

CHAPTER 4

AUTHORIZED AND PLANNED PROJECTS FOR CURTAILING WETLAND LOSS

For over twenty years, the Corps of Engineers, the State of Louisiana, coastal parishes, and university scientists have been studying the problems associated with wetland loss in coastal Louisiana. Under a 1967 U.S. Senate resolution the Corps' Louisiana Coastal Area Studies have evaluated mitigation options. The "Freshwater Diversion to Barataria and Breton Sound Basins" study has identified two major diversion sites that would reduce saltwater intrusion and wetland loss and improve the habitat and productivity of fish and wildlife resources. The "Land Loss and Marsh Creation" study is now focused on determining the monetary value of wetlands as (1) real estate, (2) a buffer against hurricane-induced flooding and saltwater intrusion, and (3) a producer of commercial and recreational fish and wildlife resources. Cost-benefit analyses of specific marsh creation and erosion reduction projects will follow.

The "Shore and Barrier Island Erosion" study acknowledges that continued deterioration of the barrier islands and retreat of the shore will accelerate marsh loss. Yet in this study, due to the low economic value assigned to marshes, projects in only two areas had benefit-to-cost ratios that justified further federal involvement. The "Water Supply" study assessed the scope and magnitude of the water supply problems in the coastal communities whose present sources are frequently subject to saltwater intrusion. Other Corps projects that would offset wetland loss include the diversion into Lake Pontchartrain proposed in the Mississippi and Louisiana Estuarine Areas study, and the Grand Isle and Vicinity Hurricane Protection and Beach Erosion project.

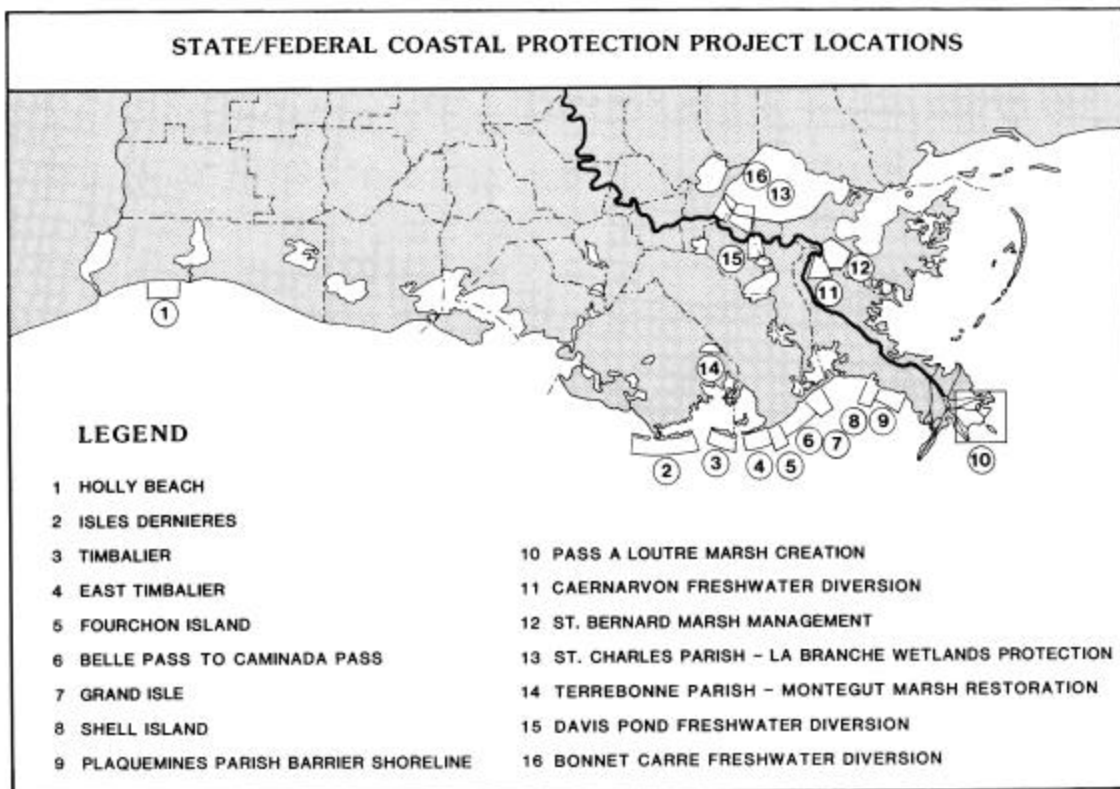


Figure 22. Map of coastal Louisiana depicting locations of state/federal coastal protection projects.

Act 41 of the 1981 special session of the Louisiana Legislature established the Coastal Environment Protection Trust Fund and appropriated \$35 million for projects to combat erosion, saltwater intrusion,

subsidence, and the loss of wetlands along the Louisiana coast. In 1985 the legislature approved the Coastal Protection Master Plan, which maps a 10-year strategic program for dealing with the problems the coast is experiencing. Although funds are available for implementation of the first two years of the Master Plan, future years will require additional appropriations. The thrust of the plan is to restore the barrier islands and shorelines during phase one (first five years) and to implement the wetland protection program in phase two. Figure 22 illustrates the locations of the projects to be implemented in phase one.

We briefly summarize the authorized and planned projects.

Authorized Projects

(1) Restore barrier islands and shorelines

- (a) Isles Dernieres--The major project scheduled to begin in the first year of the Louisiana Coastal Protection Master Plan is the stabilization of the Isles Dernieres barrier island, which involves restoring of the low dunes washover breaches, and sealing minor breaches (Figure 23). With a total estimated cost of \$23,250,000, the project will rely upon placing dredged material for a width of up to one thousand feet along sixteen miles of barrier island to stabilize the dunes and to enlarge the island base, thus reducing its susceptibility to storm breaching.
- (b) Fourchon Island--A cooperative project was undertaken by the state, Port Fourchon, and private interests in 1985 to protect the Fourchon Island shoreline. The efforts included closing old Pass Fourchon, relocating a beach road, and restoring the dune. Damages resulting from the 1985 hurricane season necessitated further state emergency work involving use of a hydraulic dredge to pump approximately 700,000 cubic yards of beachfill material into spoil-retention areas to restore the beach and dunes. The Greater Lafourche Port Commission is expected to revegetate the area for continued stabilization.

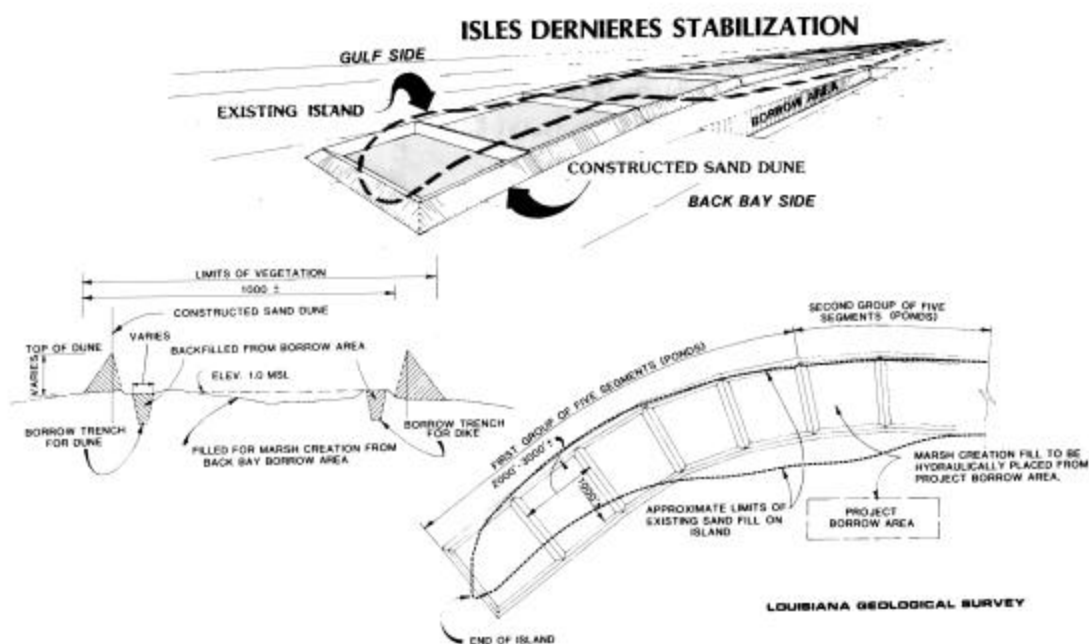


Figure 23. Restoration and stabilization plan for Isles Dernieres in Terrebonne Parish, LA.

- (c) Shell Island--The second major project of the Master Plan allocates \$7.2 million to restoration efforts in Plaquemines Parish at Shell Island. The project will extend five miles from the Empire Waterway jetties to Grand Bayou Pass and will produce much the same result as the Isle Dernieres project.
- (d) Holly Beach--Louisiana Highway 82 is directly exposed to the Gulf waves and storms west of Holly Beach in Cameron Parish. The Office of Highways and the Department of Natural Resources have jointly experimented with heavy revetments (Figure 24) and offshore breakwaters (Figure 25) to protect the highway. These efforts appear to be working and would be complemented by the next phase of the project to continue protection measures for an additional two miles eastward from the project area.
- (e) State funds will be used to match Federal Emergency Management Agency funds to replace eroded beach materials from east and west of the existing Timbalier Island seawall. More state and private-sector funds will be used to fill adjacent canals and slips to help prevent breach formation during future storms and hurricanes.
- (f) Grand Isle--Portions of the sand dune were heavily damaged by repeated storms during the 1985 hurricane season. Surveys are under way to determine the exact scope of damages. In addition, a repair plan is being developed involving replacement of eroded dune segments, extension of the existing jetties on the east and west ends of the island, and installation of some type of breakwater structures in critical areas.



Figure 24. New revetment installed to protect the shoreline and Highway 82 in Cameron Parish, LA.



Figure 25. Six experimental breakwaters constructed west of Holly Beach, LA. To help protect Highway 82 from storm impacts.

(2) *Diversion*

- (a) Caernarvon Freshwater Diversion (joint state/federal project)--This project was authorized by Congress in 1985. Advanced engineering and design has been completed for the Caernarvon Freshwater Diversion structure to introduce freshwater into the marshes and estuarine waters of Breton Sound, and the project is now ready for construction. That project will reduce marsh loss by an estimated 16,000 acres over the next 50 years. Although state matching funds for construction have been allocated in the Master Plan, federal funding for construction were not provided in the 1987 executive budget. Construction will take two years once funding is received.
- (b) Pass-A-Loutre Marsh Creation (small diversion pilot project)--Artificial breaches in the natural levees of the Mississippi River and its distributaries near the mouth of the river will allow water and sediments to flow through and fill open bays and ponds thus creating deltaic marsh. The project calls for three diversions in different locations on the Pass-A-Loutre Wildlife Management Area. Figure 26 shows their locations and the extent of new marsh expected to form. The construction has been completed. Figure 27 shows the breach at the Loomis Pass site.

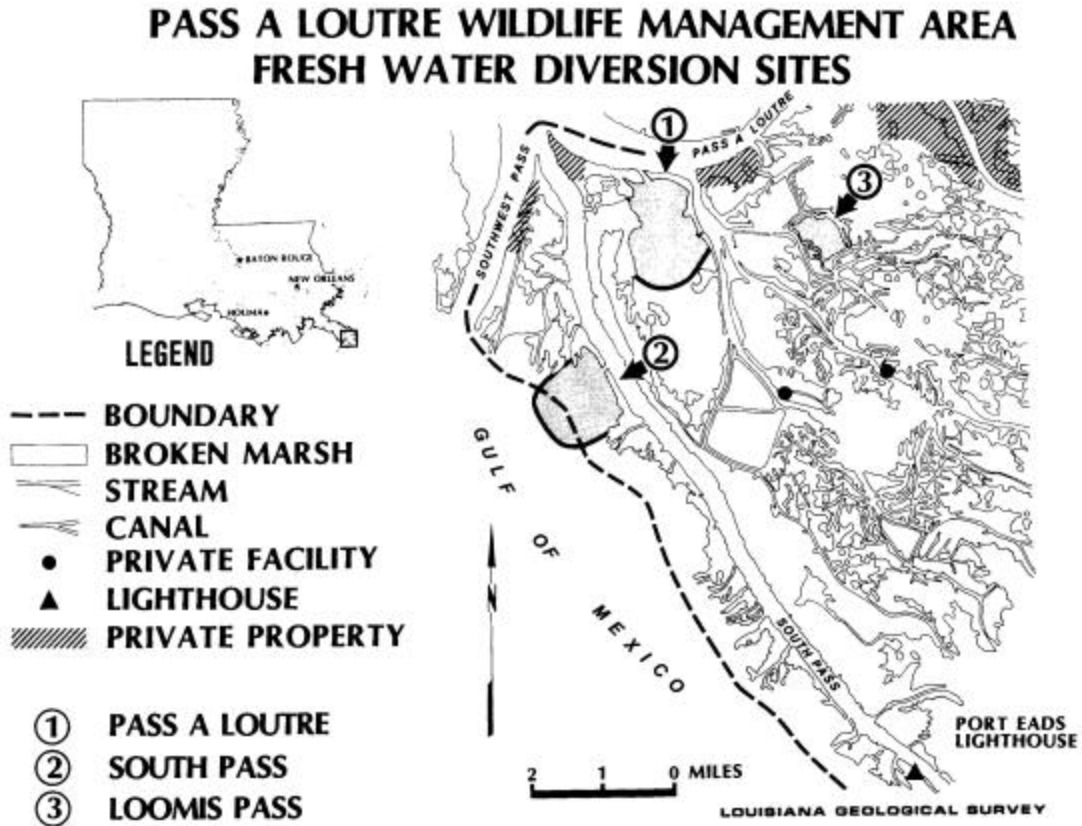


Figure 26. Location of the Pass A Loutre, South Pass, and Loomis Pass breaches and extent of New Marsh expected to form.



Figure 27. Loomis Pass Breach on the Pass A Loutre Wildlife Management Area.

(3) *Marsh Management*

- (a) Montegut (Terrebonne)--The Master Plan provided for this project in the Point Au Chien Wildlife Management Area to use levees, fixed-crest weirs, and a flapgated culvert to stabilize water levels in the area and reduce salinity and turbidity. Anticipated benefits include a reduction in present marsh loss rates, increased production of desirable plant species, and increased fish and wildlife benefits. The project specifications are currently being prepared for advertisement and bidding. Figure 28 illustrates the project area.
- (b) St. Bernard Parish--Repair or construction of levees and water control structures by the Parish will be funded by the Trust Fund to allow implementation of the wetland management plans for two of the environmental management areas. This will help offset previous loss of habitat as well as reduce the rate of future habitat degradation and wetland loss. The Parish is obtaining permits and finalizing plans and specifications on the project.
- (c) St. Charles Parish-LaBranche Wetlands--This environmentally sensitive area on the southwest margin of Lake Pontchartrain has experienced severe shoreline breaching and erosion. The project calls for restoring the lake shoreline with new material and stabilization or shore protection measures to maintain the new shoreline. The project is currently being advertised for engineering service proposals.

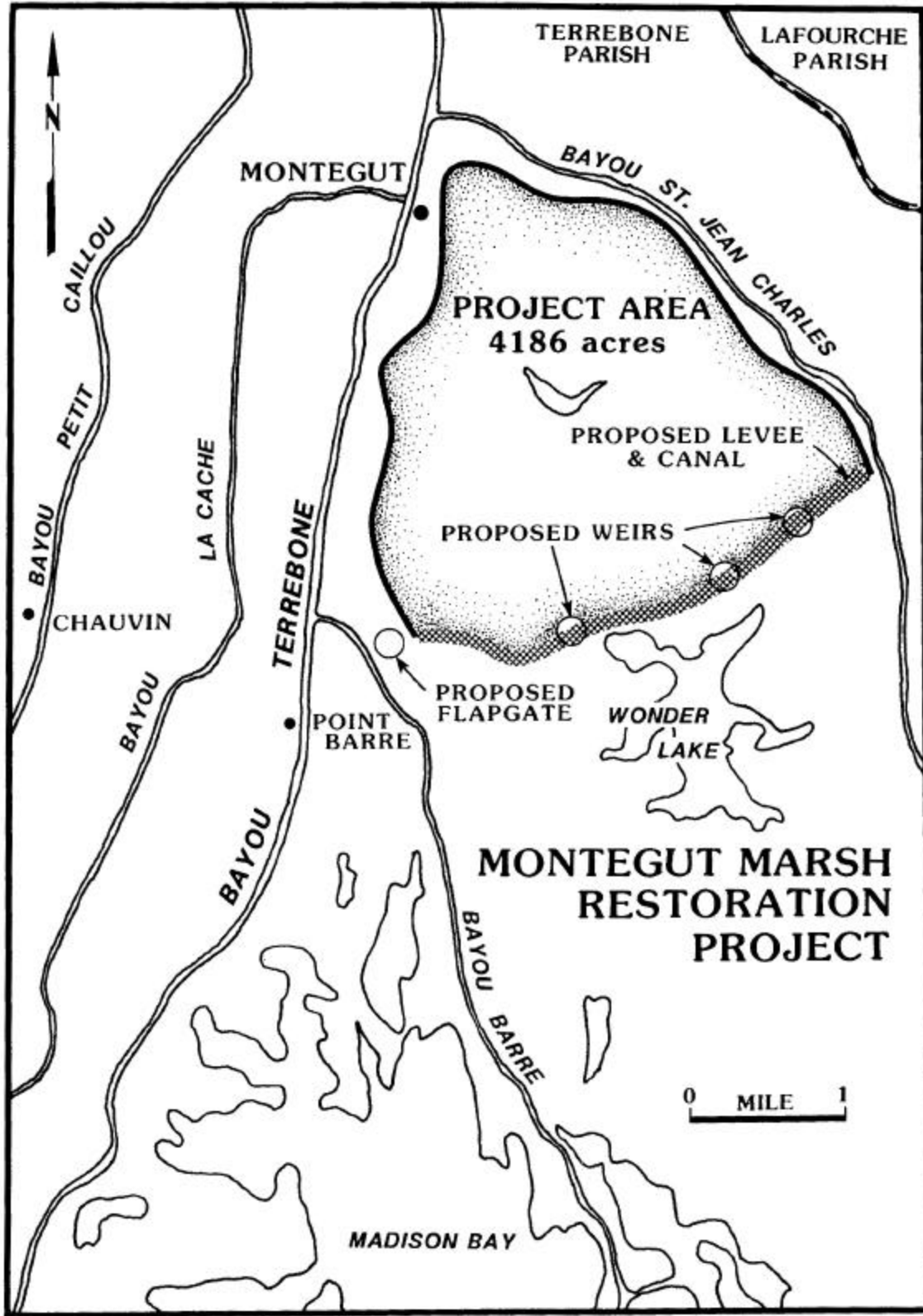


Figure 28. Map of Montegut Marsh Restoration Project.

Planned Projects

(1) Barrier Island/Shoreline Restoration and Nourishment

- (a) Plaquemines Parish Barrier Shoreline--Assuming the availability of additional state funding in 1987, the Master Plan allots \$31,550,000 to restore the Plaquemines Parish barrier shoreline from Sandy Point to Barataria Pass. A request for engineering services proposals could be advertised upon Legislative approval and authorization of these funds.
- (b) Timbalier/E. Timbalier--With a projected initiation date in 1988, the restoration of Timbalier and East Timbalier (Figure 29) will cost \$6.5 and \$20.3 million, respectively. Again, the future funding of this Master Plan project will depend upon availability of additional state funds.
- (c) Belle Pass to Caminada Pass Shoreline--In the last year of Phase I of the Master Plan (1989), the restoration of the shoreline between Belle Pass and Caminada Pass in Lafourche and Jefferson Parishes is scheduled to begin. Costs are estimated at \$21.1 million.

(2) Diversion

- (a) Davis Pond--As part of the Louisiana Coastal Area, Freshwater Diversion to Barataria Basin study, the Corps of Engineers, in cooperation with the Governor's Coastal Protection Task Force and St. Charles Parish officials, has selected a diversion site at Davis Pond near Luling to introduce freshwater and sediment into the Barataria Basin. Marsh losses will be reduced by 82,700 acres over the next 50 years if this project is constructed. Advanced engineering and design studies requiring no more than four years to complete can begin after federal funding approval, with construction requiring two additional years. If approved by the Chief of Engineers (Corps of Engineers), the project would be constructed under the authority of Public Law 89-298, passed in 1965.
- (b) Bonnet Carre--The Corps' Mississippi and Louisiana Estuarine Area study has recommended that a large freshwater diversion facility be built just north of the Bonnet Carre Spillway. Planning and engineering studies are continuing on this project, which will enhance estuarine habitats in the Lake Borgne-Chandeleur Sound area. The project also awaits Congressional authorization.

(3) Large Scale Wetland Protection Program--Outgrowth of the Study Proposed In Chapter 5

- (a) Coastal Vegetation--A component of the Master Plan, the Coastal Vegetation Program will complement the major restoration projects by providing plants, planting machines, and the technology necessary to revegetate the restored barrier islands (see Figure 30) and shorelines. This component will also provide for work in areas where plantings alone will reduce erosion, restore wetlands, or enhance formation of new wetlands.



Figure 29. East Timbalier Island. Note that the island has continued to subside and wash away despite all company efforts to encircle the island with rock sea walls.



Figure 30. Sand fencing and vegetation plantings help build and stabilize barrier island sand dunes.

- (b) Wetland Protection/Basin Approach--An essential part of Phase I of the Master Plan is to develop a wetland management and protection program that can be implemented during PhaseII (the second five years of the of the Master Plan). This study will help form the basis upon which this wetland protection program will be developed. The best strategy for addressing the problem appears to be adopting a basin approach that uses discrete drainage basins as management units. This approach enables comprehensive protection efforts to address the individual problems and needs of each basin or region.

The Need to Move Forward

A large number of projects for curtailing land loss in Louisiana have been identified and become part of the state's Master Plan. Nevertheless, it would be very misleading to say that these measures will solve the problem. Many of them still await funding from the federal or state government. Because these projects primarily benefit Louisiana, they may be viewed by some as "pork-barrel" projects that tax the nation to support a small constituency. However, a closer examination reveals that proposed federal projects are largely in the nature of corrective action to mitigate adverse environmental impacts of federal activities. Because the benefits of these projects will accrue over many decades, it may be tempting for a state in the midst of a financial crisis to delay these projects a few years. But a realistic look at the costs of protecting wetlands suggests that if the relatively inexpensive means that have been identified are not implemented soon, far more costly solutions will have to be implemented in the 1990s.

Nor does the necessary exercise of developing a long-term plan to address subsidence and sea level rise provide a justification for delaying these projects. The long-term plan will benefit from the experience of testing the proposed measures outlined in this chapter. Moreover, there is little reason to believe that the long-term plan will devise strategies that would in retrospect prove these projects to have been unnecessary. Any long-term solution to the problem of subsidence and sea level rise would, at a minimum, require the diversion of freshwater into the marsh to prevent saltwater intrusion and the restoration of barrier islands. A long-term solution will probably require more substantial actions as well--how much more will depend in part on how long we delay the implementation of measures that have already been approved.