THE UNITED STATES SUNBELT - REALITIES OF THE FUTURE

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Introduction

It was my good fortune to come to New Mexico almost thirteen years ago. As I learned more about the beautiful state I was terribly concerned by its relative poverty, its loss of population, its small economic base and its heavy dependence on the federal government for basic economic activity. On more than one occasion I predicted that we faced a dire situation if our path toward the future did not change.

The mid-seventies brought the shock that began a dramatic change in that path's direction. The first oil embargo was that shock wave. Repercussions continue to ring in our daily lives. A trend of looking with mild interest to the Sunbelt, which had started earlier, became an avalanche of interest in our part of the country. We not only had more energy available within our own reserves, we had a relatively mild climate, much underpopulation and, apparently great economic opportunities for the future. The Sunbelt began to grow and to catch the fancy of the country.

The actual definition of the Sunbelt varies. For the purposes of what I am saying here today we will use a loose definition which includes the states of Arizona, Nevada, New Mexico, Oklahoma, Texas, Kansas, Colorado, and Utah. One key holding these states together is water.

Since 1974 the pressures of economic change have grown much more intense. The reasons for those increased pressures come from two basic

areas. One is the great energy resource available in the Sunbelt: oil and gas, uranium, coal, geothermal, solar, shale oil, tar sands, etc. The other is the desire of the federal government to make a very major investment in our national defense: the MX missile system. When these two gigantic programs are coupled with the already growing demands for the region's agricultural products and the acceleration of industrialization in most parts of the area, the pressures of all kinds become intense.

I spoke at a meeting of the Western Governor's Policy Office in Las Vegas, Nevada this past Monday. The purpose of the conference was to begin to plan for meeting the tremendous manpower requirements that the West will be facing these next ten to twenty years. Let me quote from a WESTPO Resolution passed unanimously by the Governors in the fall of 1980:

> "The United States Air Force has announced plans to deploy an 'MX missile system' in the rural West. The location of the primary site is the Great Basin area of southeast Nevada and southwest Utah.
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> "The Rocky Mountain West is also the location of efforts to accelerate the production of energy--including coal, oil and gas, uranium, the generation of electricity and a variety of synthetic fuels. Synthetic fuels development will be expedited through the investment of over $20 billion by the U.S. Department of Energy and the Synthetic Fuels Corporation.
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> "Each of these federally mandated initiatives carries a number of conflicts and impacts for the region. However, the deployment of MX, combined with the development of synthetic fuels and accelerated production from conventional energy sources, create an unprecendented level of developmental pressure on western states. The potential cumulative impacts of these simultaneous efforts include:

a. severe competition for skilled labor,

b. potential significant and widespread materials shortages,

c. a staggering level of population growth in Nevada and Utah,

d. vastly insufficient funds to provide public facilities and community services,

e. unprecedented competition for other resources--including capital, water and electric capacity.

"Labor requirements are of great concern to state and local officials. The Air Force projects MX labor needs on the order of 16,000 people involved in direct construction, with another 15,000 needed as an operational labor force. Four power plant complexes, planned for simultaneous construction within the Great Basin area, will generate additional labor needs of 6,000-7,000 skilled workers. It must also be noted that additional labor requirements conservatively projected at 100,000 workers, will be necessitated by the development of coal, electric generating plants and synthetic fuels facilities throughout the Rocky Mountain West.

"There is no evidence that federal MX and energy activities are presently being coordinated. Additionally, no structure has been established within the federal executive branch to integrate the planning of MX deployment and synthetic fueld development in the West."

That gives you an idea of the great concern expressed by our Governors. Note that they mention water.

Our Sunbelt has been on a population growth curve that seems to be moving upward almost continuously since 1970. Nevada had the highest percentage increase of any state in the nation between 1970 and 1980--63.5 percent. Arizona was second with 53.1 percent. All of our Sunbelt states grew much faster than the national average of 11.4

percent. (New Mexico was 27.8 percent and only Texas, Oklahoma, and Kansas were higher.)

Population growth projections to 1990 and 2000 show all Sunbelt states growing considerably faster than the national average of 0.8 percent per year. (These population projections were made without consideration of the impact of MX, so they may be understated.)

What of industrialization? Where can we predict its greatest impacts to be? Day before yesterday I was in the Los Angeles area which is a part of what was the last frontier for industrialization several years ago. The bloom is off there. Housing for workers is impossible because of cost. Wage rates are high. Living conditions are crowded. Land for plant sites is prohibitive. So what are the industries there doing when they must expand? They are moving to our area. Albuquerque is a clear example of that trend. Most of the industries that are establishing plants in the Sunbelt are related in some way or another to electronics, a growth industry predicted to remain so for the next twenty to twenty-five years.

Based upon this industrialization and increase of demand for Sunbelt resources, total personal income is expected to grow rapidly between 1978-2000. All Sunbelt states will exceed the national average of 3.3 percent per year.

What then are the realities for the future for the Sunbelt area? It seems to me that a word which says it all is <u>change</u>. The Governors' statement would indicate change which is now largely out of control and, at present, beyond reasonable comprehension.

What are some of the realities that we might suggest?

Helen Ingram in her 1980 book, A Policy Approach to Political Representation: Lessons from the Four Corner States, says "Every recipe for energy development has 'add water' in its instructions."

A coal gasification plant in New Mexico or Arizona, processing 24 million tons of coal per year to meet the energy needs of a million people, would use about 300,000 acre feet of water per year.

A 10,000 megawatt coal-fired thermal electric power plant in the Four Corners region requires about 230,000 acre feet of water per year.

(To get some perspective on how much water this is, at a recent Sierra Club presentation on Energy Development in the San Juan-Bisti Region the statement was made that the city of Albuquerque consumed 69,000 acre feet of water last year.)

PNM's proposed New Mexico Generating Station (NMGS) is said to consume about 35,000 acre feet per year. This is for a 2000 MW_e plant.

Proposed coal slurry pipelines, using water to transport finely crushed coal to power plants in other states, would also require substantial amounts of water.

Uranium mines also require a considerable amount of water for their operation.

Of course, with energy development come the people and boomtowns, and with them more pressure on the water supply. Towns such as Grants, Gallup, Thoreau and Crownpoint in New Mexico have had to face the problems of depleting water supplies.

Ingram continues,

> "While energy production consumes less than 3 percent of the available water supply in the Four Corner States at present, its share is likely to increase dramatically as development proceeds. Because water is an essential and relatively inexpensive input in most energy processes, the energy industry is likely to be aggressive in securing whatever water supplies it needs for development. Certainly energy can afford to outbid agriculture in an outright sale of water or water rights.
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> "Groundwater is the other major source of water in the Four Corners states. Over thousands of years the earth has stored substantial amounts of water beneath the arid landscape. However, in some places irrigated agriculture has mined the aquifers, withdrawing water at rates far in excess of the slow recharging process. Today, groundwater tables are falling precipitously in some areas."

Tucson is a city having to face this problem. It is unlikely that energy industries could withdraw additional groundwater in substantial amounts in other areas without affecting costs and availability to irrigators.

A 1980 General Accounting Office publication called "Overdrafting Must Be Controlled" calls attention to the depleting groundwater resources of the West and Midwest. Overdrafting, they say, refers to the extracting of more ground water than will be replenished over a long period of time. Overdrafting can cause land subsidence, salt water intrusion into fresh water aquifers, reduced surface water flows, increased energy consumption, and disruption of social and economic activities. The report states that overdrafting is most serious in the arid and semi-arid western states where irrigation of crops accounts for

over half of all ground water use. The report then goes on and pinpoints some states in which the effects of overdrafting occur:

New Mexico and Colorado are both faced with the problem of overdrafting, reducing surface water supplies that have already been legally committed to surface water users. The two states have handled the problem differently.

For example, in 1956 the State Engineer of New Mexico, Steve Reynolds, declared the Rio Grande River Basin a critical groundwater area and closed the basin to additional water users. Proposed agricultural development threatened to reduce the flow of the Rio Grande, a flow already fully committed to surface water users. Agricultural interests and expanding communities opposed the state engineer, and the State Legislature attempted to reverse the closure. The State Supreme Court in 1963 supported the state engineer's action. Current state policy requires the purchase and retirement of sufficient surface rights before additional groundwater can be extracted.

This same GAO report called New Mexico flexible in accommodating requests by additional water users. The report used the example of PNM's search for additional water to supply the town of Santa Fe. Around 1970 the state engineer, Reynolds, approved PNM's proposed withdrawal of groundwater from the Rio Grande Basin on the condition that it offset potential effects on streamflow by: 1) importing water to the Rio Grande Basin, or 2) purchasing and retiring surface water rights. PNM chose option number one and imported water from the Federal San Juan-Chama Project to the Rio Grande Basin.

Colorado has also been affected by diminishing surface flows as a result of overdraft, but has handled the problem differently than New Mexico. Colorado enacted the Water Right Determination and Administration Act of 1969, which allowed water users to draw on either surface flows or the aquifers that supply them, but limited groundwater pumping to preserve the existing water rights of users. The Act then allows pumpers to increase the amount of water extracted only if other water users' rights are protected.

Continued depletion of groundwater resources ultimately leads to resource exhaustion. Irrigation becomes more and more limited; farmers are forced to turn to dry farming (that is, land watered only by rainfall); and if agriculture, as well as its directly and indirectly related industries are affected by inadequate or depleted surface supplies, what may result are local recessions, economic and social dislocations, and a general weakening of important sectors of the regional economy.

The GAO report pinpoints the high plains region of western Texas and eastern New Mexico as the most likely place to have an economic breakdown due to groundwater depletion. The report cites two reasons for this: 1) this region is highly dependent on groundwater, and 2) lacks an alternative water supply. Underlying this region is the Ogallala Formation, an interstate aquifer system extending into New Mexico, Texas, Colorado, Oklahoma, Kansas, and Nebraska. The sole source of recharge to this formation is a negligible amount of precipitation.

More was said about this region in the February 23 issue of Newsweek:

> "Easterners may not have been thinking much about the Ogallala Aquifer last week, but it could soon be as familiar to resource-minded Americans as the North slope....Those ancient waters now trickle through West Texas cotton fields and spurt from the quarter-mile-long arms of centerpivot irrigation systems, making hundreds of circles of green corn in the Nebraska plains. Each year farmers withdraw more water from the Ogallala than the entire flow of the Colorado River. But because sparse rain barely penetrates to the aquifer, very little water flows back in. Water tables are falling from six inches to three feet a year, and, on average, the Ogallala has forty years of useful life remaining; in some localities the bottom will be reached much sooner...already, irrigated acreage is declining in five of the six states that draw water from the Ogallala, with predictable results: lower yields and a shift down the water scale from corn crops to cotton or sorghum."

In another part of the article Newsweek said,

> "Texas law acknowledges that the underground water will run out eventually; farmers get a groundwater depletion allowance just as wildcatters get one for oil. But like most states, Texas lets its farmers pump away. The last American frontier is underground, where miners, developers and big farmers race each other to the bottom of the aquifer."

A recent article in The Wall Street Journal emphasizes the problem.

> "DELTA, Utah--The 2,200 residents of this central Utah town face an agonizing but clear-cut choice: whether to use their precious water to irrigate farm land or to help develop the nation's energy potential.
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> "Water from the Sevier River has flowed into irrigation ditches to moisten the arid land here ever since Mormon colonists arrived a century ago. But now Delta has been selected as the home of the nation's largest coal-fired generating plant, a 3,000-megawatt behemoth that will slurp up enough water to retire perhaps 35% of the land in this area known as 'Utah's breadbasket.'
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> "Some residents welcome the economic opportunities that will come from the $8.7 billion, municipally

> owned plant called the Intermountain Power Project, or IPP. But many others feel they're at the noose end of a rope that stretches more than 2,000 miles back to Wall Street, where money for the project is being raised. And they feel that if they hang, they won't even be doing their fellow Utahans much good, since most of the plant's electricity will be consumed more than 500 miles away in Southern California."

Is there anything we can do to make our Sunbelt realities more agreeable to us who live here? Governor Richard Lamm has said that we'd best not depend on the federal government for much help. WESTPO is an attempt to gain more collective regional influence. Our state must start to deal intelligently with these realities from a base of sound planning and strength. We do that now in the water area. We do not do so in others. If our future is to be positive we must plan and implement plans vigorously and wisely.