



section 4 Projects In Progress

This section of the report identifies transmission projects that have been completed, are under construction or are still in the approval stages.

Projects Completed Since 2002 Assessment

Transmission projects significantly affecting system performance that have been completed since the 2002 Assessment through May 31, 2003 are listed in Table IV-1. Note that the Forest Junction substation project, the Rockdale transformer project, the McCue-Sunrise project and Whitewater-Mukwonago project, all which relieved transmission service limitations and provide reliability benefits, have been completed and placed in service on or ahead of schedule.

Projects Under Construction

Transmission projects that will significantly affect system performance and are currently under construction are listed in Table IV-2. Most notable are the Russell-Rockdale 138 kV line rebuild, the reconductoring of the Christiana-Kegonsa portion of the Christiana-Fitchburg 138 kV line and the Pine-Eastom 46 kV line rebuild/conversion to 115 kV.

One of the more challenging aspects to implementing many of ATC's system reinforcements is scheduling transmission outages and distribution system reconfigurations necessary to construct and connect the projects. Because of the number of projects in certain areas, finding sufficient outage opportunities has become an issue. In

addition, in some instances, costs associated with generation redispatch necessary to maintain secure operating limits during construction outages have become a concern. ATC is striving to more accurately predict the potential cost implications of construction/connection outages and schedule outages to minimize such potential costs.

Projects With Regulatory Approval

Transmission projects that will significantly affect system performance and which have received regulatory approval but have not commenced construction are listed in Table IV-3. The notable project in this category is the Arrowhead-Weston project.

Projects Pending Regulatory Review/Approval

Transmission projects that are awaiting a CA or CPCN approval from the Wisconsin PSC are listed in Table IV-4. Notable projects include the Skanawan-Highway 8 115 kV line, the second East Campus-Walnut 69 kV underground line and the Sussex-Duplainville-Waukesha 138 kV line.

Table IV-1 Projects Placed In Service During 2002 or Early 2003

PROJECT	ZONE
Upated terminal equipment on the Port Edwards-Sigel 138 kV line	1
Installed an 11.3 MVAR capacitor bank at Summit Lake 115 kV	1
Replaced breaker at Aurora Street on line A-313	1
Replaced breaker at Highway 8 on line D-56	1
Installed an 8 MVAR capacitor bank at Hodag	1
Added 28.8 MVAR capacitor banks at Badger, White Lake and Werner 138 kV	1 and 4
Rebuilt DeTour-Talentino Tap 69 kV line	2
Installed two 20.2 MVAR capacitor banks at National	2
Reconductored the Whitewater-Mukwonago 138 kV line	3 and 5
Added a 500 MVA, 345/138 kV transformer at Rockdale	3
Added a 47 MVA, 138/69 kV transformer at Kilbourn	3
Constructed the Sunrise-McCue 138 kV line	3
Expanded the 345 kV switchyard at Columbia	3
Replaced the existing 138/69 kV transformer at North Beaver Dam	3
Constructed a 138 kV switchyard at a new generation site near the existing Rock River plant (Townline Road)	3
Upated the Colley Road-Brick Church 138 kV line	3
Replaced the existing 138/69 kV transformer at Russell	3
Replaced terminal equipment on Russell-McCue 138 kV line	3
Reconductored Christiana-Kegonsa 138 kV line	3
Converted Kirkwood-Artesian 69 kV to 138 kV	3
Constructed a new Artesian 138/69 kV substation	3
Constructed a Roosevelt-Wells 138 kV line (operated at 69 kV)	4
Constructed a 345 kV switchyard at Forest Junction and connected the existing Point Beach-Arcadian 345 kV line into the new switchyard	4
Installed two 345/138 kV transformers at Forest Junction	4
Rebuilt the Forest Junction-Highway V 138 kV line	4
Strung a new Forest Junction-Lost Dauphin 138 kV line	4
Converted the Maplewood-Badger and Clintonville-Badger-Shawano West 115 kV lines to 138 kV	4
Upated the Highway V-Preble 138 kV line	4
Reconnected the Lost Dauphin-Highway V 138 kV line	4
Converted the normally open Shawano East-Shawano West 34.5 kV bus tie to 138 kV and operate normally closed	4
Upated terminal equipment on the Forest Junction-Lake Park-City Limits 138 kV line	4
Added a 56 MVAR capacitor bank at Sussex 138 kV	5
Rebuilt the Saukville-Granville double circuit 138 kV line	5
Upated the Pleasant Prairie-Arcadian 345 kV line	5
Lakeside Substation was retired. Ring buses were built at Kansas and Norwich. Lines formerly terminating at Lakeside now terminate at Kansas or Norwich.	5
Installed second Everett-Valley 138 kV circuit	5
Reconductored Center-Fiebrantz 138 kV line	5
Construct new Haymarket-Center underground 138 kV line	5

Table IV-2 Projects Expected to be In Service by 2004 Summer

PROJECT	ZONE
Convert Pine-Grandfather-Tomahawk-Eastom 46 kV to 115 kV	1
Construct an Endeavor – Wautoma/Portage 69 kV line	1
Construct an Omro Industrial-Berlin/Omro 69 kV line	1
Uprate Whitcomb 115/69 kV transformer	1
Move Reedsburg 6 MVA D-SMES unit to Clear Lake 115 kV*	1
Install 138/69 kV transformer at North Randolph and uprate North Randolph-Ripon 69 kV line terminal equipment	1 and 3
Install capacitor banks at Atlantic, Gwinn, Land O' Lakes, Roberts and Talentino	2
Uprate M-38-Cedar 138 kV line	2
Uprate Cedar-Freeman 138 kV line	2
Uprate Cedar-Presque Isle 138 kV line	2
Uprate Presque Isle-Freeman 138 kV line	2
Convert Kilbourn-Zobel 69 kV to 138 kV	3
Construct Artesian-Zobel 138 kV line	3
Reconductor Blount-Ruskin 69 kV double circuit line	3
Construct new breaker and a half 69 kV bus at Walnut substation to accommodate IC029	3
Reconductor Christiana-Kegonsa portion of Christiana-Fitchburg 138 kV line	3
Construct second East Campus to Walnut 69 kV line	3
Reconfigure existing 69 kV and 138 kV circuits to form Rock River-Janesville and Rock River-Sunrise 138 kV circuits	3
Rebuild Russell-Rockdale 138 kV line	3
Reconductor Janesville-Russell 138 kV line	3
Construct Fitchburg-Tokay-West Towne 69 kV underground line	3
Reconductor Blackhawk-Colley Road 138 kV line	3
Uprate Columbia-Portage 138 kV line	3
Install capacitor banks at Birchwood, Cross Country, Kegonsa, North Madison, Oregon and Waunakee	3
Install distribution capacitor banks at Wingra, Tokay, Blackhawk, West Middleton and Pheasant Branch	3
Uprate terminal equipment on Russell-McCue 138 kV line	3
Reconnect the NW Beloit 69 kV load to the Paddock-Blackhawk 138 kV line	3
Rebuild Kegonsa-Femrite to 138 kV (operate at 69 kV initially)	3
Rebuild Femrite-Royster 69 kV line	3
Replace two line traps at Edgewater 138 kV	4
Replace metering current transformer at Sheboygan Falls 69 kV	4
Replace current transformer at S Fond du Lac 69 kV*	4
Retap metering current transformer at Lodestar 138 kV*	4
Construct/rebuild double circuit 138/69 kV line from Pulliam to Bayport	4
Rebuild the Morgan-Falls-Pioneer-Stiles 138 kV line	4
Install 345 kV breaker for Edgewater 345/138 kV transformer (TR-22)	4
Add a 2nd 138/69 kV transformer at Crivitz	4
Construct 138 kV line from Mullet River to N Mullet River and convert N Mullet River to Plymouth Sub #1 from 69 kV to 138 kV	4
Construct a Mullet River-N. Mullet River 138 kV line	4
Replace a circuit switcher with a 345 kV breaker at Racine	5
Reconductor Center-28th St 138 kV underground line	5
Construct a 138 kV underground line from Harbor-Haymarket	5

* not included in 2004 summer model

Table IV-3 Projects That Have Obtained Regulatory Approval but Construction has not Commenced

PROJECT	ZONE
Construct an Arrowhead-Weston 345 kV line	1

Table IV-4 Projects Awaiting Regulatory Review/Approval

PROJECT	ZONE
Rebuild Skanawan-Highway 8 115 kV line to double circuit 115 kV	1
Construct second East Campus-Walnut 69 kV underground line	3
Construct Sussex-Duplainville-Waukesha 138 kV line	5

Summary of Project Benefits

The transmission projects that ATC has implemented to date have provided benefits in terms of reliability, operating flexibility, transfer capability, generation interconnections, load interconnections or infrastructure upgrades, or a combination of these. Table IV-5 provides a summary of the benefits ATC's investments in the transmission system have, or are expected to yield.

The 2002 Total figures are based on all projects completed by the end of 2002. Likewise, the 2003 total figures are based on projects completed thus far in 2003 plus those projects expected to be in service by the end of this year.

Table IV-5 Summary of Project Benefits (through 2003)

YEAR	FACILITY OVERLOAD RELIEVED	LOW BUS VOLTAGES MITIGATED	TSR LIMITERS RELIEVED	TRANSMISSION LOSS REDUCTION IN MEGAWATTS	GENERATORS WITH IMPROVED STABILITY	T-D INTERCONNECTION PROJECTS
2002 Total	9	27	3	2	2	18
2003 Total	21	6	6	14	2	42