all the work of maintaining the compressor stations and those kind of things. So that's a piece of our—our training program. That's the second year in our degree program is more around those kinds of jobs.

But it goes back to what I was saying before. Those are electromechanical systems folks, but they're well-paid jobs. They're long-term—they're going to be in one place a long time. So—again—long answers to a lot of these questions, but the—the—the industry is really trying to develop local people for those jobs because mainly they want to keep them. Those folks that are coming from Texas and Oklahoma, and you see the 3-quarter ton pickup truck with the Texas plates on it, they're up here—they're going to be here for a little while—but when the snow starts blowing around, guess what? They're getting in the truck and driving back to Texas. They don't want to stick around in—in a place that they're not part of their culture, either.

And the companies know, in order to be able to do business, they've got to develop a local workforce to do that. And so they are actively working with the community colleges to develop these programs to train people. But it's not—it's not a one-week class, you know? It's—it's a detailed, complex skill set, and you can't do that overnight. But we find the companies are investing heavily in our programs—to the tune of 6-figure donations—to help us get these programs started, because it's really—it's expensive for a community college to buy all that equipment and have the expertise in the faculty and be able to develop a program that really meets the need. So—

MK: **0:58:49.1** You—you—you said that—that fracking had been going on for a long time. Certainly well drilling has been going on for a long time. But I believe until around 2005 the—the drilling industry was restrained, in part, by the Clean Air and Clean Water Acts passed during the Nixon administration in the '70's. Hasn't the nature of fracking changed since 2005 when those restraints were rolled back by an executive order? Aren't—aren't we now dealing with a situation where there are very few restraints on the—the actual protection of water and air?

PS: Well, I believe that—

MK: These companies are no longer bound by those restrictions?

PS: —there has—there has been some federal roll back, as you say. But there's also been some state regulations that have been placed on companies—and again, that depends on which state you're in.

MK: Well, West Virginia. We could talk about that.

PS: Right. That's not my area of expertise—

MK: Okay.

PS: —so I don't really want to speak to—

MK: All right.

PS: —the regulations, but I know that—obviously you know that there's produced water, there's the—the issues of how that's dealt with, and there's a real need to make sure that that's managed in the right way. I'm not schooled in the—the details of the federal regulations. I'm not as aware of exactly what those are currently.

MK: Uh-hunh (affirmative).

PS: But I do know that West Virginia did pass new regulations 2 years ago, I believe, that puts some additional constraints upon how those—that process is done. I know that the—the fracturing—the hydraulic fracturing process—was researched and partially developed out of West Virginia University in the National Energy Technology Lab, which has one of its facilities

there in Morgantown, and that—that whole technology was developed back in the '60s and '70s, and has been done quite a bit since then. But as this play has developed and as other plays in this country have developed, they are using it more, and have actually started doing more multiple wells from one site rather than doing just one horizontal well from each site. So they will drill down and then go horizontal out in different directions from one site rather than just doing one horizontal leg at each well.

MK: **1:02:29.4** Uh-hunh (affirmative).

CK: It seems like something has happened technologically in—in fracking. I mean, from the '50s or 50 years ago—they can get deeper now, and now there's all this talk about Marcellus and maybe Utica or Devonian or other layers. I mean, that—that is fairly recent, isn't it?

PS: Yeah, I think the technology has allowed them to—to drill deeper and further, and most of that development, I think, has really been the direction of control and the telemetry that allows them to know exactly where they are in space when—when they're drilling that stuff. So it—as well as the—the—the surveying and the modeling of the geology so that they know exactly where the potential reservoir is. So pinpointing that reservoir from the—that—that geological survey work—being able through computers and technology to model that visually, take—taking all—visualizing all that data, and then being able to exactly hit that spot from so far away. And that's really—a lot of that is those directional motors and the drill bits and the different kinds of things that they're using. And that changes every day. They're trying new things all the time and—and they're using different materials to do the fracturing. I've seen some jobs where they're using nitrogen instead of water. I mean—they're experimenting with those things as well. So that technology continues to be developed and researched and—

CK: I mean—you talked about several balancing acts that you have, and here you are training workers to do a good job and to work safely for themselves and for communities, and how—but of course that hasn't always happened.

PS: Right.

CK: We know accidents happen and whatnot. So how do you train workers, or how do you balance a company's need to make money, perhaps, before laws change or—to work quickly, and—how do you balance those different needs once they get out of the program?

PS: And I can tell you this from personal experience—when I was out on—in the field in—walking high steel, there was an opportunity many times where the company would say—not on a day like today, but there might be a little bit of snow out there, and you're walking out on an 8 inch beam, and they're going to say, “Well, go out there and do such-and-such,” and it really comes down to you—a personal choice, at some point, that you say, “No, I'm not going to do that.” And that's something that we—we express in our training programs.

It really comes down—safety and—and those sorts of things comes down to your knowledge of the conditions and the environment in which you're working and the kinds of things—the results that will happen when you turn that—that valve this way or that way. But then the ethics of that

also come into play, and it's very important that we talk about it and expose students to the ethical choices that you make. And I think you'll find that some companies are better at that than others. There's always good actors and bad actors in any industries. But we make students aware that there are such, and they also—really comes down to if you want to be safe, which means, are you going to be able to go back home to your family that night? Are you going—is your buddy going to go home to the family that night, or are they going to have to come and tell your—your wife and kids that you're not coming home that night. So That—that choice is a piece of the behavioral safety that we talk about, which is not just theoretical. It's—really comes down to your ethics and your—your actions determine not only what happens to you and happens to that company's bottom line, but it also—to your fellow worker and your—the people that—that report to you.

**1:07:36.5** So yeah, those are very difficult questions, and they're very difficult decisions. But we have seen many times—I won't mention the company—but a major coal company that has an attitude toward safety. I was in a big corporate meeting, and sitting around the table were not only me as a vice president, but several other vice presidents in the room talking about training. And we were looking out the window, and some yahoo that had been hired by that company was trimming a tree out in the fancy corporate campus. And he had a stepladder sitting in the back of a pickup truck trying to climb up in the tree. And the guy that was speaking was looking out the window and saw the same thing we saw, and said, "Excuse me a minute," and walked out of the room. And for the next 15 minutes he was out there instructing the—the landscaping contractor about how to do that job safely while hundreds of dollars an hour were sitting around the table waiting for him to come back. And that's the kind of attitude I have seen from corporate environment. I've also seen, "Get her done now," and damn the torpedoes kind of attitude, too. So there are good actors and there are bad actors in every industry. Obviously, we want to work with the ones that are the—the good actors.

CK: Once they're out, they're—your workers are out—how extensive are the—the classes or the trainings in those ethical issues that you were mentioning—safety for individuals and communities?

PS: Well, it's—it's built into many of the courses that we do. I mean, sometimes you'll have a course that is just an orientation and safety course and that's what it's focused on. But often we build those safety kinds of—and ethical kinds of competencies and objectives right within the course, because it—as you know, as an educator yourself—you—you have a teachable moment sometimes and that's the time to really focus in on it. But we also have those objectives built into the courses—even if it's a technical course, it's not just a separate health, safety, and environmental course—although we have those. But those issues are also brought back into the content courses as well.

It's—it's hard to be real specific in that, but our—our red hat mining course is a good example of that. I mean, it's a—it's a state-written and state-certification—it's—it's content that is specified, very—very detailed way, but the instructor that we have is—has 40 years in the industry, was a safety inspector in a—and a safety supervisor for a major coal company. And he tells the stories, and he tells what's happened from his experience—background and viewpoint. And that's really important, because—we have to make sure that those students have an understanding of what the

results of their actions are. And sometimes that's not pretty, and we try to focus in on those whenever possible.

**1:11:33.2** And—and those companies that are helping us develop that curriculum—they—they express to us that they want to see those ethical decision objectives in our programs. And they recognize that in order to be in business and to do business, they have to work in the world of regulation and—and a world of controversy and a world where there are always those conflicts between the interests of one group of people and another. I'm not saying they're all knights in shining armor, but I do hear that, and I do see them ask for that and want to support that within the training programs.

CK: A year or 2 ago, I don't—radioactivity being released—is there any truth to that, and how does that impact workers?

PS: I don't—I'm not aware of the radioactivity issue much. I've heard that—I know that—I think just yesterday or the day before WVU and another university got some research money to look at things like radioactivity, microbial act—or microbial activity that deep in the earth—some of those things that really are unknowns at this point. So—again—I'm not the researcher in that area, so I don't really—I can't really speak to that. But that's—that's—that's a possible. One of the things that's interesting to me is that some of the more common things that you would think that—that have already been dealt with crop up again when these new kinds of operations happen.

For example, silicosis. You know—you've heard of silicosis, right? The Big Bend Tunnel and all that? Well, fracking involves sand, right? And the movement of large quantities of sand. Well, they're finding that—and OSHA has been doing some studies here recently—that those workers that are close to that activity are now starting to see some health effects from that—from that—that operation. Well, that just means we need to pay attention to it, we need to recognize it, and it may just be as simple as—cover up the conveyor or deal with the airflow and those kinds of things. But sometimes the things that you think have already been dealt with and are—are common knowledge may crop up in another environment that you—you just don't think about. And then—here's another issue that we need to make sure—it may be the more esoteric things that we need to worry about, it's the things that are—that are really common and—and common sense things. So—but thank goodness, we're looking at that—we're seeing that—and we're trying to make some—some effects of that.

But from a training standpoint, that needs to now—from a formative standpoint, and looking at our programs—needs to be included in our safety program and make sure that workers are aware of that and that they're not being exposed to something that can easily be prevented. So that's just an example of—of—

MK: That's a good one.

PS: —that kind of thing.

CK: **1:15:03.4** I'm trying, as you can tell, to think about the issues that people with concerns bring up, and maybe you can even help me so we can look at them—like another—is the brine trucks on the road—

PS: Trucks on the road—yeah.

CK: —trucks on the road, period—and then brine trucks—

PS: Trucks on the road and narrow roads and curvy roads and roads that may not be in the best repair to start with, and then they—it certainly doesn't help them. So I know that many companies are—are putting money back into fixing the roads or whatever. But in the meantime—while all that activity's going on, and it's not fun for anybody. I mean, it's not fun for the truck drivers, it's not fun for the people living on—right next to the road, and it's an issue. When you—when you get these things clashing, and people that have lived on their—their homestead for their whole lives or whatever, and then all of a sudden we're seeing what I call the industrialization of rural—rural America. We're seeing that happening out in places that—that—just like in the coal mines and in southern West Virginia and mountaintop removal—we're seeing that industrialization hitting places that never, ever thought that they would be confronted by that kind of activity in the past. And so there's naturally a huge conflict there. And that's—that's sometimes that cause of some of the—the real push-back from—from people saying, “They're—they're ruining my water and they're ruining my land and ruining my road and everything.” Those companies do have a responsibility to—to fix that back and make sure that it's usable again—well, again—back—I'm thinking about the road, and that case. Obviously, if you're going to flatten out a 4-acre site for a multiple-well drill pad, that's not going to go back, right? So—

CK: I think about rebooting—

PS: —that's—that's—that's the real conflict. Yeah. Yeah. Yeah, if there was—I don't own the mineral rights. That's a beautiful place. If they come and they decide to put a well pad up on top of the ridge, I wouldn't really have any control over that. But I recognized that when I bought that land, I knew I didn't have the mineral rights to that. I certainly wasn't the one that sold it, or would be the one to benefit from that. But that's a bigger—that's a much bigger issue.

**1:17:54.0** (end audio A)

**0:00:00.0** (begin audio B)

MK: **0:00:00.0** My first real job out of college—I went to eastern Kentucky, to Berea College—I worked for the Council of the Southern Mountains, specifically for the Appalachian Volunteers—and we were doing a lot of community organizing—

PS: Uh-hunh (affirmative).

MK: **0:00:16.0** —around issues having to do with community betterment. Fix the middle schools and organizing recreational programs for isolated kids living way back in hollows that didn't even have shoes to get out and go anywhere—

PS: Right.

MK: —and all this kind of thing.

PS: Right.

MK: And before I'd been there a year, the—the local people back in these communities were saying to me, "If we don't do something about these strip miners taking the top off these mountains and ridges and things, we won't have any communities to worry about."

PS: Right.

MK: And in—between '65 and '67 I watched eastern Kentucky turn into a sacrifice zone—

PS: Right.

MK: —for the TVA, which was the biggest purchaser of stripped coal. So you saw one—one region which was trying to industrialize and provide cheap power for an industry—getting its energy from another region and leaving it devastated—

PS: Right.

MK: —in the—in the process.

PS: Right.

MK: A sacrifice—that's where I first heard and entertained the notion of a sacrifice zone, and what that meant.

PS: Uh-hunh (affirmative). Uh-hunh (affirmative).

MK: You hear more and more these days that West Virginia is a sacrifice zone for the whole nation, and has been right along.

PS: It has been for quite some time, and that's one of the—one of the things that I see—

MK: It has been—it has been—

PS: —for quite some time, it has—it's been a colony of somewhere else, and it's been stripped and mined and—when I first came to the state, the local strip mines were around the hill kind of strip mines, and there was a lot of push-back there, and through various people's efforts we got some legislation passed to deal with return to normal contour and those kinds of things. Didn't

stop the process, but at least it mitigated a little bit of that. That's one of the things I see as—as the land shifts between our feet in other ways, and that—the coal industry itself is—is at a crossroads right now—we see through more stringent air and water regulation the—the cheap—cheaper energy source in the petrochemical, and some of the other issues that is driving that change. I guess personally I would rather see—when you talk about sacrifice, I'd rather see a smaller footprint of a—a few acre well pad than the whole mountaintop stripped.

**0:03:23.5** But those kinds of things are trade-offs. None of them are the—pristine landscape, for sure. It's interesting to me because, as we look at this whole energy issue, I think it's good that the conversation is happening at multiple levels, but certainly not at the federal level at the right point, because we really do need to have an energy plan. We need to have some energy policy in this country. We need to make some real hard decisions about what—what sacrifices do we need to have for that progress, and I certainly—we have a program in energy conservation where we're teaching people and contractors on how to meet the—the international energy comfort code and building buildings that are more efficient and all those sorts of things. And that's probably the hardest sell that we have right now. Unless there's regulations, builders aren't going to build a house that's energy-efficient. Unless people know the advantage of it, they're not going to purchase a house that is less energy—or more energy efficient. And the bankers aren't going to care whether they make any differences in the loan rates on a house that's more energy-efficient. And the—the appraisers, if they don't know the difference, they're not going to appraise the value of that house any different.

So all those kinds of things are all tied together as well as making that choice as to whether we're willing to pay a lot more for energy to be able to avoid that sacrifice. I mean, it really comes down to dollars and cents in some ways. People have made the choice that they'd rather have cheap energy than pristine landscape in certain areas. I mean, that's—that's what I see, whether people are aware of it or not, that they're making those sacrifices. You know, the folks in Boston and New York City may not know that that's a choice that they have made, but they certainly have made that choice. And then as we look at some of the other sources of energy that are happening now, it's really interesting to me, because I can see—we can see it on the—on the hilltops around here. There are people that are really against the windmills—the green energy concept—whether it's wind or solar or whatever, those sources of energy aren't sufficient, at least at this point, to provide the energy that the country demands.

And the—the other effects of that that most people don't realize is that many of those base load power plants, like the coal fired power plants and the nuclears, who—who were engineered and built to run full bore—they're either running or they're not, and it takes them a while to get them started up and get—get the process going, and that's a lot of what we teach in our power plant operations program is how to actually monitor the process to get it up fully running, because then it's pretty much a steady state. But there's a lot of potential for error down here in getting it—getting it running. But as we bring on wind and solar, which are intermittent, it's causing those base load power plants to have to cycle up and down all the time, okay? Which is putting—and they're not built for that. They're not designed for that. And it's putting a lot of stress on those pieces and parts of those systems. And so those things were built and they have a certain lifespan—they have a huge investment to—to—to build them. And companies right now—that's why you see some of these companies trying to divest themselves of those older plants. Not only can

they not meet the—the air and water—air quality standards that are new, but they can't see—they can't see the payback on the maintenance issues that are now being caused by that perpetual cycle. And we do not yet have the technology to be able to store that intermittent energy for our constant demand. So, as you know, when the wind's not blowing the windmills aren't producing electricity. When the sun's not shining, especially in West Virginia, we're not generating solar energy.

**0:08:16.8** So we can't store that, but when it's running it's going back into the grid, and they have to bring down those other base load plants to—to account for that. And the Public Service Commission's laws are such that if they do bring up another source—so it's the middle of the summer and it's really hot and people are running their air conditioners, and we need—and the wind's not blowing—and we need to bring up another source—another power plant to meet that load—it's got to go to the cheapest source. So that might not be a coal-fired power plant in West Virginia, that may be a nuclear plant in Ohio, and that's legislated that they have to bring that one up before they bring up the coal-fired power plant or whatever.

So—so those kind of things are on the back side of generating that electricity, and I know we talked about the strip mines and the sacrifice piece of it—I think we need to understand that there are other—other parts of the process that makes that light burn that also are—are bringing stress into the system and stress to those communities, too. Because we—we have to make a decision—are we willing to sacrifice more coal miners, or are we willing to live with the effects of fracking? Those—those may not be something that you can put in one hand or the other and weigh very easily, but what are the effects for people long-term when we can't seem to make a decision as to whether we're willing to turn that other air conditioner on or build a more efficient house—which we can do. I mean, that's where the greatest benefit right now could be—and arguably—I've seen numbers where it said we could reduce our need—our demand for electricity by 40% if we just built more efficient homes. But there's no requirement to do so.

CK: Do you get involved with that?

PS: We have a program to teach that.

CK: Yes, but legislatively?

PS: No.

CK: Lobbying—

PS: No.

CK: —to support a program like that?

PS: Well, I mean, we work with the West Virginia Division of Energy. They provide grant funds for helping us to run those programs, because right now that's not something that a homebuilder is willing to pay to learn about. So—but we still provide those training programs through those kinds of grant funds. So no, I'm not—I'm actually precluded from lobbying as a leader in higher

education, but we try to do what we can to help build the capacity for that knowledge within target audiences. And what we've found in that supply chain was—the key link in that supply chain was the appraisers, because if you had a really energy-efficient home and your neighbor didn't—same kind of house and the same neighborhood—that appraiser's not going to appraise your house any higher than the guy next door.

**0:11:53.9** So that's knowledge, that's—that's education, and that's also making sure that new homes are—are built to certain standards that already exist, technology that already exists, to be able to make sure that we're—we're using less of that electricity, that we're sacrificing all this for—and that's—that's a key. And I'm not sure we're anywhere near where we need to be there.

MK: Well, you don't see busloads of legislators going to community colleges to—to take advantage of these programs that you're offering either, do you?

PS: No, no—we do see some legislators that are pretty strongly in support of the community college, and they understand the role of community colleges in economic development. But—you know—lots of different perspectives there, obviously. (laughs)

MK: Thank you, Paul. This has been just great. Appreciate it.

PS: Well, thank you.

MK: What else should we talk about, maybe that we didn't know to ask you? Or did we pretty well cover it?

PS: I don't know. I'm sure there'll be other conversations. (laughs)

CK: Can we come back to you as—as other questions come up—

PS: Sure. Sure.

CK: —and we're doing work in the field?

PS: And—again—my expertise is not on the—the technical side unless you want to talk about wood products manufacturing.

MK: Uh-hunh (affirmative).

PS: But I—I'm lucky, I think, to be able to get to see sometimes more pieces of the big picture than the average bear, because I'm thrust into a—forums and environments where I've got to deal with lots of different kinds of people. And being able to speak those multiple languages of education and business and government, which is another totally different language. (laughs)

MK: Uh-hunh (affirmative).

PS: **0:14:08.3** But economics is really interesting to me, and the economics of energy and—and—as you say what it has done to the landscape, but more importantly, the people—that’s what I’m—I’m most concerned about. And in West Virginia the people identify with the land more closely than a lot of places—or at least a lot of people in Appalachia do. Maybe more than other places, I’m not sure. But it really has been, over time, a history of using the land and the people to produce energy that has both increased our general standard of living and our longevity and all those things, but on the—at the same time, sacrificing pieces of what we—we think is important. And those are really difficult decisions. The problem is many times they’re made for us and—and made without our input, because we’re not the stockholders or the—or the captains of business and industry—they often are somewhere else.

But I find it interesting that in my conversations with those folks who are the leaders in business and industry—they often are sensitive to and understand that same big picture we’ve been talking about. They just come from a perspective of—they need to be able to survive as a business to provide a service that you and I are demanding. It’s a—it’s a—it’s not one side or the other. We’re all in this together. And I think we all need to realize that—that those—those compromises are tough to make, but we see in the federal system, if you don’t make the compromise, nothing works. So I don’t have—I don’t have any answers, but—but I—it is interesting to me—and my focus is trying to make sure that the education that’s provided in a community college is appropriate and—and builds the—the capacity of the people to be able to survive in this—this changing environment.

So—and really it depends on what a person wants to do. People have—have interests and have—some people want to be an engineer, some people want to be a nurse or a teacher or whatever. We provide those kinds of things across the spectrum. But the harder pieces are those questions about energy and the—the industrialization of the landscape that—that causes strife and heartache and affects people directly. But—like I say—it’s not black and white.

MK: No. Can—can you suggest anyone in industry who might be willing to sit for a—for an interview for—to expand these educational ideas and to expand these—to help us acquire as balanced a picture as we possibly can of this whole issue?

PS: Perhaps.

MK: You could—you don’t have to tell me today, but if you’d give it some thought—

PS: Right—yeah, let me—let me give you some thought. Because obviously people that are in business are going to be very gun shy of the microphone, right?

MK: Yeah.

PS: And they’re going to be very circumspect in providing a personal opinion or certainly—a corporate opinion is going to have to come through some external affairs office, right?

MK: Uh-hunh (affirmative).

PS: **0:18:28.2** Which is going to have their own spin on it.

MK: That's fine.

PS: But I do work with some of those folks—I mean, they're—and often are very genuine. They feel like they—they represent people too, so—

MK: Well, I think once they find out how nice we are to talk to they would—they would probably be glad they did it.

PS: Well, I'll think—

CK: (laughs) Paul didn't say how nice we were to talk to.

PS: (laughs)

CK: We've been asking some hard questions.

MK: (laughs) I thought somebody ought to say it.

PS: Well, there are—there are a lot of hard questions, and I'm confronted with them every day. And I try to maintain a real neutral attitude as much as possible. But it's hard to sit on that fence and say, "I understand where you're coming from," but that's something I really work diligently at is to keep an open mind and try to look at those things from the different perspectives. I mean, I can have my own opinion, but I often don't put it out there because it's important that I'm—I develop relationships and maintain relationships and—and maintain a productive partnership with those—those various elements. So—

MK: West Virginia is lucky to have you, that's all I can say.

CK: Yeah. I mean—I guess the only other detail—people talked about compressor stations. Can they be run without the air emissions that we've been hearing about making people sick? Is that part of the picture there, or is that a fault of the operator, or what?

PS: Well, a compressor station is just that—it's just a bunch of pumps and apparatus that compress the gas and push it on down the pipeline. Those are just the same kinds of issues that you would have with a diesel truck driving down the road. I mean, those kinds of things can be mitigated—most often that's just a matter of—of maintenance and operations to make sure that those things are meeting standards. And—and what I—what I hear over and over again from—from the business side is that—just tell us what the landscape is. Tell us what the standards are. WE need to be able to know that in order to be able to do business. I've got to be able to calculate what meeting that standard is, right? I need a bottom line. But if that standard shifts on them, then all of a sudden they can't maintain their business model.

So, for example, a permit for a well. If it moves from \$100 to \$10,000, that's okay if that's what it's going to be. But if next year it's \$20,000 then that's going to be really hard for me to

maintain my—my cost structure, my return to my investors and all those kinds of things. I have—I have to be in business. So—so tell me what the—the requirements are, and we'll either gear up to meet those requirements or we can't be in that sector—and they have to make a business decision—right—in order to stay in business. But that's what I repeatedly hear, whether that's just spin or not, I don't know, but I really think they're sincere in—from an—from an economic standpoint, as a former business owner, I know that. I need to know what my costs of being in business are and then I can adjust my pricing or my workforce and my investments and all those kinds of things in order to be able to meet that. But I feel like they—they think that that standard has not been established. There's not an energy policy, there's not decisions made at the highest level and then on down where they can't continue to—to do business or be in business or be profitable and be in business with a—with an environment that's constantly changing.

**0:22:57.4** So—again—that's what I hear, and I believe they're sincere in that. And that if there's a new air quality standard that's put in place, that there really is no technology to meet, then how can they—how can they continue to provide the product, you know? And I think that's—we're approaching that right now, is that some of those things on the scale that they are at and—and the—at the level that they have to produce electricity, those things don't necessarily exist right now except in the smaller-scale pilot plants. The research says it can be done, but there's not a scalability proven yet so they can actually put that in place. And you put a company in a position where they can't be in business, they're going to go out of business. They're going to sell it and they're going to—you've noticed here—I don't know whether you've noticed lately about the acquisition in the coal industry. CONSOL just sold 5 of their major mines.

MK: To Murray?

PS: To Murray. And there's—there's drivers for that other than pure profit at this point. And so they're—they're—they don't feel comfortable in this point that the landscape is such that they can continue to be in that business. And so what will that mean? You can imagine the changes that will happen.

CK: And that's going to go out of coal mining and into oil and gas, or that's still pretty unclear, isn't it?

PS: Well, they're making a major effort to be a player in the petrochemical industry, you know.

CK: Murray?

PS: No, CONSOL.

MK: CONSOL that sold the mines.

PS: Right. It's provided them with—what is it—\$3.6 billion dollars of real capital that they can—they can use—

MK: Reinvest.

PS: —and basically they will—I believe—will use the coal mines that they do have to be able to sustain a business in the oil and gas industry. A lot of the folks—it's—it changes in a play—a play is very interesting like this one, and this is a huge one that's—it's the new Saudi Arabia here. Most people don't realize how big it is. But early in a play you'll have the smaller operators, the wildcatters, the people that go in and try to make quick money and—and they prove out a play. But they often don't have deep pockets as far as—the kind of deep pockets that a Shell or a BP or whatever would have in order to be able to make those investments. So those investments are risk investments, you know? And they may make it or they may not.

**0:25:50.3** But once those things are proved out—that play is proved out—then those smaller operators will get bought out by the bigger operators coming in that do have deeper pockets. But even so it—and when you're only in the oil and gas industry, that doesn't have the—a—say a cash cow like the coal industry has been to provide continual investment revenue to be able to push more holes in the ground, so to speak. So those operators like Chesapeake and like Mr. McClendon came in and had money—used the money and whatever else money he could get as far as investors to be able to come in and acquire leases and capture all that—that resources—the potential for that resource, really—but then at some point that company has to monetize that. They have to have a return for their investor. And so then they've got to—to go out and then sell part of that—you've seen they've sold off a lot of that stuff to others—larger companies—and then focus in on an area where they feel like, here's the greatest return for my investment and get some—pull some profit out of there. Because they just don't have unlimited amount of money to be able to keep putting revenue into the development piece of that.

CONSOL, however, has—and some of the bigger players, BP and Shell and those—they have a—deeper pockets. And they can—they can support that longer-term investment in the development of that resource. And so that's what you're seeing now is that those—CONSOL's decided that the coal business long-term is going to be a very difficult place to be because aging infrastructure, the coal is harder to get, people talk about 200 years of coal, but that's deeper and thinner and harder to get. And the fact that this—this previously unknown and now still untapped resource in—in petrochemical is there and can be cheaper. So they don't have the investment money that they can go out—and I mean a brand new next-generation coal-fired power plant might be a \$24 billion investment. You know, they may not have that to be able to—to put those in place.

National Energy Technology Lab—NETL—has been working to demonstrate the next generation of integrated combined cycle gasification IGCC technology where you basically use coal and create a syngas and use more of that, and the only thing that's going out the stack is CO<sub>2</sub>, and you could potentially sequester that. But that's—who knows—a \$60 billion investment or whatever. They might have one going on in Belgium right now and maybe one planned in Texas, but they're—from the federal standpoint, they're—and the Department of Energy—they're trying to demonstrate that, show the feasibility of that. But still, that company that does generation has to see a return on that huge investment.

CK: It's interesting that with all that's sort of waiting in the wings to get cheaper or for us to learn more about it—I have in the back of my mind this comment that a fellow ended his interview with. He said, “This is under the ground. It—it's not like you can move a factory, so

why not take our time? There's such a feeling of the gold rush. Why not take our time?" And maybe you've really been answering that.

PS: **0:30:16.3** And again, if you—if you—if the landscape shifts in that coal-fired is not the way to go, then what replaces that? It's not a long-term scenario. You have to have something that comes in. If the Harrison power station that generates 650 megawatts of electricity running full-bore shuts down, where does that other 650 come from? Each one of these windmills out here on the ridge produces one. So that means you—you're going to have 650 more of those as one option, right? Or some—solar's not an option in West Virginia. So—I mean—so 650 megawatts of solar somewhere is going to be a huge solar farm, right?

CK: Or solar plants? Someplace there's a solar plant.

PS: Right, in the middle of the desert.

CK: Or Spain.

PS: Right.

CK: That's the biggest.

PS: That's long—by the time you get that electricity here your voltage drop has gone down to zero, right? (laughs)

CK: We can't have one—we can't have them here?

PS: I don't see the feasibility of that here. I mean, that's—the sun doesn't shine here enough, right? So those big installations, like out in Arizona or whatever that they're feeding into California—that might work. But here that's not necessarily an option. So what do you do? You put more windmills off shore, do you put them on the ridges here, do you—you know, that's—or what we see for the generation companies is that they may just move into gas fired generators and a gas fired generator is basically a jet engine. You're—you're—and they're modular, so they can put in any number of them in one place. But that is way cheaper, and it's way more environmentally sound—I mean, that doesn't—that doesn't create nearly as much air pollution as a coal-fired power plant does. It—it still does, but it's—gas burns way cleaner than coal. So I mean those are the decisions that we have to make—either that or turn the light out, or turn somebody's air conditioner off, or whatever. But I mean those are the choices that we have to make. It's not—if one goes away, especially—I mean—we could build more nuclear plants. Is that a choice that the country wants to make? I'm not sure that's the solution.

MK: I'm not sure about that.

PS: When nobody has ever solved the problem of nuclear waste. So it—it's a real conundrum. It really is. And—and the—the standard of living that we has—you know—the difference between an undeveloped country and one that's developed is a lot due to cheap sources of energy.

MK: **0:33:53.1** Uh-hunh (affirmative).

PS: And—and the knowledge—and—and ability and the talent of the people that are there. So—

MK: Well, this has been really fabulous.

CK: Thank you.

PS: —thank you. I have—

**0:34:23.3** (end audio B)

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