

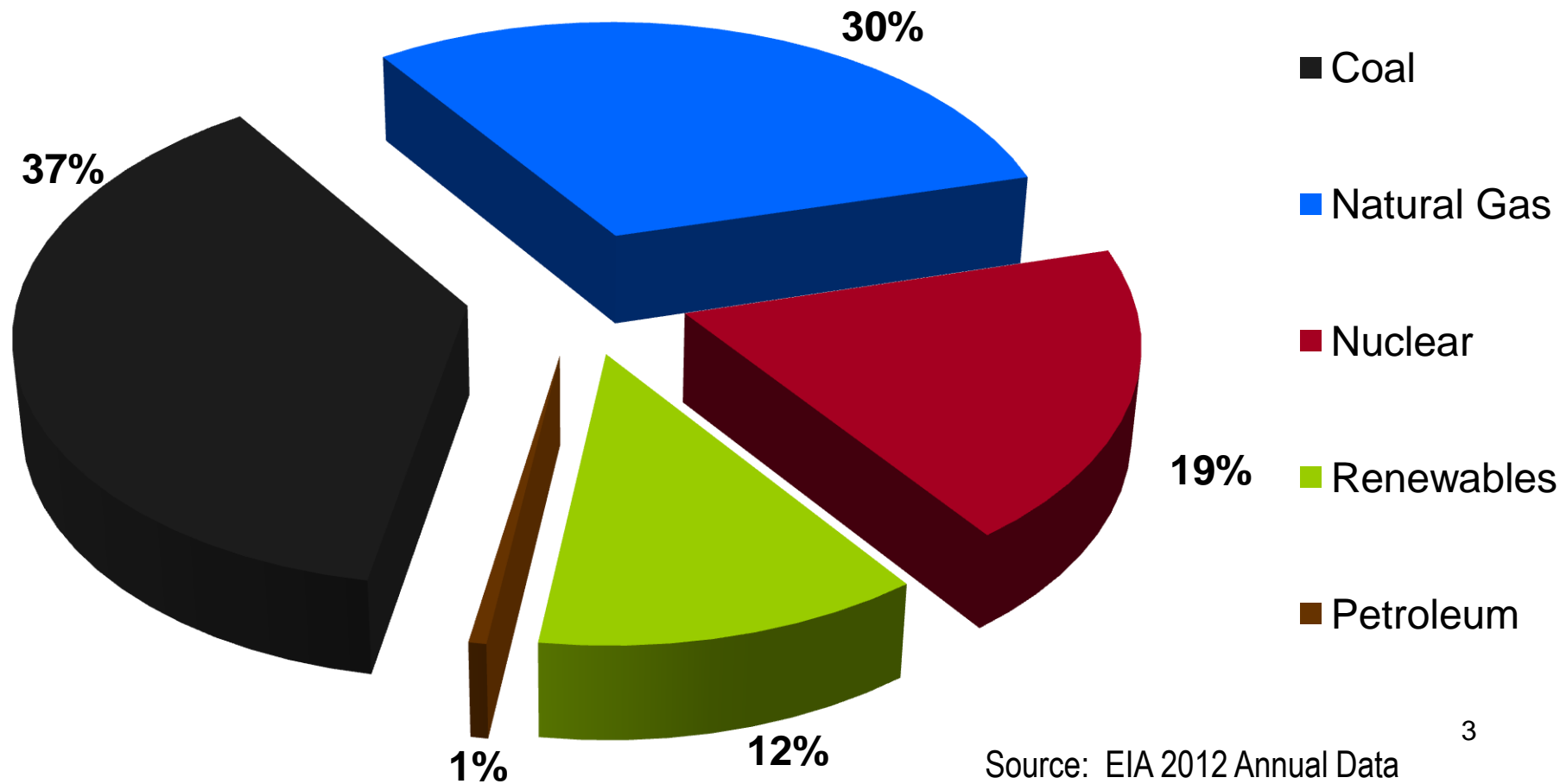
History of Electric Regulation in Ohio

Presented by Commissioner M. Beth Trombold
For the 7th Partnership Activity of
NARUC and NERC
Sponsored by USAID
June 17 – 21, 2013
Kiev, Ukraine

Ohio Quick Facts

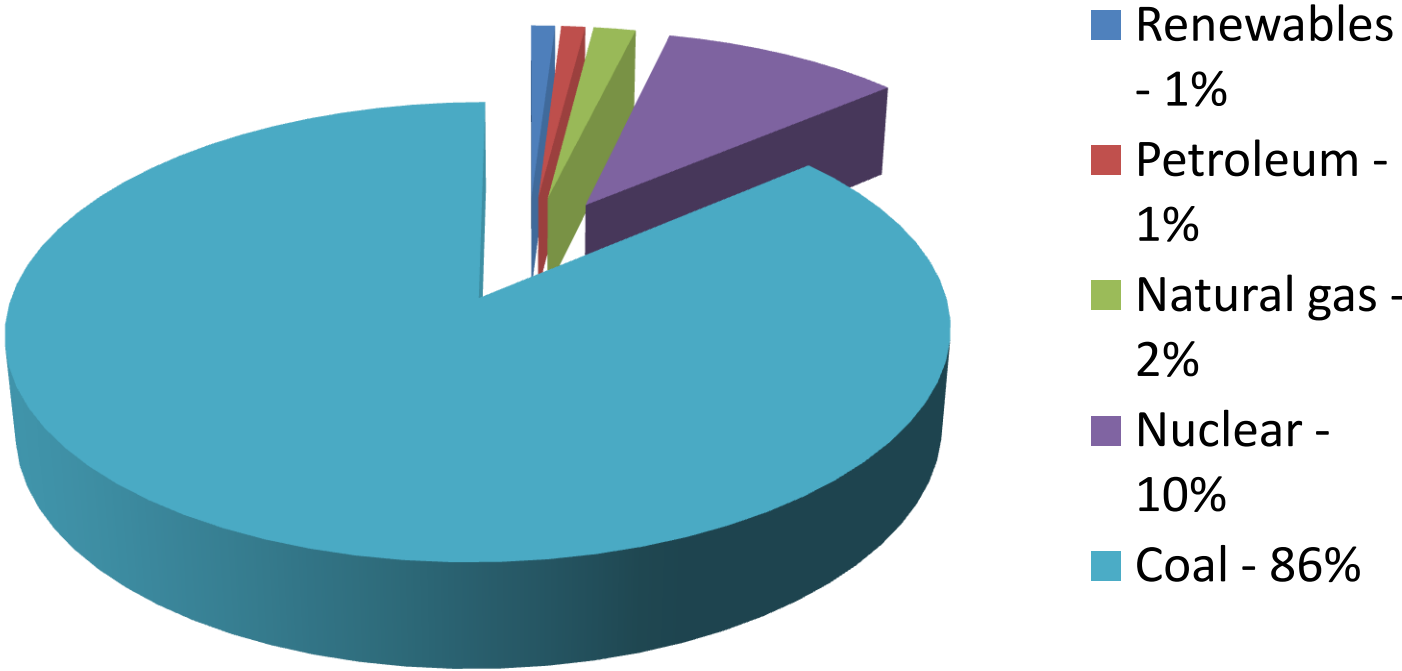
- Current interest in Ohio oil and gas exploration is focusing on two Ohio shale plays – the Marcellus Shale and the Utica Shale.
- Ohio had the eighth largest crude oil refining capacity in the Nation in 2011.
- Coal fueled 78 percent of Ohio's net electricity generation in 2011, nuclear energy contributed 11 percent, and natural gas added another 8.9 percent.
- Ohio ranked fifth in the Nation in 2010 in energy consumption by the industrial sector; in 2011, Ohio ranked third in manufacturing employment, with 5.4 percent of U.S. manufacturing jobs.

U.S. Net Electricity Generation by Energy Source



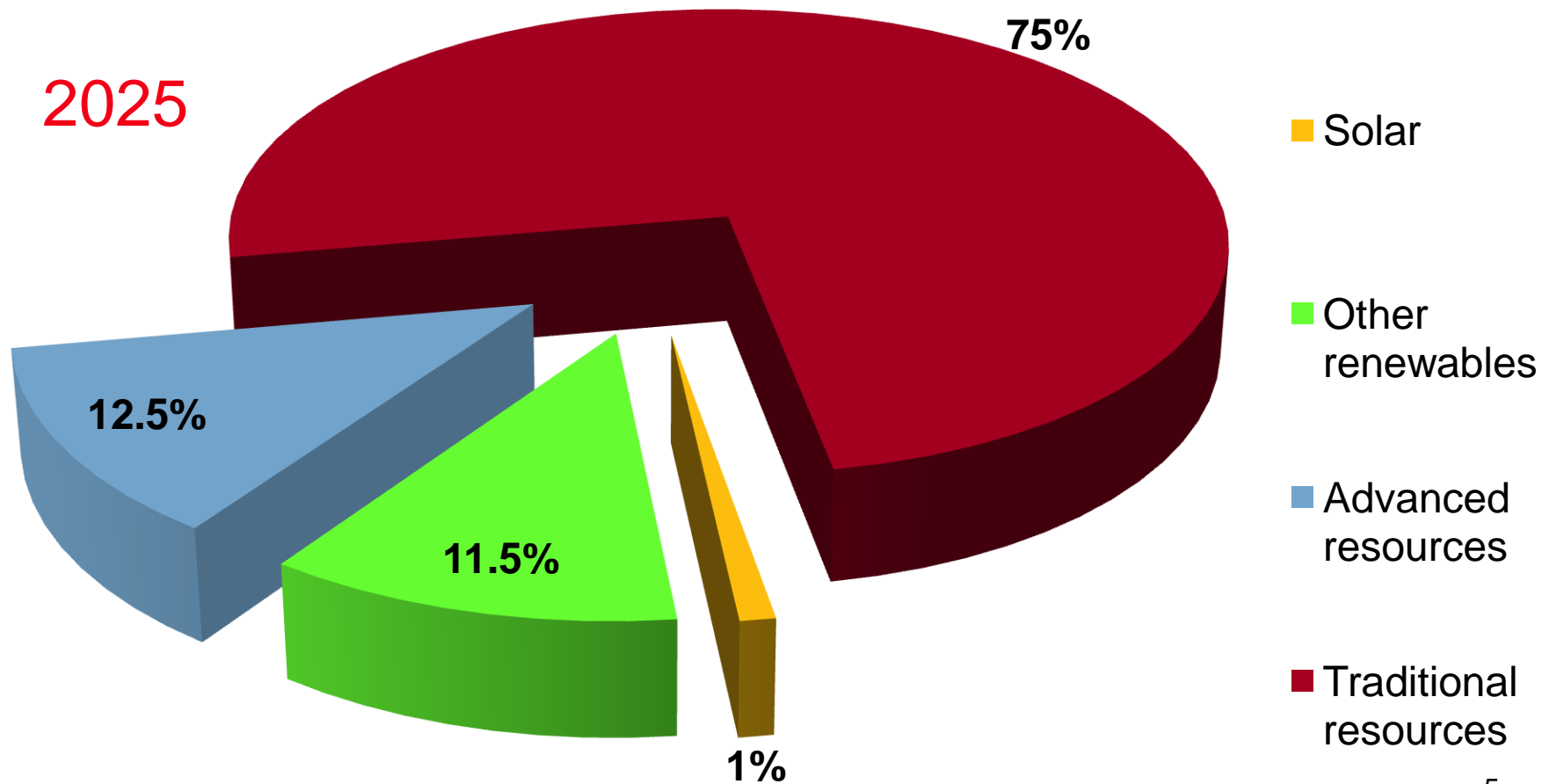
Source: EIA 2012 Annual Data

Ohio's Electric Generation Resource Mix



Where will Ohio's electricity come from?

2025



Why Regulation?

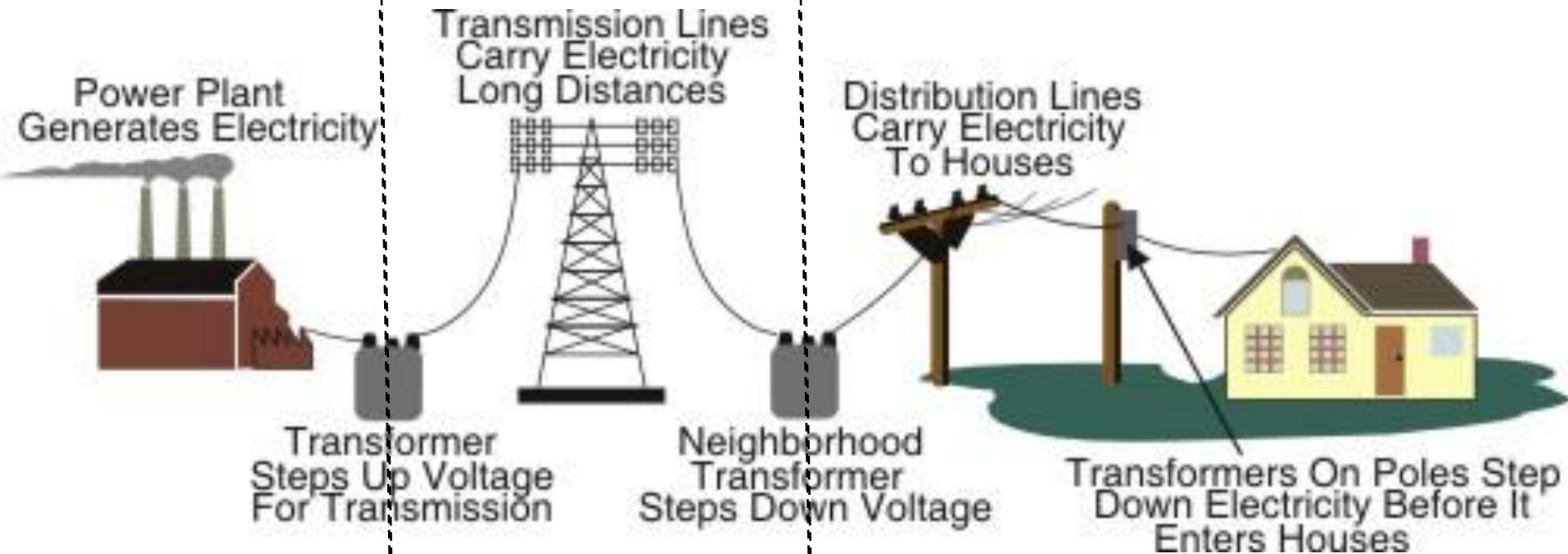
- Electricity has historically been considered a “natural monopoly.”
- Entry into this market required huge investments in infrastructure.
- Electricity was considered a “public good.”
- Very few people could make the investment to get into the electric business and those who did could take advantage of the monopoly.

ELECTRICITY

GENERATION

TRANSMISSION

DISTRIBUTION



PUCO does not regulate

MIX
(Some federal [FERC], some state [PUCO], some neither)

PUCO
(regulates investor-owned utilities)

US Energy Policy Act of 1992

FERC Order 888 (1996)

FERC Order 2000 (1999)

- Determined the public interest would be best served by a competitive wholesale market
- Provided for non-discriminatory and open-access on the transmission system
- Transmission owners were expected to join a Regional Transmission Organization

History of Electric Restructuring in Ohio

Senate Bill 3

A 1999 law effective January 2001 restructured Ohio's electric industry
Allowed customers to shop for electricity
Provided a five-year market development period

Turn of the Century System

Unbundling of vertically integrated system
Customers served by generator of choice
Transmission and distribution remain regulated
Generation became competitive

Issues Under Restructuring

Unbundling

Market Power

Transitional Issues

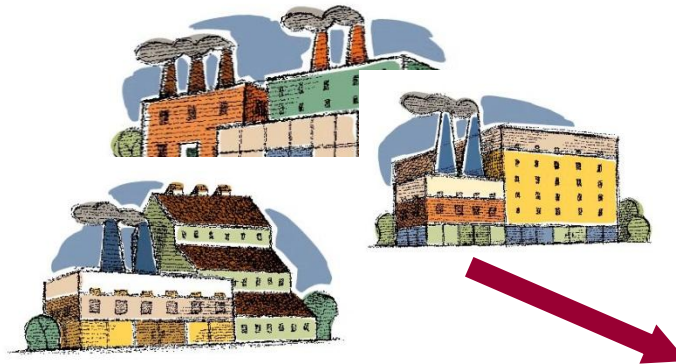
Independent System Operation / Regional
Transmission Organizations

Social Issues

Environmental Issues

Taxes

Unbundling



Generation (“or supply”)
Shop for this

Transmission
Remains regulated by FERC

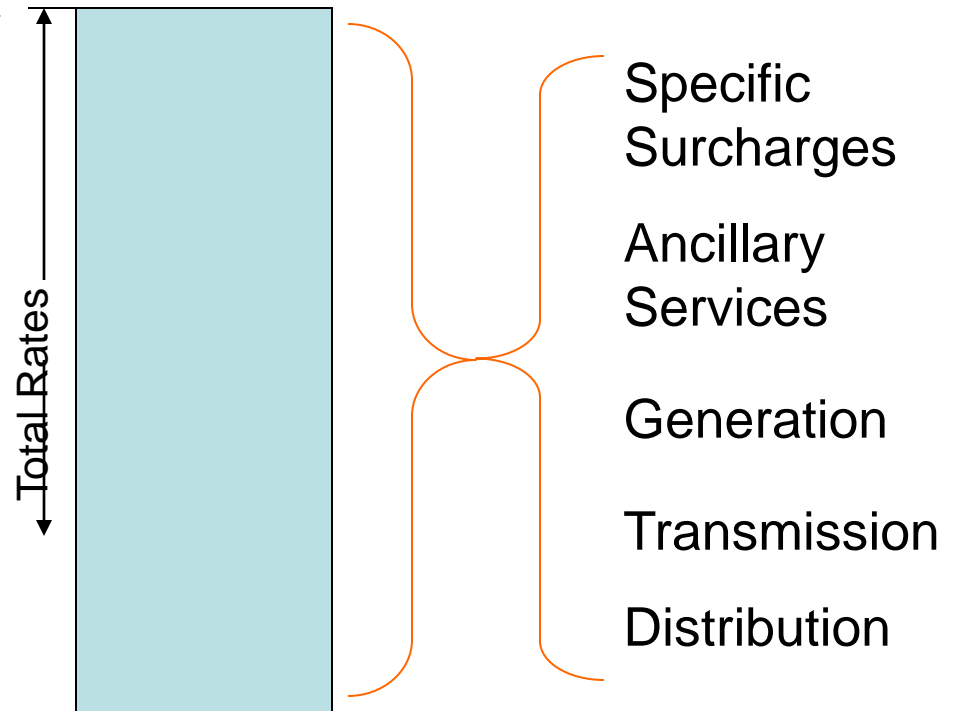


Distribution
Remains regulated by PUCO
and provided by your local utility.

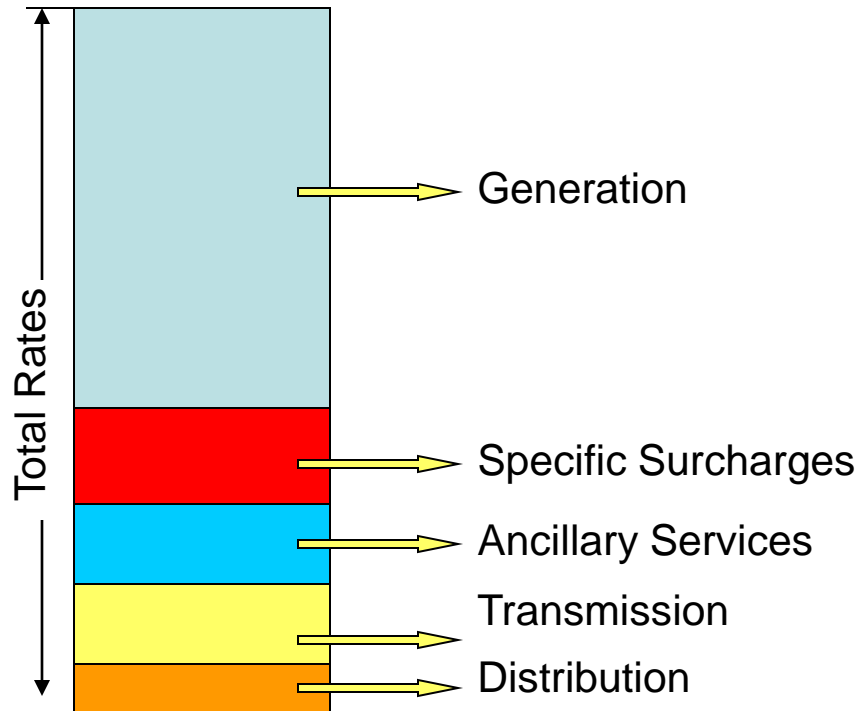


“Bundled” Rates

- Rates were previously a “bundle” of costs for different services.
 - Generation
 - Transmission
 - Distribution
 - Ancillary Services
 - Specific Surcharges



“Unbundled” Rates



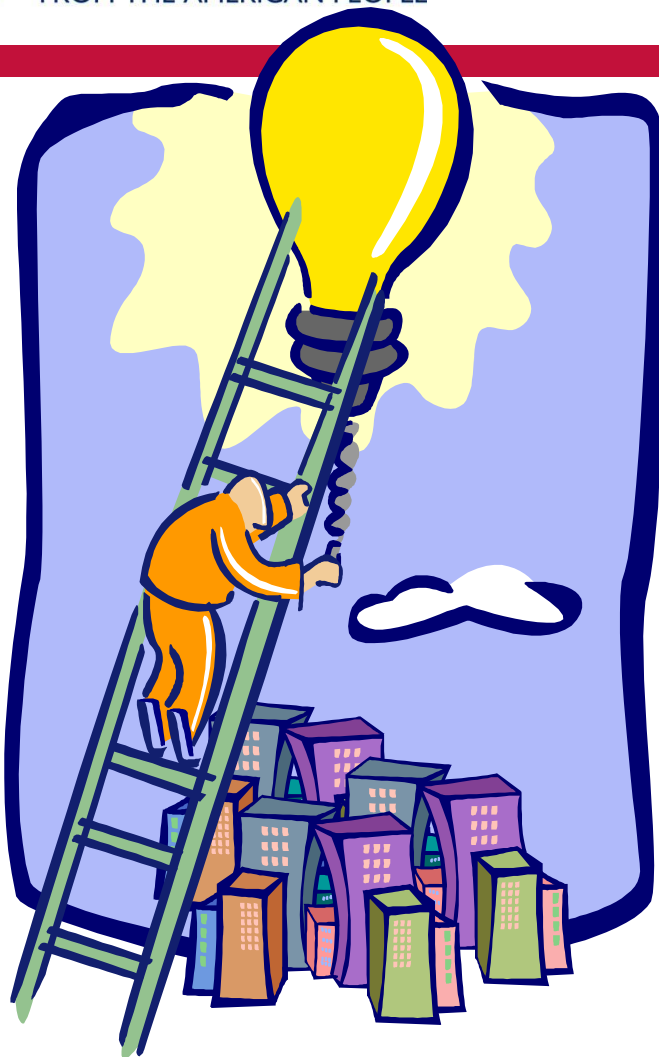
Electric Restructuring would “unbundle” the rates so the generation component could be shopped for, and priced at “market.” The bill anticipated that market rates would be lower than regulated rates.

Transitional Issues

- **Timing**
 - How soon full competition can begin
- **Stranded Costs**
 - Production
 - Regulatory

Social Issues

- **Universal Service**
- **Provider of Last Resort**
- **Low Income Programs**
- **Consumer Education**
- **Metering & Billing**
- **Unfair & Deceptive Practices**
 - **Price Disclosure**
 - **Slamming**



And last, but not least:

- Market Power
- ISO/RTO
- Taxes

Suppliers must be certified for consumer protection

PUCO certifies all electric suppliers

Suppliers are reviewed for:

- technical capabilities
- financial capabilities
- managerial capabilities

Ensures these companies are qualified to do business in Ohio

“Energy, Jobs and Progress Plan” Senate Bill 221

The plan was a comprehensive, long-term approach to the challenges of supplying reliable and affordable power.

It also had to address the approaching expiration of the Rate Stabilization Plans.

Attract energy jobs of the future through an Ohio advanced energy portfolio standard.

Ensure affordable and stable energy prices to protect Ohio consumers and existing Ohio jobs.

Middle-ground Approach to Electricity Regulation

Evidence demonstrated few competitive options existed at the retail level.

Did not close the door on market pricing, but required a demonstration that competition is effective.

Action was necessary to secure Ohio's energy future.

PUCO can set rates and allow utilities to recoup the cost for new generation and modernization of the electric system.

Senate Bill 221 Policy Principles

- Supply adequate, reliable, safe, efficient, nondiscriminatory and reasonably priced service
- Ensure diversity of supplies and suppliers
- Encourage innovation and market access
- Make available transmission and distribution access
- Develop and implement flexible regulatory treatment
- Incent technology to meet environmental mandates

Reasonable Arrangements

May be filed by:

Utility company or a

Mercantile customer

Cost recovery for:

- economic development/job retention
- revenue foregone from peak demand reduction/energy efficiency programs
- advanced metering/meter replacement

Ohio Alternative Energy Portfolio Standard

25% (of total kWh) by 2025

- Advanced energy resources
- Solar
- Half of renewable located in the state
- Compliance payments/forfeitures



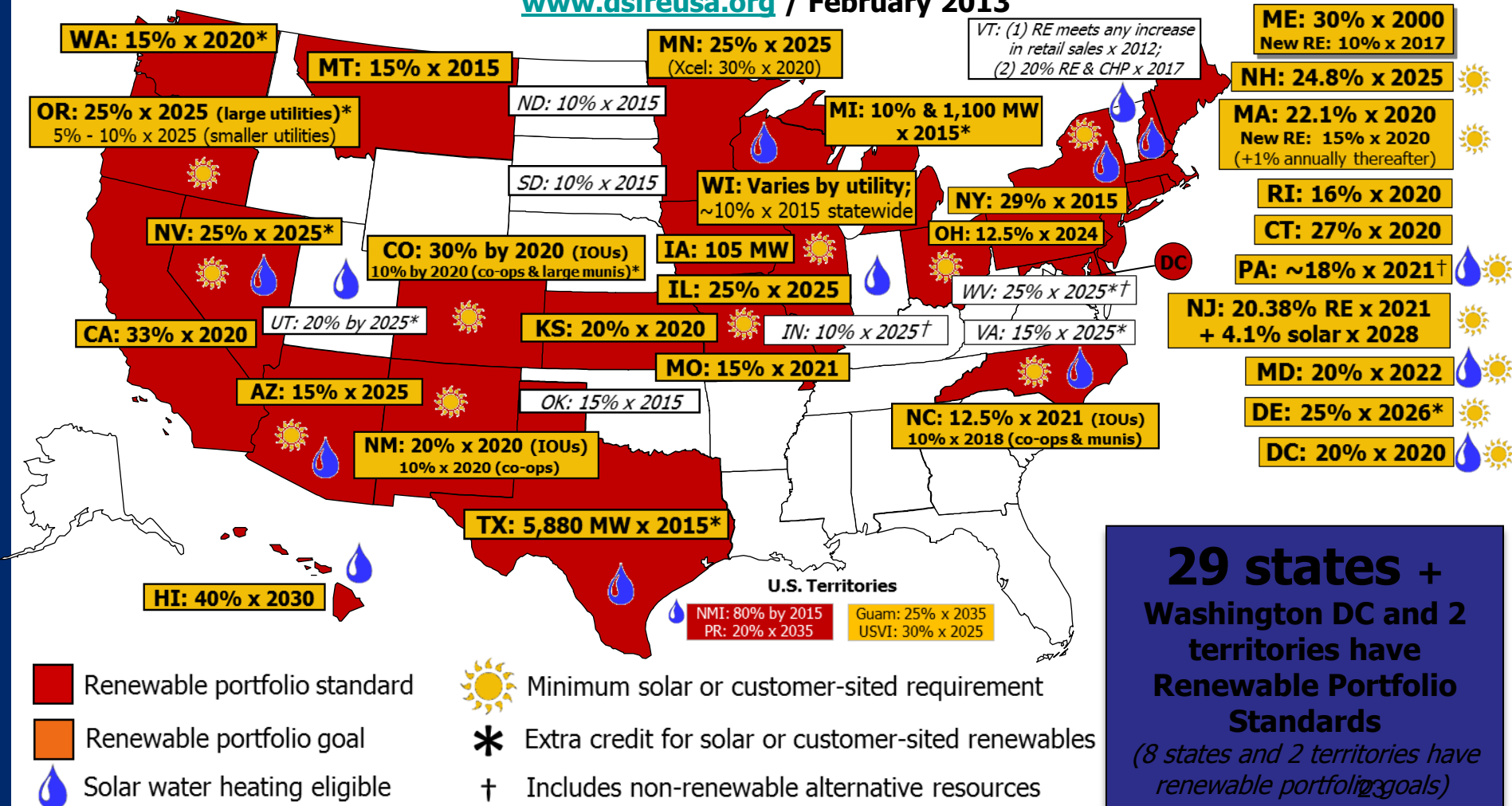
USAID
FROM THE AMERICAN PEOPLE



National
Association of
Regulatory
Utility
Commissioners

Renewable Portfolio Standard Policies

www.dsireusa.org / February 2013





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Renewable Portfolio Standard Policies with Solar / Distributed Generation Provisions

www.dsireusa.org / February 2013

WA: double credit for DG

**OR: 20 MW solar PV x 2020;
double credit for PV**

**CO: 3.0% DG x 2020
1.5% customer-sited x 2020**

**IL: 1.5% PV x 2025
0.25% DG by 2025**

**NH: 0.3% solar-
electric x 2014**

**MI: triple credit for solar-
electric**

MA: 400 MW PV x 2020

**NY: 0.4092% customer-
sited x 2015**

**NJ: 4.1% solar-
electric x 2028**

PA: 0.5% PV x 2021

**DE: 3.5% PV x 2026;
triple credit for PV**

MD: 2% solar x 2020

DC: 2.5% solar x 2023

**OH: 0.5% solar-
electric x 2025**

**WV: various
multipliers**

**MO: 0.3% solar-
electric x 2021**

**NC: 0.2% solar
x 2018**


**UT: 2.4 multiplier
for solar-electric**


**NM: 4% solar-electric x 2020
0.6% DG x 2020**


AZ: 4.5% DG x 2025

**TX: double credit for non-wind
(non-wind goal: 500 MW)**

 Renewable portfolio standard with solar / distributed generation (DG) provision

 Renewable portfolio goal with solar / DG provision

 Solar water heating counts toward solar / DG provision

 Delaware allows certain fuel cell systems to qualify for the PV carve-out

**16 states +
Washington DC have
Renewable Portfolio
Standards with Solar
and/or Distributed
Generation provisions**

Qualified Renewable Resources



Solar



Wind



Hydro



Biomass



Fuel Derived
from Solid Waste



Storage



Fuel Cells



Abandoned Coal
Mine Methane



Waste Energy
Recovery

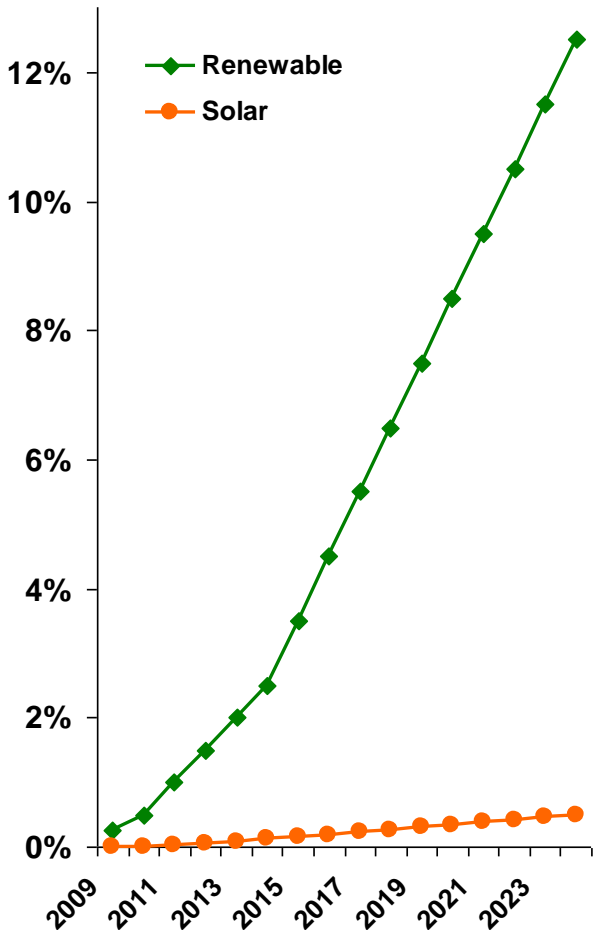


CHP System



CHP System

Benchmarks



By end of year	Renewable Energy	Solar Energy
2009	0.25%	0.004%
2010	0.5%	0.01%
2011	1%	0.03%
2012	1.5%	0.06%
2013	2%	0.09%
2014	2.5%	0.12%
2015	3.5%	0.15%
2016	4.5%	0.18%
2017	5.5%	0.22%
2018	6.5%	0.26%
2019	7.5%	0.3%
2020	8.5%	0.34%
2021	9.5%	0.38%
2022	10.5%	0.42%
2023	11.5%	0.46%
2024 +	12.5%	0.5%

Renewable Energy Credits

- Ohio Renewable Energy Credit (REC) trading market created by new law in 2009
- 1 REC = 1 mWh of electricity generated
- Utilities may own renewable facilities or purchase RECs to meet the renewable portion of the standard
- PUCO certifies resources; established tracking systems will issue and track RECs
- RECs have a 5-year lifetime following their acquisition
- Energy and RECs may be sold as separate commodities

Compliance Payments

Utilities and electric service companies subject to compliance payments if annual renewable and solar benchmarks are not met.

Non Solar:

- Started at \$45/mWh in 2009
- 2013 compliance payment is \$48.56/MWh

Solar:

- \$450/mWh in 2009 and declines over time
- 2012 compliance payment was \$350/MWh for solar

Exceptions: force majeure; 3% cost cap

Renewable Energy Certification Application

- **Not mandatory for any renewable project, BUT**
- **Necessary to create Renewable Energy Credit**
- **Resource/technology utilized**
- **Placed in-service date**
- **Deliverability to the state**

Renewable Applications Received

Year	Filings
2009	187
2010	1,072
2011	3,248
2012	1,483
2013	257
Totals	6,247

Wind Momentum



- ❖ Federal PTC (Production Tax Credit)
- ❖ State Renewable Portfolio Standards (RPS)
- ❖ Technological Improvements



- ❖ Price Volatility for Other Fuels (i.e., Natural Gas)
- ❖ Interest in Green Power / Clean Energy Sources
- ❖ Climate Change / Energy Independence

Wind farms in Ohio can help provide renewable resources to meet Ohio's Alternative Energy Portfolio Standards.



A small wind generator owned by a retail customer may enable the customer to use a renewable resource to offset his electrical demand and potentially earn a credit for net metering on his electric bill.

Qualified Biomass Resources

- Biogas: landfill methane gas or anaerobic digestion of organic materials such as animal waste, bio-solids, food waste, agricultural crops and residues, solid waste
- Agricultural crops, tree crops, crop by-products and residues
- Wood and paper manufacturing waste
- Forestry or vegetation waste
- Algae



Advanced Energy Resources

- Clean coal
- Advanced Nuclear
- Fuel cells
- Customer co-generation
- Advanced solid waste conversion
- Utility generation plant or demand-side management efficiency measures
- Upgraded capacity of an existing electric generating facility resulting from the deployment of advanced technology
- Any new, retrofitted, refueled or repowered generating facility in Ohio
- Note: RECs are not created from advanced resources

Energy Efficiency and Demand Reduction Benchmarks - SB 221

- Benchmarks
- Baselines
- Mercantile Incentives

Ohio Senate Bill 315

Governor John Kasich signed SB 315 June 2012

- Combined Heat and Power (CHP) and waste energy recovery can be counted toward the state's Energy Efficiency requirements.
- Waste energy recovery facilities qualify as renewable energy sources under Ohio's Alternative Energy Portfolio standard.

Peak Demand Reduction and Energy Efficiency Benchmarks

Ohio EDU's required to have:

- Baselines and benchmarks
- Portfolio plans for energy efficiency and peak reduction programs with cost recovery opportunity
- Status reports that demonstrate compliance status with benchmarks and assesses performance.

Energy Efficiency Historic Mercantile Applications		
Total filed to date*		1585
	Total Mercantile Cases Complete	1507
	Total Mercantile Cases Suspended	9
	Total Mercantile Cases Pending	69
*As of 2/15/2013		

Ohio Power Siting Board

Created in 1972

Ohio Revised Code

Chapter 4906

Independent Board under PUCO in 1981

Member Agencies

- Public Utilities Commission of Ohio - Chairman
- Ohio Environmental Protection Agency
- Ohio Department of Development
- Ohio Department of Health
- Ohio Department of Agriculture
- Ohio Department of Natural Resources
- Public Member
- Four Legislative Members
 - 2 from Ohio House of Representatives
 - 2 from the Ohio Senate

Board Jurisdiction

- A generating plant of 50 megawatts or more
- An electric transmission line of 125 kilovolts or more
- A gas or natural gas transmission line capable of transporting gas at more than 125 pounds per square inch of pressure
- Any wind farm of 5 megawatts or more

HB 562 (2008)

- Gave the Board additional oversight regarding commercial wind farms
- Wind facilities greater than 5 MW
- This bill also directed the Board to adopt certification rules for the construction, operation and maintenance of wind-powered electric generation facilities
- The rules outline requirements for aesthetics, setback, noise levels, ice throw, blade sheer and shadow flicker

Process

- Pre-Application meetings and conferences
- Pre-Application Public Informational meetings
- Application submitted
- Completeness Review
- Letter of Completeness
- Proof of Service
- Board Entry establishing Filing Date & Hearing schedule
- Public Notice published by Applicant
- Staff Report
- Public Hearing
- Adjudicatory Hearing
- Board Decision
- Appeal Process

OPSB Benefits

- One-Stop Siting Process
- Timely action: Approximately 6 to 12 months for applications, with statutory time mandates; accelerated schedules an option under certain circumstances
- Regulatory certainty: process is known and practiced
- Sole jurisdiction: local and public participation welcome in the process, but sole decision rests with the state (OPSB)
- Our siting process is fair and efficient and has been put forth as an example for others to follow
- Having seen our success, several states and countries have adopted new siting legislation modeled after Ohio's statute

OPSB Electric Generation Applications (1998-2013)

<u>Generation by Facility Type</u>	<u>Number of Active Cases</u>	<u>Capacity (MW)</u>	<u>Estimated Costs</u>
Coal (i.e. IGCC)	3	1,540	\$2,800,000,000
Cogeneration-Waste Heat	3	338	\$477,271,197
Combined-Cycle	8	5,978	\$3,296,000,000
Compressed Air	1	2,700	\$1,650,000,000
Simple-Cycle	11	4,585	\$1,537,190,000
Wind*	22	1,886	\$3,082,780,000
Facility Totals	48	17,027	\$12,843,241,197

* Includes Amendment Applications

The Board's Decision

- The need for the facility;
- The probable environmental impact of the proposed facility;
- Whether the facility represents the minimum adverse environmental impact considering the technology that is available and the nature and economics of the various alternatives;
- The facility will comply with all air and water pollution control and solid waste disposal laws and regulations;

The Board's Decision

- That the facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving Ohio and interconnected systems, and that the facility will serve the interests of electric system economy and reliability;
- The facility will serve the public interest, convenience and necessity;
- The facility's impact on agricultural lands; and
- The facility incorporates maximum feasible water conservation practices.

Financial Considerations

Incentives

- Ohio's leadership understands the significant and far-reaching benefits associated with the wise development of energy infrastructure within the state.
- To facilitate this objective, the state offers many incentives which could be applied to certain projects.

Socioeconomic and Environmental Considerations

- According to OPSB regulations, applicants must provide certain baseline information concerning environmental and social issues, followed by a description of steps taken to minimize adverse effects.
- Recognizing that some impacts are unavoidable, the applicant must then describe efforts to mitigate the potential impacts to the extent feasible.



Site and Route Alternatives Analyses

Site Selection Study

- The applicant conducts a site selection study
- The study is designed to evaluate all practicable sites for the proposed facility area
- Description of the process by which the applicant utilized the siting criteria
 - Should be data-driven
 - Designed to remove subjectivity as much as possible in the *application* of criteria for route evaluation

Site Selection Study Requirements

- Description of the study area (geographic boundaries)
 - Transmission: small area defined by end points of the project
 - Generation: multiple states - determined by fuel supply, transportation, air quality requirements, electricity market
- Map which includes the study area and depicts the general sites evaluated

Site Selection Study Requirements

- A comprehensive list and description of all qualitative and quantitative siting criteria, factors, or constraints utilized by the applicant, including any evaluation criteria or weighting values assigned to each
 - Initial screening attributes / constraints used to draw potential route segments on a map
 - Existing road & utility corridors
 - Avoidance of residential areas & sensitive land uses
 - Follow parcel lines / edge of property boundary

Site Selection Study Requirements

- Evaluation criteria, typically grouped into categories
 - Social / Land Use
 - Ecological
 - Cultural / Historic
 - Engineering / Constructability
- Selection of criteria is subjective, but must be clearly defined

Technical Data (Generation)

Geology and seismology

- A map with the geological features of the site and the location of test borings
- Suitability description of the site geology and plans to remedy any inadequacies
- Describe the suitability of soil for grading, compaction, and drainage, and describe plans to remedy any inadequacies

Technical Data (Transmission)

Geography and topography

- Map (area one thousand feet on each side of a transmission line alignment) and the area within the immediate vicinity of a substation site or compressor station
- Proposed transmission line alignments, including proposed turning points
- Any proposed substation or compressor station site locations
- Major highway and railroad routes
- Identifiable air transportation facilities, existing or proposed
- Utility corridors
- Proposed permanent access roads

Technical Data (Transmission)

Geography and topography

- Lakes, ponds, reservoirs, streams, canals, rivers, and swamps
- Topographic contours
- Soil associations or series
- Population centers and legal boundaries of cities, villages, townships, and counties

Slope and soil mechanics

- A description of the soils in the areas where slopes exceed twelve per cent
- Discuss the rationale as to suitability of the soils for foundation construction

Technical Data

Hydrology and wind

- Provide the natural and the man-affected water budgets, including the ten-year mean and critical (lowest seven-day flow in ten years) surface flows and the mean and extreme water tables during the past ten years for each body of water likely to be directly affected by the proposed facility
- An analysis of the prospects of floods and high winds for the area, including the probability of occurrences and likely consequences of various flood stages and wind velocities, and plans to mitigate any likely adverse consequences
- Existing maps of aquifers which may be directly affected by the proposed facility

Socioeconomic & Land-use Impact Analysis

- Proposed transmission line alignments, including proposed turning points
- Transportation corridors
- Existing utility corridors
- Noise-sensitive areas
- Agricultural land

Socioeconomic & Land-use Impact Analysis

Proposed substation or compressor station locations.
General land use within the area, including, but not limited to:

- (a) Residential use
- (b) Commercial use
- (c) Industrial use
- (d) Cultural use
- (e) Agricultural use
- (f) Recreational use
- (g) Institutional use

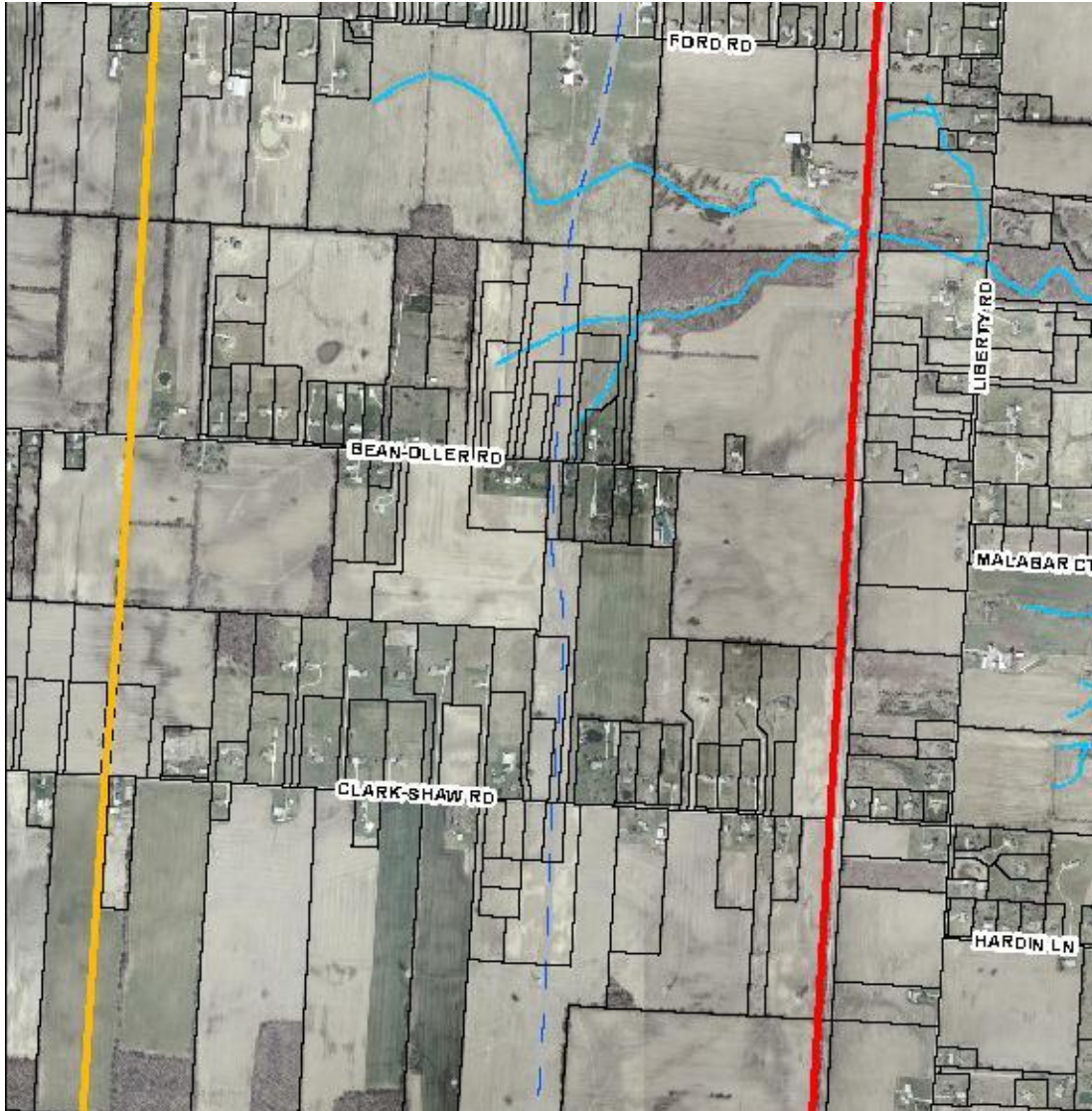
Social Impacts to Agriculture



Agricultural Impacts

Identify on a map of all agricultural land and provide
An evaluation of the impact of the construction, operation,
and maintenance of the proposed facility on the following
agricultural practices within the proposed facility site
boundaries:

- Field operations (i.e., plowing, planting, cultivating, spraying, harvesting, etc.)
- Irrigation
- Field drainage systems
- A description of any mitigation procedures to be utilized by the applicant during construction, operation, and maintenance to reduce impacts to the agricultural land



- On this project, one of the reasons we recommended the preferred route (red) was because the alternate bisected many agricultural properties

Stakeholder and Public Input

Public Participation

Formal

- Intervention by Public Officials
 - Township trustees, county commissioners, city officials, etc.
 - Notice Required
- Intervention by persons impacted
 - Request for intervention
 - Counsel required

Public Participation

Informal

- Written submissions to the Board
- Toll-free phone inquiries
- Sworn testimony at public hearing



Importance of

Up-front homework

It's all about...

- Public Relations
- Public Relations
- Public Relations

CONSTRUCTION OVERSIGHT



OPSB

- Final plans and drawings
- Insist on a preconstruction meeting
- Get to know the players/contractors
- Make periodic field visits (announced or unannounced)
- State and federal inspectors responsible
- If condition violations observed, we do have violation schedules

Violations of Conditions

After notice and opportunity for a hearing and upon a finding by the board that a person has violated their certificate, the board may assess a forfeiture

- No more than \$5,000 for each day of the violation
- Aggregate of forfeitures for a related series of violations shall not exceed \$1 million