

INDUSTRIAL DEVELOPMENT IN LOUISIANA: SHINTECH CASE STUDY

People First; Developing Sustainable Communities

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Shintech, Inc. proposes building a chemical manufacturing facility near Convent, Louisiana, to produce polyvinyl chloride (PVC), vinyl chloride monomer (VCM), ethylene dichloride (EDC), and chlor-alkai. In their support of Shintech, proponents understandably stress the proposed plant's potential economic benefits: the generation of jobs, higher incomes, and tax revenues. To fully understand the plant's overall economic impacts on Louisianians, however, one also must look at its full economic costs.

A recent report by Dr. Timothy P. Ryan, provides his estimates of the benefits associated with the construction and operation of the Shintech facility :

- 13,133 temporary jobs will be supported by the construction of the plant and other capital spending activities. These include 2000–3000 direct construction jobs as well as jobs that result from the spending of new income in the economy. These jobs represent \$288.1 million in income for Louisianians.
- \$25 million in local and state tax revenue will be generated one time only from the construction activities of the proposed plant.
- 5,988 new jobs will be created and supported by the economic activity made possible by the plant. These jobs represent \$107 million in annual income for Louisianians.
- \$10.5 million in local and state revenue will be generated annually.

Ryan's report raises several questions. To what extent will the new jobs and incomes go to outsiders rather than to existing Louisianians? What are the subsidies Shintech will extract from Louisiana's taxpayers? What are the spillover costs the plant will impose on workers, households, and other firms?

Who Benefits? Louisianians should not expect that all the new jobs at Shintech's proposed plant will go to the state's current residents. Ryan's report does not describe the skill requirements of the new jobs, the extent to which the workforce living near Convent satisfies these requirements, or the company's commitment to hiring local workers. Studies of plant openings elsewhere have found that oftentimes most of the jobs go to newcomers, not current residents. The best evidence currently available indicates that, in the long run, at most 15 percent—and plausibly none—of the new employment from plant openings accrue to local residents. In this instance, with the plant sited in a generally rural location about fifty miles from New Orleans and Baton Rouge, one should anticipate that a small percentage of the new jobs will go to local residents.

Louisianians also should be skeptical of Ryan's estimates of the total number of jobs attributable to the Shintech plant. From his report, it appears he believes each construction job will generate another 3–5 jobs. If so, then the construction project's job multiplier—the ratio of total jobs to direct construction jobs—will be about 4–6. Multipliers this large occasionally do materialize in the U.S., but generally they are smaller, especially for construction plants that require highly skilled labor and entail the assembly of fabricated materials and equipment that are manufactured elsewhere and installed at the plant site. If Ryan has overestimated the multiplier applicable for this plant, then Louisiana will see a smaller overall employment increase from the plant.

Additional questions about his estimates of total employment arise because Ryan employs the logic of the economic-base model and techniques called input-output analysis to estimate the plant's multiplier-effects on the state's economy. This approach entails taking a snapshot of the economy at some time in the past, identifying the spending patterns of construction firms and workers, and tracing their expenditures through the rest of the economy. Using the results from this approach to forecast how the economy will respond to a project, such as Shintech's, raises some serious theoretical and empirical issues. It has been likened to attempting to drive a car looking in the rear-view mirror. A simple example elucidates the problem. According to the input-output technique, whenever Shintech creates a new job, an unemployed worker will step forward to fill it. In reality, though, Shintech generally will be able to fill jobs only by bidding workers away from other employers. Some employers will hire replacement workers, but others will be unsuccessful or will leave the job vacant. Thus, to some extent, the job increases at Shintech will be offset by job losses elsewhere.

In short, Ryan's analysis almost certainly represents the upper bound of Shintech's potential impacts on jobs, incomes, and taxes. It is the best-case scenario. Without explicitly accounting for the economy's dynamic adjustment to Shintech, one cannot know the extent to which the actual impacts will fall short of this scenario.

What Are The Subsidies? Besides not getting all the benefits promised in Ryan's report, Louisianians will pay a large portion of the Shintech plant's full costs. They will do so by providing fiscal subsidies to the plant and by bearing environmental and other externalities.

A recent report by the Sierra Club highlights the negative impacts of subsidies associated with the Shintech facility¹:

[I]n addition to a very profitable ten year property tax exemption granted to new companies in Louisiana, the parish president, Dale Hymel, also offered to help Shintech obtain a rebate for local and state sales taxes paid during construction. Total savings are estimated to be 129.9 million dollars. This is all at the cost of state and parish money for roads and schools. Very few jobs created by this plant will go to local residents; many of the jobs will be contract, rather than permanent positions, and the company will likely enjoy discount electrical rates, in effect forcing other businesses and residents to subsidize the production of chlorine ...

Perhaps as important as these direct subsidies is the indirect subsidy Shintech apparently will receive because state regulators in Louisiana allow large industrial users of electricity to pay a far lower price than other consumers. On average in the U.S., residential consumers pay about twice what industry pays for an equal amount of energy, but in Louisiana, this ratio is 4:1. Assuming that the 2:1 average ratio is justified by factors, such as economies of scale associated with the delivery of energy to industrial consumers, and that the industrial consumers in Louisiana are typical of those elsewhere, then it is reasonable to conclude that the higher ratio in Louisiana represents a subsidy from residential consumers to industrial consumers. By one estimate, the annual energy-price subsidy to industry, more than \$200 per person, is higher in Louisiana than in all states but Alaska.² The oil/gas and petrochemical industries account for the bulk of the subsidy, which exceeds \$800 million per year. This subsidy is functionally equivalent to a tax on each person living in the state, with the proceeds delivered to the managers and shareholders of large industrial firms. This subsidy, like the others, reduces the disposable incomes of households and eliminates jobs. Subsidized energy prices harm the economy in other ways. In particular, they discourage efficiency in those industries receiving the subsidy, instead creating an incentive for firms in these industries to invest in energy-intensive plant and equipment.³ Not incidentally, such investments also constitute the key that Shintech is seeking to use to unlock the treasure chest of tax exemptions discussed above. Thus, the energy-price subsidies provide an incentive for Shintech to invest in energy-intensive plant and equipment and then the company would compound the bonus by receiving an

additional tax-exemption subsidy. The firms, workers, and households in the rest of the economy will pick up the tab.

What Are The Spillover Costs? Based on the history of the petrochemical industry in Louisiana, it is not improbable to anticipate that Shintech's plant will have serious negative impacts on the natural ecosystem and emit toxic and noxious pollutants into the state's air and water. Support for this conclusion includes:

- In 1991, Louisiana's chemical industry released more than 408 million pounds of toxic chemicals into the environment. Of this amount, about 68 million pounds of toxins were airborne emissions, which can cause increased risk of cancer, respiratory illness, and birth defects.⁴
- Louisiana's chemical industry has the nation's second highest ratio of air emissions to chemical manufacturing jobs, three times the national average.
- Lung cancer rates in the "Cancer Alley" area around Convent are about 30 percent above the national average. Furthermore, excess cancers in the range of one per 1,000 persons exposed have been noted, whereas a rate of one per 1 million is commonly considered acceptable.⁵

One recent report, which focuses on the impacts of airborne particulates on human mortality, highlights the economic costs associated with emissions from chemical plants and other sources. It concludes that emissions in the area are responsible for the death of approximately 500 persons each year.⁶ A recent summary of the literature on environmental economics concluded that each death attributable to environmental risks has a value between \$2 and 12 million.⁷ These estimates indicate that the mortality effects, alone, of the area's airborne particulates impose spillover costs on the local economy of \$1–6 billion each year. To this one should add the (currently unknown) economic damages associated with emissions' impacts on human morbidity.

To the extent that emissions from Shintech's plant will exacerbate current air quality problems, triggering additional deaths and illnesses, these effects are part of the plant's full costs. These costs will reduce the disposable incomes and the standards of living of local residents. They also will increase health-care costs for households, firms, and public institutions. These burdens would be functionally equivalent to a tax on all households and firms in the area, imposed by Shintech and paid by those who suffer the consequences. Outside the perverse stimulant to the health-care industry, Shintech's emissions would deprive the economy of jobs and rob households of income.

Corporate and household taxpayers also may bear some of the costs of providing public services to the plant and its employees. Although Ryan's report highlights the plant's potential contributions to state and local coffers, it fails to discuss the net effect on public agencies and services. Ryan indicates that state and local governments will receive \$10.5 million annually as a result of the plant's activities after receiving industrial and tax exemptions. If the additional burden on public services exceeds this amount, however, then the net effect will be negative. The plant itself will impose some burden on state services. Also important is the burden that will materialize as the plant attracts workers, job-seekers, and families to the area. The new residential and commercial development associated with these new arrivals rarely, if ever, will fully pay for the costs they impose on current residents. These costs include the consumption of public services, such as increasing the demand for municipal water supplies, as well as increased congestion for roads, schools, parks and other public facilities.

Putting It All Together. The proposed Shintech plant will bring both benefits and costs for Louisianians, but the information provided by the company is insufficient to allow Louisianians to weigh the one against the other. It seems to overestimate the benefits and fails to assess those aspects of the plant's costs that will be borne by workers, households, and firms in the local area and throughout the

state. This disparity is especially troubling because there is ample evidence that old approaches to promote economic development in Louisiana no longer are effective, if ever they were. Policies that offer tax concessions to attract large industrial plants that foul the air and water, bring new development that doesn't pay its way, and places additional burdens on schools, roads, and other public services run counter to some of the most powerful forces at play in today's economy.

The Shintech proposal represents one mechanism of economic growth, often called jobs-first-people-follow. The trigger for this mechanism is some industrial investment, such as Shintech's, that then attracts workers, families, and firms. It has dominated much of the economic development over the past century. During the past few decades, though, another mechanism, called people-first-jobs-follow, has increasingly come into play. It reflects the growing mobility of people and firms and is triggered when workers and families decide to live in a particular place, attracting firms that want to hire workers and sell to consumers.

The two models are important to the evaluation of the Shintech proposal. The proposal's proponents will tend to emphasize the jobs-first model and argue that the plant necessarily will lead to growth in jobs and incomes. But if the plant has a negative impact on the availability of public services and degrades the environment in ways that workers and families find unattractive, it may trigger a negative response of the people-first mechanism. This will be reinforced to the extent that the Shintech plant imposes tax-equivalent burdens on households and firms by forcing them to incur the costs of air emissions, new development, and subsidies.

Ryan, T.P. 1996. *The Economic Impact of A Proposed New Chemical Complex*. March.

¹ Malek, D. 1996. *Action Alert: Help Stop the Construction of a Major New Dioxin Factory*. Sierra Club. November. <<http://rtk.net/E15881T12>>.

² Templet, P.H. 1995. "Grazing the Commons: An Empirical Analysis of Externalities, Subsidies, and Sustainability." *Ecological Economics* 12: 141-159.

³ Templet, P.H. 1995. "Grazing the Commons: An Empirical Analysis of Externalities, Subsidies, and Sustainability." *Ecological Economics* 12: 141-159.

⁴ U.S. Environmental Protection Agency. 1993. *Toxics in the Community, National and Local Perspectives: The 1991 Toxics Release Inventory National Report*.

⁵ Bartholomew, J. and N.J. Craig. 1984. *Environment and Health in Louisiana: The Cancer Problem, Executive Summary*. Task Force on Environmental Health, Louisiana State Planning Office. March.

⁶ Shprentz, D.S., G.C. Bryner, and J.S. Shprentz. 1996. *Breath-Taking: Premature Mortality Due to Particulate Air Pollution in 239 American Cities*. Natural Resources Defense Council. May.

⁷ Cropper, M.L. and W.E. Oates. 1992. "Environmental Economics: A Survey." *Journal of Environmental Literature*. 30 (2): 675-740.

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