

DISTRIBUTION SYSTEM INFRASTRUCTURE PROJECT | TECHNICAL PLAN

Delivering quality at a great value – yesterday, today and tomorrow...

Version R0



Submitted by:
NorthWestern Energy
208 N. Montana Ave., Suite 205
Helena, MT 59601
(406) 443-8963

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NorthWestern
Energy
Delivering a Bright Future

Forward-Looking Statement

The following infrastructure plan was developed utilizing the most accurate system information available, which included historical maintenance and inspection results and system performance data along with estimated system component inventories. At the time this plan was developed, an actual system inventory did not exist. A complete system inventory and field inspection are part of the overall infrastructure plan, which will largely drive replacement and maintenance activity through the implementation of the plan. The implementation of the infrastructure plan was deemed too important to be postponed until an independent system inventory could be obtained, which would have yielded more accurate replacement and maintenance estimates. It is anticipated that actual inventory and inspection results may deviate from original estimates. As this occurs, adjustments to the infrastructure plan will be evaluated and implemented as required.

This plan contains forward-looking statements that may fall within the meaning of the “safe harbor” provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements often address our expected future business and financial performance, and often contain words such as “anticipates,” “may,” “will,” “should,” “believes,” “estimates,” “expects,” “intends,” “plans,” “predicts,” “projects,” “targets,” “will likely result,” “will continue” or similar expressions.

The plan is based upon our current expectations as of the date hereof unless otherwise noted. Our actual future needs and performance under the plan may differ materially and adversely from our expectations expressed in any forward-looking statements. We undertake no obligation to revise or publicly update our forward-looking statements or this plan for any reason. Although our expectations and beliefs are based on reasonable assumptions, actual results may differ materially due to a variety of factors, some of which are listed in certain of our press releases and disclosed in our public filings with the SEC.

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Table of Contents

I. Overview 1

 A. Background..... 1

 B. Why DSIP? Why Now? 2

 C. Development of the Plan..... 3

 D. Summary of the Plan..... 5

 1. Scope 5

 2. Costs 5

 3. Schedule 7

 E. Benefits..... 7

II. Principles and Benefits of the Plan 9

 A. Planning Principles 9

 B. Objectives..... 10

 C. The Planning Process 11

 1. Economic Analysis / Justification 11

 2. Participative Process 12

 3. Technical Approach 13

 D. Benefits 13

 1. Reliability 13

 2. Safety..... 14

 3. Regional Economy 14

 4. Costs 14

 5. Technology..... 15

III. The Electric Plan..... 16

 A. Objectives 16

 B. Building the Plan..... 18

 C. Program Summary 19

 D. Technical Details 20

 1. Pole Inspections and Replacement 20

 2. Underground Cable and Equipment..... 30

 3. Overhead Equipment..... 38

 4. Vegetation Management - Line Clearance Tree Trimming 46

 5. Rural Reliability Program - Worst Circuit 56

 6. Substation Inspection, Repair, Upgrades and Rebuild 63

7. Capacity Margins	70
8. Distribution Technology- System Automation & Smart Grid Technology Installation	77
IV. The Natural Gas Plan.....	87
A. Objectives	88
B. Background – The Nature of Natural Gas Systems	89
1. Sources and Uses of Natural Gas in the US	89
2. Moving Natural Gas from Source to Customer	90
3. The Role of the LDC	91
4. Components of the Natural Gas System	92
C. Building the Plan – The Ingredients	93
1. Minimizing Leaks	93
2. DIMP – A Game Changer	94
3. The Structure of the Natural Gas Plan – Eight “Projects”	95
4. The Component Plan	95
5. The Project Plan	99
D. Program Summary	100
E. Technical Plan	101
1. Business Districts	101
2. Farm Taps.....	103
3. Stubs	106
4. Inside Meter Sets- Non-Business Districts.....	109
5. Natural Gas Lines under Structures	111
6. Data Acquisition - DIMP	113
7. Damage Prevention	115
8. Operational Review - Zone Valves	117
9. Applicable Safety Code Requirements	120
Appendix.....	122
A. A Call to Action.....	122
B. The National Perspective	122
C. The Electric and Natural Gas Industries	125
D. Evolution of Today’s Distribution Systems	126
E. The Moving Target – New Needs and Priorities.....	129
F. The Consequences of Aging.....	131
1. The Importance of Reliability	131
2. Reliability Trends.....	132

3. System Vulnerabilities	133
G. Financial Considerations.....	135
1. The Traditional Funding Model	135
2. What Can Go Wrong?	136
3. Sources of “New Money”	136
4. Windfall Profits?	137
H. The Bottom Line.....	138

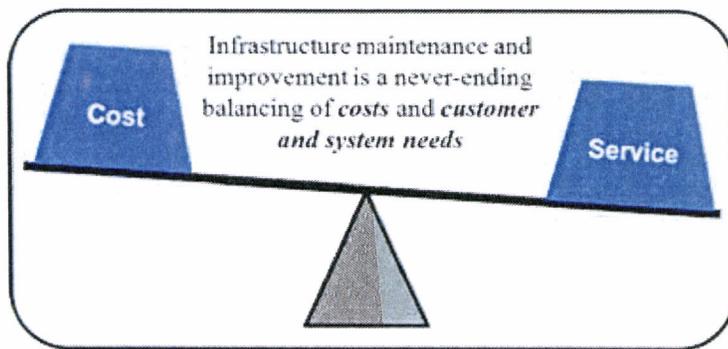
I. Overview

The Distribution System Infrastructure Project (DSIP) is a long term initiative by NorthWestern Energy (NWE) to assure that its electric and natural gas distribution systems are aligned to optimally meet its customers' needs and expectations for safe, reliable and cost effective service. Virtually all elements of America's infrastructure are aging too fast relative to modernization and replacement efforts, and the nation's utility systems are no exception. Our current systems are safe, reliable and competitively priced, and we are committed to keep them that way. This requires a proactive approach to get in front of the aging infrastructure issue, as opposed to being forced into a more difficult and costly reactive approach later.

NWE is fortunate in that it has the time to deal with aging infrastructure in the right way. At the same time, new technologies are emerging that promise to offer many benefits in the future. A modern, adaptable infrastructure will be a prerequisite for seizing those opportunities, and we have the obligation to assure that our system is ready to accept new proven and cost-effective technologies, as they become available to help support our customer needs and Montana's economic foundation.

A. Background

NWE serves 337,600 electric customers and 181,300 natural gas customers in Montana. An elaborate infrastructure, including 17,200 miles of electric distribution circuits and 4,900 miles of natural gas mains, is required to carry the electric or natural gas commodity to these customers in a safe, reliable and cost effective way. The utility's obligation to serve is not open to discussion; NWE is required to build and maintain the infrastructure necessary to meet its customers' needs. In return, the company has the opportunity to earn a fair return on appropriate investments it makes to meet that obligation.



Utilities are challenged to determine the optimum investment required to meet their obligations. Too little investment will lead to unacceptable service levels. Too much investment means unnecessarily high costs. Utility managers, under the oversight of regulators, must find the right balance to maintain both reasonable rates and service levels.

Adding to this challenge is the reality that the factors influencing the balance are often in flux. The various infrastructure strategies of the past are often no longer appropriate due to natural variations such as changing public or regulatory expectations, aging facilities, resistance to rate increases, evolving technical issues or priorities, or a wide variety of other changing circumstances. Good management carefully monitors such trends and adjusts plans accordingly, preferably by annual fine tuning, but at times by more aggressive, quantum changes in strategy. NWE is now precisely at such a crossroads, where decisive action is appropriate.

This Technical Plan describes a thoughtful, measured approach that accelerates our distribution infrastructure management program over the next seven years. It is designed specifically to result in electric and natural gas distribution facilities that will meet the long term customer needs, while maintaining stable and competitive utility rates. Arriving at this balance involves both science and art – there are no easy formulas that can produce universally accepted solutions. In all cases, however, the application of science and art has been governed by sound engineering judgment and industry practices. The purpose of this document is to clearly explain that process and why we believe that the technical plan for the maintenance and improvement of our electric and natural gas distribution facilities is the right thing to do, and now is the right time to do it.

B. Why DSIP? Why Now?

Much like the aging infrastructure trends across the United States in other areas, whether it is bridges, roads, airports or others, electric and natural gas utilities are faced with addressing their aging wires and pipes distribution systems.

The result is similar to other types of U.S. infrastructure, that maintenance and new investment have not kept pace as equipment and facilities age. With each year of decline, the difficulty and cost continues to grow to the point where costs can become prohibitive, further restraining new investment.

The generic factors now converging to magnify this aging infrastructure challenge include:

- Aging of key assets – the building boom of the late 60s and early 70s has resulted in a variation of the “baby boom,” in which many facilities are reaching the end of their design life (typically 40 years) at the same time.
- The cost of modernizing systems continues to rise – although inflation has been benign in recent years, this has not been the case in electric construction, as recent studies have shown above average cost increases for labor and material. Further, the cost to replace the aging components is many times their original cost.
- Absorption of what was once “excess” capacity in systems – the industry has been “working off” for decades the excess that resulted from the high growth years, with the result that in many cases the excess has turned to a deficit.
- Nationally, focus on cost containment has impacted modernization and maintenance efforts – the industry was especially aggressive in cost cutting in the 90s as it faced the potential for competition.
- Customer expectations continue to increase – the role of electricity in our society continues to grow, with the inevitable result that demands and expectations will also grow.
- The expectations gap between urban and rural customers has narrowed – rural reliability will never equal that of urban customers, but rural customers rightfully expect a reasonable service level.
- Technology offers mushrooming opportunities – the enormous investment now taking place in distribution technology (the Smart Grid) has the potential to lead to significant benefits in the future.

After decades in the back seat of national public policy, these factors all suggest that it is time for these many delivery and distribution systems to have a turn in the queue.

In terms of urgency and timing, electric and natural gas utilities across the country find themselves in different positions. Virtually all face infrastructure challenges and most view the issue with great concern. However, some are positioned well to deal with it, and others are not. The worst positioned have simply fallen too far behind, and are in the spiral caused by prohibitive costs – the challenge of “catching up” will be difficult. Others are borderline, and should be very aggressive while there is still time. Others still, although challenged, have the time to do it right. However, the half-life of that asset is short, and such firms would be prudent to not allow it to waste away.

The nature of the company’s schedule, featuring a two-year phase-in followed by five years of high production, is ample evidence that this is not a panicked reaction. On the other hand, the high production levels envisioned in 2013 through 2017, which far exceed what the company has done in the past, are clear evidence that this is indeed a very aggressive program. Such a thoughtful, structured, efficient approach is possible only because NWE has the time to do it right.

In Chapter II, A Call to Action, The Liberty Consulting Group will discuss in detail the U.S. trends in infrastructure in general and electric and natural gas distribution in particular. Their analysis shows there are good reasons why America’s infrastructure has been in decline, and it will take strong leadership to overcome those reasons.

C. Development of the Plan

The company retained The Liberty Consulting Group to conduct a formal audit of the company’s transmission and distribution infrastructure management in 2004, the results of which included numerous recommendations for improvement. Perhaps the most significant of these relate to the overall management and engineering approach to infrastructure management, and these were the recommendations that were most effectively implemented.

As a result, NWE restructured its engineering organization to provide increased focus and enhanced capabilities. In addition, the company recognized the need for better data on the existing infrastructure, and for more sophisticated analytical capabilities to exploit that data. The current ability to knowledgably and efficiently attack the infrastructure challenge is a direct result of the improvement initiatives undertaken by NWE in the wake of the 2004 audit.

In 2009, management believed that the time was right for the next logical step and that an aggressive approach to confronting the aging infrastructure challenge was appropriate. The audit actions set the stage and established a strong foundation. The organization had the capability to now attack the bigger distribution infrastructure issues. As a natural bridge to their participation in the 2004 Audit, NWE once again retained The Liberty Consulting Group to provide independent third party views, input and analysis into the planning process. The effort was kicked off with four rather simple objectives applicable to the electric system:

- Arrest or reverse the trend in aging infrastructure
- Build margin (capacity) back into the system
- Maintain reliability over time, and improve it for our rural customers
- Position NWE to adopt new cost-effective technologies

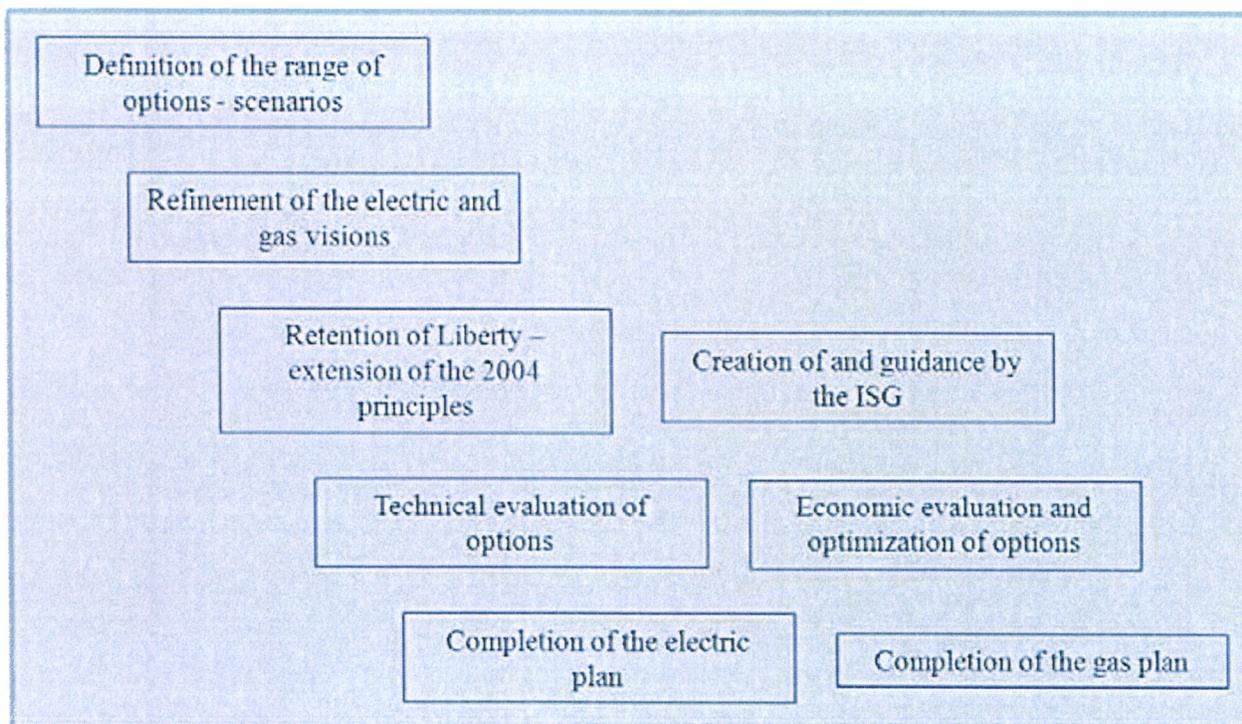
While simple, these objectives nevertheless proved powerful, and they are still the foundation for the DSIP. There is a direct tie for every element in the plan to one or more of these founding objectives.

A slightly different but equally powerful approach was applied to natural gas. The overriding importance of safety tends to relegate other objectives to the background. So, in natural gas, the secondary objectives are perhaps less important as a foundation element than are the principles that will guide the organization in achieving the safety objective. A commitment to safety and doing things right is less of an objective than it is a way of life or culture. Accordingly, organizational attributes seemed more appropriate as the founding principles for the natural gas program. Those attributes were defined as follows:

- Improve, or at minimum, maintain leak rate performance
- Enthusiastically embrace the industry’s new safety model (DIMP)
- Employ state-of-the-art analytical skills to proactively manage safety

The reader will notice that these four electric objectives and three natural gas attributes are repeated throughout this – this is no accident. In fact, as the foundation of the DSIP, they were repeated continuously throughout the development of the plan. They appeared at the front of every presentation, regardless of audience and regardless of how many times that audience heard them before. Also, they appeared in every technical discussion, as every decision and every consideration was tested for compliance with them.

After project kick-off, the general flow of the planning effort is illustrated below:



The importance of a thoughtful process that included a real role for stakeholders cannot be overstated. The participants of the Infrastructure Stakeholder Group (ISG), a diverse mix of

customers and stakeholders, further challenged the utility mindset of both NWE and The Liberty Consulting Group resulting in a plan that is rooted in customer expectation.

We noted above that infrastructure development has faced very real restraints, and those restraints are not easy to overcome. The strength of those restraints is what has caused the national infrastructure issues we have addressed. Management recognized that a traditional approach, although it served the industry well for decades, is no longer effective, and a new approach is required. We will discuss the criteria for that new approach in Chapter III, Principles and Benefits of the Plan, but will emphasize here the participative aspects, which directly contributed to several instrumental course corrections.

D. Summary of the Plan

1. Scope

The plan consists of eight elements or projects, each for electric and natural gas. These were identified as the critical parts of the infrastructure, or critical work activities, necessitated by the objectives of the plan and the visions established for the future electric and natural gas systems. The 16 elements are shown to the right.

The Electric Plan

- Poles
- Underground cable
- Overhead equipment
- Vegetation management
- Rural reliability
- Substation repairs and upgrades
- Capacity margins
- Distribution technology

The Gas Plan

- Business districts
- Farm taps
- Stubs
- Inside meter sets
- Lines under structures
- Data acquisition / DIMP
- Damage prevention
- Zone valves

Each of the 16 elements will be managed as a project, with all being integrated into an overall project management scheme. This notion of an integrated DSIP is important because the sequencing of work will be a critical consideration in achieving an optimized, cost-effective implementation. To the extent each element goes its own way, efficiencies will be lost. On the other hand, to the extent work can be packaged, including across project lines, substantial cost and schedule benefits are expected.

2. Costs

The estimated costs of the DSIP are summarized on the next page. The electric and natural gas plans will be explained in detail in Chapters IV and V, respectively. The supporting activities, which are shown below the line in the summary, are described as follows:

- **Supervision & Engineering Project Support.** Acquire additional staffing necessary for several aspects of the project, including engineering, supervision and project management. The funding listed in this activity is to address the expense portion of the additional staffing.
- **Geographical Information System (GIS) Expansion.** Conduct a field inventory of visible electrical components to verify and augment electric distribution facility data in NWE's GIS. Field data collected will include information such as component locations,

I. Overview

component phasing, and customer service connectivity to protective devices to support plans to implement an integrated Outage Management / Mobile Workforce Management / Computer Aided Dispatch (OMS/MWM/CAD) solution.

- **Electric Lighting Inventory.** Conduct a full inventory of NWE-owned lights. The inventory will include information to assist NWE’s Asset Management team to develop a future lighting business plan.

	Phase-in to Recommended Plan				Estimated Cost 2013-17 w/inflation	
	2011		2012		Recommended Plan	
	Incremental CAPEX	Incremental O&M	Incremental CAPEX	Incremental O&M	Incremental CAPEX	Incremental O&M
Electric Utility Plan Primary Activities						
Pole Inspection Inventory & Ranking		0.45		1.30		6.25
Pole Replacement	7.00		8.00		78.86	
Overhead Line Equipment Patrol & Repair				0.40		5.51
Line Clearance Tree Trimming		2.00		2.00		20.67
Underground Equipment Repair					1.38	3.39
Underground Cable Replacement	1.00		1.50		46.64	
Capacity Margins Improvement					21.94	
Line Clearance Correction					3.92	
Worst Circuit - Rural Reliability Improvement	0.50	0.20	0.50	0.60	3.29	7.84
Substation Upgrade and Improvement	0.60		1.70		14.63	4.13
System Automation & Smart Grid Technology Installation			0.50	0.40	42.40	1.06
Electric Utility Total	\$ 9.10	\$ 2.65	\$ 12.20	\$ 4.70	\$ 213.06	\$ 48.87

	Phase-in to Recommended Plan				Estimated Cost 2013-17	
	2011		2012		Recommended Plan	
	Incremental CAPEX	Incremental O&M	Incremental CAPEX	Incremental O&M	Incremental CAPEX	Incremental O&M
Natural Gas Utility Plan						
Business District Inside Meter Set and Vintage Construction Improvements	5.00		5.00		26.50	
Non-Business District Inside Meter Set and Vintage Construction Improvements					0.85	0.21
Establish a Distribution Integrity Management Program	0.35	0.70		0.75		0.64
Gas Line Damage Prevention						8.06
Farm Taps Rebuild					0.53	0.11
Gas Line Stub Removal					4.98	0.53
Gas Lines Under Structures Removal or Relocation					4.13	1.06
Zone Valve Installation Plan	1.00	0.50	1.00	0.50	3.18	3.71
Natural Gas Utility Total	\$ 6.35	\$ 1.20	\$ 6.00	\$ 1.25	\$ 40.17	\$ 14.31

	Incremental CAPEX	Incremental O&M	Incremental CAPEX	Incremental O&M	Incremental CAPEX	Incremental O&M
Other Related Activities						
Supervision & Engineering Project Support		0.65		0.95		5.62
Geographical Information System Expansion		2.50		2.53		3.18
Electric Lighting Inventory		0.25		0.25		
Other Total		\$ 3.40		\$ 3.73		\$ 8.80

Project Total	\$ 15.45	\$ 7.25	\$ 18.20	\$ 9.68	\$ 253.23	\$ 71.97
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CAPEX = Capital Expenditures

O&M = Operations and Maintenance Expenses

3. Schedule

The main production window for the DSIP is the five-year period beginning in 2013. The levels of production in this period are well beyond the size of any prior NWE distribution construction efforts. In addition to a major management challenge, the size of the DSIP is an opportunity to develop additional efficiencies. We are committed to taking advantage of these opportunities, but it will take time to build the capabilities and management systems required. Simply stated, it would be neither prudent nor practical to make such a quantum leap overnight.

For this reason, NWE is implementing a two-year phase-in or ramp-up period. On a simplified basis, 2011 can be viewed as a head start on the especially important priorities as well as the engineering and planning actions necessary to support the later years. In 2012, the focus will be on ramping up to a higher level of production while implementing and perfecting the new DSIP organization and management systems. By the end of 2012, we expect to be ready to move to the very high demands of the production years.

E. Benefits

The benefits of the DSIP come at many levels. The technical benefits will be reviewed in detail in the discussions of the electric and natural gas plans. However, the most valuable benefits will flow simply from the achievement of the visions for the future electric and natural gas systems. The attributes described in those visions have a tangible value to our customers and regional stakeholders. Safety, reliability, the ability to grow with the region and the efficient use of our energy resources, all rolled into a cost effective, competitive package, is a benefit that is hard to quantify, but is nonetheless important.

The genesis of the DSIP was the concern for aging infrastructure; the DSIP is well suited to that challenge. It arrests and reverses the aging trend; it restores margins that have eroded through the years; it maintains a high level of reliability; and it positions the distribution system to take advantage of new technologies, including automation in the near term and yet to be defined advances in the longer term. Meanwhile, on the natural gas side, a significant contribution to system safety will result, brought about through targeted leak reductions, supported by a more aggressive program of threat analysis and mitigation.

The timing of the DSIP project in itself produces real benefits. The program recognizes the importance of "seizing the moment" while we still have the time to do it right. There is no question that a failure to act now simply postpones the inevitable. It will be a lot harder and a lot more expensive to face these very same questions five years from now.

In addition to the direct electric and gas system benefits of the program, there are other societal benefits from this initiative. The capital spending plan for the next seven years is nearly \$300 million, and that is over and above NWE's base level of spending. That represents many jobs for a sustained period, with obvious benefits to the region. Like many utilities, we expect a significant amount of our experienced employees to retire in the next few years. The DSIP provides the added benefit of enabling knowledge transfer to occur so that the next generation is

well prepared to carry on the strong traditions that have been instilled in the utility over the past century.

It is important that we focus on the utility of the future – now – to be able to fully support the future economic well-being of the communities that we serve. Modernizing the systems today in preparation for tomorrow’s standards can be reasonably accomplished now at a reasonable cost and in a logical, controlled manner. It is the right thing to do, and the right time to do it.