BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

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RE: IN THE MATTER OF THE )
APPLICATION OF PUBLIC SERVICE )
COMPANY OF COLORADO FOR ) PROCEEDING NO. 16A-0396E
APPROVAL OF ITS 2016 ELECTRIC )
RESOURCE PLAN )

ANSWER TESTIMONY OF AUDEN SCHENDLER

ON
BEHALF OF
ASPEN SKIING COMPANY, INC., PROTECT OUR WINTERS,
AND INTRAWEST RESORT HOLDINGS, INC.

January 10, 2018
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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.

A. My name is Auden Schendler. I am Senior Vice President of Sustainability and Community Engagement at Aspen Skiing Company, Inc., 117 Aspen Airport Business Center, Aspen, CO 81612.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. At Aspen Skiing Company, I work on large-scale, bipartisan solutions to climate change at the policy and clean energy level. I’m also responsible for reducing the environmental impact of the resort as a whole, and for our engagement with the community. Aspen Skiing Company is regularly involved in energy policy issues, and I have testified both to the U.S. Congress and to the state legislature in Colorado. Beyond my policy work, I have been part of teams that have developed pioneering, collaborative clean energy projects, including a micro-hydroelectric plant that ties into the snowmaking system at Snowmass; one of the first utility scale solar arrays in Western Colorado that was built in partnership with a high school; and a waste methane-to-electricity plant at a western slope coal mine that generates 3 MW of baseload power and is the only plant of its kind in the U.S. I was previously a research associate in corporate sustainability at Rocky Mountain Institute, a think tank that researches and promotes renewable energy and energy efficiency. I am the author of many articles on clean energy in peer-reviewed publications, and in 2009 I published a book titled Getting Green Done: Hard Truths from the Front Lines of the Sustainability Revolution. I
received a BA in Biology and Environmental Studies from Bowdoin College. A
Statement of Qualifications with further detail is attached at the end of my
Answer Testimony.

Q. **ON WHOSE BEHALF ARE YOU FILING THIS ANSWER TESTIMONY?**

A. I am filing this Answer Testimony on behalf of the ski resorts Aspen Skiing
Company (ASC) and Intrawest Resort Holdings, Inc. (Intrawest), and the
nonprofit group Protect Our Winters (POW).

Q. **PLEASE BRIEFLY DESCRIBE EACH OF THE JOINT RESPONDENTS.**

A. ASC is a four-season resort that operates and owns four ski mountains in the
Aspen Snowmass area (Snowmass, Aspen Mountain, Aspen Highlands and
Buttermilk), the Ski and Snowboard Schools of Aspen Snowmass, the Limelight
Aspen and Little Nell hotels, as well as retail shopping and food services,
including 18 restaurants. ASC employs 4,000 people in winter and hosts 1.4
million skiers annually on 5,000 skiable acres.

Colorado-based POW, a 501(c)(3) non-profit, is a passionate coalition of
professional athletes and industry brands mobilizing the outdoor sports
community in support of state and federal climate policy. POW works on
educational initiatives, political advocacy and community-based activism, giving a
national climate voice to outdoor sports, an industry that supports 7.6 million jobs
and creates $887 billion in economic revenue.\(^1\) POW’s policy agenda focuses on
mitigating greenhouse gas emissions. POW has testified to the Bipartisan
Congressional Climate Solutions Caucus, run campaigns around state-based

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intrawest owns and operates thirteen north american ski resorts, including steamboat, mammoth, deer valley and stratton resorts, among others, with more than seven million skier visits, with approximately 13,500 employees, 22,000 skiable acres and significant land available for real estate development. annual revenues are over $1.1 billion. intrawest also owns one of the first and largest heli-skiing adventure operators in the world, and has a resort real estate development division. intrawest operates two resorts in colorado (steamboat and winter park) and is headquartered in denver.

q. why is each of the joint respondents interested in this proceeding?

a. the three entities have common concerns related to this proceeding. 1) we believe increased clean electricity in colorado ensures stable and affordable energy for our businesses and customers. 2) we consider climate change to be a material threat to our businesses and the colorado economy, and believe state leadership can lead to national and even global adoption of similar policy that will lead to a decline in global emissions. 3) consumers increasingly demand clean energy for themselves and for the businesses they patronize. it is difficult for our businesses to meaningfully increase clean energy supply, but the proposed colorado energy plan portfolio (cepp) in this 2016 electric resource plan proceeding does so in a sensible, real and cost-effective way.
Q. WHAT IS THE PURPOSE OF YOUR ANSWER TESTIMONY?
A. The goal of my testimony is to make a strong case for the consideration of the CEPP by the Commission, and for the CEPP’s eventual approval.

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.
A. We urge the Public Utilities Commission to allow consideration of the CEPP, and we support ultimate approval and adoption of the plan.
II. IMPACTS OF CLIMATE CHANGE

Q. WHY IS CLIMATE CHANGE RELEVANT TO THE COMMISSION’S CONSIDERATION OF THE CEPP?

A. The impact of a warming planet is of great concern to ASC, POW and Intrawest. Warming threatens Colorado’s recreation economy and means snow-based businesses are harder and more expensive to operate. Last spring, for example, Aspen hosted the World Cup ski racing finals in March, and experienced summer temperatures that left lakes of water in the town park and required race staff to heavily salt the course to keep it frozen. Aspen is seeing more rain events during ski season (last year it rained during every month of winter) and warmer, wetter shoulder seasons. The ski season is being squeezed on both ends — with longer, dryer falls and warmer springs. The challenge for ski resorts is that most run in deficit until spring break, which is crucial because it delivers much of the profit for the season. Lose spring and your business fails.

The most recent research on the impacts of climate change on the snowsports industry in the U.S. finds that “virtually all locations are projected to see reductions in winter recreation season lengths, exceeding 50% by 2050 and 80% in 2090 for some downhill skiing locations.” Trends measured on the ground back up our anecdotal observations. Aspen Global Change Institute reports that Aspen has warmed 2 degrees Fahrenheit (F) on average since 1940. Just since 1980 winters are 23 days shorter, as measured by the number of frost-free days. The region is anticipated to experience a rise in average temperatures

by between 5.3 to 9.7 degrees F by 2100 under low- and high-emissions scenarios respectively.\(^3\) 5280 Magazine reported that Colorado “has already seen a 2.5 degree bump in average daily highs since 1980. By 2050, we’re set to see at least another 2.5 degree increase in annual average temps.”\(^4\) This translates into direct economic loss.

A December 2012 report by POW and Natural Resources Defense Council (NRDC)\(^5\) showed that low snow years result in reduced skier visits to Colorado ski resorts and consequently significant losses in revenue and jobs. The economist Marca Hagenstad, also testifying on behalf of ASC, Intrawest and POW, provides updated modeling results for Colorado-specific economic contributions from snowsports and impacts from low snow years.

This 2017-2018 winter season, we are getting a taste of how predicted changes will affect the workforce and economy. As a result of the delayed start to our winter season, volunteers are gathering food donations to support ski area workers.\(^6\) ASC opened a soup kitchen to feed workers who are unable to work due to the limited terrain open.\(^7\) Extrapolating from the experience of a few Colorado resorts, the impact of cancellations on ski industry revenue this year is already easily in the multiple tens of millions.

A large part of the snowsports economy is wrapped up in competitions, from the X Games to the Olympics. If we want a prosperous future of snowsports
events in the U.S., we need to remember that venues are nothing without snow. In December of 2016, Colorado’s Beaver Creek canceled its World Cup races due to lack of snow. A week later, nearby Breckenridge resort canceled its Superpipe competition as part of the Dew Tour, due to late and low snowfall. These events easily draw over 40,000 spectators who pump millions of dollars in early-season revenue into the local economy over a weekend. But it’s not just early season. In late February of 2017, North America’s largest Nordic ski marathon, the American Birkebeiner, was cancelled due to unseasonably warm weather. This event draws more than 11,000 skiers from around the world to northern Wisconsin and is responsible for $20 million in economic activity.\(^8\)

As these examples begin to show, there is no real way to adapt to a quickly warming planet. The only path to a sustainable snowsports industry is to immediately begin rapid reductions in greenhouse gas emissions. Fortunately, the CEPP offers the state a businesslike-approach to doing so in a way that serves as a model for the rest of the world.

**Q. THE ACTIONS TRIGGERED BY THE COLORADO ENERGY PLAN WON’T CHANGE THE CLIMATE TREND IN COLORADO ON THEIR OWN, SO WHY SHOULD CLIMATE CHANGE BE A DRIVING FACTOR IN THIS DECISION?**

**A.** In the absence of federal action on climate, states are the leading actors when it comes to mitigating the problem. Along with 20 other states that have committed to meeting the Paris accords, Colorado’s actions not only reduce emissions in a meaningful way, but our state models progressive policy for the country and the

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\(^8\) [https://www.twincities.com/2017/02/24/american-birkebeiner-cross-country-ski-race-cancelled/](https://www.twincities.com/2017/02/24/american-birkebeiner-cross-country-ski-race-cancelled/)
world. An example of such policy leadership is the Colorado rule regulating
methane leaks in natural gas production. That regulation, created in collaboration
with the environmental community and the oil and gas industry, tackles one of
the most potent greenhouse gases (methane) and has become a model for other
states. Former NASA scientist Drew Shindell has shown that reducing short lived
climate pollutants like methane can reduce planetary warming in the short term
while improving air quality and human health.\(^9\) So Colorado’s methane rule is of
global significance. By adopting the stipulating parties’ proposed portfolio and
integrating high levels of renewables into our grid, we would be showing similar
leadership for U.S. states and other countries.

**Q. IS THERE A RELATIONSHIP BETWEEN CLIMATE CHANGE AND POWER
COSTS FOR SKI RESORT OPERATORS?**

**A.** The ski industry in Colorado has an economic impact of almost $5 billion
annually, according to a study\(^{10}\) by the trade group Colorado Ski Country USA.
It’s not an industry the state can afford to sacrifice in the face of global warming.
As a result, communities whose hotels, restaurants, conference centers, schools
and governments all depend on the ski industry or its tax revenue agree that we
should do what we can to keep the industry alive.

One short-term way to do that is to expand our reliance on artificial
snowmaking to ensure we’re able to open on a certain date, and to enable us to
remain open by filling in the gaps when warm spells encroach on the winter. The
challenge with that is threefold: first, increased snowmaking is very expensive.

\(^9\) [http://sites.nicholas.duke.edu/drewshindell/files/2015/01/Dr-SHINDELL-DUKE-University-v3.pdf](http://sites.nicholas.duke.edu/drewshindell/files/2015/01/Dr-SHINDELL-DUKE-University-v3.pdf)
\(^{10}\) [https://www.coloradoski.com/media_manager/mm_collections/view/183](https://www.coloradoski.com/media_manager/mm_collections/view/183)
Second, if we use carbon-intensive electricity to make snow, it only contributes to further warming. And third, models suggest temperatures will not be cold enough for snowmaking at some elevations and this may add significant additional costs to resorts. One recent report suggests that by 2050 it is possible that fewer than 40% of ski areas may be able, with current technology, to make enough snow to open before the Christmas holiday.\(^\text{11}\)

The CEPP stipulation neatly tackles both issues. First, reducing the carbon intensity of our electricity supply cuts the climate impacts of snowmaking. Adding more wind and solar energy to the grid also protects consumers against fossil fuel price spikes and possible long-term price increases, because utilities can lock-in fixed rates at zero fuel cost, lowering and stabilizing consumer electricity bills as a result.

Indeed, a recent Colorado PUC decision, after reviewing the benefits of the 600 MW Rush Creek Wind Project purchase by Xcel Energy concluded: “The project primarily saves customers money by displacing other more expensive system energy costs. Public Service projects $443 million in cost savings to customers on a net present value basis under its base natural gas price forecast.”\(^\text{12}\)

Q. WHAT ARE OTHER BENEFITS FOR THE COLORADO SKI INDUSTRY THAT WEIGH IN FAVOR OF SUPPORTING THE STIPULATION?

A. The ski industry is very energy intensive. Total electricity, fuel and natural gas costs — for lifts, snowmaking, buildings, snowmelt and snowcats — can range

\(^{11}\) https://www.sciencedirect.com/science/article/pii/S0959378016305556

from 2.5 to 5% of a company’s operating revenue. Every dollar spent on energy
is a dollar not spent on raises, capital improvements, product improvement or
guest services. Keeping electricity costs stable and low — which would be
achieved through expanded renewables in the state — is one piece of the puzzle
in keeping this low-margin industry afloat.

An additional, ancillary benefit of wind power to the snowmaking business,
which requires abundant water: data from the U.S. Department of Energy’s
report, *Wind Vision: A new era for wind power in the United States*, showed that
increased wind development at the national level could also reduce the impacts
of drought by helping to save over 6.5 billion gallons of water *every year by
2030*.¹³

Q: ARE THERE OTHER ECONOMIC REASONS TO SUPPORT
CONSIDERATION OF THE CEPP?

A: We see coal plants as likely “stranded assets” in a carbon-constrained world.
We’d rather see these plants come off the grid now, if that can be done in a cost-
effective manner, rather than wait until they become a financial liability as some
of the most expensive power on the grid. These two older units at Comanche
should be closed down now because they are uneconomic.¹⁴ As businesspeople,
we see the benefit in moving toward the most cost-effective sources of power.

Q: WHY IS THE APPEARANCE, AND FACT, OF MEANINGFUL ACTION ON
CLIMATE IMPORTANT TO THE SKI INDUSTRY?

¹² https://energy.gov/sites/prod/files/2015/03/f20/wv_full_report.pdf,
and https://energy.gov/articles/wind-vision-new-report-highlights-robust-wind-energy-future (March,
2015).
A: The ski and snowboard industry has recently undergone consolidation, with multiple acquisitions taking place. In many of these transactions, the future viability of resorts in a climate-changed world was of direct concern to purchasers. For example, a higher, colder resort such as Jackson Hole is more likely to retain skiing through the end of the century. Lower, coastal resorts such as Hidden Valley in New Jersey are already out of business. California resorts experienced four years of continuous drought several years ago, just the kind of extreme weather we’d expect to see in a warming world. These resorts, at least based on the value of their capital, are worth hundreds of millions of dollars. But if the last four years show limited operating income, the resort’s real value comes into question. Moreover, the industry has long been concerned that increasingly obvious warming will prevent people from skiing — either by not taking up the sport, not buying into real estate in ski country, or not seeing the sport as a hobby or pursuit worthy of a lifetime. This could result in a declining industry and faltering economies in ski country, where real estate is a large part of the economy and tax base. Businesses need to be able to represent to their customers, owners and shareholders that they take the climate problem seriously and that the states in which they operate do too. And they need to be taking meaningful and large-scale action to reduce future warming.

Q: IS CLIMATE ACTION ALSO IMPORTANT TO THE OUTDOOR INDUSTRY AS A WHOLE?

A: The ski industry is only the most obvious victim of a warming climate. But the outdoor industry — which nationally creates 7.6 million+ jobs and $887 billion in
economic revenue, and which POW represents — is equally threatened. Each sector has its own unique problems. Montana rivers and streams, for example, are increasingly too hot to fish. As a result, state agencies are forced to restrict afternoon fishing through so-called “hoot owl” rules, which directly affect the fishing economy. Outdoor clothing manufacturers lose money when it doesn’t get cold and when snow doesn’t fall. The Ouray ice park in Colorado, an economic engine for the region, is increasingly struggling with warm temperatures, according to Dan Chehayl, executive director of Ouray Ice Park Incorporated. The whitewater rafting industry is seeing earlier runoff that happens all at once, as hydrographs change. Pick your sport — they’re all affected. It’s for these reasons that iconic brands like Orvis, The North Face and REI are increasingly advocating for action on climate.

15 https://outdoorindustry.org/advocacy/
19 Personal communication with Auden Schendler, 12/6/2017
20 https://www.yaleclimateconnections.org/2015/09/drought-conditions-deflate-rafting-business/
III. WORTH PROTECTING

Q. ARE THERE OTHER REASONS, BEYOND ECONOMICS AND CLIMATE, THAT YOU SUPPORT CONSIDERATION AND APPROVAL BY THE PUC OF THE CEPP?

A. Aspen’s ski industry is 70 years old. It started in 1947, created in part by Tenth Mountain Division World War II veterans who had trained at nearby Leadville and used to ski to Aspen on the weekend. Returned from the war and intense, high-casualty combat in Italy, they deeply understood the sport of skiing; they were also escaping some of the experiences they had seen in Europe. Aided in their efforts by Walter Paepcke, a Chicago businessman who also developed the Aspen Institute, the Aspen Music Festival and whose wife Elizabeth later founded Aspen Center for Environmental Studies, they created a resort with a unique and durable mission. Its goal was not to become a playground for the wealthy, but instead to bring people — and yes, some of them would be wealthy and influential, but not all — into a spectacular mountain environment that would, through its beauty and remoteness, “take them out of their usual lives,” as Paepcke said, expose them to new ideas (through art, music, culture and science) and send them off to help build the good society — to improve the world. The Paepckes’ vision is explicitly alive today in the operation of our ski resort and within our community, where we see Aspen not solely as a place to make money and support a local economy (though that is important) but also to allow people the opportunity to renew their spirit, to rest and learn and return to
the world refreshed and energized, ready (even obligated) to make a difference.

In fact, it’s in the spirit of this vision that I am testifying today.

The sport of skiing exploded in the latter part of the 20th century, and grew into the kind of activity that whole families — across generations — could participate in; which included, by definition, a relaxing period of community togetherness after the day’s sport, which we call “Après ski,” also unique to skiing. Participants knew intuitively what we know today: that exercise and dwell-time in the natural world provides clear, measurable and tangible human health benefits. Indeed, new research comes out every day proving what Florence Williams’ recent book, *The Nature Fix*, reveals: that nature makes us happier, healthier and more creative. That’s in part why each winter, our community hosts more and more veterans trying to recover from their experiences in war, through programs like Huts for Vets, or Challenge Aspen’s Military Opportunities programs, which provides adaptive therapeutic recreation and wellness experiences for military personnel diagnosed with cognitive and/or physical disabilities — some of whom may have fought for the same storied 10th Mountain Division, but this time in Iraq and Afghanistan. It’s no wonder these programs thrive here: it’s how we started in the first place. And it’s entirely within this spirit that this December we hosted our friend and Iraq combat veteran Stacy Bare to talk about nature, value, duty and the healing effects of being in the natural world.

23 https://www.aspensnowmass.com/while-you-are-here/events/aspen-u-speaker-series/aspen-u-december-14
Aspen’s work with veterans is just one example of a segment of society that benefits from the snowsports industry. There are many more. Other ski areas have similar stories, specific to their own community and geography, each as deep and history-laden and personal as Aspen’s. And tied to each of these places and their stories are millions of passionate participants in the sport.

Thriving societies ensure that their citizens have opportunity to relax, to exercise, and to engage the mind, body and spirit in the outdoors, in arts and culture and citizenship. We intuitively know that without these opportunities for renewal, people stagnate, and lose the creativity and innovation they need to drive society forward. This is as true in Aspen as it is in poor urban areas, where research shows that parks and open space increase well-being. Aspen, and the national ski industry we’re part of, provides a piece of this critical infrastructure of a healthy national community. The idea that all this may be threatened, that all our memories, our generations of skiing stories, our long history, the opportunity for renewal we provide, and our deep passion, could one day fade away, the victim of an overreliance on fossil fuels, is heartbreaking. It's made more so by the fact that burning coal to run our resorts is no longer necessary as it was in the past, and now is not even economic. This case before the PUC, which might appear from the outside to be the mundane work of state bureaucracy, is actually about much greater issues. In fact, it is a reckoning: over what conditions are necessary to ensure a thriving nation; about the sorts of stories we will be able to tell our children; and ultimately about whether in a time of seismic and painful

http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0153211 (April 2016)
change we will have the courage to make decisions of great and longstanding
vision.

Q. DOES THIS CONCLUDE YOUR ANSWER TESTIMONY?
A. Yes.
STATEMENT OF QUALIFICATIONS

As Senior Vice President of Sustainability and Community Engagement at Aspen Skiing Company, I’m responsible for reducing the environmental impact of the company, pushing for large-scale climate solutions at the policy and clean energy level, and engaging the community on a range of sustainability issues, from housing to transportation. Much of my work and ASC’s philosophy is described in my book, Getting Green Done: Hard Truths from the Front Lines of the Sustainability Revolution, which NASA Climatologist Dr. James Hansen called “an antidote to greenwash.” I have twice testified to congressional committees in Washington about the impacts of climate change, and have written many dozens of popular essays and academic papers, published in Harvard Business Review, Scientific American, Climatic Change, L.A. Times, The Denver Post and other media. I speak regularly at business schools, including CU, Dartmouth, Harvard, Yale and MIT, as well as at corporations, including Starbucks headquarters in Seattle and Google’s New York offices. I was appointed by Governor Owens to the state Pollution Prevention Advisory Board and by Governor Hickenlooper to the Office of Outdoor Recreation Advisory Council. I serve on the board of Conservation Colorado, POW and the Community Office for Resource Efficiency.

SAMPLE PUBLICATIONS


**EDUCATION**

BA in Biology and Environmental Studies, *cum laude*, 1992, Bowdoin College, Brunswick, ME

**TRAINING/CERTIFICATION/VOLUNTEER WORK**

- Board of Directors, Community Office for Resource Efficiency, 2016–present
- Adviser, Colorado Outdoor Recreation Industry Office, 2015–present
- Board of Directors, Conservation Colorado, 2009–present
- Elected to Town Council, Basalt, Colorado, 2016–2020
- Board Chair, Protect Our Winters, 2013–2017
- LEED 2.0 Accredited Professional, U.S. Green Building Council
- Steering Committee, Rocky Mountain Climate Organization, 2004–2009
- Colorado Governor’s Pollution Prevention Advisory Board, 2003–2006
- Carbondale Planning and Zoning Board, 1999–2000
- Carbondale Environmental Board, 1997–1999

**AWARDS/RECOGNITION**

- 2006 *TIME Magazine* Climate Innovator
- 2007 EPA Climate Saver
- 2008 University of Colorado Wirth Chair Pioneer of the New Energy Economy
- 2009 E Town E-chievement Award
- 2018 *Powder Magazine* Moving Mountains Humanitarian Award
CONGRESSIONAL TESTIMONY
September 13, 2017. “Impacts of Climate Change and the Need for Policy Action.” Testimony to the Bipartisan Climate Solutions Caucus of the House of Representatives.26