

**ENERGY AND RESOURCE PLANNING  
FOR  
COMMUNITY ECONOMIC DEVELOPMENT**

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As the costs of mining, processing, and transporting concentrated energy sources increase, the economy of regionally-based energy-related technologies and businesses is enhanced. Since energy is intrinsic to virtually every human activity, a shift in energy dependence-- from imported to indigenous --will be reflected in the commodities and services which provide our basic life support: food, water, waste treatment, building materials, etc. The full impact of this shift, however, will not be realized until processing procedures are restructured to support an integration between businesses. With the development of multi-level regional flows-- from raw material processing to product manufacturing to horizontal linkages between businesses --the local job economy reaps a multitude of benefits.

It is easy to simply state these facts, some of which make intuitive sense. The tough work, however, lays in the transition that must occur to devise realistic, achievable economic development action plans. Probably the most significant single limiting factor is that economic development specialists, political action processes, planners, environmentalists, etc. are often unfamiliar with the actual technical possibilities and therefore are unable to grasp the potential impact such a transition could have on a particular regional economy.

For example, even the compelling evidence of the high job creation potential resulting from a transition to energy conservation and renewable energy did little to shift U.S. government or corporate decisionmaking at a time when the need to stimulate jobs was crucial. Nor was there noticeable acknowledgement of the potential profits that could be attained by integrating into production processes the by-products of non-renewable energy mining and processing during a period of increasing dependency on imported commodities.

Examples of the latter abound! Take coal fired power plants. Not only do they produce energy, they also produce many by-products, such as carbon dioxide, sulphur dioxide, and flyash-- all valuable elements which, when properly understood and handled, can meet a spectrum of human needs and become the primary raw materials for local and regional businesses: **Carbon dioxide**, the principal cause of global warming given current practices, is an excellent enhancement for greenhouse plant production; **sulphur** extracted from sulphur dioxide, the principal cause of acid rain, is a major fertilizer ingredient, an essential element in many chemical processes, and a cost effective building material. Where coal sources are high in calcium, **flyash** can be an equivalent or superior substitute for energy intensive portland cement. These by-products represent enormous quantities: Texas' production of fly ash, for example, is equivalent to approximately 3/4 of its portland cement demand.

Because the notion of integrated development has a negligible role in industry and planning decisions, these by-products, instead of valued as resources, are discarded as pollutants which go on to cause a number of environmental problems and incur significant costs. By shifting the way we look at these by-products-- from problems with negative values to resources with positive values --we can enhance the economy of the primary production by adding value to materials which had a neutral or negative value; moreover, we can support business development with low-cost "raw materials" without having to draw on virgin natural resources.

Evidence that an integrated development approach produces jobs is based on a variety of sources. Take a firm called Oregon Marketplace: its *raison d'etre* is to demonstrate the increase in local money flow and business opportunities achieved when a city is organized to retain commercial trade within its boundaries, instead of going to markets beyond those "city gates". Twelve U.S. cities have participated in this program and can vouch for its success. Additionally, many U.S. firms, representing virtually every sector of the economy, have adopted similar approaches to local economic planning, resulting in an aggregate reduction in transportation costs, thereby decreasing energy use. However, the benefits of this integration planning are barely quantifiable as only a small fraction of industry has cracked through the segmented, isolated established economic development and planning processes.

Another logical step to achieve the integrated regional economic approach used above, often referred to as **Input-output analysis**, is to identify the gaps in the integration process; in other words, what businesses could be brought in that would enable the inputs and outputs of regional production and consumption to occur at an even more integrated level. Obviously, many of these can become service sector businesses, as highlighted by the many chamber of commerce economic projections that identify the number of service sector businesses and jobs that would result from attracting a certain industry. Such scenarios are endemic to the computer industry and are what make places like the Silicon Valley tick; in a sense even the automobile industry has borrowed this approach by subcontracting integral parts of their production processes. We find in Europe, particularly Italy, small privately owned shops working in linkage relationships that build almost all the components for some truck and bus manufacturing companies.

So what is this all leading up to? Perhaps a dynamic regionalism supported by cutting edge economic development procedures will emerge before any of the looming environmental catastrophes make human life on Earth unsustainable. It may be too that the true value of energy is destined to be transfigured as the currency of a new regional process and an actual part of strategic planning endeavors instead of a political and philosophical football. What I have related may seem a departure from business as usual within planning and economic development circles. However, the transition to an integrated regional development strategy is entirely within the realm of possibility for virtually any community in the U.S. relying on existing skills and resources. The ultimate benefits, however, that will secure a long term stability hinge on a next step that has been attempted by only a few communities in the U.S.: linking a community's essential businesses (those which provide basic life support services and commodities) with the community's and region's physical and human resource base.

This final step grows out of a regional resource inventory similar to the physical and ecological land planning overlay methods hailed by planners' in recent years, but never taken to their ultimate application: full spectrum resource planning. The process involves a second look to go beyond the resources that are inventoried to see the linkage possibilities of this inventory with a spectrum of new technologies-- to spatially represent the use of regional resources and to show how they work. As one goes through the process, one recognizes that for the first time business development potential can be spatially mapped, and that two critical yet generally disparate elements-- ecological land planning and economic development --are being addressed in the same procedure. The sustainable development efforts slowly emerging within the American Solar Energy Society, HUD's sustainable cities program and international groups such as the World Bank, United Nations, and UNESCO, could all benefit from each other's data bases' knowledge and practices the necessary procedures for what could be a newly defined, environmentally sound economic prosperity.

For more information on this approach and parties involved, contact our organization in Austin, Texas.