Worker transition & Global climate change

Prepared for the Pew Center on Global Climate Change

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Foreword *Eileen Claussen, President, Pew Center on Global Climate Change*

A Pew Center report series on the economics of climate change has identified ways in which economic modeling can more reliably project the costs of greenhouse gas reduction policies. These studies show that better model design — for instance, more realistically portraying technological progress and flexibility in the economy — can yield substantially lower projections for the costs of addressing climate change. They provide strong evidence that a rational climate policy that sets realistic short-, medium-, and long-term goals can achieve significant environmental gains while minimizing economic costs.

At the same time, it is important to recognize that the costs of addressing climate change are likely to fall disproportionately on certain industries, communities, and workers, and to explore ways to minimize these adverse impacts. This report draws from past worker transition efforts to recommend ways the government can best assist workers who may suffer economic dislocation as a result of climate change policies. A Pew Center report released simultaneously examines potential impacts on U.S. communities, and a future Pew Center report will evaluate competitiveness issues.

In the case of worker transition, the government has considerable experience assisting workers adversely affected by policy choices and market forces. Author Jim Barrett draws lessons from these government programs and outlines the building blocks of a worker transition program that could assist workers adversely affected by climate change policies. The report recommends that such a program include:

- Substantial retraining and/or education for laid-off workers;
- Substantial income support for program participants;
- A bridge to retirement for workers nearing retirement age that maintains their standards of living and retirement benefit levels;
- Maintenance of laid-off workers' health and pension benefits until they find suitable employment;
- Rapid response programs to ensure prompt service provision, and avoidance of detailed eligibility requirements;
- Advance notice of layoffs when possible;
- Work with unions to inform workers about program availability and to administer services;
- Performance standards that avoid the unintended consequences of the overly simplistic standards used in the past; and
- Requirements and funding for assessments of the program's effectiveness by comparing outcomes for participants and non-participants, and allowing for mid-course corrections.

Clearly, some steps recommended in these reports will require funding. As policies to address climate change are developed, revenue streams from related fees (e.g., permit fees or auction revenues) could be used to assist with these programs. Addressing climate change through sound policy will make it possible to achieve our environmental objectives while shielding workers and communities from potential economic harm. The Pew Center and the author wish to thank Susan Teegarden, Andrew Hoerner, Robert Ginsburg, Ev Ehrlich, Yolanda Kodryzycki, and Les Leopold, who offered helpful comments on previous drafts of this report. The author also would like to thank Brigit O'Brien and Terrel Hale for their research assistance.

Executive Summary

With most scientists and politicians agreeing that human-induced climate change is a potentially serious problem, the question of how nations respond to it, if at all, now seems to hinge on the perceived costs of action and inaction. Several attempts have been made to estimate the cost to the U.S. economy of reducing carbon and other greenhouse gas emissions. While there remains substantial debate over the *net* costs (or benefits) of various policy alternatives, there is little debate over the fact that reducing emissions will have potentially negative impacts for certain sectors of the economy and their workers. Any major reduction in carbon emissions in the United States will almost certainly require a decline in demand for fossil fuels, and, therefore, will result in employment losses in the coal, petroleum, and electricity industries, and possibly other sectors as well. The question often arises: What policy options are available to address the needs of impacted workers?

The United States has substantial experience with programs aimed at helping workers dislocated both by policy choices, such as trade agreements and environmental regulations, and by market forces, such as the ongoing shift away from manufacturing and toward a service-based economy. The Trade Adjustment Assistance (TAA) program established in the 1960s was designed to aid workers displaced by the effects of international trade, while the Job Training Partnership Act (JTPA) was aimed at workers displaced for any reason. The experiences of these programs can provide valuable guidance for the design of policies aimed at dealing with workers displaced by climate change policies. In 2000, both programs were subsumed by the Workforce Investment Act (WIA), which would serve workers dislocated by climate policies if they were to be laid off today.

Examinations of TAA and JTPA raised important questions about the effectiveness of their training components. Studies have found that the majority of participants who subsequently found jobs were employed in occupations unrelated to their training programs. A closer look at the evidence shows that there can be sizable gains from retraining displaced workers, with some studies finding significant benefits through higher wages at reemployment. The evidence also appears to indicate that the quality of training may be as important as the quantity.

In addition to training and education, another important aspect of worker displacement programs has been income support for participants. Both TAA and JTPA are meant to provide support for their participants, although many, including the vast majority of JTPA participants, received little or no support. Aside from the obvious hardships this can impose on workers and their families, it also had substantial impacts on the ability of the programs to move workers successfully into new jobs. A study of one JTPA program found that over the first year following layoff, program participants earned about 20 percent less than displaced workers who did

not join a program. While participants' earnings recovered substantially over time, the cost of participating in the program, in terms of lost earnings over the first year, represents a substantial barrier to participation.

While some workers likely opted out of programs due to lack of income support or other reasons, some may have been discouraged from participating. The use of performance-based contracts, which pay service providers based on reemployment and wage replacement rates, can give providers the incentive to filter out the workers who are more difficult to place and who might bring averages and compensation down. TAA had substantial problems in serving its intended population as well. One audit found that the eligibility determination process arrived at an incorrect conclusion in over 60 percent of cases.

There are a wide range of lessons that can be drawn from previous programs to help inform the design and administration of a successful program to assist workers affected by climate change policies. A critical, if broad, lesson is that numerous tradeoffs exist that can make designing an effective program difficult. At the same time, some tradeoffs that are assumed to exist may not. Continuing to assume that they do can be equally limiting.

Both TAA and JTPA have tried to strike a balance between providing compensation to workers and providing incentives to leave programs as quickly as possible. For JTPA, those incentives appear to have been too strong. A large majority of eligible workers (as many as 93 percent) never entered programs in the first place. Under JTPA and now WIA, the goal of compensation has been sacrificed in the name of efficiency. However, income compensation and training appear to be complementary, so that increasing compensation can enhance training outcomes and program success. With limited resources, unfortunately, training and compensation appear to be substitutes at least in the budgetary sense.

While providing for substantial retraining is an essential element of a successful transition program, it is no guarantee of success. Despite the relatively long training programs in TAA projects, reemployment outcomes have been disappointing, due largely to inadequate job search and placement services and to mismatches between training programs and labor market demand. Careful design of training programs and the provision of job search and placement services will be critical to the success of a climate change transition program, particularly given the long tenure and deteriorated labor market skills likely to characterize many of the program's participants.

In addition to some of the larger issues like income support, there are numerous factors in the administration of transition programs that can help determine their success or failure. Some of these issues have already been addressed in WIA. The continuous operation of WIA offices and rapid response teams can help keep the lag time between layoff and program entry low. Addressing layoffs at the earliest possible stage can increase the legitimacy of the program and help workers face the reality of permanent separation from

their jobs. This approach increases participation rates and reduces the lag time between layoff and program entry.

To ensure that these workers have access to training options, two conditions must exist. First, training programs must be offered that can serve their needs. Second, training providers must have a limited ability to exclude or discourage clients who are difficult to place. If these conditions are met, it may be possible to employ performance-based standards successfully. To ensure that programs suitable for the hard to place are available, a successful program needs to offer sufficient incentive to trainers to offer such programs. One approach is to offer higher payments for placements of the difficult to place. Rather than offer payment based on the number of people placed, a system could offer payment based on the expected intensity of training required. This approach would offer increased incentives for training providers to design programs for workers who need the most help.

A more fundamental issue is the appropriateness of a program explicitly designed to serve one type of worker and not another. To a laid-off worker, and possibly to society as a whole, it may seem arbitrary to deny or approve benefits based on whether it can be proven that climate change policies contributed to the layoff. Climate change policies may be only one of a combination of causes leading to a layoff, particularly for industries already in decline. Any eligibility restriction based on climate change policies will thus be difficult to implement.

The following elements appear critical to the success of a transition program aimed at helping workers dislocated by climate change policies or other causes:

- Substantial retraining and/or education should be available for laid-off workers.
- The program should provide substantial income support for program participants.
- For those workers nearing retirement age, the program should provide a bridge to retirement that maintains their standard of living as well as their retirement benefit levels.
- The program should maintain health and pension benefits of laid-off workers until they find suitable reemployment.
- To help ensure that services can be provided as quickly as possible, rapid response programs should continue to be employed, and detailed eligibility requirements should be avoided whenever possible.
- The program should encourage advance notice of layoffs when possible.
- The program should work with unions to inform workers about the availability of programs and to administer services.

- The program should establish performance standards that avoid the unintended consequences of the overly simplistic performance standards used in the past.
- The program should require, and provide funding for, assessments of the program's effectiveness by comparing outcomes for participants and non-participants, and allow for mid-course corrections.

I. Introduction

As the climate change debate moves away from questions about science and toward questions about implementing carbon reduction policies, concerns have been raised about the economic impacts of reducing carbon and other greenhouse gases to less harmful levels.[1] Because the economy currently depends on fossil fuel consumption, limiting carbon emissions will require significant economic change. Such changes will likely affect economic well being in a variety of ways: some will benefit while others could face serious negative impacts. Attempts to forecast both the gross and net potential costs have been plagued by many uncertainties. Such problems are not unique to climate change. Attempts to predict the economic costs of environmental policies are often unsuccessful, usually grossly overestimating the costs of compliance.[2]

Given the complexities of the national economy, it should not be surprising that generating accurate forecasts is difficult. In addition, economic impacts will depend greatly on the highly uncertain nature of technological developments over the next several decades. These complexities have resulted in a wide range of estimates that vary in the magnitudes of projected impacts and even differ about whether the net impacts will be positive or negative.[3] Despite the wide differences in the forecasts, however, there is at least one common thread that runs through them all: Workers in energy-producing and energy-intensive industries may find their livelihoods at risk. Even in the most optimistic scenarios, the reduction in carbon emissions means reduced production of carbon-based energy and energy-intensive products, which translates into reduced demand for workers in those sectors no matter how smooth the transition is and how many jobs will be created in other sectors. Given the high probability of these effects, the question of appropriate government response takes on increased significance.

Like any other government policy, climate change policies will create both winners and losers. No matter how well policies are constructed or how important their goals are, it is hard to imagine any policy, from the Endangered Species Act to international trade agreements, that has no negative impacts on at least some groups of workers. When policy decisions have resulted in substantial adverse impacts on a relatively small group, the federal government has attempted to mitigate these impacts. Escape clauses are often

included in trade agreements to help businesses affected by import competition, and transition programs have been in place since at least the 1960s to try to help workers laid off as a result of trade agreements, environmental regulations, and other federal policies.

Many of the industries and workers at risk from climate change policy already face other threats. Many energy-intensive industries face intense international competition for their products and services. Employment in the coal mining industry has been declining for the past two decades due to increased mechanization. Thus, it may often be difficult to attribute particular job losses to climate change policy, rather than a combination of factors, of which climate policy may be only one.

The primary purpose of this paper is to address the following question: If a transition program were part of the government's approach to climate change policy, how should such a program be designed and what level of resource commitment would it require? To answer that question, the paper examines policy options for aiding workers likely to be dislocated as a result of climate change policies. It examines past transition programs and, drawing upon lessons learned from these experiences, presents a set of principles and recommendations to guide the creation of a fair and effective program to help workers in the transition to a low-carbon economy.

Section II discusses the needs likely to arise as a result of climate change policies. Section III provides current and historical background on the three largest worker adjustment programs in the United States. Section IV discusses the most important issues confronting these programs and how past programs have addressed them. Section V distills these experiences into a set of guiding principles that should inform the design of a climate change worker transition program.

II. Adjustment Programs in the Climate Change Context

One of the more important policy questions about a worker adjustment program is how much it would cost. While it is rather straightforward to assess the cost per worker, determining total cost of the program is more difficult because it depends on the number of workers who would use it. This question is particularly difficult to assess in the context of climate change.

The number of workers who would become dislocated as a result of climate change policies depends on a large number of variables. Primary among them is the question of how large the cuts in carbon emissions would be and how quickly they would be made. The Kyoto Protocol lays out a specific binding target for the United States, but the Protocol has not been adopted, and in the current political climate, it appears unlikely that it will be adopted in its current form in the near future. Further, the means by which the reductions are achieved will also play a critical role in determining the number of workers who might be affected. Despite these uncertainties, it is possible to draw some general conclusions about the number and type of workers who might be affected by climate change policies.

It is helpful to think of the impacts of climate policies in terms of concentric circles, or ripples in a pond.[4] The most direct impacts — the innermost circle — would be felt by workers involved in producing and delivering fossil-based energy. Impacts on these sectors depend less on how reductions are made and more on the size of emissions reductions. Such industries include the fossil fuel industries themselves (crude oil, oil refining, natural gas extraction and utilities, and coal mining), as well as electric utilities, which burn coal and natural gas in the generation process, and railroads, which deliver large amounts of coal from mines to electricity generators. While economic policies to reduce energy demand or efficiency improvements may ease the burden for energy consumers, such policies have little benefit for these industries.

The second circle would include industries that are large energy consumers. The impacts would be less direct and less severe, and would depend on the policy approach used to achieve the desired emissions reductions. The primary avenue for impacts on these industries would be the fact that restrictions on carbon emissions are likely to increase energy prices, making energy-intensive industries less profitable. Policies that increase energy efficiency, for example, could mitigate the impact of a carbon tax or permit system on

these industries, allowing them to maintain higher production and employment levels than would otherwise be the case. Such energy-intensive industries include metal producers like steel and aluminum; transportation sectors like trucking and air transportation; chemical industries; and paper, rubber, and construction material producers like cement, glass, and clay, to name a few. The automobile sector could also be affected because automobiles use many of these and other energy-intensive products. Also, as the price of gasoline increases, people may tend to drive less, reducing the demand for cars. This impact would be mitigated to the extent that fuel efficiency increases. However, increasing fuel efficiency would likely have both positive and negative implications for workers in the auto industry. While the primary impact of increased energy prices on these industries would be to lower employment, some studies have found that employment may actually increase in these sectors, depending on the policy mix.[5]

The outermost circle would include the rest of the economy. A carbon pricing mechanism would have smaller impacts on operating costs for non-energy-intensive industries. In this third circle, any reductions in employment are likely to be caused by overall changes in economic performance, rather than as direct results of increasing energy prices. Employment may increase in these industries, depending on the health of the economy as a whole, and may increase even if national output declines as a result of climate policies.

In 1998, the industries in the innermost circle employed about 1.7 million workers, while those in the second circle employed about 4.2 million. Total employment was approximately 140 million (Thompson 1999). Even in the most severely affected sectors, not all of these jobs would be at risk. While a large part of the railroad industry depends on delivering coal to electricity generators, other parts of the sector, such as passenger rail services, will likely see far smaller impacts. Among electric utilities, which employ about a third of the workers in the most affected sectors, employment impacts will be more serious the closer workers are to actual generation. For workers further downstream in areas such as line maintenance, the impacts are likely to be far smaller.

It is beyond the scope of this paper to provide estimates of the number of workers who are likely to be dislocated as a result of climate change policies, but a few facts are worth noting. First, the negative impacts of climate policies are likely to be heavily concentrated on a relatively small portion of workers. While economic conditions may even improve for the economy as a whole, those workers who are affected face not only job loss, but also the potential obsolescence of their skills as their industries contract. Second, the vast majority of the impacts will be concentrated on the manufacturing and mining sectors.

Parts of these sectors have been in decline for several years as a result of increased mechanization, increased competition from imports, and the broader shift of the U.S. economy away from manufacturing and toward services. For many impacted sectors, climate policies could accelerate declines they already face, making the prospects for recovery for these workers and their communities even less promising.

Table 1

List of Acronyms Used in This Report

AFL-CIO	American Federation of Labor-Congress of Industrial Unions
CETA	Comprehensive Employment and Training Act
COBRA	Consolidated Omnibus Budget Reconciliation Act
CRT	Classroom Training
DOL	Department of Labor
EDWAA	Economic Dislocation and Worker Adjustment Assistance Act
ES	Employment Services
GAO	General Accounting Office
JPA	Job Placement Assistance
JSA	Job Search Assistance
MDTA	Manpower Development and Training Act
NAFTA	North American Free Trade Agreement
OJT	On-the-Job Training
OTAA	Office of Trade Adjustment Assistance
PIC	Private Industry Council
RFP	Request for Proposal
SDA	Service Delivery Area
TAA	Trade Adjustment Assistance
TEA	Trade Expansion Act
TRA	Trade Readjustment Allowances
UI	Unemployment Insurance
WIA	Workforce Investment Act

III. Background of Adjustment Assistance Programs

Modern adjustment programs have existed since the 1960s, when the Trade Adjustment Assistance program (TAA) was established to help workers laid off as a result of international trade agreements. In addition to TAA, Title III of the Job Training Partnership Act (JTPA) was created to help workers laid off for any reason.[6] In July 2000, JTPA, as well as other federal employment services, was replaced by the Workforce Investment Act (WIA). TAA services are now provided through the WIA system. WIA would likely be the program to serve workers dislocated by climate policies if they were to be laid off today. This section briefly summarizes the history of TAA and Title III of JTPA as well as the changes to these programs resulting from the implementation of WIA.

A. Trade Adjustment Assistance

The Trade Adjustment Assistance program was established in 1962 under the Kennedy Administration as part of the Trade Expansion Act (TEA). TEA was designed to lower tariffs on imports. TAA was created partly in response to organized labor's concern about potential job loss associated with increased imports. The American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) supported TEA, but this support was conditional on the transitional assistance offered by TAA (Kapstein 1998). The principal goal of the program was to provide income support, retraining, and relocation funds to help workers move to new jobs that offer similar pay and benefits. Along with helping workers find new employment, a central theme of TAA has been compensating workers for their losses.

Since its inception, TAA has been revised several times. In 1974, the Nixon Administration amended the program, easing eligibility standards so that increased imports now only needed to be an "important" rather than a "major" factor in the layoff. The increase in imports no longer had to be attributable to a specific piece of legislation or trade concession. In addition, certified workers could now receive weekly Trade Readjustment Allowances (TRA) for up to 70 percent of their previous wage. This amount could be combined with unemployment insurance (UI) for up to 100 percent of the average manufacturing weekly wage for up to 18 months if the worker was enrolled in an approved training program.

In 1981, the Reagan Administration revised TAA roughly to where it stood in 2000, before the implementation of WIA, speeding up the eligibility certification process, tightening TRA eligibility standards, and lowering TRA benefit levels. With the passage of the North American Free Trade Agreement (NAFTA) in 1993, the NAFTA-TAA program was created to serve workers who lost their jobs as a result of that agreement. The program was similar to TAA in its goals and operation.

The first step in gaining assistance under TAA or NAFTA-TAA is for three or more workers to apply for eligibility. (Petitions can also be submitted by unions and management on workers' behalf.) Workers applying for TAA eligibility submit petitions to the Office of Trade Adjustment Assistance (OTAA) at the Department of Labor (DOL), which has 60 days to make a determination of eligibility. NAFTA-TAA applicants submit petitions to the governor of their state, who has ten days to make a preliminary finding and pass it to OTAA. OTAA has an additional 30 days to make a final determination. Once OTAA determines eligibility, it enrolls workers in an adjustment program. Before WIA, these programs were generally run by the state office of the federal U.S. Employment Service agency.[7] Participants are entitled to TRA payments once regular UI benefits have been exhausted (usually 26 weeks), provided that they are enrolled in an approved training program. (NAFTA-TAA participants must be enrolled in training by the 17th week of their unemployment spell; TAA participants have 26 weeks). TRA benefits were simply an extension of UI payments for up to 52 additional weeks. TRA payments thus generally replace between 35 and 40 percent of workers' layoff wages. The training requirement for TRA payments can be waived under special circumstances, although the General Accounting Office (GAO) found in 1993 that 53 percent of TRA recipients were not enrolled in training (GAO 1993b), despite a tightening of the training waiver rules in 1988.

Most workers in TAA adjustment projects tend to follow the same general progression. On entering the program, workers go through skills assessment to determine what their skill and education levels are, if their current skills are marketable in the local job market, and, if not, what kind of training or education would be appropriate. If a worker is found to have marketable skills, he moves into a Job Search Assistance (JSA) or Job Placement Assistance (JPA) component or both. JSA services range from resume preparation and improving interviewing skills to providing guidance in networking and the informal job market. JPA tends to be more intensive and is often reserved for those who have had little success with JSA alone. JPA activities include more active involvement by program staff in identifying suitable job openings, contacting employers, and providing workers with direct referrals to potential employers.

Participants who do not have marketable skills, require remedial education, or have no success in the JSA/JPA track are enrolled in a training program.[8] Under TAA, training can be provided for up to two years. Training services can include remedial education, English as a second language, as well as specific occupational skills. Occupational classroom training (CRT) often leads to skill certification in a new or related field. Once training is complete, workers can enroll in JSA or JPA to find job openings related to their new or upgraded skills. The type of training provided is meant to be geared towards the preferences and abilities of the individual worker. TAA can provide additional services such as relocation assistance (if a worker finds "suitable employment" in another area), transportation allowances for travel to and from approved training programs, and subsidies for books and other training-related materials. The objective of TAA and NAFTA-TAA programs is to return as many workers as possible to suitable employment, defined as a full-time job that pays at least 80 percent of the worker's previous wage (NCEP 1995, GAO 1993b).

B. Job Training Partnership Act Title III

The Job Training Partnership Act (JTPA) was aimed at providing training and other assistance to workers laid off for a variety of reasons. Title III of the Act is designed to assist workers permanently separated from their jobs with little chance of returning to their previous industry. Unlike TAA, Title III did not restrict participation based on the cause of dislocation. JTPA had its roots in the 1962 Manpower Development and Training Act (MDTA). Under MDTA, the federal government ran various employment and training services through subsidized on-the-job training, occupational CRT, and vocational and technical schools. The original focus of MDTA was on workers dislocated due to automation and other such causes. After 1964, MDTA also took on the task of poverty alleviation, and began serving increasing numbers of welfare recipients and other cyclically unemployed, resulting in programs like the Job Corps (LaLonde 1995).

MDTA was replaced by the Comprehensive Employment and Training Act (CETA) during the Nixon Administration. Under CETA, the federal government put the states in charge of administering the adjustment programs, funded with federal grants. Much of the focus was on the economically disadvantaged rather than displaced workers. As with TAA, the Reagan Administration cut back funding for CETA and replaced it with the Job Training Partnership Act. JTPA maintained state and local administration of the training programs and shifted some of the Act's focus away from economically disadvantaged workers (served under Title II of the Act) and toward dislocated workers served by JTPA Title III (LaLonde 1995).

In 1988, JTPA Title III was amended by the Economic Dislocation and Worker Adjustment Assistance Program (EDWAA). Because response time was seen as critical to the success of the program, EDWAA provided for a "rapid response unit" in each state to establish projects quickly, even before layoffs occurred, if possible. Additionally, the EDWAA amendments were meant to encourage more joint participation between various levels of government, labor unions, and the private sector. EDWAA also called for a wider range of training options, increased application of training, and a dramatic increase in funding. Performance-based contracts were further emphasized (but not required). Under these contracts, service providers were often required to place a certain percent of those completing their program (called program terminees) in long-term full-time jobs, or find jobs that pay at least a certain percentage of the terminee's previous wage or some other measure of success. In 1985, Title III programs were funded at about $315 million and served about 145,000 new enrollees. In contrast, programs in 1992 were funded at about $560 million and served around 315,000 participants. These figures rose to about $1.2 billion and 580,000 workers in 1997.

Title III projects were administered differently than TAA programs. Rather than relying on local Employment Service (ES) offices, Title III used a "request for proposal" (RFP) system to select training providers. The state identified the need for services in an area and issued a request for proposals for institutions interested in operating a Title III training program. The request was often issued through the local Private Industry Council (PIC), a board comprised mostly of local business leaders set up under Title II of JTPA to advise local Title II service providers called Service Delivery Areas (SDAs).[9] Proposals were submitted by a variety of institutions, often including the local ES office, educational institutions, affected unions or labor-management committees, and private firms.

The first step for workers enrolled in a Title III project was participant intake. Unlike TAA, there were no strict eligibility requirements that workers were required to meet. Title III's principal targets were workers who had become structurally unemployed, emphasizing, but not limited to, those affected by mass layoffs and plant closings. Eligible workers were those who had been terminated from their jobs or had received termination notice, were eligible for or had exhausted UI benefits, and were unlikely to return to their previous industry or occupation. Once a Title III program was in place, it could be open to almost any unemployed worker. Although some projects were open to all interested, non-structurally unemployed people were generally guided towards other JTPA programs geared more toward their needs

(generally Title II programs). Rapid response units aimed to establish on-site contacts within 48 hours of learning of a substantial layoff or plant closure. The rapid response unit was charged with preliminary assessments of workers' skills and the needs of the local job market, disseminating information among affected workers and to management, as well as promoting the formation of labor-management committees to aid the adjustment process. Rapid response units placed a high premium on making contacts with labor unions, where they existed, to help not only in disseminating information, but also to add legitimacy to their efforts.

Like TAA, Title III authorized cash payments to enrollees. Payments were available only after regular UI benefits had been exhausted. To be eligible, participants must have been enrolled in a training program by the thirteenth week of unemployment or by the eighth week after learning that separation from their jobs would last more than six months. Like TAA, payments were capped at the enrollees' UI benefit level, although theoretically they could be extended indefinitely. Title III program operators were constrained to spend less than 30 percent of their funds on these and other "supportive services," including child care, transportation expenses, personal and financial counseling, and books and other training-related materials. Most of their funds were devoted to program operations, mainly JSA and JPA services.

Title III enrollees followed the same general path as those in TAA programs. After intake, participants went through skills assessment and moved into a JSA, JPA, or CRT program. The length of training programs depended on what the provider determined was appropriate for the individual participant and the level of funding that the program had to carry out its operations. One tool available to Title III service providers that was rarely used by their TAA counterparts was On-the-Job Training (OJT). Under OJT, the service provider placed a participant in a pre-existing job opening and subsidized the participant's wages (up to 50 percent or $1000 for up to six months). The subsidy went to the employer and was usually paid only after the participant had been employed for some predetermined amount of time (generally six months) beyond the OJT period, so that employers could not simply take advantage of six months' worth of subsidized wages and fire the trainee as soon as the OJT period ended (NCEP 1995, GAO 1992a, Golding 1991). OJT contracts were designed for workers who had skills that were closely related to those required for a job opportunity that the service provider had already identified. OJT was often used to place workers who had few upgradeable skills and had or were likely to have little success in finding a job with the aid of JSA or JPA services. These placements were usually in low-paying, low-skill jobs.

C. Workforce Investment Act

In 1998, the Workforce Investment Act (WIA) was passed in an attempt to resolve many of the administrative difficulties experienced with operating Title III, TAA, and other worker adjustment programs as separate entities. If climate policies were enacted today, WIA would be the program to which displaced workers would be referred. One main result of WIA was the consolidation of worker training and education services into a "One-Stop" system. This consolidation includes the various titles of JTPA (which is officially repealed by WIA), including Title III, as well as the U.S. Employment Service. This means that both TAA and Title III programs will be run through the new local One-Stop. Training providers will no longer be provided through the RFP system. WIA requires prospective service providers to apply to the local workforce investment board, a majority business committee that oversees the local One-Stop. Participants can then select among the certified training providers.[10]

Another intent of WIA is to give participants more control over the services they receive. Under WIA, training recipients will receive "training vouchers" redeemable for services at any of the approved training providers. One-Stop centers will provide participants with information about the various providers, including data on reemployment and wage replacement rates, program completion rates, as well as program costs. The point is to allow participants, with the help of program staff, to select the training options that are best suited to their needs and to allow workers to identify and choose more successful providers. Providers will continue to be held to performance standards as a requirement for participation in WIA programs and receipt of funds. WIA does not fundamentally change the provision of income support for workers who would previously have entered a Title III program. The programs being consolidated under WIA, including JTPA, are funded at 90 percent of their previous year's level for 2000-2001.

Table 2

Summary of Adjustment Assistance Programs

Acronym, Title, Goal, Description	Year started	Eligibility, assistance process	Program Cost, number of workers served	Compensation	Training
1. TAA					
TAA (Trade Adjustment Assistance) 1962-1974, to provide income support, retraining, and relocation funds for workers dislocated due to increased imports.	1962	Group of 3 or more workers applies for eligibility; job loss must be tied to specific trade action.	No one served until 1969 due to stringency of eligibility test.		
TAA, 1974-81, same as above, but eligibility standards eased.	Amended in 1974	Job loss no longer must be tied to specific trade action.	25 times as many workers served in 1976-80 as were served between 1962-75; total benefits payment 50 times as high (1.3 million workers, $6 billion).	Trade Readjustment Allowances (TRAs) for up to 70% of previous wage; supplemental unemployment insurance (UI) up to 100% of previous wage.	
TAA, post-1981, same as above, but limited to workers permanently displaced. Goal is to return as many workers as possible to full-time employment that pays at least 80% of worker's previous wage.	Post-1981	Two tracks: Job Search Assistance (JSA) or more intensive Job Placement Assistance (JPA). If worker is not ready for JSA/JPA, or if JSA/JPA is unsuccessful, then worker must enroll in training. Once training is complete, can enroll in JSA/JPA.		Replace 35-40% of a worker's wages for up to an additional 52 weeks beyond exhaustion of UI. Some relocation assistance and training-related assistance available.	Must be enrolled in training by 26th week of unemployment.
NAFTA-TAA (North American Free Trade Agreement-TAA), substantially equivalent to post-1981 TAA.	1993				Must be enrolled in training by 17th week of unemployment.
2. JTPA, EDWAA, and their precursors					
MDTA (Manpower Development and Training Act), to help workers dislocated due to automation; after 1964 also serves the cyclically unemployed through programs like Job Corps.	1962	Federal government runs various employment and training services.			
CETA (Comprehensive Employment and Training Act), replaces MDTA, focuses more on disadvantaged than dislocated workers.	1970	Puts states in charge of administering adjustment programs, funded with federal grants.	$9 billion by 1981.		

Acronym, Title, Goal, Description	Year started	Eligibility, assistance process	Program Cost, number of workers served	Compensation	Training
JTPA (Title III of the Job Training Partnership Act), cuts back funding for CETA, shifts focus back to dislocated workers.	1981	Eligible workers must have been terminated from their jobs or have received termination notice, be eligible for or have exhausted UI benefits, or be unlikely to return to their previous industry occupation.	In 1985, $315 million, serving about 145,000 new enrollees. Only reaching 7% of eligible workers because of delays; <25% of those served received any income or other supportive services; <50% received training. 80% received JSA and JPA.		
EDWAA (Economic Dislocation and Worker Adjustment Assistance Program), amends JTPA Title III; dramatically increases funding; provides for a rapid response unit; encourages more joint participation between various levels of government, labor unions, and the private sector; and emphasizes performance-based contracts with service providers.	1988	Similar to TAA; options include Classroom Training, (CRT) JSA, JPA, and On-the-Job-Training (OJT).	In 1992, $560 million, serving about 315,000. Rising to $1.2 billion serving 580,000 in 1997.	Payments available only after regular UI benefits exhausted.	Wider range of training options; increased application of training; must be enrolled in training by 13th week of unemployment or by 8th week after notification of long-term job loss.
3. WIA					
WIA (Workforce Investment Act), replaces and officially repeals JTPA, consolidates administration of TAA, EDWAA, and other employment training programs. Gives participants more control over the services they receive.	Enacted in 1998; goes into effect in July 2000	Other programs still exist, but now will be run through a One-Stop system, including ES. May have eliminated RFP system.	Programs consolidated under WIA, including JTPA, are funded at 90% of their previous year's level for 2000-2001.		Participants receive training vouchers redeemable at any approved service provider.

IV. Experience with Previous and Existing Programs

The experience with past adjustment programs run under TAA and Title III of JTPA offers some valuable lessons on issues ranging from the effectiveness of training to the worker intake process. WIA appears to have been designed with some of these lessons in mind, but it is too early to tell if these changes have been successful. This section will distill these lessons, examine the extent to which they have been implemented in WIA, and develop a set of guidelines for designing effective worker transition programs.

A. Effectiveness of Training

One of the central missions of worker transition programs is to move displaced workers into substantially equivalent employment as quickly as possible. For many displaced workers, especially those in declining industries, this means not only a change in jobs, but also a change in occupation. This often requires that workers modify their existing skills or learn entirely new ones. TAA, Title III, and now WIA have relied on various forms of retraining and education to accomplish this. A central measure of the success of an adjustment program is its ability to prepare workers for new employment.

Both TAA and Title III have had problems regarding the applicability of their training programs to the job market. In its assessment of 1991 outcomes, the Department of Labor found that only 40 percent of reemployed Title III training recipients were working in jobs related to the training they received (DOL 1995). An assessment of TAA outcomes in 1991 and 1992 also found that 40 percent of trainees found jobs related to their training and only half of those were at "suitable" wages (Peterson 1993). Low placement and wage replacement rates such as these have generated much criticism.

One common conclusion is that training has had little or no beneficial impact on displaced workers (Decker and Corson 1995; Leigh 1994, 1991; MPR 1993; Jacobson 1991), and therefore should be abandoned or de-emphasized (MPR 1993, Jacobson 1991). Others conclude that training has merely been inadequate and must therefore be strengthened (GAO 1993b, Friedman 1991).

The broad statement that retraining programs have had no beneficial impacts on workers is too simplistic a conclusion. While it is clear that retraining programs have not always provided a smooth transition to equivalent employment, there is substantial evidence that retraining programs have benefited workers and, with modification, could serve as a foundation for a successful transition program for workers affected by climate change policies.

Whether training programs are found to be successful depends largely on how success is measured. Judging retraining programs based on worker outcomes can be difficult, because outcomes are determined by more than just the retraining program. Factors like local economic conditions, participant characteristics, and effort levels play an important role in determining outcomes for workers. Workers participating in retraining programs often train for a new occupation and a new industry. Skills that are specialized for their previous jobs are worth less to new employers. Adapting these skills to a new occupation may make them partially applicable to their new job, but it is unlikely that they will be perfectly transferable. This fact can result in sizeable reductions in pay (Kodrzycki 1997). Additionally, if moving to a new job results in the loss of seniority, replacement wages will suffer further, even if the new job is in the same occupation or industry. Even valuable retraining programs may show low-wage replacement rates due to these effects. Training programs can be successfully used as a core factor in a climate change transition package, but the way that programs are implemented will largely determine their success or failure.

Both theory and evidence suggest that while retrained displaced workers fare better than their counterparts who do not retrain, they still generally earn substantially lower pay at their new jobs than they did at their old jobs, and their wages take a considerable amount of time to return to pre-layoff levels. An audit of 1991 Title III programs (DOL 1995) measured the hourly wages of training recipients who found reemployment. At program termination, wages averaged about 82 percent of layoff wages. One year after termination, the wage replacement rate was about 90 percent, and did not reach 100 percent until an average of 32 months after termination.[11] Studies with follow-up horizons of less than three years are thus unlikely to show many of the benefits of retraining.

A comprehensive evaluation of participants in a 1987 Title III project in St. Louis measured at strategically timed intervals the outcomes of participants against a random sample of UI claimants who did not receive services (DOL 1993). Annual earnings of participants in the St. Louis project averaged about $28,000 at their layoff jobs. In the first year after their initial unemployment claims, occupational

CRT recipients (including those who were not reemployed) earned a little more than $15,000, suffering about a 45 percent loss of income, not including the loss of health care and other benefits. In fact, the comparison group of non-Title III participants earned over $18,000, about 20 percent more than training recipients. In the second year after initial claim, trainees' earnings were up significantly, surpassing the earnings of non-participants, but were still only about 78 percent of pre-layoff wages. The study estimates that in the first year after program termination, the wage replacement rate of occupational CRT recipients rose to about 88 percent.

While the outcomes for trainees may be uninspiring when compared to their pre-layoff wages, the study shows clear benefits to retraining when outcomes for retraining recipients are compared to outcomes for non-recipients. The study found that in the first year after program completion, participation in occupational CRT yielded increased earnings of about $6,000 (about 33 percent) above non-Title III participants. When compared to Title III participants who did not participate in training, the benefits were still considerable. Trainees earned an average of 20 percent more in their first year of reemployment compared to participants who received JPA only, and about 34 percent more than those who received JSA only. While all classes of Title III participants suffered some loss when compared to their previous wages, those who received training clearly received substantial benefits.

If the St. Louis study shows that there can be sizeable returns to retraining displaced workers, it also shows at least one reason why Title III and its training programs often earned a bad reputation among workers. After entering Title III training programs, workers who once earned an average of over $28,000 now brought home about $13,000 less the first year after losing their job, not including the loss of health insurance and other benefits. During the first year of unemployment, the average training recipient would have earned $3,000 more if he had stayed out of the program, about enough to replace lost health insurance coverage through COBRA (DOL 1993).[12]

B. Income Support

A separate issue, but one closely related to training effectiveness, is income support. The problem of meeting a household budget while retraining makes these two issues interdependent. Both TAA and Title III included specific provisions for delivering income support to program participants, but the way in which they were provided (or not provided) affected the ability of workers to retrain and the effectiveness of training when it was used.

Although Title III legislation authorized extended UI payments to those enrolled in approved training programs, in reality, such payments were rarely made, apparently due to a simple lack of funding. While detailed figures are difficult to obtain, in 1996, Title III was allocated approximately $1.12 billion and about 284,000 workers terminated programs. Including program overhead, this comes to less than $4,000 per worker, leaving little room for income support (DOL 1998). In 1989, Title III served about 300,000 workers, while income support totaled about $23 million (Friedman 1991). If 90 percent of participants took no income support, this would leave about $770 each for the remaining participants, or less than 8 days' worth of wages for the median worker displaced from a full-time job, not including the loss of benefits. More recently, from 1993 to 1996, no more than 6 percent of Title III terminees received any needs-related payments or housing assistance through the program (DOL 1998). In a survey of some 1993 Title III terminees, 42 percent said that the lack of income prevented them from getting the training they wanted (Dickenson 1994).

Under TAA, income support in the form of TRA payments was intended to be an entitlement to workers in the program, available for up to 52 weeks beyond expiration of UI benefits. But with TRA benefits replacing roughly 35-40 percent of lost wages, workers training under TAA potentially faced years of financial hardship. TAA participants (like other unemployed workers) could extend their health benefits for up to 18 months after layoff under COBRA legislation, but with costs of about $3,000 per year, leaving them with less than 25 percent of their previous income. Some provisions of TAA were meant to ensure that workers did not rely too heavily on income support, which may have had some merit, but it appears that low benefit levels may have seriously undermined the effectiveness of these programs.

The limited availability of income support clearly affected the use of training for TAA and Title III participants. On average, the end of training under both TAA and Title III coincided with the cessation of income support. Including average wait periods before beginning training, Title III training programs ended an average of 32.4 weeks after layoff, while income payments beyond 26 weeks of initial UI benefits were rare (DOL 1995). Under TAA, including the average 15-week delay between layoff and the commencement of training, training ended, on average, 78 weeks after layoff, which exactly corresponds to the availability of income support — 26 weeks of UI plus 52 weeks of TRA (Peterson 1993).

C. Timeliness of Service Provision

Another important factor determining the success of a transition program is the amount of time that passes between the time a worker is laid off and when the worker enters a program. As mentioned above, income support tends to be a limiting factor in the use of training for program participants. Since UI benefits expire after a fixed period of time beyond layoff, the longer it takes for a worker to enter a program, the fewer weeks of income support will be available to that worker while in training. Research has shown that the earlier these programs reach workers, the higher their chances of reemployment (GAO 1987b, OTA 1986). The St. Louis study found that for every day that passed between layoff and program entry, workers' annual earnings at their new jobs were reduced by almost $14. The average Title III waiting period of 19 weeks before entering a program would cost a worker about $1,850 in annual salary (DOL 1998).

Both TAA and Title III had considerable difficulty in providing services to their intended beneficiaries in a timely fashion. Although the problems manifested themselves differently and likely had different causes, the result was that individual projects under both programs often faced an uphill struggle in achieving their goals. One major problem has been the certification requirement for workers seeking TAA assistance. Both TAA and NAFTA-TAA require the U.S. Department of Labor to undertake detailed investigations each time a worker or group of workers requests certification. These investigations must be completed within 60 days for TAA and 40 days for NAFTA-TAA applications. The intent of time limits on investigations is to allow workers to move as quickly as possible into a training program. However, a GAO (1993b) report found that 65 percent of the TAA training recipients in states examined had been out of work for at least 15 weeks before entering a training program.

Like TAA, Title III also had problems delivering services in a timely manner. Despite the rapid response measures included in the EDWAA revisions to Title III, many workers did not enter programs until well into their unemployment. An audit of 1991 programs found that the average worker was unemployed 19 weeks before entering a program, and 35 percent of participants did not enter until after 15 weeks of unemployment. Notably, however, 41 percent entered after being unemployed for less than six weeks (DOL 1995). While the rapid response measures included in Title III apparently served a sizeable minority fairly well, there seems to have been a wide variation in the success of rapid response services to reach workers quickly.

D. Program Coverage

At least as important as how well programs serve their participants is the degree to which programs reach their intended audiences. Here, both TAA and Title III have had problems covering their intended beneficiaries.

The major issue for TAA seems to be worker certification. In addition to the delays it can cause, it also appears to be incorrectly certifying some workers and denying coverage for others. A Government Accounting Office (GAO) investigation found that 63 percent of TAA investigations of petitions filed in 1990 and 1991 arrived at the incorrect conclusion, about equally divided between incorrectly denying and incorrectly approving certification (GAO, 1992b). Many of the mistakes were blamed on the fact that 60 days was an insufficient amount of time to assess the application, given the complexity of the investigations that are often required.[13] There appears to be a tradeoff between accurately certifying workers for the program and moving them into a program quickly.

Problems have been substantial in Title III programs as well. A 1987 examination of pre-EDWAA Title III projects found that Title III programs were reaching, at the most, 7 percent of their intended beneficiaries (GAO 1987a). More recently, from 1995 to 1996, about 2.2 million workers became dislocated and eligible for Title III, yet fewer than 284,000 workers received services through a program. Title III programs have almost doubled the previous coverage rate, but still only serve 13 percent of the eligible population (Hipple 1999, DOL 1998). There does not appear to be a single major cause of these low rates.

One reason why Title III may have experienced low participation rates relates to points discussed earlier. Particularly for Title III, where income support is rare, workers may see little benefit to participation. Recalling the results from the St. Louis assessment, workers were better off in the short run if they did not enroll in training. In the long run, training can yield significant benefits, but many workers may not feel that they can afford to suffer the loss of income associated with retraining on the chance that it may pay dividends later on.

Another cause of low coverage rates may be the use of performance-based contracts for training providers. Requiring program operators to find jobs for a certain percent of terminees or jobs that pay a certain percentage of the terminee's previous wage has lead to a practice called "creaming." Hard-to-place workers are filtered out or discouraged from continuing the intake process, leaving the program with a pool of participants that are easier to place, can be placed at a low cost, or both. By taking the cream of the crop, program operators could meet their performance standards more easily and, in some cases, earn a higher profit (SRI 1990, Cook 1987, GAO 1987a).

These factors are reflected in the outcomes of Title III programs. The average layoff wage of 1996 program terminees who found employment was $11.05/hr. This is about 23 percent below the median wage of workers displaced from full-time jobs from 1995-1996 — the primary target population for Title III programs. Title III thus served a small portion of eligible workers with disproportionately low wages but largely missed its core target population. Further, of all workers displaced between 1995 and 1996, 71 percent were separated from jobs that provided some health insurance benefits. Among 1996 terminees, however, only 44 percent were reemployed at jobs with any benefits at all, and only 60 percent were covered by unemployment insurance at their new jobs (Hipple 1999, DOL 1998). Given that Title III only covered about 13 percent of the eligible population, a large proportion of displaced workers apparently chose not to participate in programs. Those opting out tended to have higher pre-layoff wages than those who entered programs. It is impossible to know whether workers avoid the program because of the low compensation rates of reemployed terminees or if the low compensation rates are due to the fact that lower-wage and less educated workers tend to enroll.

V. Guidelines for Designing a Climate Change Transition Program

A critical lesson of previous programs is that numerous tradeoffs exist that can make designing an effective program difficult. At the same time, however, some tradeoffs that are assumed to exist may not, and continuing to assume that they do can be equally limiting.

One of most important issues that must be addressed is income support. The differences between Title III and TAA reflect the perception of a tradeoff between the goals of compensating workers for their losses and helping them find suitable reemployment as efficiently as possible. Whereas income support benefits are an entitlement to all workers under TAA, they were a rarity under Title III. Both programs have tried to strike a balance between providing compensation to workers and providing them with the incentive to leave programs as quickly as possible. At least for Title III, those incentives appear to have been too strong, so that a large majority of workers never entered programs in the first place. Under Title III and now WIA, the goal of compensation is thus sacrificed in the name of efficiency. As the above discussion indicates, however, this tradeoff is a false one. Instead, income compensation and training appear to be complementary, so that increasing compensation can enhance training outcomes and program success. With limited resources, unfortunately, increasing funding for training leaves fewer resources for compensation, and vice versa. This budgetary tradeoff appears to be the principal reason why Title III programs so rarely provided income support.

If the goal of a program is to return workers to employment at or near their layoff wages, a successful program must make considerable training a viable option. Studies have found that one additional year of schooling can yield about an 8 percent increase in annual earnings (LaLonde 1995). As mentioned above, Title III terminees averaged 82 percent wage replacement. A transition program aimed at returning workers to 100 percent of income would need to provide at least two years of full time training. If the 8 percent annual benefits to education hold for dislocated workers for two years, this would bring wage replacement rates close to 100 percent. To achieve this, the program would need to provide the actual training and related expenses, as TAA has, and make this a viable option for unemployed workers by providing substantial income support, as TAA has not.

There are several options for achieving wage replacement rates close to 100 percent.[14] One is simply to extend income support for up to two years and to return it to the 70 percent level, as under TAA in the 1970s. Including the extension of health care and pension benefits would help limit the long-term consequences of job loss for workers and their families. To ensure that workers are not turning down jobs to continue in a program, income support could be used as wage "insurance" that continues into employment. If a worker accepts a job where earnings are less than income support levels, the program would continue to provide enough support to bring earnings up to the support level. Employers could try to take advantage of this by offering program participants lower wages, thus essentially forcing the program to subsidize employer expenses. This could be overcome by judicious oversight, such as requiring documentation that program participants are being offered the same wage as similar workers in the same occupation with similar qualifications, either within the same firm or in the rest of the market.

While providing for retraining is an essential element of a successful transition program, it is no guarantee of success, as the experience with TAA has shown. Despite the relatively long training programs, reemployment outcomes have been disappointing, due largely to inadequate job search and placement services and to mismatches between training programs and labor market demand (Peterson 1993). Careful design of training programs and the provision of JSA and JPA services will be critical to the success of a climate change transition program. This is particularly true given the long tenure and deteriorated labor market skills likely to characterize many of the program's participants. Title III projects have had some success using a caseworker system in which each participant is assigned to an individual staff member who oversees and assists the worker's progress from intake and assessment to project termination. This is helpful not only in practical matters, such as guaranteeing that services are well matched to the individual worker, but also in less tangible ways. Caseworkers can provide moral support and maintain contact through what is often a psychologically as well as economically difficult time (DOL 1994, BEP 1990, GAO 1987c).

In addition to some of the larger issues like income support, there are several factors in the administration of transition programs that can help determine a program's success or failure. WIA has already addressed some of these issues. The continuous operation of WIA One-Stop centers and rapid response teams can help keep the time between layoff and program entry low. Addressing layoffs at the earliest possible stage can increase the legitimacy of the program, increase participation rates, and help workers face the reality of permanent separation from their jobs.[15]

Because One-Stop centers can be administratively linked with state unemployment and other offices, these centers can help workers apply for UI benefits and other state services and can also help guide eligible UI applicants into an adjustment program. Eligible workers applying for UI benefits can be referred to a transition program run through WIA, providing a second opportunity, or backstop, to catch eligible workers who are not included in the initial program intake process. Additionally, One-Stop offices maintain ongoing relationships with the business community. These relationships can be valuable in assessing the demands of labor markets and determining appropriate training programs for displaced workers.

Title III programs have also had increased success when labor-management committees were instituted to help implement transition programs. From the standpoint of laid-off workers, having labor — especially union — representatives involved in the program enhances the legitimacy of the effort. Workers are far more likely to trust fellow workers and union members than a government agency or employer on these issues. Having labor and management involved provides other benefits such as locating program orientation or intake and assessment sessions at the plant site or the union hall. While the choice of project location may seem trivial, anecdotal evidence has shown that choosing sites such as these has considerable impact on workers' ability and willingness to participate. Labor and management can help expedite skill assessment, help determine what kinds of training programs are suitable for which workers, and provide advice regarding which skills are likely to be in demand in the local labor market (Leigh 1995, DOL 1994, GAO 1989, Cook 1987).

The WIA structure can also help provide a wider variety of training options to laid-off workers. Rather than relying on a single training provider, as was often the case under Title III, One-Stops can maintain a pool of certified training providers. It is not yet clear what the implications of using WIA's voucher system are because there are no systematic assessments of it yet. The most successful Title III programs have been the ones to offer a mix of service options to workers based on their characteristics and local labor market conditions. Through the voucher system or some other method, the flexibility that the current WIA structure provides would be an important element in a successful climate change transition program.

Good administration can help determine not only the success of a program in serving its participants, but also whether workers participate in the first place. While fundamental issues such as the availability of income support will obviously affect worker participation, other factors, like the practice of creaming, have a major impact on workers' decisions. As mentioned above, creaming appears to be a side effect of

performance-based contracts used under Title III. While it is important to ensure that service providers are successful in moving workers to suitable employment, performance standards, as they have been employed, appear to be easily manipulated. By screening out those more difficult to place or those with higher wage requirements, training providers can artificially inflate their wage replacement and reemployment rates, leaving much of the target population unserved. Unfortunately, those who are more difficult to place tend to be the workers who need assistance the most.

To ensure that these workers have access to training options, two conditions must exist. First, training programs must be offered that serve the needs of workers who are difficult to place. Second, training providers must have little opportunity to exclude or discourage these workers. If these conditions are met, it may be possible to employ performance-based standards without creaming.

Under the current system, potential training providers apply to WIA for certification, so that officials have imperfect control over the pool of applicants and the types of programs available. To ensure that programs suitable for the hard to place are available, a successful program needs to offer sufficient incentive to potential trainers to offer such programs. One way is to target intake programs more aggressively at these workers, thus creating a larger market for training programs to serve them. Increasing demand for these services may help stimulate supply, although it is unlikely that this would be sufficient to ensure appropriate programs for all hard-to-place workers.

Another possibility is to offer higher payments for placements of those who are difficult to place. A system that offers payment based on the expected intensity of training required would offer increased incentives for training providers to design programs for the workers who need the most help. A simpler alternative would be to require that certified training providers accept everyone who applies to their program. However, without some way of inducing providers to offer appropriate programs, trainers could simply offer programs ill-suited for hard-to-place workers in the hopes that these workers would voluntarily withdraw.

Unfortunately, there are some more difficult questions that may be unanswerable, the most difficult of which may be how broad to make program eligibility. Under TAA, the law imposes a deadline for approving or denying certification to applicants in order to help guarantee swift entry into the program. As noted above, however, this time limit appears to be the cause of mistakes in determining eligibility. This poses a difficult tradeoff between accuracy in certification and moving people into programs quickly. While workers denied for TAA are still eligible for WIA services, including training, they cannot receive TRA income support.

The question of eligibility raises the more fundamental issue about the appropriateness of a program explicitly designed to serve one type of worker and not another. To a laid-off worker, and possibly to society as a whole, it may seem arbitrary to deny or approve benefits based on whether the worker can show that international competition contributed to the layoff. The same question arises for workers affected by climate change policies. The problem may be even more difficult because climate change policies may only be one of a combination of causes leading to a layoff, particularly for industries already in decline. Any eligibility standard based on climate change policies will thus be difficult to implement, as will eligibility standards as a whole.

One simple solution to this dilemma is to make the program available to all dislocated workers. The disadvantage is the huge increase in resources that such a broad policy would require. Climate change policies could, in principle, provide a large source of funds for such a policy. For example, some portion of revenues from a full or partial auction of carbon permits could be committed to retraining workers.[16] While there could be other productive uses for this money, like offsetting other taxes and investing in energy efficiency, a relatively small share of these revenues could provide for a transition program much larger than those seen in the past. Providing the level of resources discussed here for the number of people who could be eligible, particularly if training is extended to all laid-off workers, would require a level of political and social commitment not yet demonstrated.

One approach that helps solve the certification problem (but does not address the fundamental question of providing assistance to only some workers) is to precertify workers depending on the industry they work in. For example, all workers in the innermost concentric circle could be automatically eligible for the program and require no certification. Workers in the second circle could be assigned eligibility based on evidence that rising energy prices were an important factor in their layoff. This would guarantee rapid movement into a program for workers in the most heavily affected circles (who would likely make up the majority of workers dislocated by climate change policies), but would still require a substantial minority of workers to complete a certification process. This requirement could slow their entry or discourage participation altogether.

The larger question of how many workers should be covered cannot be answered here. Some may argue that all unemployed workers should receive this type of assistance, while others may argue that only workers affected by climate policies should be eligible because they are being forced to sacrifice their livelihood for the greater good of society. This is ultimately an issue that can only be resolved by the government, acting on the public's behalf.

Without detailed information on the amount of training participants would likely require, how quickly they would find new jobs, and how much of a wage-insurance supplement would be required, it is difficult to estimate the cost of providing this type of package precisely. However, some assumptions can be used to derive an upper bound of the cost to provide such a package to the average worker. For the average non-supervisory worker in a goods-producing sector (mining, construction, and manufacturing) who does not find a job until having completed two years of training, the total cost of the program would be about $106,000 in 2010. (Details on how this number was derived are provided in Box 1.) This figure represents a substantial increase in expenditure from historic levels. Expanding the program to cover more workers than those affected by climate policy would be an expensive proposition.

As mentioned above, many of the industries most likely to be affected by climate change policies are those that have already seen considerable declines in recent years due to international trade, increased mechanization, and other factors. In many of these industries, the average age of workers tends to be relatively high (near 45 years old). For many of these workers, particularly those who have worked many years in one job or occupation, their job market skills may be somewhat deficient. At the same time, their work skills may be highly specialized for a particular occupation or employer. Workers such as these would likely need assistance in both training for a new job and in finding one, meaning that it may be more costly to serve specialized workers.

Box 1

Calculating Program Costs

The calculations used to generate the costs of the transition program are summarized in the following table:

Program Costs Per Worker

Hourly earnings ($1997)	$14.59
Annual earnings in 2000 (@40 hrs, 52 wks)	$30,347
Annual earnings in 2010, with 3% annual real increases	$40,784
Earnings at 70%	$28,549
Benefits @ 36% of earnings	$14,682
Total Y1 income + benefits	$43,231
Y2 = Y1 @ 3% increase	$44,528
Total 2-year income + benefits	$87,759
Training @ $18,000 per worker	$105,759
Total cost per worker	**$105,759**

This calculation assumes the following:

- Hourly earnings of production workers in goods-producing industries (mining, manufacturing, and construction) in 2000 were $14.59 (in constant 1997 dollars).
- Workers work 40 hours per week and 52 weeks per year.
- Real wages increase at a rate of 3 percent per year, which roughly corresponds to productivity increases in these industries over the past decade.

These factors provide the basis for a projection of annual earnings for workers in the goods-producing sectors in 2010. 70 percent of those earnings would be the annual cost for a year's worth of income support for an average worker in the first year of the transition program.

The Employment Cost Trends data generated by the BLS show that in 1999, insurance (life, health, and disability) and retirement and savings benefits together accounted for 11 percent of total compensation in the goods-producing sector. Combined with the 15.3 percent total contribution for Social Security and Medicare, these benefits account for 26.3 percent of total compensation, which is equivalent to 35.7 percent of wage and salary earnings. Applying this to annual earnings yields benefit costs based on full-time employment (not on the 70 percent income support levels). Together, income support payments and benefits would cost just over $43,000 per worker in the first year of the program. Assuming that real compensation would have increased an additional 3 percent if participants had remained employed (instead of enrolled in an adjustment program), second-year costs per worker would be slightly higher, about $44,500. Providing two full calendar years of training that involves three semesters per year at $3,000 per semester for tuition (including books and training related materials) would cost $18,000 per worker[i], bringing the total cost of a 2-year adjustment package to just under $106,000. This figure represents the maximum that the average package would cost. Workers who take less than two full years of training or education, for example, would require fewer funds.

[i]In 1997, the average cost of college education at a four-year public institution was about $1,500 per semester. Since 1971, tuition at such institutions has risen at roughly double the rate of inflation (College Board 1998). Assuming that this trend continues and that the rate of inflation remains below 5 percent per year between 1998 and 2010, the real price of a semester's worth of tuition would be just under $3,000 in 1997 dollars.

VI. Conclusions

The following elements appear critical to the success of a transition program aimed at helping workers dislocated by climate change policies or other causes:

- Substantial retraining and/or education should be available for laid-off workers. On average, it would take two years of full-time training to bring workers' wages back to their pre-layoff levels.
- To make the program a viable alternative to facing the labor market alone, it should provide substantial income support for program participants.
- For those workers nearing retirement age, training for a new job or occupation does not appear to be a productive use of time or resources. The program should thus provide a bridge to retirement that maintains the standard of living of workers as well as retirement and insurance benefits.
- To help guarantee the long-term physical and financial well being of workers and their families, the program should maintain health and pension benefits of laid-off workers until they find suitable reemployment.
- To help ensure that services can be provided as quickly as possible, rapid response programs should continue to be employed, and detailed eligibility requirements and investigations should be avoided whenever possible.
- To further enable prompt service provision and increase the probability of a successful transition, the program should encourage advance notice of layoffs, where possible.
- The program should work with existing unions to inform workers about the availability of programs and to administer services. This will help enhance the legitimacy of the effort, encouraging worker buy-in, and will also help in designing appropriate training and education programs.
- The program should establish performance standards that avoid the unintended consequences of overly-simplistic performance standards used in the past.
- The program should require, and provide funding for, assessments of the program's effectiveness by comparing outcomes of participants and non-participants, and allow for mid-course corrections.

Endnotes

1. For the sake of simplicity, since carbon dioxide is the most prevalent greenhouse gas, the remainder of the discussion will use the term "carbon" rather than all six greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride).

2. For an excellent review of various attempts and failures to predict the economic impacts of environmental policies accurately, see Hodges (1997) and Goodstein and Hodges (1997).

3. For detailed discussions of various economic models used to estimate the effects of reducing greenhouse gas emissions, see Repetto and Austin (1997) and Bruce, et al. (1995). See also Weyant (2000).

4. Thanks to Ev Ehrlich for suggesting this analogy.

5. Barrett and Hoerner (forthcoming), for example, find that a technology-led approach to carbon abatement, accompanied by a moderate carbon pricing mechanism ($50 per ton of carbon emitted, used to offset labor taxes) can lead to increased employment in some of these industries. One reason is that the increased productivity induced by efficiency gains and tax shifts together reduce the cost of labor relative to capital.

6. Title III of JTPA was intended to assist workers who were laid off as a result of a plant closing, cut back, or other such event, i.e., the structurally unemployed. Cyclically unemployed workers who lost their jobs as a result of deteriorating economic conditions were meant to be served by Title II of the Act.

7. The U.S. Employment Service (USES) was established under the Wagner-Peyser Act of 1933 to help match job seekers with job openings. Until they were replaced by WIA One-Stops, local Employment Service (ES) offices affiliated with the USES were required in each state. ES duties included operating job banks, administering local TAA projects, and determining eligibility for UI applicants.

8. The decision of whether to train and what training to undertake ultimately resided with the worker, although the decision was usually made with substantial input and guidance from program staff.

9. SDAs are not physical areas, but offices appointed to serve a specific area of a state. These offices are referred to by the area for which they are responsible, their "service delivery area." This unfortunate nomenclature has caused significant confusion to those unfamiliar with the terminology.

10. While JTPA is officially replaced by WIA, TAA and NAFTA-TAA still exist separately. Certification procedures and elements such as TRA payments will remain as they were, but services that had been provided through the ES will now be provided through the WIA One-Stop system.

11. This measure is somewhat misleading because it compares reemployment wages several years out against layoff wages that normally would have been increasing over those years. A better measure would be reemployment wages against what wages would have been had the workers not been laid off. This calculation would likely show worse outcomes for retrained workers. This measure is further misleading to the extent that it only covers workers who chose to enter and complete a training program. As discussed elsewhere, at least for Title III, these tended to be lower-skill and lower-wage workers for whom low-paying jobs in the service sector, for example, would replace a significant fraction of their layoff wage.

12. COBRA is the Consolidated Omnibus Budget Reconciliation Act of 1986 that includes legislation to allow workers to extend their health insurance coverage they receive through their employers after they leave employment, voluntarily or otherwise (except for terminations due to employee "gross misconduct"), at their own expense, for up to 18 months.

13. Precise TAA coverage rates are difficult to ascertain. Determining the percentage of eligible workers that receive TAA (and NAFTA-TAA) services requires knowledge of the total number of eligible workers. The federal government officially defines eligible workers according to whether they apply for and receive certification. Using this accounting method, coverage rates would be artificially high since the vast majority of certified workers receive at least some form of services. The true measure of coverage rates would necessarily include workers who are displaced due to international trade but who do not apply for certification as well as those who are eligible but are wrongly denied certification. These data, however, are not collected.

14. This would still leave workers worse off than if they had not lost their jobs, because their wages would normally have been increasing if they were working rather than training. A 100 percent wage replacement rate after two years of training would still represent a loss of two years' worth of wage growth.

15. This is particularly important in industries that often experience boom and bust cycles. Workers are often reluctant to accept that their layoffs may be permanent (BEP 1990).

16. By way of example, a carbon tax or permit system with a price of $50 per ton of carbon emitted could generate over $62 billion dollars annually if it were used to meet the targets of the Kyoto Protocol.

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