team neo

To: Chris Johnson; Ryan Stefan; Steve Dopuch
From: Rick Seifritz, Research Manager
Date: January 16, 2007
Re: REVISED Impacts of Ohio River Clean Fuels CTL Processing Facility

Please find listed below scenarios that offer perspectives on how the Ohio River Clean Fuels (ORCF) processing facility in Columbiana County is estimated to affect various parts of the regional economy. A number of suppliers (and households) for the ORCF facility will be in the Columbiana County area, but a project of this magnitude will also impact a significantly larger geography. The scenarios include analysis of two sets of impacts (construction and operations) to the Columbiana, Mahoning, and Trumbull counties (as the base "region" for inputs), two sets of impacts to the 13-county Northeast Ohio region*, and two sets of impacts to the state of Ohio. The construction phase impacts cover four years from 2007 through 2010 and are combined for discussion below. The operations phase impacts are for the first full year of operation (2011).

TeamNEO uses a model developed by Regional Economic Models, Inc. (REMI) to estimate economic impacts. The NEO REMI model is custom designed and tailored to the region based on Team NEO specifications. The REMI model is the preeminent model of its type and is widely recognized to be at the forefront of modeling with clients not only in North America but also in the European Union. For additional information on REMI, please see their website at www.remi.com. While Team NEO utilizes a custom built REMI model, it does have limitations. For reasons of economic efficiency and the size of the Team NEO region, some counties are combined to create REMI "regions", or spatial units of analysis. In this case, the analysis and its impacts will be estimated for combined regions that include not only Columbiana, but also Mahoning and Trumbull counties, other counties in Northeast Ohio and those throughout Ohio as well. Due to the project's size and the location of the facility (adjacent to a three state area), it is expected that the impacts will accrue not only to the regions that constitute Team NEO's model, but to counties in neighboring states as well.

Impacts of ORCF facility construction on the regional economy

Table 1 contains the revised construction impact estimates for the project. ORCF construction, through its direct impact, the supplier network (indirect effects) and households supplying labor (induced effects), creates an estimated 4,000 jobs in the study region (including the original construction estimates). Over the estimated 4-years of the construction phase, employment multipliers range from a low of 2.3 (in 2009) to a high of 2.65 (in 2007), or for each ORCF facility construction jobs, more than 2 additional jobs are created in the study area. The available local wage tax revenue is $14.3 million (2006 US $).

Table 1: Construction Impacts to the Region

Ohio River Clean Fuels Project Economic Impact Summary			
4 Year Combined Construction Economic Impacts	Columbiana / Mahoning / Trumbull	13-County Northeast Ohio Region	State of Ohio
Mean Annual Employment	4,043	4,826	9,966
Gross Regional Product	$756,736,643	$1,036,554,849	$1,427,034,233
Personal Income	$715,430,000	$951,953,000	$1,304,528,206
Local Wage Tax (@2%)	$14,308,600	$19,039,060	$257,017,200
Output	$1,446,423,635	$557,445,882	$2,216,432,841

Impacts of ORCF facility first year operations on the regional economy

The estimated operations impacts to the region are based on first full year operations at the ORCF processing facility as a component of the petroleum and coal manufacturing industry. Estimated facility positions and additional employment will provide a total of 522 jobs. These provide $30.1 million in personal income, which includes both resident and commuter earnings. The income will create a municipally taxable pool of more than $602,000. Total employment impacts for the Ohio, including positions at the facility, is estimated to be over 700 jobs, generating potential local wage tax revenue of $880,000 (2006 US $).

Table 2: Operation Impacts to the Region

Ohio River Clean Fuels Project Economic Impact Summary			
2011 Operations Economic Impacts - Petroleum & Coal Manufacturing	Columbiana / Mahoning / Trumbull	13-County Northeast Ohio Region	State of Ohio
Employment	522	649	719
Gross Regional Product	$62,883,914	$75,135,395	$82,987,108
Personal Income	$30,121,000	$40,089,000	$44,009,000
Local Wage Tax (@2%)	$602,420	$801,780	$880,180
Output	$338,524,681	$360,383,101	$375,618,467

Measuring Economic Impacts

Most economic impact studies focus on five elements of impacts:

1. Job creation,
2. Change in gross product
3. Changes to income
4. Estimates of local wage tax impacts at 2% of earnings and
5. Output

In the scenarios below, we indicate the number of jobs (*Employment)* estimated to be created by economic activity. It is important to note that these jobs are simply "jobs" as they are counted by the Bureau of Economic Analysis (BEA) and are not necessarily full- or part- time. These jobs probably are distributed across a number of industries and so, in any given industry, a "job" may represent a summation of positions across a number of industries in which each industry has less than one complete position. In this example, the impact study may report one "job," but the spending patterns in the study may actually generate positions in three industries. However, each industry may require only one-third of a person. In this case, the three industries that employ one-third of a person each to meet demand, would sum to one "job" in REMI. When we look at the

impacts of visitor spending, we know that impacts distributed across multiple industries include the retail, lodging, food service, transportation, services, and manufacturing industries.

Gross Regional Product and *Gross State Product* (GRP or GSP) are economic measures of the value-add that labor contributes to the final product or service. This measure is more useful than total sales as it does not include the value of "intermediate goods" or inputs into estimating the economic impact. As an example, if a $25,000 auto is comprised of $15,000 in parts (intermediate goods) and $10,000 in labor to assemble the parts into a complete car, then the $10,000 in GRP is what the region uses to measure its input into the vehicle.

We also measure the impact of the event on the regional pool of *Personal Income*. This can be measured as the impact to total income from both residents and commuters. The income statistic is likely to be over estimated as it includes wages by place of residence as well as by place of work. In Ohio, wages taxes may be collected by place of residence and place of work, although most communities offer a credit to residents for taxes paid at the municipal-based place of work. This study does not attempt to estimate or control for these credits, but merely combines total earnings for residents and commuters.

For this study, we apply an average local *Wage Tax* rate of two percent to personal income generated in the study area, due to the presence of the ORCF facility, its suppliers and households in the study area. Note: When calculating wage tax revenue, it is not appropriate to estimate average worker earnings by dividing personal income by employment. Employment is the estimated number of jobs in the study area and personal income is the value of commuters and residents -essentially those jobs created by the event that occur within and outside the study area. Using employment and personal income together would over-estimate the per worker earnings.

Finally, *Output* is estimated for the study region. This measure is essentially the same as sales and includes both the value of GRP and the value of intermediate goods - the goods or materials needed to make the product or service.

Methodology Note

The scenarios are based on the following assumptions:

1. The plant is located in the Wellsville in Columbiana County, Ohio; for the purposes of the modeling simulation, Columbiana, Mahoning, and Trumbull counties are combined to constitute a REMI region of analysis
2. The North American Industrial Classifications System (NAICS) designation for the facility used for modeling the operations phase employment is 333, Petroleum and Coal Product Manufacturing
3. Construction employment is estimated to average 1,611 workers
4. The average 2007 construction wage per worker was estimated at $41,000

If you have any questions or require clarifications, please do not hesitate to call Rick Seifritz at 216-363-5433, or Jim Robey at 216-363-5420.

(* In addition to Columbiana, Mahoning, and Trumbull counties, the Northeast Ohio region includes Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, Stark, Summit, and Wayne counties.)