Transmission Capacity Issues

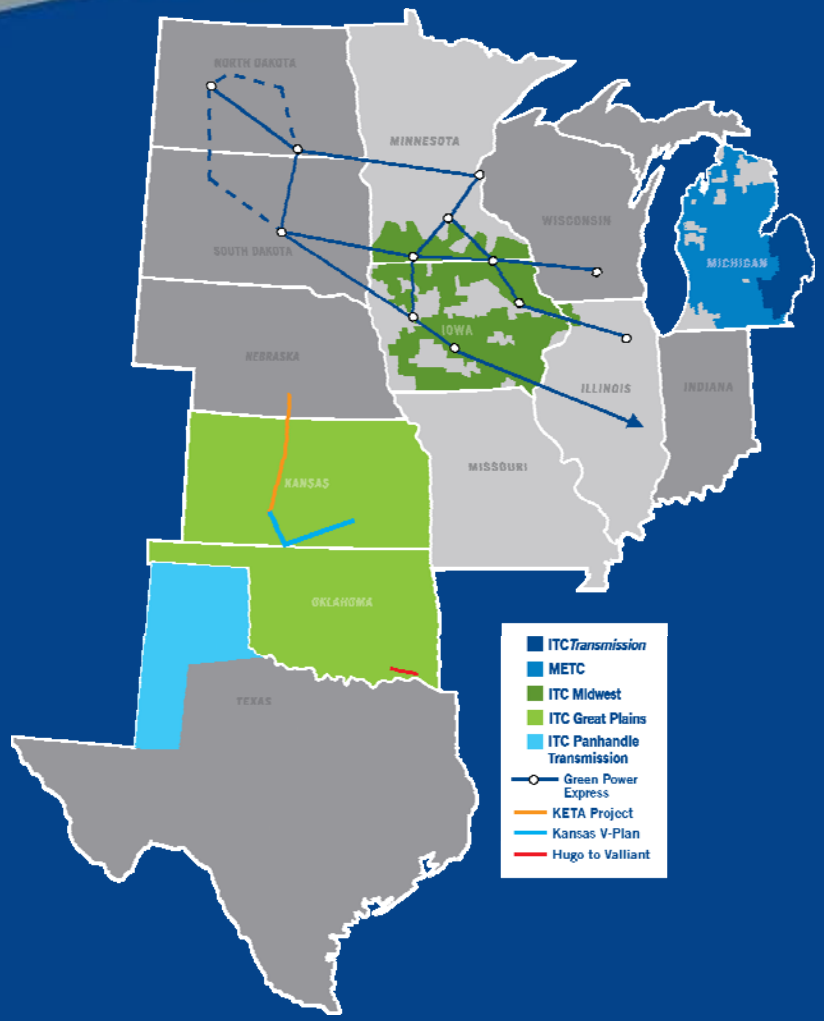
Carl Huslig

Executive Director, ITC Grid Development

President, ITC Great Plains

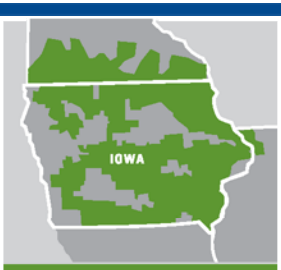
July, 2011

Overview of ITC



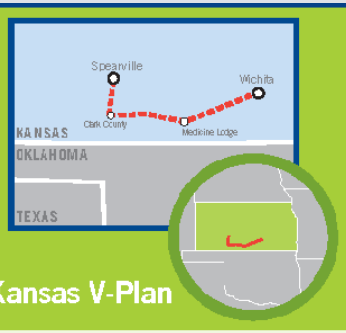
- **ITC's fully regulated, independent transmission model creates a unique approach to infrastructure**
  - Independent transmission model means our sole focus is investing in necessary transmission infrastructure
- **Presently operate over 15,000 miles of transmission facilities in five states**
  - Serve over 25,000 MWs of peak load
- **Actively developing transmission for reliability needs and emerging long-term energy policy**

ITC System Statistics

				
Service Area	ITC *Transmission*	METC	ITC Midwest	ITC Great Plains
Approx. Total System Peak Load	12,700 MW	9,400 MW	3,500 MW	1,100 MW
Approx. Total Transmission Miles	2,800	5,500	6,800	In Development 310
RTO Membership	Midwest ISO	Midwest ISO	Midwest ISO	SPP
Assets Acquired	March 1, 2003	Oct. 10, 2006	Dec. 20, 2007	Aug. 18, 2009

Five-Year Capital Plan

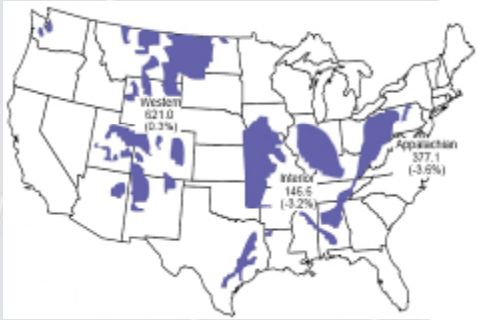
KEY CAPITAL PROJECTS

Project	Thumb Loop	Hugo to Valliant	KETA	Kansas V-Plan 
Description	140 mile, 345kV line; four new substations	18 mile, 345kV line and new substations	225 mile, 345kV line; ITC's portion is ~174 miles	180 mile, 345kV line; ITC's portion is ~110 miles
Estimated Cost	Approximately $510 million	Approximately $37 million	Approximately $203 million	Approximately $300 million
Status	Received siting approval in February 2011; pre-construction activities are ramping up	ROW acquisition is now complete and construction activities for the project are ramping up	Phase 1 under construction; obtained over 80% of ROW for Phase 2	Filed for siting approval for project in first quarter 2011; upon receiving siting approval pre-construction activities expected to begin in second half of 2011
Estimated In-Service Date	Phase 1 in late 2013 and Phase 2 in 2015	Mid-2012	Phase 1 in mid-2012 and Phase 2 in mid-2013	Late 2014
Five-Year Capital Plan Investment	Generator Interconnections	Development	Development	Development

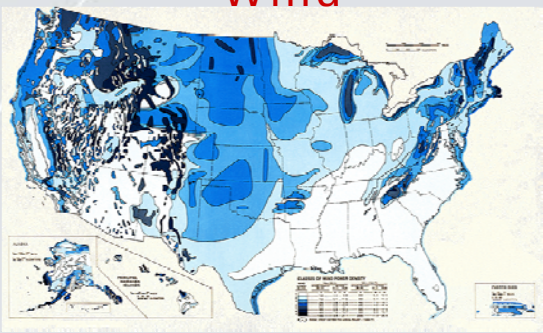
The Transmission Grid: Present Environment

Our Nation's Generation Resources

Mine-mouth Coal

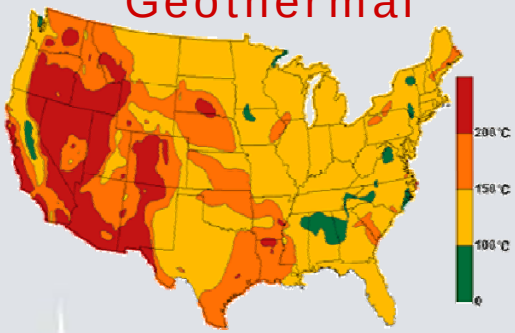


Wind

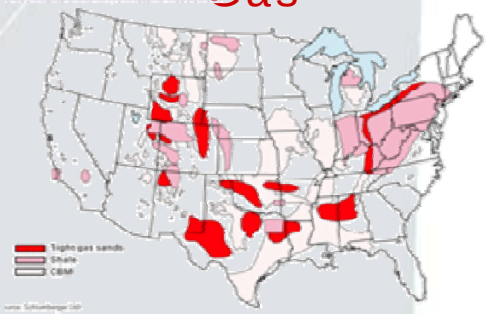


Nuclear

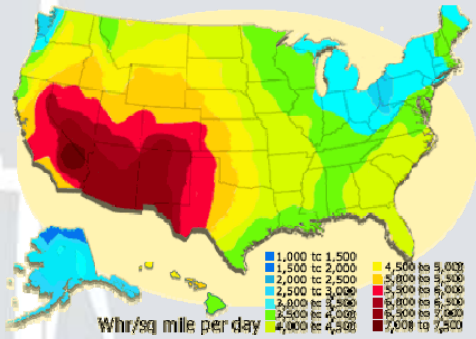
Geothermal



Gas

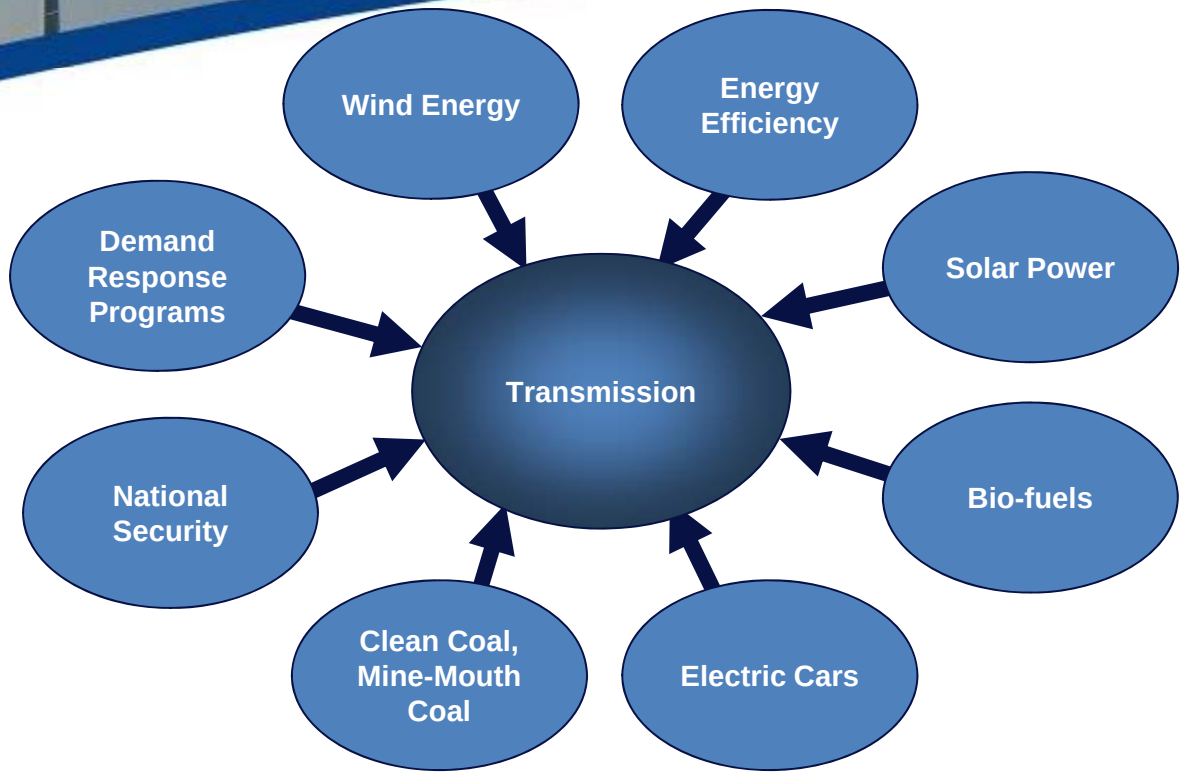


Solar

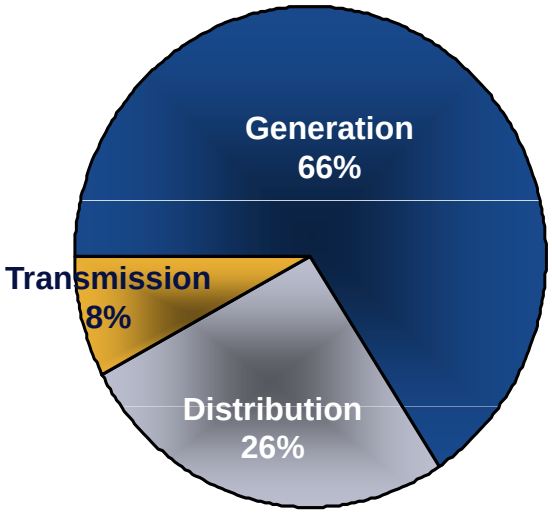


- Transmission owners must provide equal, non-discriminatory access to all forms of generation
- Each generation source provides a unique challenge when connecting to the grid
  - For example, wind is highly variable & largely abundant in areas with little transmission infrastructure
- However, all generation sources need access to a robust transmission grid

Transmission as Facilitator



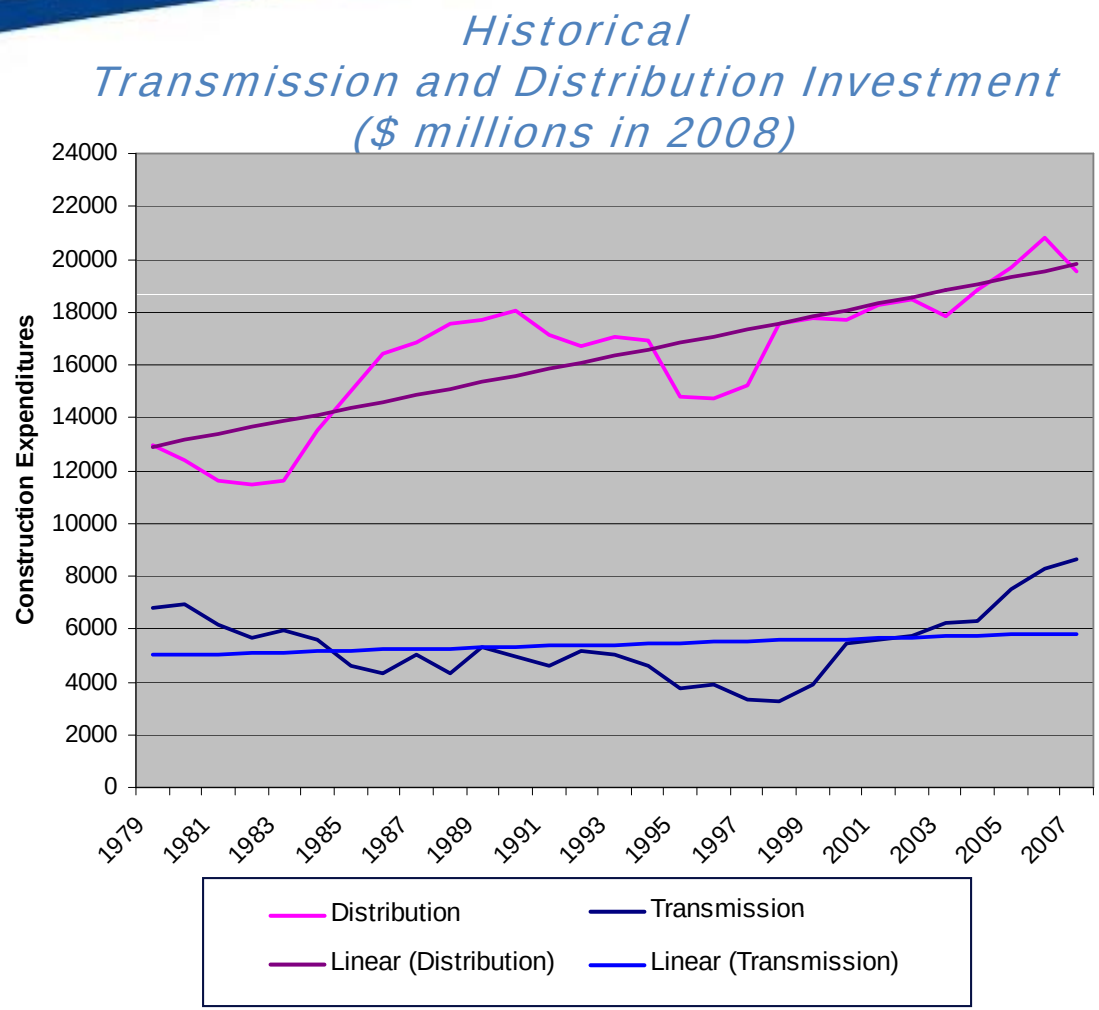
Proportions by Service Category [1]



[1] **Source: EIA Annual Energy Outlook 2009 with Projections to 2030**

Transmission is at the center of the energy debate;
It is the critical link to economic development & many energy policy visions and yet
transmission represents only about 4% to 8% of a typical utility bill

Reduced Investment in Grid



Source: ***EEI Statistical Yearbook, The Edison Electric Institute, 2009.***

Present Status of the Grid

High Demand: Electricity demand continues to grow; expected to increase 25% by 2030

- ***Aging infrastructure:*** Most of the grid was built over 30 years ago & not designed to reach the regions with rich renewable energy resources
- ***Mounting Reliability Concerns:*** Blackouts and brownouts cost our economy every year
- ***Inefficiencies:*** Lack of investment has led to increased congestion, inefficiency and higher electricity prices
- ***Interconnection Problems:*** Lack of capacity has created a huge queue for energy projects
- ***System Fragmentation:*** *Approximately 3,200 electric utilities including an estimated 500 transmission owning entities which are regulated using an outdated model*

Energy Industry: Today and Tomorrow

- Policymakers are calling for the industry to look at new sources for energy and technology:
  - Create new jobs
  - Invest in and improve nation's infrastructure
  - Diversify our fuel sources / energy security
  - Protect the environment

- However, many of these new sources and technologies are not possible without a robust transmission grid

Need for Changes to State & Federal Energy Policies

Recent Emphasis

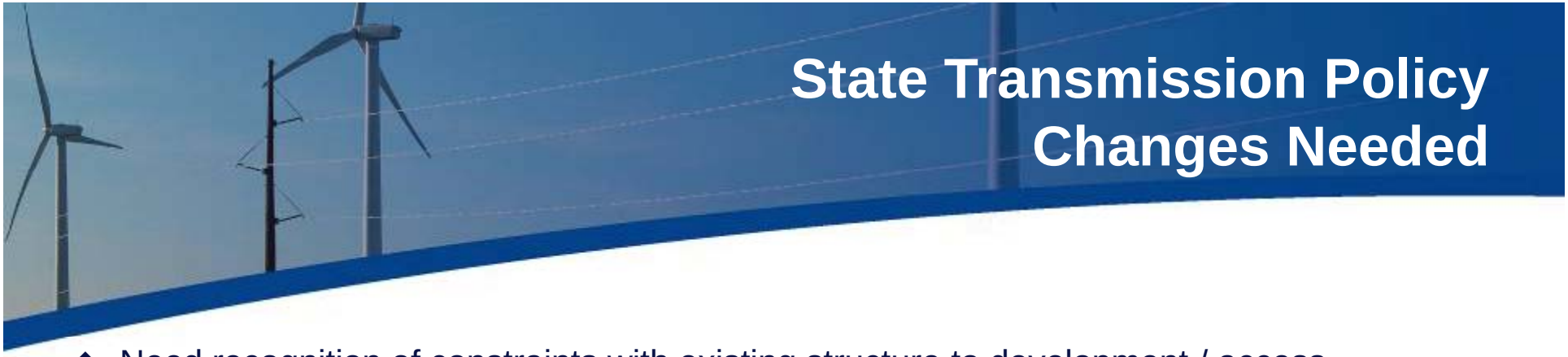
- Recent FERC policy initiatives encourage transmission investment, provide greater returns for certain projects including:
  - High voltage facilities which increase reliability, reduce congestion and encourage development of clean energy
  - All investment for transmission
  - Only clean energy projects

- FERC landmark Order 888 (1996)
  - Sought generation competition
  - Required transmission owners to provide non-discriminatory access
- FERC Order 2000 (1999)
  - Encouraged utilities to form/join regional transmission organizations (RTOs)

These two orders helped establish a non-discriminatory market, but fell short of being fully effective

Present Transmission Policy

- Estimates of over $230 billion of investment required in the next 20 years
- Grid investment has doubled in recent years, but is still well below needed
- Existing transmission policies provide significant opportunities to improve investment / development
  - Reduce barriers for both existing and new / potential transmission owners
- Opportunities to improve present transmission policy include:
  - Increase certainty of cost allocation and cost recovery
  - Streamline and improve predictability of lengthy state and local siting for projects with regional benefits
  - Provide balance for high costs to generators for network upgrade projects
  - Provide predictable, regulated rates of return



State Transmission Policy Changes Needed

- Need recognition of constraints with existing structure to development / access renewable energy sources
  - Report: The Governors' Wind Energy Coalition (bi-partisan group of 29 Governors), including former Governor Richardson of New Mexico
- New Mexico legislative changes proposed in 2011 to alleviate constraints:
  - Regional / inter-regional planning; an RTO structure for all of New Mexico
    - Presently only the eastern side of the state is in an RTO
  - Regional cost allocation; a process where prudent costs of identified transmission projects are spread broadly across the region
    - Private entities can capitalize to build high voltage facilities and have expertise to do so
  - State siting process which recognizes landowner concerns, but provides an expedited process to ensure needed projects are built
- Policy changes could result from several sources:
  - State legislative initiatives
  - Pending federal legislation concerning energy
  - Reinterpretations of existing statutes by FERC
  - Court decisions

Modernize the Grid via Modernized Rules

- ***National energy policy vision***
  - Guide decisions on planning for future energy delivery system
  - Foundation for energy policy (e.g., national RES, carbon pricing, etc.)
- ***Independent regional planning***
  - Interconnection-wide
  - Membership is determined by geography
  - Budget is paid for by planning assessment
- ***Cost allocation***
  - Should be harmonized for all transmission investment regardless of primary driver
  - Costs should be recovered from entire region via postage stamp rates
- ***Federal siting***
  - FERC should be given backstop authority to site transmission if a state fails to act

Who is ITC

Overview of ITC

STRATEGY

- **Multi-faceted strategy leverages our sole focus on transmission investment**
- **Achieve and maintain best-in-class performance in core operations**
  - Includes reliability, security and safety
  - Improvements over the years reflective of our investments and business practices
  - Non-discriminatory access to all generating resources
- **Lead development of 21st century grid**
  - Thought leader in advocating and facilitating transmission development
  - A robust, reliable transmission grid is critical to national energy security

ITC Development

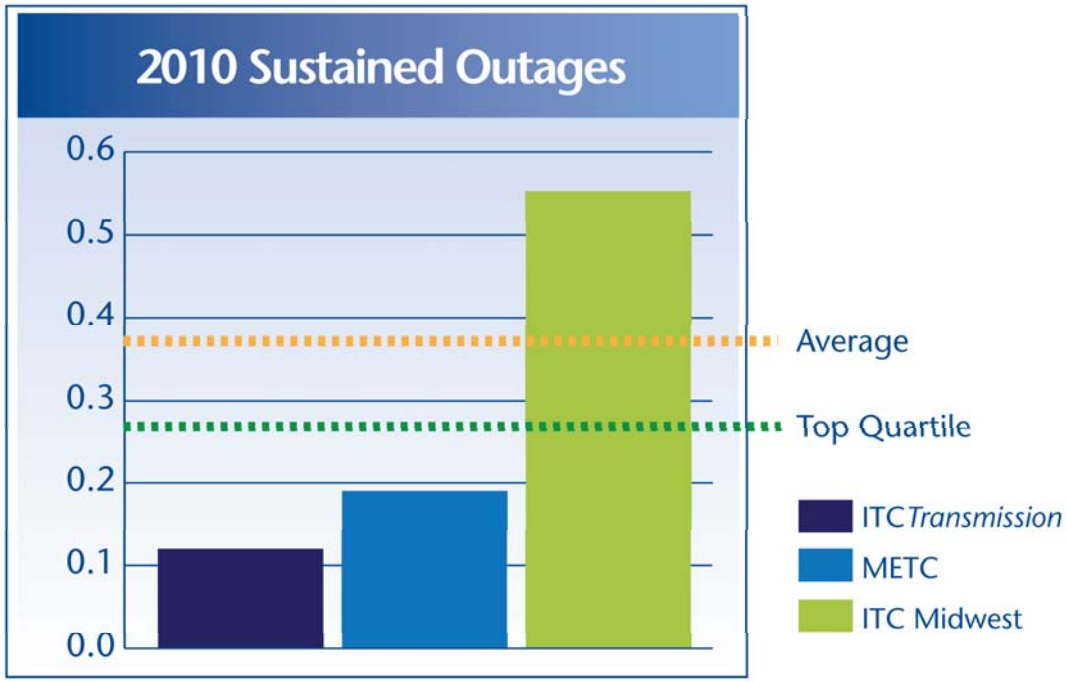
TARGETED REGIONS

- **Present Five-Year plan based on two targeted regions**
  - South Central region, primarily SPP
  - North Central region, primarily MISO
- **Transmission related attributes of regions**
  - Actively engaged in studying and planning for regional system
  - Favorable cost allocation landscape for regional projects
  - Strategic ITC footprint; opportunity for ITC to be successful
- **Identified transmission investment needed to support EHV Overlay**
  - MISO: $20 billion
  - SPP: $7.5 billion

Core Business

BEST-IN-CLASS OPERATIONS

ITC measures its results by participation in the SGS Statistical Services Transmission Reliability Benchmarking program



19

Core Business

BEST-IN-CLASS OPERATIONS

State of the art Operations Control Room (OCR) in Novi, Michigan monitors and operates the high voltage electrical transmission system throughout the ITC system footprint

- OCR operational at new ITC headquarters in 2008
- Back-up OCR in Ann Arbor, Michigan

ITC controls over 12,000 miles of transmission lines and hundreds of substations serving a combined peak load of approximately 25,000 megawatts

- ITC Midwest 34.5 kV system is contractually operated by Alliant Energy in Cedar Rapids

Ability to expand monitoring and operational capabilities to incorporate ITC Great Plains projects and other potential projects / systems

Planning

ITC Planning is organized around regional staff dedicated to a local operating company, supported by centralized staff

- Regional Staff
  - Focus on day to day activities for individual operating companies
    - Participate in local RTO and RRO activities
    - Forecast future system issues and develop planning solutions
    - Provide Planning support for local projects
    - Provide local input to compliance submittals
  - Dedicated Manager, ITC Planning staff focused on ITC GP
  - Budgeting to add staff to ITC GP Planning in 2012
- Centralized Staff
  - Perform specialized planning in more highly technical areas such as transient stability and economic studies
  - Lead compliance program (position dedicated to compliance)
  - Provide internal consultancy to assist regional staff when needed

Key Take-Aways

Key Take-Aways

- Demand for reliable power continues to increase
- New Mexico has substantial renewable resources offering both policy and economic development opportunities
  - Renewable energy
  - Jobs and tax base
  - Export potential
- Benefits require a robust, dependable, high-voltage power grid
- Private entities can bring expertise and private capital to help New Mexico realize increased benefits
- Changes are required to facilitate these opportunities
  - Regional planning
  - Regional cost allocation and cost recovery
  - Expedited siting