



**Department of Energy**

Bonneville Power Administration  
P.O. Box 3621  
Portland, Oregon 97208-3621

PUBLIC AFFAIRS

July 22, 2010

In reply refer to: DK-7

Cheryl Brantley  
A Better Way for BPA  
Ex 6

**RE: BPA-2010-01507-F**

Dear Ms. Brantley:

This is the final response to your request for information that you made to the Bonneville Power Administration (BPA) under the Freedom of Information Act (FOIA), 5 U.S.C. 552.

**You requested the following:**

A chart with corresponding map for each year since 2000 showing county by county population increase/decrease in Washington, Oregon and California.

**Response:**

BPA has provided three responsive documents in their entirety.

I appreciate the opportunity to assist you. Please contact Laura M. Atterbury, FOIA/Privacy Act Specialist at (503) 230-7305 with any questions about this letter.

Sincerely,

A handwritten signature in cursive script that reads "Christina J. Munro".

Christina J. Munro  
Freedom of Information Act/Privacy Act Officer

Enclosure(s): Responsive Documents

# Reinforcing the transmission highway

I-5 Corridor Reinforcement Project:  
what it is and why we need it

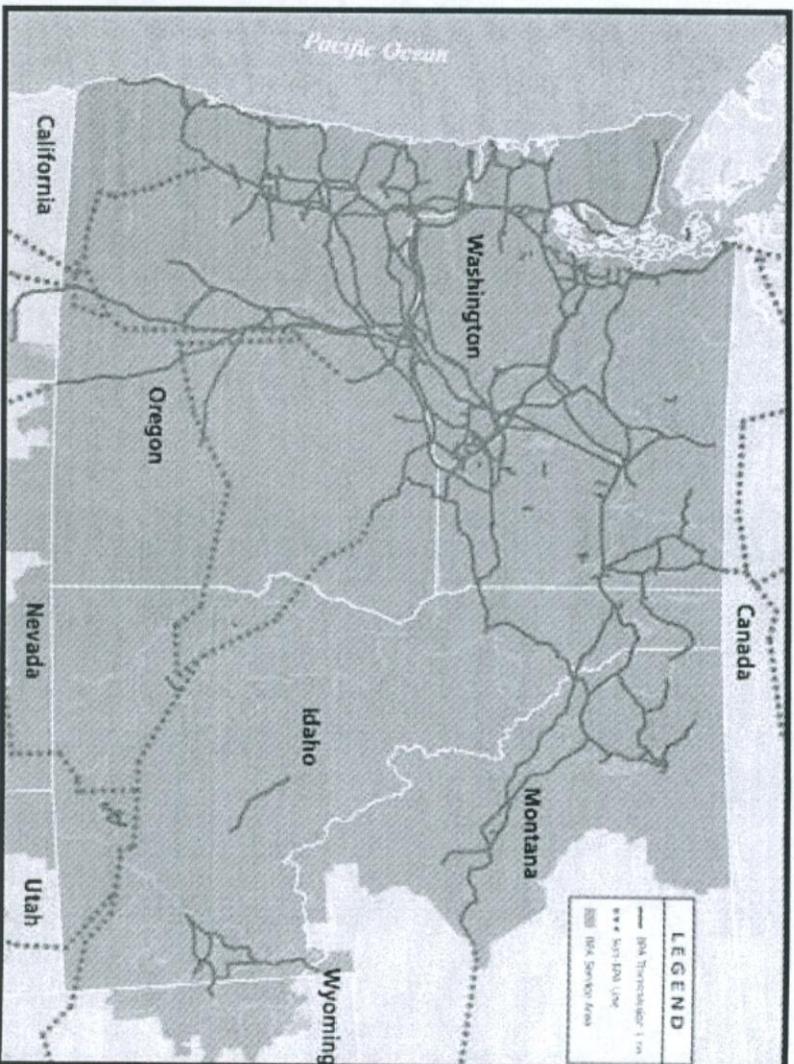


## Bonneville Power Administration

- ■ We are committed to working to provide low cost, reliable and environmentally responsible electricity recognizing that we are accountable to the people of the Pacific Northwest whom we serve.
- ■ We are a self-funded, nonprofit agency that cover costs through sales of electricity and transmission services.

# About BPA

- We supply about a third of region's electricity over 75 percent of high-voltage transmission lines
- More than 1,500 of our employees live in Washington and we care about the quality of life in our communities.



## Local utility benefits

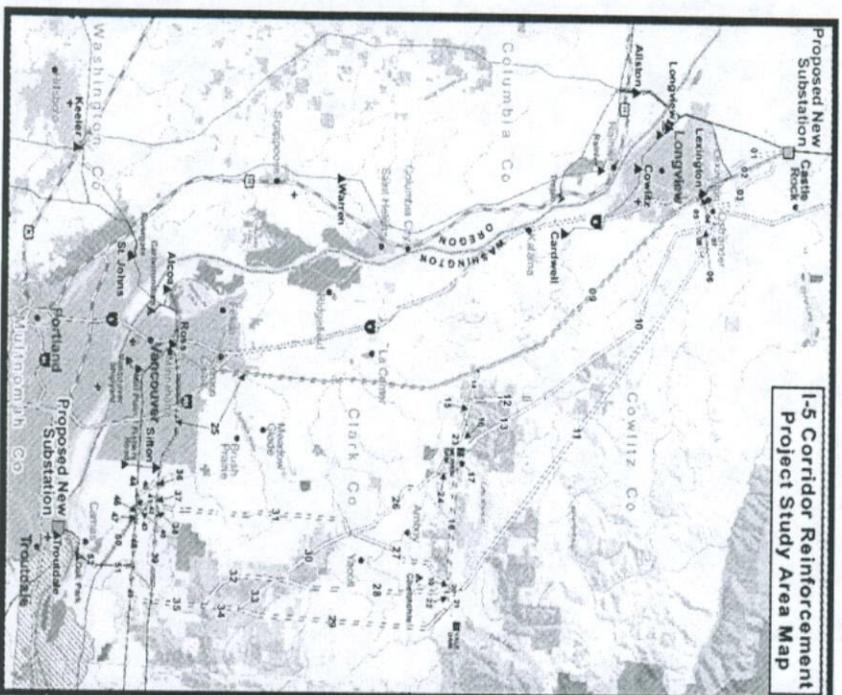


- Cowlitz PUD buys over 90 percent of its wholesale power from BPA.



- Clark PUD buys about two-thirds of their power primarily from BPA.

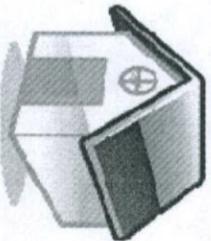
# About the project



- A proposed high-voltage line between two proposed substations in Castle Rock, Washington and Troutdale, Oregon.
- Would relieve a major transmission bottleneck in the Northwest.
- BPA has not built a major power line in the area in more than 40 years.
- The population in Clark and Cowlitz counties has more than doubled during that time.
  - 197,000 in 1970
  - 525,000 in 2008

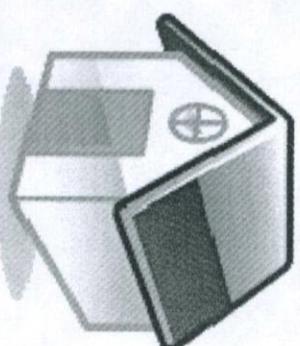
## Energy use trends

- The project area has grown, bringing in new businesses, jobs, hospitals and schools.
- Homes are larger and we have more appliances, computers and other things plugged in.
- Over the past five years, summer energy use is on the rise.
  - Cowlitz up 6%, Clark up 21%, Multnomah up 18%



1973

1,660 sq.ft.



2007

2,521 sq.ft.

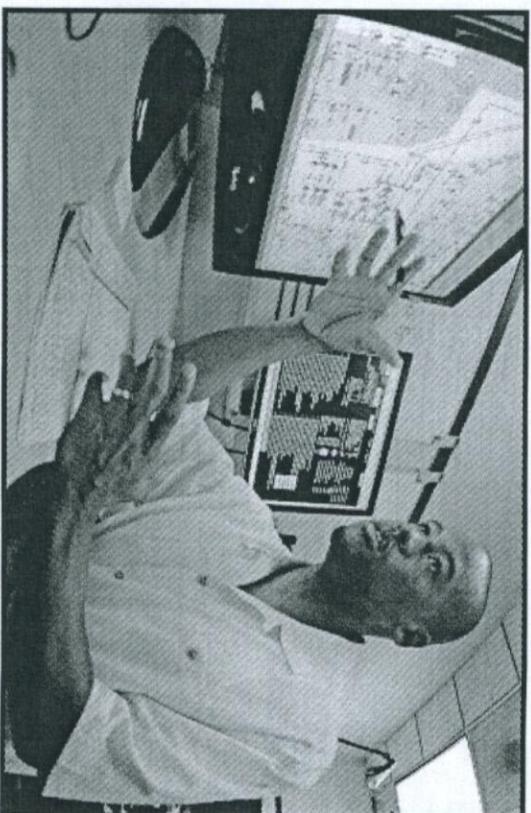
# Meeting growth



- Building transmission lines is not the only solution to growing demand.
  - The region conserved 200 megawatts in 2007, equal to about half of our annual electricity growth.
  - BPA and regional utilities are designing programs to capture over 5,000 aMW of energy efficiency in the next 20 years.

## Meeting growth (cont.)

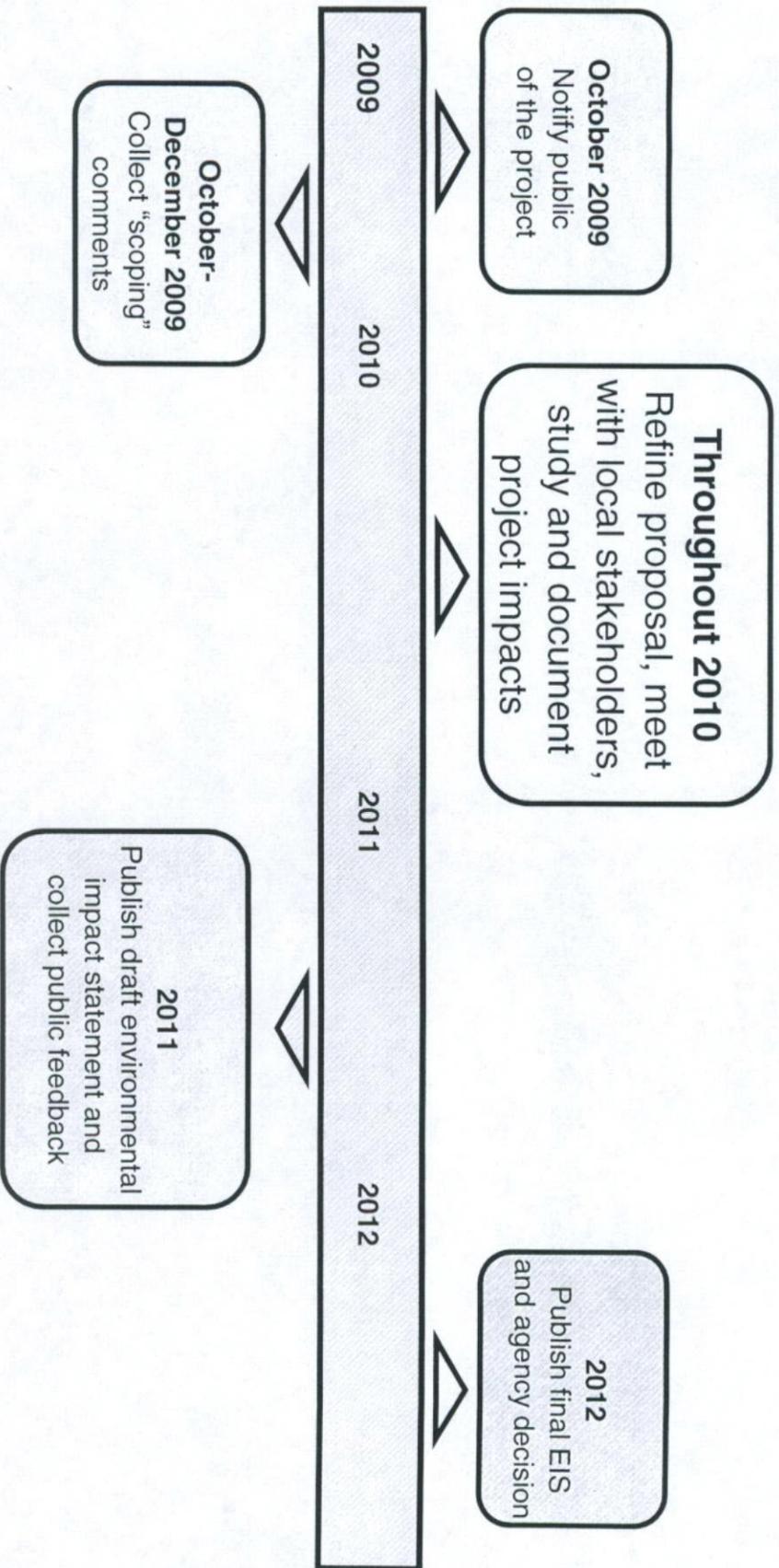
- BPA is using several innovative, interim solutions to further manage backups.
- Technological advances have allowed us to delay the need for a new line.



## Benefits of a new line

- **Reliable power**
  - Uninterrupted, reliable power is critical to economic development and jobs
- **Environmentally responsible power**
  - Reinforcement would bring renewable power from where it is generated to where it is needed
- **Low cost power**
  - As with all other high-voltage transmission lines, local utilities and BPA keep their costs low by selling excess power.
  - Lines like this support the exchange of power throughout the west region which leads to lower prices for all consumers.
    - For example 15 percent of BPA's power revenues come from selling surplus power. All of this revenue is used to reduce rates for our Pacific Northwest preference customers like Clark and Cowlitz PUDs.

# Making a decision about a new line



## Project outreach

- Six open-house style public meetings in 2009
  - more than 2,700 people attended
  - provided information and answers face-to-face
- We continue to gather public input from residents and constituent groups



## Moving forward

- - We are developing the draft EIS using comments and additional studies to shape the routes we consider and best tower locations.
- - Reviewing segments for impacts, seeking to:
    - Meet electrical needs of the project
    - Avoid the need to ask people to move from their homes
    - Avoid or mitigate impacts to residents, plants and animals

## Electric and magnetic fields

- We take health concerns seriously and continue to monitor scientific EMF research.
- So far, no direct cause-and-effect relationships have been proven.
- BPA will rely on the latest studies in our environmental review process.

## We are listening to residents

- Your feedback helps shape the routes we consider and the best locations for the towers.
- We appreciate and rely on the engagement of all interested and affected individuals in these decisions.

## Actual LOADS

- **Population Growth** - Based on Census Data

	<b>Cowlitz County</b>	<b>Clark County</b>	<b>Multnomah County</b>
▪ 2000	pop. 92,948	pop. 345,238	pop. 660,486
▪ 2008	pop. 101,254	pop. 424,733	pop. 714,567
▪ Population Growth	<b>8.9%</b> in 8 yrs.	<b>23.0%</b> in 8 yrs.	<b>8.2%</b> in 8 yrs.

- **Historical Load Data** – Based on actual load data provided by Utilities

	<b>Cowlitz PUD (MW)</b>		<b>Clark PUD (MW)</b>		<b>Portland General Electric (MW)</b>	
	<u>Winter</u>	<u>Summer</u>	<u>Winter</u>	<u>Summer</u>	<u>Winter</u>	<u>Summer</u>
2005	735	586	981	667	3457	3356
2006	740	604	919	746	3608	3746
2007	767	624	992	730	3705	3639
2008	769	628	1059	788	3609	3743
2009	786	623	1115	823	4031	3949
<b>Growth</b>	6.9%	<b>6.3%</b> in 5 yrs.	13.6%	<b>23.4%</b> in 5 years	16.6%	<b>17.7%</b> in 5 years

- **Load Forecast:** Summer = 2% per year; Winter = 1.4% per year

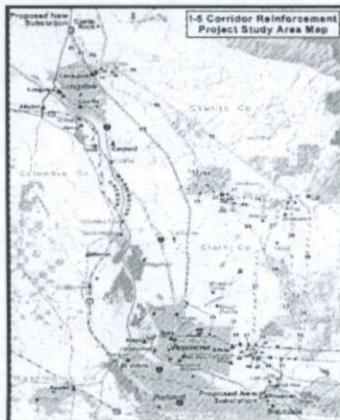


## Reinforcing the I-5 transmission highway

I-5 Corridor Reinforcement Project:  
what it is and why we need it



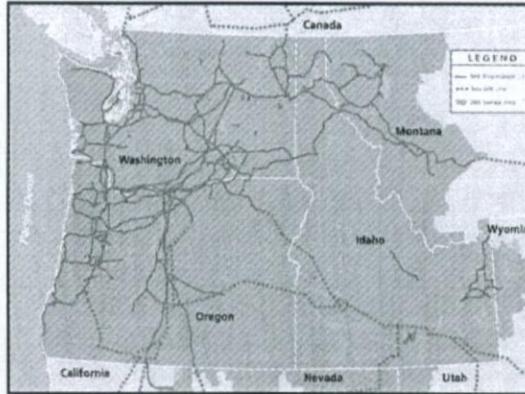
### About the Project



- A proposed 500-kilovolt transmission line, about 70 miles long, between two proposed substations in Castle Rock, Washington and Troutdale, Oregon
- Would relieve a major transmission bottleneck in the Northwest, and eliminate the threat of blackouts due overload

## About BPA

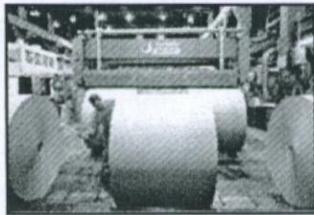
- Supplies about a third of region's electricity over 15,000 miles of high-voltage transmission lines
- Recovers costs by selling and transmitting electricity generated by 31 federal hydro projects, one nuclear plant, and seven private wind projects



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## Project Need

- Ensuring utilities, residents and businesses have the power they need when they need it, is the main driver behind BPA's proposed I-5 transmission project.



- The existing path through Clark and Cowlitz counties is at capacity
- In prolonged extreme weather conditions, local and regional blackouts could occur due to growing limitations on the system
- The line is so heavily used it is extremely difficult to perform needed maintenance

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## What's Behind Regional Congestion

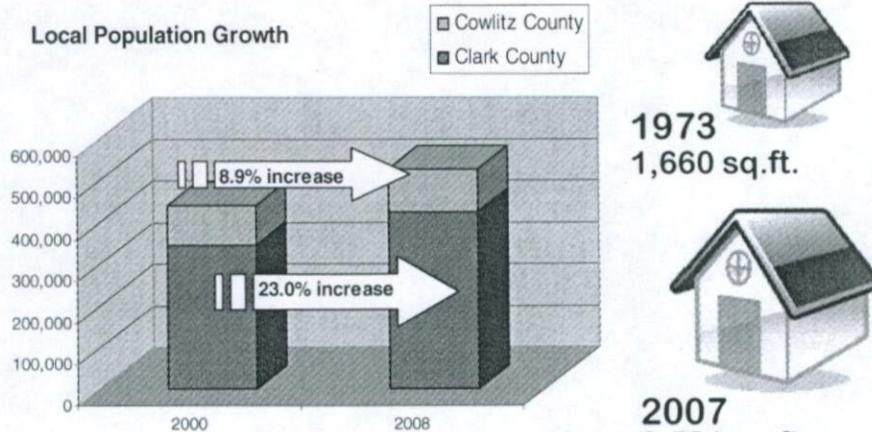
- Congestion between Seattle & Portland is due primarily to two factors:
  - Increases in energy demand
  - Changes in energy generation



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## Population Growth & Bigger Homes

Local Population Growth



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## Historical Local Usage

	Cowlitz PUD		Clark PUD		PGE	
	Winter	Summer	Winter	Summer	Winter	Summer
2005	735	586	981	667	3457	3356
2006	740	604	919	746	3608	3746
2007	767	624	992	730	3705	3639
2008	769	628	1059	788	3609	3743
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growth	6.9%	6.3%	6.4%	21.2%	16.6%	17.7%

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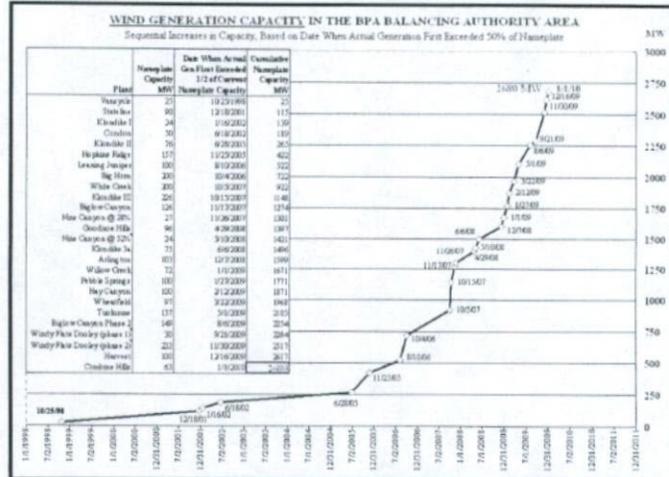
## Generation Growth

- Generation has also dramatically increased in the Northwest since 1998, turning bring our transmission highway into a 24-hour traffic jam
  - Nearly 1,000 megawatts of gas-fired, combined cycle generation has been added between Seattle and Portland
  - More than 2,800 MW of wind on line, making the BPA system home to one of the largest ratio of wind to peak load in the nation



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## Rapid Increase of Wind



## Meeting Growth



- Building transmission lines is not the only solution to load growth
  - The region reduced electricity use by conserving 200 megawatts in 2007, about half the region's annual electricity demand growth

## Meeting Growth (cont.)

- In addition to conservation, BPA is using several innovative, interim solutions to further reduce congestion along the I-5 corridor



- Technological advances have allowed us to wring more capacity out of the BPA system

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## Stretching the System

- Since 2008, we had to had to take emergency actions 19 times to avoid blackouts on critical lines in the Portland/Vancouver area.
- September 2008 – South of Alston path exceeded its limit by 57 megawatts and required 822 megawatts of generation adjustments.
- September 2009 – Paul-Allston path exceeded its limit by 68 megawatts and required 1,800 megawatts of schedule cuts.

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- Lower Columbia hydro problem and fish...

## Benefits of a New Line

- **Reliable, adequate power**
  - Clean, uninterrupted, reliable power is necessary to maintain and increase jobs
  - Opportunity for business expansion
- **Clean, green renewable energy**
  - Reinforcement is needed to bring in the renewable power now required by the states' renewable portfolio standards
- **Affordable power**
  - Local utilities and BPA both reduce costs to their consumers by selling excess power, which is not possible without a transmission highway to move that excess power
    - BPA sold \$755M of surplus power in 2008, keeping BPA rates 46% lower than if we were unable to move power to where it was needed

## Local Utility Benefits



- Cowlitz PUD buys over 90 percent of its wholesale power from BPA.



- Clark PUD buys about two-thirds of their power primarily from BPA.

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## Environmental Review

- 2010 - Reviewing and surveying proposed segments
  - Providing updates with new information as it is available
  - Presenting to local groups, answering questions
- 2011 - Will release a draft environmental impact statement
  - Will seek public comment on findings in draft EIS
  - Will host more informational meetings for the public
  - Will begin to prepare final EIS, response to comments
- 2012 - Will release final EIS and project decision

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## Meetings To Date

- Six open-house style public meetings
  - more than 2,700 people attended
  - provided information and answers face-to-face
- Continue to brief local organizations and small groups
  - Resident and constituent groups



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## What We Heard

- Questions or concern about:
  - location and design of the proposed transmission line
  - entering private properties
  - potential human health risks related to transmission lines
  - impact to property values, ability to sell land, and inherent quality of life
  - impacts to natural environment including plants and wildlife
- Opinions and data supporting particular segments or areas

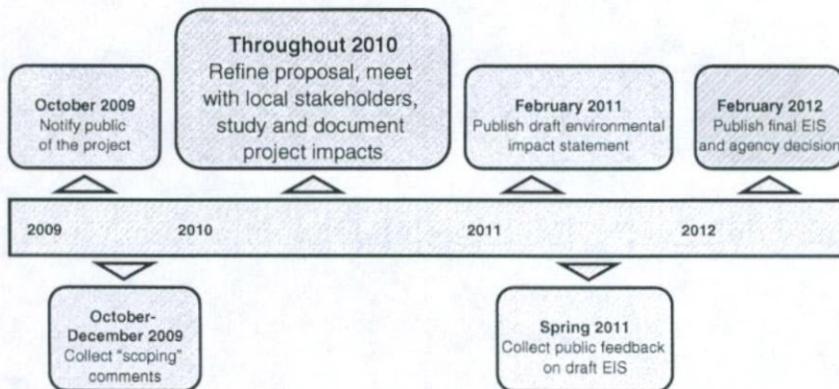
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## How We Are Responding

- Using comments and additional studies to refine our segments and shape the scope and content of our draft EIS
  - Reviewing segments for impacts, seeking to:
    - Meet electrical needs of the project
    - Avoid the need to move people from their homes
    - Avoid or mitigate significant impacts to local residents, plants and animals
  - Considering underground transmission options
  - Studying potential effects of electric and magnetic fields, will include a third-party study in the draft EIS

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## Steps to Building a New Line



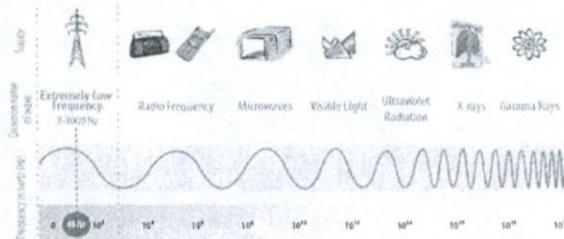
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## Addressing Health & Safety Concerns

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## Electric and Magnetic Fields

- Electricity transmission as well as electrical appliances produce electric and magnetic fields (EMF), both decrease with distance.
  - Electric fields occur when electrical appliances are plugged in,
  - Magnetic fields exist only when current is flowing — when appliances are plugged in and turned on



- High frequency waves can affect health
- Other than shocks, no health effects are definitely known to be caused by low frequency EMF

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## EMF & Health

- The biggest question scientists want to answer is whether there are potential long-term health effects.
- So far, no direct cause-and-effect relationships have been found.
  - Some studies suggest there might be links between illness and electric or magnetic fields,
  - Other studies have found none.
- The relationship between EMF and health effects is the subject of ongoing research and BPA realizes that people continue to have concerns about potential health effects.

## Measures BPA Takes

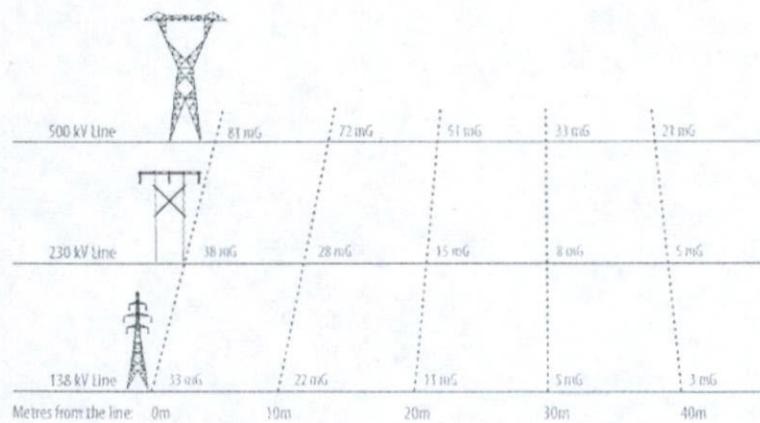
- We take health concerns seriously and therefore we will continue to:
  - Communicate openly and provide balanced, accurate information about EMF
  - Monitor scientific EMF research and keep abreast of relevant scientific, policy and regulatory developments.
    - Links to scientific research sources on EMF are available on BPA's Web site [www.bpa.gov/go/i-5](http://www.bpa.gov/go/i-5) on the Maps and Documents page.
  - Follow utility best practices to take steps to reduce EMF levels in the design of new and upgraded transmission facilities

## Best Practices

- BPA often takes the following prudent measures to minimize exposure to electric and magnetic fields
  - Increases right-of-way size for higher voltage lines like the I-5 Corridor project for additional distance between homes and other structures and the power line
  - Builds lines in a “delta configuration” or triangular shape with one line above two parallel lines, which cancels out some of the magnetic fields produced by the lines
  - Performs a thorough review of existing and new EMF research and estimates EMF field strength along each segment of line under consideration and shares the results with landowners and others

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## Typical Magnetic Field Levels



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