



# section 1 Introduction

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### Customer/Stakeholder Input Update

ATC held Planning Zone Meetings in 2002 to describe its planning process and solicit input on the process and on potential projects and associated right-of-way needs identified in its August 2002 10-Year Assessment report. The 2002 Planning Zone Meetings schedule:

#### All ATC System

September 5                      Appleton, Wis.

#### Zone 1: north-central Wisconsin

October 16                      Rhinelander, Wis.

#### Zone 2: Michigan's Upper Peninsula

October 15                      Manistique, Mich.

#### Zone 3: south-central/southwest Wisconsin

September 26                      Janesville, Wis.

#### Zone 4: northeast Wisconsin

October 17                      Green Bay, Wis.

#### Zone 5: southeast Wisconsin

September 12                      Oak Creek, Wis.

At these meetings, stakeholders provided numerous comments and expressed a wide range of opinions regarding the summary of the 2002 10-Year Assessment presented by ATC. This input is summarized in Appendix A and was taken into consideration in the preparation of this 2003 Assessment.

Although specific new transmission facilities are identified in this report to address certain needs and/or limitations, ATC will continue to solicit input on such proposed and conceptual facilities and potential sites and routes from all interested parties before determining the ultimate solution for which ATC would pursue regulatory or other approval.

The needs and limitations identified in this Assessment are based on a current set of operational conditions, growth forecasts, proposed new generation and load interconnections, technical analyses, system planning criteria and customer and stakeholder inputs. Over time,

new needs are likely to appear and other needs may change. Transmission system conditions are fluid, and it should be recognized that the transmission planning process must be able to respond to and incorporate changing needs and conditions. This process is iterative by nature, and with this Assessment the ongoing cycle of needs identification, analysis, public input and solution development continues. In addition, federal regulatory policy on planning, construction and pricing of transmission is currently undergoing significant discussion. This could have major impacts on information presented in future Assessments.

### Generation Interconnection and Transmission Service Developments

As of June 1, 2003, there were 33 proposed generation projects totaling 9,533 megawatts within ATC's service territory. Since ATC issued its 2002 Assessment, 17 new generation projects (1,527 megawatts) have entered ATC's queue for generator interconnections and 16 generation projects (6,415 megawatts) previously in the queue have been cancelled or removed from the queue.

Since ATC issued its 2002 Assessment, six facility studies in response to generation interconnection requests and four facility studies associated with transmission service requests have been completed for which customers have expressed their intention to proceed with the requested interconnection and/or transmission service. These studies have identified a number of transmission projects that will be required to allow the requested generation interconnections and transmission service. The transmission projects identified in these studies have been coordinated with planning for load serving and other needs to ensure that projects meeting all of these needs are being selected. In the tables in Section VI summarizing the specific projects, those projects driven by generation and/or transmission service requests are identified.

It should be noted that only those proposed generation projects for which interconnection studies have been completed and which transmission service has been requested, granted and accepted, have been included in the models developed for this Assessment. However, numerous additional generation interconnection requests have been received and analyzed by ATC, but transmission service has not been requested for these potential generators. These additional generators have therefore not been included in the models for this Assessment. They will be included in future Assessments or Assessment Updates as the inclusion criteria is satisfied. The transmission construction projects to interconnect these additional potential generators are addressed in Section VIII.

### Midwest Independent System Operator

Another development since the 2002 Assessment was issued is the recent activities of the Midwest Independent System Operator. MISO is one of the Regional Transmission Organizations created in conjunction with the Federal Energy Regulatory Commission orders governing operation of the nation's interconnected transmission systems. MISO is responsible for granting transmission service and approving the expansion plans of MISO members. ATC is a member of MISO.

MISO recently issued its first expansion plan, the Midwest ISO Transmission Expansion Plan 2003 report. In the MTEP, MISO evaluated the ability of the transmission system in the Midwest to efficiently transfer power from generator to load under a variety of potential future generation development scenarios, evaluated the economic feasibility of various transmission system expansion plans, and endorsed various transmission reinforcements deemed to be needed by transmission owners within MISO and which are planned or proposed to be in service by 2007. All of the projects that ATC planned or proposed to be in service by 2007 in its 2002 Assessment Update, including the Arrowhead-Weston 345 kV line project, were endorsed by MISO. The MTEP can be found on MISO's Web site at [www.midwestiso.org](http://www.midwestiso.org).

MISO intends to conduct an independent reliability Assessment of each of the transmission owners' system in MISO during 2003.

### Reliability Organizations

ATC is also a member of the Mid-America Interconnected Network, a regional reliability council that is a member of the North American Electric Reliability Council. ATC's responsibilities as a member of MAIN are to participate in seasonal and longer term transmission system Assessments, comply with applicable MAIN guides for reliable operation of the transmission system, develop transmission system models of future years and seasons, and provide other information related to these activities.

MAIN is one of nine reliability councils that comprise NERC. NERC sets standards for reliable planning and operation of the transmission system and deals with non-compliance (the compliance program). ATC participates in the NERC compliance program, striving to meet the planning and operating standards set by NERC.

During 2002, MAIN reviewed its members' compliance with NERC Planning and Operating Standards. ATC was deemed compliant for all Operating Standards. For the Planning Standards, ATC is working on two mitigation plans that will complete the documentation needed to show that its planning processes meet these standards. One mitigation plan involves demonstrating that multiple outage impacts have been considered according to NERC Standards. The other mitigation plan involves demonstrating that black start generator unit cranking paths will perform as expected.

ATC is an active participant in MAIN and NERC Assessments of regional and eastern interconnection transmission systems. An example of this is the recently completed MAIN 2003 Summer Assessment Study. This report can be found at [www.maininc.org](http://www.maininc.org).

### Coordination with Neighboring Transmission Owners

Another consideration important to ATC's analyses is the needs and impacts of neighboring utilities. As part of a larger transmission system that is interconnected and interdependent, ATC recognizes the importance of coordinated planning with adjacent systems. ATC has periodic planning discussion with neighboring transmission utilities, intended to lead to joint evaluations of common system needs, constraints and alternative solutions, where appropriate.

### Transmission Planning Approach

The fundamental underpinnings of ATC's approach to transmission planning are customer need and public input. ATC intends to propose transmission options to resolve customer needs as expressed through load growth forecasts, new load interconnection requests, long-term transmission service requests, generation interconnection requests, need for improved operational reliability, need for resolution of local and regional congestion, need for replacement of old facilities, need for increased operational efficiency and so on. To facilitate acceptance and implementation of any proposed plans, ATC believes the public, including all stakeholders, must be invited to participate in an open, iterative and interactive public planning process.

In order to design the most efficient and effective ways of meeting customer needs, ATC has developed a process encompassing four levels of planning:

- Base – Individual Issue
- Second – ATC Planning Zone
- Third – ATC System
- Fourth – Regional/National

Needs and potential solutions are developed at each level and then vetted against those at the next level, until the most effective overall plans addressing the combined needs are developed. ATC performs the first three levels of planning for its area, and then works with MISO to incorporate resolution of fourth level issues identified through the broader regional planning process led by MISO. ATC is also an active participant in MAIN and NERC reliability Assessments of regional and eastern interconnection transmission systems.

The results of ATC's ongoing planning activities are presented in its 10-Year Transmission System Assessment reports, issued approximately every six months in order to be responsive to the most current mix of needs and issues. The purpose of these reports is to illustrate identified needs and potential solutions. This provides the foundation for public discussion and participation in shaping the ultimate plans to be proposed. ATC then holds various public meetings and other communication activities to inform and interact with any interested stakeholders. Stakeholders include customers, public officials, regulators, environmental groups, and other members of the public. The idea is to go out to affected areas, present identified needs and justification for projects in each area, facilitate identification of the most acceptable routes for any new transmission, allow for development and consideration of any additional alternatives which interested entities may want to propose to address identified needs, and receive public input to incorporate into future revisions of proposed plans. Information received becomes an input into ATC's four level planning analyses. Communications activities are ongoing as the overall planning process continues through subsequent iterations.

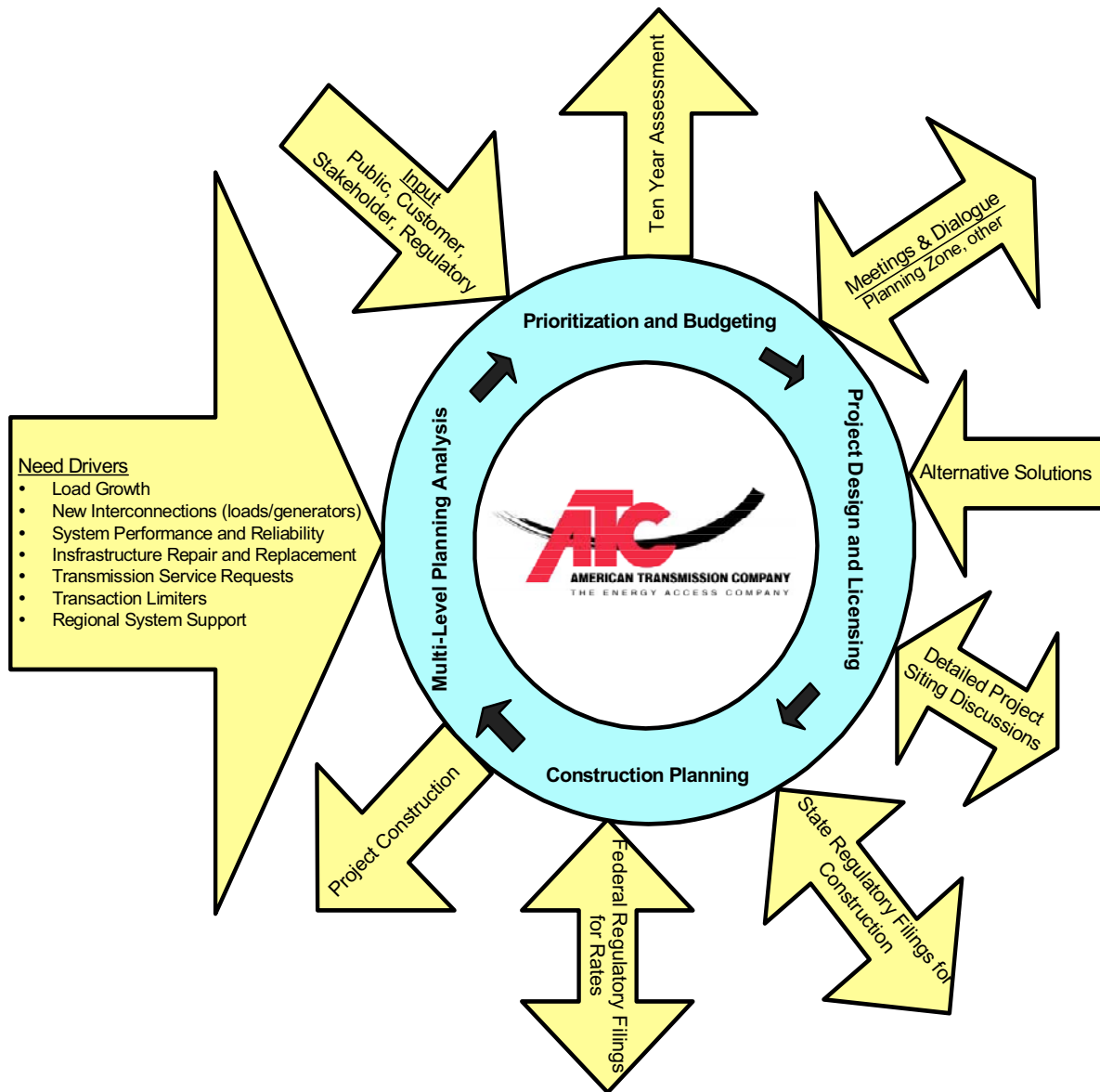
ATC is willing to work with other entities to implement alternatives to transmission solutions. For example, the planning, permitting and construction cycle for transmission facilities may take longer than for some alternative solutions. In this case, if identified needs are addressed effectively through alternative solutions, ATC will defer or cancel proposed transmission projects in response. If the needs remain, ATC will proceed with its projects, which have been effectively tailored through this iterative public input process. Public communication and discussion related to specific projects becomes more focused and targeted as necessary regulatory filing dates approach.

ATC intends to achieve its objectives of providing reliable service and an adequate transmission infrastructure to meet its customers' needs. This planning approach will make this achievement possible by

facilitating development of the most effective mix of projects to meet those needs in a timely fashion. Public participation in this process is vital to its success, as the best plans achieve little unless they can actually be implemented and implemented in time. Communicating honestly, early and repeatedly is the best way to achieve public awareness of, input on, and acceptance of needs and solutions to illustrate responsiveness to public concerns which may otherwise prevent or delay necessary projects.

The figure below illustrates ATC's planning process. The blue circle represents ongoing, continuous core ATC activities. Against that backdrop, there are constantly changing inputs and outputs which affect and shape the core activities, and ensure that ultimate transmission project mix is effectively and efficiently responsive to the current mix of needs and influences.

**Figure I-1** ATC Public Planning Process



## Environmental Philosophy and Commitment

ATC is continuing to increase the coordination between transmission planning and environmental planning. Environmental planning involves consideration of impacts, development of mitigation measures and involvement of all stakeholders.

ATC's environmental commitment is built upon its core values – service to our customers, honesty, social responsibility, stakeholder inclusion, financial and environmental sustainability, and respect for its employees and customers.

ATC is committed to environmental leadership in all aspects of our business. We seek to demonstrate this commitment through the following six actions:

- Comply with all applicable laws, regulations and orders.
- Reduce environmental impacts of construction, operation and maintenance through the use of innovative practices, cost-effective technologies and, where appropriate, environmental mitigation and enhancement.
- Involve employees in environmental stewardship through job responsibilities and encouraging volunteerism.
- Provide employees the tools to participate in environmental stewardship through education and training.
- Address transmission-related environmental issues with regulators and other stakeholders through partnerships and collaborative working relationships.
- Develop and implement an environmental appraisal process to ensure ATC continues to meet its environmental goals.

ATC supports sustainable environmental policies and actions through balancing environmental stewardship with financial, engineering and maintenance requirements and societal impacts. Pairing our environmental commitment with partnerships among regulators, stakeholders and employees provides a powerful venue for creative, innovative and entrepreneurial resolution of issues. Environmental stewardship translates into good business with the implementation of these philosophies.

## Changes to the 2003 Assessment

ATC has made numerous changes to this Assessment in comparison to its prior Assessments. These changes include:

1. Providing larger and more detailed maps
2. Incorporating more detailed environmental screening of new transmission line alternatives
3. Including screening level capital cost estimates for planned, proposed and conceptual transmission system additions (see below)
4. Expanding statistics provided on generator must run/redispach requirements
5. Expanding statistics provided on transmission loading relief incidents
6. Providing project listings in alternative formats (e.g., by zone)
7. Providing geographical references to substation names shown on maps in Sections III and VI
8. Incorporating findings from ongoing transfer capability analyses
9. Incorporating findings from ongoing dynamic stability analyses
10. Developing a section dedicated to the issue of generation development in the ATC service territory

## Project Status Designations

In this Assessment, ATC lists numerous transmission system reinforcements needed to address a variety of identified issues. Some of these reinforcement projects have been approved by regulatory entities and are under construction or are nearing the start of construction. Some are still being planned and conceptually designed by ATC. Others are awaiting regulatory approval. In many cases, various alternatives are being investigated, evaluated and, depending on the nature of the project, ATC is soliciting input on certain alternatives. Thus, the potential reinforcements listed in this report are in various stages of development.

To aid in identifying the stage of development for each reinforcement project listed, ATC used the following project designations in the tables in Section VI:

### Planned projects:

- Planning is complete
- Regulatory approvals, if required, have been applied for and are pending or have been issued
- May be under construction or in construction planning phase
- Typically included in power flow models used to analyze transmission service requests

### Proposed projects:

- Planning is not complete
- Regulatory approvals have not yet been sought
- Represents ATC's preliminary preferred project alternative from a system performance perspective
- Typically not included in power flow models used to analyze transmission service requests

### Conceptual projects:

- Planning is not complete
- Regulatory approvals have not yet been sought
- Does not necessarily represent ATC's preliminary preferred project alternative but reflects a placeholder project designation
- Not included in power flow models used to analyze transmission service requests