Mike Lennen: Good afternoon, I'm Mike Lennen, a member of the Kansas Oral History Project Board. Today is September 17, 2024. We're here to interview Kelly Harrison, retired vice-president for transmission at Westar Energy. Initially, I want to acknowledge that I had the privilege of working with Kelly over a number of years, first as a private attorney periodically representing Westar in some regulatory proceedings, then for about five years, also as an officer with the company. Our videographer today is former representative Dave Heinemann. Dave is also a member of the Kansas Oral History Project Board. We want to extend a special thanks to the Dole Institute of Politics at the University of Kansas for hosting this interview. The interview is being conducted in the Elizabeth Dole Gallery and Reading Room.

Kelly is a native Kansan. Graduated from Andover High School in Wichita. He earned a bachelor's degree in electrical engineering, a master's in engineering management services, and an MBA, all from Wichita State University, so through and through a Wheat Shocker. Kelly began his career in the electrical utility industry in the early 1980s working for Kansas Gas and Electric (KGE), which was then headquartered in Wichita. He then continued his career with the company after it merged with Kansas Power and Light Company (KPL) in 1992 to form Western Resources, which then served about the eastern third of Kansas. Western Resources was subsequently renamed Westar Energy. By 2006, after holding a number of leadership positions with the company, Kelly had risen to the position of vice-president of transmission and retired from that position in 2018.

During his time at Westar, Kelly was responsible for overseeing significant transmission expansion, much of which was related to the emerging renewable energy generation capacity that then was being

developed in Kansas. He was also a company representative to the Southwest Power Pool (SPP). The SPP is the Regional Transmission Organization (RTO) serving Kansas and surrounding states. Since his retirement, Kelly has remained active in environmental and education issues through his service to The Nature Conservancy, the Crested Butte Land Trust, and Wichita State University.

This interview is part of the Kansas Oral History Project's series examining the development of public policy at the nexus of energy and the environment during the late 20th and early 21st centuries. In these interviews we explore those policies through the eyes of experts, executives, administrators, legislators, environmentalists, and others. The Kansas Oral History Project itself is a non-profit corporation that collects and preserves oral histories of Kansans. The project is supported by donations from generous individuals, as well as from grants made by Evergy and ITC Great Plains.

ML: With that, good afternoon, Kelly, and thank you for agreeing to contribute to this history series. The focus of today's discussion of course is on transmission of electricity and it's fair to say that you've had extraordinary in-depth responsibilities related to virtually every aspect of that. You've also been involved in other areas of electric utility operations and management and I'm wondering if you could take just a few minutes and provide a description of some of these other areas that you've worked in or managed.

Kelly Harrison: Good afternoon, Mike, good to see you again. I started at KGE in June 1981, right out of college, like you said. I started in system planning, back then we did the planning of generation, transmission, and distribution of all three in one group. Got involved in the Wolf Creek [Nuclear

Generating Station] rate case, so that's the first time I saw you, when you were a commissioner, chairman of the [Kansas Corporation] Commission (KCC), I believe,

ML: That's right, yes.

KH: . . . in the Wolf Creek rate case. At that time, I got exposed to a lot of the system operations, particularly the operating floor that were the generation operators, transmission operators, distribution operators actually ran or control the system. From there I went into the Regulatory Department, and I was in regulatory from basically 1987 to even past 2006 I became vice-president of regulatory. Actually, it was fall of 2001 when I became vice-president of regulatory. When I became vice-president of regulatory, I was involved in not just regulatory but environmental as well. Dealing with the Kansas Corporation Commission, Federal Energy Regulatory Commission (FERC), and on the environmental side, Environmental Protection Agency (EPA) and Kansas Department of Health and Environment (KDHE). Got to deal with a lot of lawyers. Lot of regulation, it's one of the most regulated businesses in the country, I believe. Some people may argue that. A lot of experience in dealing with a lot of different issues, mostly rate reviews, as we would call them. Dealing with the EPA on an alleged violation at Jeffrey [Energy Center]. First thing, matter of fact, when Jim Haines came back in December of 2002, the first letter, I think, he got in his in basket was a letter from the EPA asking for, a data request basically on Jeffrey Energy Center. We dealt with that for about five years, finally settled and worked our way through that. I was involved in what we called the "Back to Basics" plan that we filed at the KCC. Once Jim Haines came back, we sold off all of our non-regulated business and became just a basic utility. Then dealt with the Federal Energy Regulatory Commission on dealing with formula rates. I don't know if you've got further questions on that, but that's some of the things.

ML: I have quite a few more questions with respect to…

KH: That lead up to me being over the transmission group.

ML: So, going back to the beginning, as you graduate from Wichita State University, what prompted your interest in looking at going into the electric utility industry?

KH: A couple of things. There was a good family friend who was a lineman for KGE. He was part of the Kiwanis Club there in Andover. So, I got exposed to some of the just part of the electric utility business talking to him a lot. But I had a professor at Wichita State, Dr. Bob Egbert, who encouraged me to take a power systems class, and I really didn't have any notion that I was going to be in the utility business when I was going to graduate. A lot of us graduated in 1981, there was a huge demand for engineers. So literally we had probably ten options, we could go work for Boeing, we could go work for Cessna, the aircraft companies, Honeywell, Southwestern Bell, Western Electric. There was a huge amount of opportunity. But my dad, I talked to my dad about it, and he said, because I talked to KGE, that was one of them, and there was literally like five of six areas in KGE I could have gone to, between generation and transmission, distribution, system planning. On the nuclear side, there were several options, they were building Wolf Creek. My dad went to school at the University of Wichita [renamed Wichita State University when it entered the state system in 1964] and played football there, and he said, "Wilson Cadman, he's a good man, you should go work for him, he'll take care of you."

ML: Wilson was the president and CEO.

KH: Wilson was the president, CEO, and chairman of KGE at the time, so. I thought, well, you know, if I work for an electric utility, people are going to use more and more electricity, so it's going to be a nice stable job, wouldn't have to worry about any mergers, stuff like that. A lot of the other options were, for one, Texas Instruments, you're going to design weapons guidance systems. I thought, well, if I ever had kids, they said, what do you do dad? I design weapons to kill people. So, I didn't think that was probably

the best thing for me to do. But I figured electricity is something, the basic need that people have, and I could give back and help people.

ML: Once you got into it, made that decision, I mean you've had a long and productive career in the electric utility industry basically with one company through merger, maybe what, 37 years or something like that.

KH: Thirty-seven years, that's right.

ML: What really kept you associated with the industry for that period?

KH: I think it's one of the most noble industries you can work in. I had a lot of my relatives that are in the medical field, including my mom was the head nurse at Wesley Hospital, my brother was head of trauma there at Wesley. I thought, they're all in the medical field, I want to stay in the electric utility business. But I enjoyed it, I mean, because it is rewarding that when you're able to see what electricity does for people, it's also eye opening what happens when they don't have electricity, because we had ice storms that come through and power would be out for a couple of weeks at the worst case and people are not, people change when they don't have electricity for several days.

ML: I do, I know. [*chuckle*]

KH: You see how important it is to people, so that became you know this sticks in the back of your head when you're doing your job, it's the "why." "Why are you here, and what's important?" I had our family CPA, he said, the difference between you and some people, he said, you went to work for KGE, and some people go to work for *X* dollars an hour. There's a difference. When you go to work for the company versus just going there to get a paycheck. And I literally went there to work for the company and try to help people. They encouraged me to go back to school; that's how I got my two masters [degrees]. They paid for those over time. That was part of my first boss, Jim Lucas, who encouraged me to go back and

get my masters. Then I went back in engineering management, and I went back and got my MBA. All that was just the culture of the company, they take care of their people. It was good benefits. It was local, until it wasn't when we had to move, our jobs moved to Topeka, which is what brought me to Lawrence. My wife said, we're not living in Topeka.

ML: As a Topekan. . . [*laughing*]

KH: You know, when mama's not happy, nobody's happy, so.

ML: I understand that completely. Did you have any questions about moving at the time of the merger?

KH: Well, it was always just a big unknown. Didn't know what your job was really going to be. They had a job for you, but you didn't know for sure what that was going to be in the future, what the company was going to be like. It's a whole new company.

ML: You didn't realize you'd continue on this upper trajectory.

KH: No, no. I had no vision of ever being an officer when I… Actually, when I started, I was just hoping I'd ever make enough money to have a retirement.

ML: Moving then more specifically to focus on transmission. The first underlying question would be when we talk about electric transmission is what really is meant by that term or activity, how does it fit in the business of providing electric service?

KH: Well, the best way I like to describe transmission, technically it's at a voltage level. I believe in Kansas it's 34.5 kVs to be technical, and up to 345 kVs our largest transmission in Kansas. The way I like to think about it is, think about a highway system near transportation or you can think about the circulatory system in your body even. It carries the electrons from where it's produced, the generation plants whether it's nuclear, coal, or gas, wind, solar, whatever almost to the point of use. It's the big pipeline

that transfers all these electrons from where they're created to where they're used. Now it's changes to distribution when it gets close to a town, for example Lawrence, where it steps down in voltage. You think about stepping it down in pressure like a water system. Then from there it feeds out on these little distribution circuits to your home. [Transmission] is really the bulk; it carries the bulk of the electrons for a long distance. Some of these lines can be 200 to 300 miles long.

ML: I was going to ask specifically the difference between transmission and distribution. I think you've addressed that, basically to step down . . .

KH: . . . to a lower voltage.

ML: . . . in voltage and then sort of, almost individual connections to homes versus the large lines that run over land.

KH: Yeah, there's a lot more mileage in distribution than there is in transmission usually.

ML: One of the terms that you hear when you talk about transmission is the term grid, the word grid. What does that term mean and does the U.S. have a single grid or are there multiple grids or are they interconnected?

KH: It's almost humorous to listen to people talk about the grid because most of them don't really know what the grid is. In fact, there's probably many definitions of what they consider a grid. But when I think of the transmission grid, that is the transmission lines that connect the generation to the distribution. Some people think of the grid as that whole pile of generation, transmission, and distribution. It's all integrated. That's something people don't realize. With electricity, it's consumed shortly after it's made. I mean, it travels at the speed of light basically. When you think about transmission grids, there's really three in the United States. You've got what they call the Eastern grid, which is pretty much east of the Rockies all the way back to Maine, Florida. You have the Western grid that covers the whole western

United States. And then you have Texas, the whole "other country" that has its own grid, but it's not completely all of Texas that's part of what they call ERCOT, the Electric Reliability Council of Texas. But it's most of Texas.

ML: Kansas sits right on the western edge of the eastern grid.

KH: There's all kinds of reasons, key reason why Texas did what it did because they didn't want to be FERC regulated.

ML: In talking about ERCOT, as you indicated, it doesn't cover all of Texas, it's sort of southern two-thirds of Texas, something like that.

KH: It doesn't cover what they call the horse's head or the Panhandle, pretty much. But the rest of it is all ERCOT.

ML: Since you started working in the utility industry have you observed any changes in the pace of transmission construction and investment?

KH: Slightly. That's an understatement. There was a fair amount of transmission built . . . Let me just back up a little bit, you look at the history of when transmission was built. You're going to probably ask me about SPP history, we can talk about that later. Transmission was built to connect the generators to the towns that need to be served. As the generators got bigger and bigger, they became more remote from where the population centers were. Like when Jeffreys was built, they had to build transmission from Jeffrey to Topeka down to Wichita. When La Cygne, these coal plants, different coal plants. There was one in Neosho. We had plants like Tecumseh, Lawrence, ones around Wichita then it got of course when Wolf Creek was built. The last one I was involved in before we started this new development of transmission was a third line out of Wolf Creek, went from Wolf Creek to Rose Hill, which was built I believe in 1983, 1984. When Holcomb got built, they had to build transmission out by Garden City. So

that was some development of transmission, but not on the scale that it is today. Now what happened was we became, the key thing that happened was the Federal Energy Regulatory Commission opened up the transmission grid for anybody to use. They made what they call open access. It got to the point where even utilities had to go to the SPP, for example, the Southwest Power Pool, and request connection even though they owned the line because they wanted to have independent access because you had new power producers, which they called independent power producers. They came in and developed generation like combined cycle gas plants, for example, and we wanted to make sure everybody had equal rights to the transmission grid, so people that already had generation weren't discriminating against people that were trying to get into the business, so to speak. When that happened then transmission became more than just serving a neighbor and utilities to serving the whole grid. So, you basically took a transmission system that was built with a bunch of two-lane highways and tried to operate it like they were interstate highways. You had all these bottlenecks as a result of that. So, the Federal Energy Regulatory Commission came out in a lot of states trying to promote transmission development so we could remove those bottlenecks. On top of that, the transmission grid was getting older that was built back in the 1930s, 1940s, 1950s, 1960s, so you had aging infrastructure. So, a lot of the transmission lines needed to be rebuilt. Between connecting new wind farms, getting rid of bottlenecks, and replacing aging infrastructure, that really changed the transmission investment. When I started over transmission in 2006, we were probably spending $10 million to $20 million a year on transmission. It was like 7% of the earnings. When I left in 2018, we were doing $250 million a year and it was about a fourth of the earnings.

ML: So, you were a big spender at the point you became vice-president of transmission.

KH: I was, and it was beneficial spending. It greatly increased reliability, and it greatly increased the access to renewable energy.

ML: Going back to your original description, each utility though not exclusively so, but they were basically vertically integrated and sort of isolated and they built generation and a little bit of transmission and then distribution and there may have been some minor connections . . .

KH: Right.

ML: . . . to neighboring utilities, but they were really insulated kind of entities initially, and then that . . .

KH: I'll give you an example, I think the first major transmission line in Kansas, if my history is correct, was a Kansas Power and Light (KPL) line that went from Hutchinson to Salina to Abilene to Topeka all the way to Atchinson. It was built in the 1920s if I remember right. Some people say it was built with horses and mules, I don't doubt it at that time because this is the 1920s, you didn't have a lot of equipment. Their lattice towers look like a windmill, like the old Sears and Robuck windmills. It was meant to connect a lot of hydro plants believe it or not between, and tie the towns together too, from Hutchinson and Salina. But there was a hydro plant in Abilene I think was one of them, which ended up turning into . . . I can't remember which way it went, whether it was hydro that turned into a grain mill or a grain mill that turned into hydro. Lawrence obviously had hydro. That line was one of the first ones built. I think one of the second one was built was from El Dorado, Kansas where there's oil and gas in the 1920s, this is World War I, and it went all the way to Little Rock, Arkansas, where there's the steel mills. That's kind of the precursor to the Southwest Power Pool – we can talk about that later. But that's kind of the, like you said, they built these transmission lines really to connect towns for a single utility. As we built bigger generators and people were co-owning generators, like KGE and KCPL co-owned La Cygne for example

and KPL and KGE co-owned Jeffrey, we built transmission lines to connect those together. Originally you could trade power back and forth between like your next-door neighbor so to speak. KPL and KGE traded power with KCP&L all under a FERC tariff. But there wasn't a lot of activity between each other. It was really more to share reserves and a little bit of optimization in terms of how you operate your plants, but nothing like what's on the scale we have today.

ML: One of the things that may have happened, you might comment on this, if you actually wanted to transfer electricity from KPL to somewhere, not a neighbor, further east, then you ran into something called pancaking.

KH: Pancaking, but you had to have a contract path. You had to have a contract path to be able to exchange power. Actually, there were a few things like that with Tennessee Valley Authority (TVA). TVA had some hydro that they sold to basically the cities and coops, anybody that was a non-profit. There were contract paths back from TVA to Kansas and other places to move that power. We had what we called an exchange program with, I believe, it was OPPD [Omaha Public Power District] out of Omaha, between KGE and Omaha. We actually built a transmission, that was 161 kV line it went through El Dorado right through Topeka all the way to Omaha, some of which is still in existence.

ML: Just generally, electric utilities, I think you commented on this are pervasively regulated by public utility commissions, at least in most states. In Kansas it's the Kansas Corporation Commission. The authorizing statute says the KCC has full power authority and jurisdiction to supervise and control the electric public utilities. So, the question with respect to transmission is, do state commissions have the same scope and depth of regulatory authority with respect to the grid and transmission functions as they might regarding retail operations or distribution facilities?

KH: Well, you know, there may be differences of opinion on that sometimes, but in my view, what I understand is the Federal Energy Regulatory Commission governs transmission and the rates of transmission. That became more clear later in my career anyway with some of the statutes that got passed in Kansas thanks to [Representative] Carl Holmes and the Legislature. As far as formula rates and passing through the transmission formula rates or the rates that were established by the FERC through our Kansas rates.

ML: Interesting, Representative Holmes was interviewed just a few weeks ago. I'm not certain if he covered that particular topic.

KH: For this project?

ML: Yes.

KH: Oh good.

ML: For part of the energy project. He may have addressed that issue. I'm not certain. But he certainly had an important role.

KH: Very important role. And more than just the transmission. In that period of time, there was numerous legislation that was passed to help further, not just transmission but the development of energy in Kansas. It was very critical.

ML: We've heard in several of these energy-related interviews that federal policy is actually more impactful than state policy. Would that be your experience with respect to the transmission activity?

KH: Initially it certainly was more important in terms of opening the access of transmission and pushing development of transmission. But it's just like anything else in the utility business, it's all about cost recovery and cost allocation. If we build a transmission line that's $100 million line and we have to wait three or four years to get recovery, that's not good for shareholders. And if you don't take care of

shareholders, you can't take care of customers, it's that simple. The healthy utility will always provide better service than a weak utility to customers. The whole notion of cost allocation and cost recovery was key and that's why this legislation that Carl Holmes got passed that has allowed the transmission delivery charge in Kansas to pass through what was set at the federal level. That was really the Rosetta Stone of getting transmission built at a large scale. Westar was probably one of the biggest developers of transmission in the Southwest Power Pool and OG&E [Oklahoma Gas & Electric] who had also done the formula rate at FERC. I don't think they had the same type of pass through in Oklahoma. But we did that predominantly because of cost allocation and cost recovery.

ML: Specifically, how are FERC set transmission rates reflected in retail bills that Kansans receive?

KH: Well, we go to the FERC every year and basically, we pull the Form 1, which is the document that has all your accounting information in it, by accounts for transmission. You develop what they call a revenue requirement, what does it cost that year to operate the transmission system for that transmission owner, which is Westar at the time. And based on that rate we would file that with the KCC, and you'd allocate it between the different classes of residential, commercial, industrial and they get a piece on their bill, it's called the transmission delivery charge. I don't know what it's called these days on your bill, but at one time it was called the transmission delivery charge. And that statute – and there's the key part – it doesn't say that the KCC *may* allow that passthrough, it's *shall* pass through that cost.

ML: That was my question.

KH: That's key.

ML: Does KCC have authority to reject FERC?

KH: They can go to the FERC and complain, just like anybody else and file a complaint, show cause, whatever you want to call it, for the revenue requirement. They can complain about the return on equity, which probably they still do because typically the return on equity at the federal level is usually higher than what you get at the state level.

ML: So, the state commission can actually go and participate essentially as a party.

KH: Correct. And they do.

ML: And they do that, yeah.

KH: As well as industrial customers and cities and co-ops.

ML: There is, I think you've already mentioned this, a little bit of tension between the state and federal approach both in terms of the state mostly using an historical test year to determine cost and FERC using some sort of forward-looking method of trying to determine what the cost will be and then adjusting to what actually occurs.

KH: One of the reasons why I think some of the KCC staff got on board with the FERC formula rate was the FERC formula rate doesn't allow you to over-recover. Say you got into a period where you had a large growth and usage and the rate that you were establishing and that created more revenue than what you originally established it for. The formula rate at FERC gets trued up every year. You're only recovering what your cost is for that year. That's what's important about this true up. I think the staff got more comfortable with it when they know you're just getting what you asked for. You're not cutting the fat hog here, so to speak, you're earning your allowed return. I think that's one of the reasons why maybe they were more amiable to it over time.

ML: We've sort of talked about the limits on KCC's authority with respect to rate setting related to transmission and it looks mostly to FERC for that. There's one major area of transmission activity where the KCC exercises a broad authority and that has to do with the siting of transmission lines. What's meant by the term siting?

KH: Siting? That's a very important part. It's how you route the line from whatever point A to point B you're trying to get to with the transmission line. When they say transmission siting, it's the establishment of a route from point A to point B that you're going to build that transmission line. And in Kansas, if the statute's still the same, you have to have KCC authority, OK. If the line is 230 kV and above and five miles or longer, I believe,

ML: I think that's correct.

KH: I believe that's correct. Once you have that authority, what comes with that is condemnation rights. Now we tried not to ever use condemnation rights if we didn't have to. One of the first lines I was involved with, we built from Wichita to Hutchinson. I think we condemned one parcel out of that whole 50-mile stretch. We worked with every landowner. I went out and met with them. I took the maps of the proposed routes, laid them over the hood of an F-150 pickup. Some of these people I knew from back when I was in 4-H, had met them at different places, bought animals from some of these people around Sedgwick, McCurry brothers. The way I looked at it was, it was a lot different from back in the previous days in utilities. When they built the line for Wolf Creek, that Rose Hill to Wolf Creek line, it was the attitude, we're the utility, we were going to build the line here and if you don't like it, see us in court, we're going to condemn you anyway. Really didn't have much appreciation for the landowners. It was very bad because all those landowners remember that. And I dealt with one of those on the Wichita to Hutchinson line. Jack Adrian. I remember him like it was yesterday. And I'm not going to tell you

everything. It was a 30-minute conversation with me just mostly listening and him screaming in the phone about how we did his family no favors when they took their land up by Wolf Creek. So, we worked with him, and I looked at it as if, because we own property, we raise cattle, and my mother and father raised me to respect the land and take care of land, which is why I'm involved in a lot of environmental aspects. I looked at that as that was my land. How would I want to be treated if somebody came in and said, I'm going to build this transmission line across your property. We worked with him and in fact, on that line, before it was over with, after the line was built, people called me up from I think it was Sedgwick, maybe Halstead, and say, hey we want to, you guys were so nice we want to put on a barbecue for you. I'm like, "you're kidding, right?" I said, "you're serious?" [They responded] "Oh, we're dead serious. We're going to invite everybody there and we're going to provide all the meat, we're going to have all the fixings." They had baked beans, they had coleslaw, they had potato salad. They even baked us a cake. So, every lineman and everybody that worked on that project, they came out and you just got in the line, they dished it all up, and it was local beef that they had raised, and it was hamburgers. I couldn't believe it. When I went around talking to people like in the west coast or east coast, some different conferences and tell them this story, [they say,] you're kidding me. No, this is what happens when you take care of customers instead of treating them like secondhand people. That was the only time that happened, but it was just phenomenal.

ML: Yeah, that's a unique experience.

KH: It was nice.

ML: and really a tribute to your handling of it.

KH: It takes more time to do it that way, but it's worth it. We only condemned one parcel, and that was not a fun event either.

ML: So that was the line basically from Wichita . . .

KH: . . . to Hutch.[1]

ML: . . . to Hutch.

KH: The next piece went from Hutchinson to Salina. That was the first big line that I was involved in building.

ML: In addition to securing the easements and rights of way, what steps are involved in securing KCC authority to site?

KH: Well, you have to provide need. One of the first requirements is the need for the line. And typically, if the Southwest Power Pool tells you [that] you need it, that's good enough for the KCC, because [the SPP is] the Regional Transmission Organization and they go through quite their own process of planning, which I've been involved in over the years. That's one of the first things I did when I worked in system planning, was the transmission load flow studies at Southwest Power Pool. That helped determine the need for new lines or rebuilding lines. The need for the line is one of them, the reasonableness of the route. So, we always hired an engineering firm to do the routing study. We have to have open houses where you invite landowners to come in. You show them the different options, big maps on the table. You talk about the environmental impacts, how right of way easements are taken care of, what the structure is going to look like, where they're going to be placed. That was the other thing, we worked with customers on placing the structures. Back in the day, the engineers [would say], "well, I want it here and here and here." Well, you don't have to have it exactly here, it can be moved a little bit, like 10 or 20 feet. So, if you just work with people a little bit instead of being hardline, you get a lot more flies with honey.

ML: That's something the KCC looks at as well.

KH: Yes.

ML: In addition to need, it's the reasonableness of the location that's been selected, and they've taken into account landowner comment, if it meets that level.

KH: A lot of people said, well you already know where the line's going to go. I said, no I don't. I said, literally, that's why we're having this meeting. You need to provide your comments. I said, the KCC does look at these. They will take these comments and there's been numerous times, like on that line from Wichita all the way up to Salina that's what we called landowner alternatives, that some of the commission took, some of the commissioners said, yeah, we can do that. A lot of it depended on how much cost it was, but, how reasonable they thought the alternative was, how simple it was, and if it impacted other landowners that we hadn't notified yet, that was another, because you wanted to have notice. Everybody has to have notice. It was a give and take. We usually found the balance. We actually did all these open houses, not for just the ones we had to have a siting application for. We did that for every transmission line we did, just because we thought that was the right thing to do.

ML: Again, [we've] talked about rates, siting concepts and how you went about doing it. Maybe it's a good time – and we've referenced Southwest Power Pool, the SPP – [this] may be a good time to spend some time talking about the SPP. My understanding is it began as sort of an effort by some local utilities, Kansas Gas and Electric was one of them.

KH: OG&E was one of them.

ML: Yes, and it was about the beginning of World War II.

KH: I think it was December of 1941.

ML: Critical time.

KH: It had to do with World War II, so all the bauxite mines and steel mills were down in Arkansas, building, obviously, steel for the war efforts. And they didn't have enough, I think the mill itself was 120 megawatts, which doesn't sound like much today. Remember in 1940 you didn't have air conditioning and all the uses for electricity, but it was more than they had generation for in the state. That's hard to imagine, but. . .

ML: I think I read something like that, 100 megawatts is all Arkansas had at that time.

KH: Right, and they had to get power from other states and so they worked with like say these, it was a handful of utilities, including like three of them ended up being part of Entergy. They formed the Southwest Power Pool. That's one of the reasons the line from El Dorado to Little Rock was built was to connect the two to help share power to help with the World War II.

ML: Given that beginning and that purpose and sort of the initial cooperative effort among several local utilities, could you then talk a bit about the evolution and expansion of the Southwest Power Pool?

KH: I don't have the history and all the dates exactly. It's out there. If you went to Southwest Power Pool site, I'm sure they have the history. But the bigger change happened in, I believe it was the early 1990s. It was the open access transmission tariff. Order 888? I can't remember what the order's number. . . but I believe it was the early 1990s, basically every utility filed an open access admission tariff, and then at some point in the 1990s SPP filed an open access transmission tariff and so all of the scheduling of transmission and preserving transmission all went through the Southwest Power Pool, which gets back to being non-discriminatory. That's been a big thing, and it went from having owners being on the board of SPP to independent board members. When this was all created there was somebody from every utility that started this was part of the board of Southwest Power Pool. That worked great when we were just

sharing reserves, you didn't have all these other entities trying to connect to the grid. But when they opened it up, to get independence, you needed to have an independent board and that's what all these RTOs do, FERC signs off on that. It went from being independent board, they're doing all this transmission scheduling reservations and stuff. Then we got into markets. If you remember back in the late 1990s when the price blew out on the power and energy markets. Here's what happens. You open this thing up for everybody to use the transmission grid, it hasn't been updated yet and you got all these bottlenecks. Well, marketers know how to take advantage of that. As the marketers started taking advantage of that we ended up having, I forgot what the peak was, $10,000 a megawatt hour or something, ridiculous amounts, and the Enrons of the world . . . They really decided we needed to do a better job of handling the market. So they went to a, ended up doing a next-day market. The markets are very complicated and I'm not the person that's going to be the expert on explaining the SPP markets to you because they were still evolving. The SPP is now on the Western grid, for example, doing some of the marketing out there, services, but it's a whole other business to talk about.

ML: At one point the utilities actually decided when they would run their generation plants, is that still the case today?

KH: That's a key part of it, so, again we were trading power to help, for example, if we had a unit down, instead of running gas we could buy some [electricity generated from] coal from KCPL or KPL back when I was in KGE. You split the benefits, split the savings is what they called those transactions. Well now, the SPP, you bid your unit into the market along with all these other – I think it's up to 14, 20 states, I don't know how many states are in the SPP, it keeps changing. But it's most of the central Midwest. You bid your units into the market and SPP decides, they take an algorithm and say, OK – this is another thing,

it's very complicated, you've got certain must-run units, for example, for local reliability to keep the voltage stable.

ML: Wolf Creek would have to run also.

KH: Wolf Creek, a lot of the nuclear plants would be must-runs. They get a different price. But you end up, you bid these in, basically you got two curves, you got to meet supply and demand. You start with your cheapest unit, and you keep going up –and then you've got all this demand– until you can meet that demand. As you can imagine that last megawatt costs more than the first megawatt. Supply curve goes up, and then once you meet equilibrium, that's when, "OK we got it for this hour." They do that every hour now and the day ahead. It's very complicated. Like I said, there's a lot of protocols, a lot of rules, this is one of the biggest discussions. There is actually a Markets Operation Policy Committee at SPP, one of the biggest attended committee meetings you're going to go to, very complicated, and there's going to be 300 people in there maybe sometimes. Because every user, they got transmission users, transmission owners, transmission providers, independent power providers, they're all in there debating on what the protocols ought to be as things evolve. It is very intricate. It's one of the most complicated systems on the planet, I'm just telling you, the electric grid is.

ML: Even within the market setting, for example, there may be instances, and the Southwest Power Pool's attempting to avoid this, instances of congestion. For example, where maybe a lower cost unit can't be running because it's contributing to congestion, so it's necessary to schedule. . .

KH: Now you can hedge that congestion. You've got transmission hedges you can put on. This just gets more complicated the more you delve into it. People talk about going to be 100% renewable. That's not going to happen in my lifetime, I'm confident of it. People don't understand the magnitude of the scale of the problem and how much transmission, how many batteries, the whole thing, you'd have to have.

But when those wind farms started getting developed, the developers are out there just building these wind farms like crazy. They say, “well, all we gotta do is connect to the power grid. Why can’t we just move our power?” Well, because you basically took 1000 megawatt, not that big, but a couple hundred megawatts and tied into a line that maybe has 50 megawatts of capacity. It doesn’t work. They just don’t understand, why can’t we get this done. What happened was, through the marketplace, because of production tax credits for those wind farms, there were times, and it may still be going on, where the wind farm developer was willing to pay the grid to take their power. Now as long as they didn’t pay them as much as their production tax credits, they still made money. So, you literally had what we call negative LIP prices, Local Injection Point prices. Sometimes maybe $20, $40 negative they’re paying the grid to take their power because they can still make $10 or $20. All because of tax policy, it is a distorted market.

ML: Moving from the markets, because it is incredibly complicated and as you indicate gets more complicated seemingly all the time. What role if any do state commissions play in operation or decision making of the Southwest Power Pool?

KH: Southwest Power Pool is a little unique, I’m not sure, how many other RTOs have this. They have something similar to it but at Southwest Power Pool they have what they call the Regional State Committee. The Regional State Committee is made up of state commissioners from each state that’s in the SPP. They have advisory roles, so to speak. I think there are certain parts of the tariffs at FERC for Southwest Power Pool that the state commission, for example, cost allocation, I believe they have pretty good influence on that. I was part of the original, what we call the “highway-byway rate” working group that developed that. So, they have a role with that. But they also, they’re at every meeting. They have their own meeting before they have the Members’ Committee meeting and the board meeting of

Southwest Power Pool. They'll discuss all or some of the issues between market, congestion, and cost allocation. It's a full day meeting. The Southwest Power Pool board has them sitting there at the board meeting around the table during their board meeting. So, they do take that input that the state commissioners have. But at the end of the day, if the SPP files something at FERC that the state commissions don't like, they can intervene at the FERC docket, ask for appeals or whatever, if they don't get what they want. But they're very much involved in the process. Everybody knows it. And everybody knows that their state commissioner, if they're not happy it's not a good outcome.

ML: It's not good for the utilities.

KH: It's not good for utilities. It's never good. It's like, when mama ain't happy, nobody happy. In fact, the SPP motto was "evolution, not revolution." When Nick Brown was the CEO, a lot of the board members, we tried our hardest to find compromise before we'd file something at FERC that we knew was going to get challenged. That's why it takes so long to get anything done because literally you've got 200 or 300 people around this room providing input and you're trying to find compromise between that many people. It takes a while. You just kind of get there slowly over time. At the end of the day, it worked, and I think it's still working.

ML: Seemingly it is. You mentioned the highway-byway rate. Could you talk a little about that?

KH: The highway-byway rate, let me give you the one extreme end and that's Texas. One nice thing about having Texas as a whole "other country" and have their own RTO, so to speak, they don't have to deal with anybody else. They have everything "peanut buttered," that means it gets spread across all of the users. I think that's still the case for transmission. The rest of the world, we had a big discussion about, when we wanted to build new transmission, particularly the high voltage ones, 230 kV, 345 [kV] and even 500 [kV], I think in some small instances. Tried to get 765 [kV] built. That should have been built,

but it's still not, in SPP. We finally got an agreement that the higher transmission lines, the higher voltage ones, were such a big path, so to speak, they operate like an interstate highway that helps a lot of people, then everybody should pay for it. That should be socialized. Now I'm going to tell you, I'm not for socialism. [Jim] Haines will tell you that too. But there are certain times where it makes sense, and this is one of them, where you socialize the cost of transmission at 230 kV (Post-interview note from Harrison: "I believe I misspoke on this as I believe it is 345 kV and above.") and above. That's what they decided. There's an in-between point where like one-third socialized, two-thirds go back to what we call the zones, which is the transmission owners' territory. So, like Westar has a zone. Then below that, it's 100% paid for by the zone. Like 69 kV that's kind of going to support a neighborhood or a city area or 34.5 kV, somebody in Missouri shouldn't be paying for that. They're getting no benefit from that. Or somebody from Nebraska or Kansas shouldn't be paying for something up in . . . vice versa. It all gets back to cost causation. A fundamental of rate making is cost causation. Cost causers should pay. We settled with this highway-byway rate. Not everybody was happy with it. So, it's probably about right. They're probably still debating about why some, you know, for example, New Mexico I think it was Southwest Public Service, built a big chunk of 345 [kV] down there because they had all this oil production from back when fracking days were going on. And I'm sitting there arguing with SPP, it's like, you're telling me you don't like me building this line. But, I said, what benefit am I going to get out of a 345 [kV] ring down in New Mexico? None. I said, here's the problem, I said, we keep arguing about this stuff, we don't get anything built. I said, it's a round world. One day you win, one day I win. At the end of the day, it all evens out as long as we're building about the same amount. That's where we ended up and it's worked out. Because if we hadn't got that, we wouldn't be developing the transmission that we've developed. The SPP wouldn't be approving certain projects.

ML: I was just going to ask. This sort of leads into what role the SPP has in making decisions about what transmission lines are going to be built.

KH: Well, as part of that same group, we established an integrated transmission planning process. Now I don't know if that's still in place or not, but it was something that was needed at the time because the way the SPP was looking at need was like the next year or two. We were basically putting band aids on stuff, rebuilding the small transmission line, the short line versus maybe five or six of those rather than building one big 345 [kV] line, it would wipe all that out. We got smarter about looking farther down the road 10 to 20 years as a whole SPP. Under different scenarios, how much wind we might have, how much load we might have, gas prices, what they were going to do. Because all these lines we look at from an economic standpoint. They look at the economic benefits from reliability, and mostly economic benefits from a fuel standpoint. How much can you save if you get rid of these bottlenecks where you can share and better dispatch the generation that's in the SPP. Those are what we call the fuel savings. They put cost benefit analysis on all of these lines. Now this gets back to, well, OK, cost benefit, benefit costs; who's benefit, who's cost? It's hard to do it by region, like this state gets this much benefit out of this line or this state, because it's all integrated. There was a big whoop-to-do about, well, we got to find a way to be able to allocate benefits better across the states. I think that's a fool's errand. At the end of the day, it's just hard to do that. It's better to look at the whole SPP and say, "are we better as a group because we're all sharing all this, we're all working together here, with or without this line?" The next big deal in the transmission world, which is going on right now, is the line connections between RTOs, like MISO, Midwest ISO, SPP, and SERC and the PJM, the ones back east. Until we get, it's probably going to take FERC authority to say, "you're building this line, we're OK with it, and this is how we're going to pay for it." Until the FERC comes in and has ultimate authority over transmission across the whole grids, they're

going to have these bottlenecks between RTOs. The bottlenecks between the companies within the RTOs, we had bottlenecks between RTOs right now. They're not getting resolved because, well no, you're getting the benefit more than me, so you should pay 20% more than what you think you should. No, you're going to benefit more. So, nobody builds the line, because they're arguing about the cost allocation and cost causation, the benefits. So that's the next big wave, if you really want to get to furthering renewables, because these renewables are going to have to go farther east. You don't have a lot of wind. You've got some solar – that's a whole other story. But as far as getting the wind from the Midwest either direction, you're going to need a lot more transmission. That's what the Clean Line is all about that some people have talked about.

ML: Can a utility in the Southwest Power Pool today build a 345 kV transmission line without securing SPP authority? Or would they?

KH: I don't think anybody would do that. Technically you could. You'll have to pay for the whole thing most likely in your zone which the KCC would not probably . . .

ML: Wouldn't be enthused about that.

KH: No, and that just wouldn't be right. It wouldn't do that. Unless there was some huge benefit to do it for your area. I don't think anybody would do that.

ML: You mentioned the need for interconnections among the RTOs. One of the most recent examples, although they may not want interconnections, it would be ERCOT, which was suffering mightily from lack of generation.

KH: The February [2021] event?

ML: Yes. I think there are maybe two interconnections between the SPP, minor ones and ERCOT. But they just couldn't bring in enough electricity to meet their demand.

KH: Correct.

ML: That's an example of something you think that . . .

KH: Yeah, I'm sure they're having that discussion right now. I know they have. I haven't sat in on all these meetings, obviously. I'm retired now, so. Not that I've lost interest, but I have other things to do.

ML: I mean, you'll still be available as a consultant on some of these issues.

KH: I'm absolutely sure that they're looking at different interconnections and whether they should have more. I don't know that you could ever, I wouldn't say never. Right now, they're connected with what we call AC-DC-AC converters, because of the phase angle between – phase angle's a technical term – basically they run it a little bit different step, so to speak, in terms of time between grids so you'd have to do it through a converter station, which are very expensive. You have several of those between the Eastern grid and Western grid all up and down and you have them between ERCOT and SPP. We're going to need more of those. One way to just eliminate all that, which is what Clean Line is doing, you can just build a DC line from point A to point B. DC is the most efficient way to transmit a lot of power for a long distance, just electrically. Physics.

ML: That particular line did get siting authority in Kansas, is that right?

KH: I thought it finally got everything approved.

ML: Missouri seemed to be the real stumbling block. They may well have, I'm not sure.

KH: I thought they approved it. I haven't seen anything built yet.

ML: We, this is sort of circling back but, talked about growth and construction and new transmission lines in Kansas. We've talked about one that you worked on, the Wichita to Salina one. You had major responsibility for a number of transmission lines that have been built in this latter period. Could you maybe take a minute and identify them and any particular experiences with them?

KH: That was the first line. I believe the next one was from Rose Hill to the Sooner plant [in northern] Oklahoma. That was a big line that helped alleviate the kind of bottleneck between Kansas and Oklahoma. But the biggest one I worked on was probably the Prairie Wind project where we partnered with AEP and Mid-American, Warren Buffet basically. That was a line from Wichita to Medicine Lodge. Then tied in down to Woodward, OK with OG&E. Then ITC built the other leg of the Y-Plan over to Spearville basically. And then, we haven't talked about Kansas Electric Transmission Authority (KETA) yet. We call the "KETA Line" the line that goes from Spearville all the way up into Nebraska, which ITC built with partnership with NPPD [Nebraska Public Power District]. That was a big deal to help Nebraska, the western Kansas and Nebraska bottleneck. When we got all those built, the North-South line, the Y-Plan that goes down into Oklahoma, that freed up a lot of capacity for a lot of these wind farms to get connected. Interesting thing you mentioned, when we talk about the Prairie Wind line, from an SPP standpoint, engineers, they just look at point A to point B. It's electrical. They don't care what's in between from an environmental standpoint. Well down around Medicine Lodge, [Gypsum] Hills, there's a lot of bats, one of the largest bat populations in Kansas, but it's also pristine in terms of it's the Red Hills. It hasn't really been developed. And a lot of people were concerned, it's kind of like, "if you build it, they will come." If you build a transmission line, they're going to build all this wind. There had already been wind built at Medicine Lodge the Flat Ridge plant that Westar, now Evergy, owns. I think 50/50, I can't remember what the ownership is. There's people down in Oklahoma because we have this little bird called the Lesser Prairie Chicken that was going to be put on the endangered species list. I worked with SPP and all the owners and just said, look, here's the deal. I said, we just want this line built, right? I said, "if we can avoid this sensitive habitat, and not upset everybody and we get the line built, do we care?" So be smarter about this and take a slightly different route, we'll get it built faster because we

won't have people arguing against the line. So that's what we did and most of the landowners down there were pretty happy about that. But it gets back to, you have to look at the whole picture. Look at the use of the land, the landowners. This was nothing new. Every coast is dealing with this. You go across federal land back east . . . The AEP spent 10 to 20 years to build a 765 [kV] line across West Virginia, I think, just because you're dealing with so much government land and opposition. We found that we don't want to put something somewhere where we're not wanted. That was the attitude we took whether it was a power plant or transmission line, whatever. We want to be where people want us there. At the end of the day, you have a better long-term relationship. Like I said, there's families that remember this for generations, like the guy I dealt with at [Hutchinson]. I mean it happened 40 years ago and he remembered it like it was yesterday and he was just as mad. So that's one of the big lines. We built a line from Salina to Concordia. Again, to help tie the wind farms out of Concordia down to the Salina grid. There's been other 345 [kV] lines, I think we did one from up towards Iatan [Generating Station]. A lot of the stuff we did was rebuilding aging infrastructure. We rebuilt a lot of 138 kV lines, 69 kV lines. So let me give you a little more history on that. We haven't talked about this but, when you think about rural America, you've got co-ops [rural electric cooperatives], and you've got small municipal [electric utilities] that generated their own electricity during the summer. Back in the day, the cities had like, whether it was a diesel unit, or a gas unit. They wanted to run that because the transmission lines that they were tied to weren't big enough to handle their whole load. So, during the summer KGE, KPL, KCPL, whoever it was, the cities, we said we'd kick them off basically because we didn't have the capacity. We'd say, "you need to run [your generators] today because this is going to be a peak day." And it didn't happen for but a couple hundred hours a year, but they would run their units. Well then when open access transmission came along, they said, "I don't want to run this unit. This thing costs $100 per

MWH, I can buy it on the grid for $20 because it's all open access now." Well, that's true, but this transmission line still doesn't handle that. So, we had to go in and build, rebuild these 69 kV lines like Burlington, Iola, Chanute, Erie, all these little towns, Fredonia. That took time. We were building several hundred miles of lines we had to do. Now go along with that, all along these lines are co-op delivery points, because the way the co-ops operate, they have some transmission but for the most part they tack onto the major, investor-owned utilities' transmission lines for their delivery points. They buy power on the grid and get it delivered to this delivery point that they take it on to their customers. The double benefit there was we were improving the reliability for all these co-op delivery points and increasing their availability for what they could buy for reducing their cost. That's pretty much all the transmission that we were building back then.

ML: One of the lines you mentioned was this Y-Plan, which was basically to deal with development of wind generation in Western Kansas to have the ability to move it east. I have some recollection that there was a bit of competition between ITC and Westar at the time to build the line from Wichita and south and west to Spearville.

KH: That's true, but the Southwest Power Pool tariff basically says that the owners at each end have a right to build a portion of that line. That doesn't tell you how much each one gets to build. But it's not 0 on one end and 100% on the other end. So, what ITC did, they went and bought the rights to do that from Sunflower [Electric Power Corporation]. I'm not sure what they paid for it, but probably it was a pretty penny because they were trying to get into the business in the Midwest, and particularly in Kansas. We were debating about who was going to build what. What should have happened, in my mind, which didn't because of a commissioner down in Texas that didn't want 765 [kV]. We were going to build that line at 765,000 volts, which would have been a major pipeline, it would have been three times the

capability of what we ended up building, because we ended up building a double circuit 345 [kV]. But we were going to have a 765 [kV] line, which is one of the reasons why we partnered with the AEP, because they did have 765 [kV] on their grid. But we negotiated and we had a FERC mediator help us with that, and we resolved it by Westar building the line from Wichita to Medicine Lodge and part of the substation at Medicine Lodge, if I remember right, and then on down to Woodward [OK.]. We were going to build a 765 [kV] piece of that substation. And they built the piece from there to Spearville.

ML: Final area I wanted to ask about, maybe we touched on it slightly, would be the Kansas Electric Transmission Authority which was created . . .

KH: KETA.

ML: . . . KETA, yes, in 2005 or 2006 and then . . .

KH: Another Carl Holmes product.

ML: It was, and I was going to ask what your experience was with KETA and what you perceived it had accomplished or not, as the case may be.

KH: KETA was Carl Holmes' way of basically raising the flag, saying, "hey we need some help out here." He's from Plains, Kansas, near where my dad was born. My dad was born between Meade and Fowler. So, when you're that isolated you don't have access to some of the cheaper power, so they had higher power prices than eastern Kansas. So, it's like you need to get some kind of transmission here to help us. If you're not going to do it, we're going to find a way to do it. He had talked to other organizations, some more or less in New Mexico, maybe one up in Nebraska or something, I can't remember, because he went around talking to a lot of people. They created KETA and I think it was a legislative – it was created by the Legislature, right?

ML: Yes.

KH: Its mission was to develop and promote transmission in Kansas. Well, the problem with that is you still have SPP who's the one that decides what transmission gets built and so unless you want to pay for the whole thing, then you need to work with SPP. Carl went to a lot of SPP meetings and he was, I'm telling you, he was one of the best advocates for Kansas. You wouldn't want, you couldn't ask for a better advocate for Kansas than Carl Holmes. I mean, just in general. Not just transmission, but just promoting Kansas. He's a true Kansan. He loves this State. I dearly love that guy. Not just for transmission, but he's just a super guy, in my opinion from what I know about him and the experiences I've had with him. But he pounded the table, and we got some things done. I'd say the KETA Line that was built from Spearville to up north, I think it was Axtell, NE. Yeah, we got it all in transmission rates that worked. But some people kind of thought of him as a thorn in the side, "We got this Carl, we don't need KETA telling us what to do, we got a process, you just need to go back to Kansas and do your thing." But he didn't back down. I think it was effective in the standpoint of letting people know, we're here too.

ML: And there's a need.

KH: And there's a need, right. The squeaky wheel gets the grease, sometimes, so to speak. At the end of the day, it served its purpose, and we moved on.

ML: I sort of came to end of my questions, I may have not asked something that you wanted to address, Kelly, so please feel welcome to do that.

KH: Well, I'm just going to go back to the whole electric utility business. I think it's one of the most noble businesses you can be in. We've all seen how important the need is for electricity. If you go back to Lewis and Clark when they went west, they talked about different types of assets and some of them were luxury items and there are some that are flexible items. Like a sail, for example, you can use a sail for a lot of things, and I think of transmission as that flexible item. Transmission is in between everything. So,

if you don't have transmission. You can talk about having these little micro-grids that are going to serve you and that's great. That's not going to serve a major industrial plant. You need transmission in this country, and we need more of it. I think the Feds are going to have to take more authority than they already have. It may get to the point where you have federal condemnation like you do [for] pipelines. They can go across state lines, that's what they do. At some point, at least at some scale, not the lower-level voltage transmission, but the bigger transmission that is going to have to solve these interregional issues, I think FERC or Congress is going to have to step up and say, this is what we're going to do. I think that's where we're going to be headed. Don't underestimate the need for diversity. We talk about diversity with people, we've championed diversity of fuel sources in the utility grid. I don't see us surviving just on batteries and solar and wind. Something else is going to have to be there, whether it's nuclear, or a small scale nuclear, whatever.

ML: There must be the underlying capability to dispatch to need.

KH: You need to flip the switch, something's going to happen. I love the business. I loved what I was doing. I loved the people I worked for. Thank you for inviting me.

ML: Thank you for coming. It's really informative.

KH: I hope I provided some small contribution of worthwhile knowledge.

ML: Absolutely.

[End of file]

[1] During his review of the transcript, Mr. Harrison noted that "from the time the Wichita-Hutchinson line was announced (September 2006) to when it was completed (December 2008) was approximately 27 months which I believe is the fastest a 50-mile 345 kV line has been built in the US."