

**U.S. DEPARTMENT OF ENERGY  
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY**

*DOE's Tribal Energy Program*



*Pathways to Energy Development &  
Energy Security*

May 4, 2015

Lizana Pierce, Project Manager



# Pathway to Project Development

Strategic Energy  
Planning

- Creating a roadmap

Feasibility Study

- Possible roads to the future

Organizational  
Development

- Vehicles of change

Project  
Development

- Where the rubber meets the road

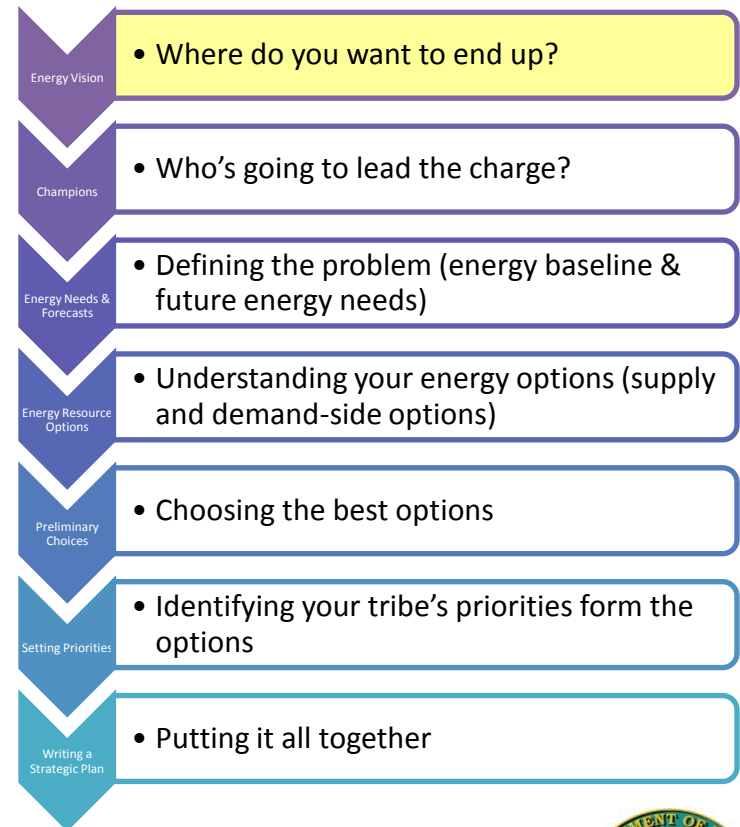


# Strategic Energy Planning

## Begins with an Energy Vision

*“The Energy Vision of the Penobscot Nation is to maximize the efficiency of energy usage and develop energy resources in ways that will sustain current and future generations by addressing the economic, environmental, and social issues of energy within the context of Penobscot Indian Nation culture, traditions and established tribal policies for the wise use of our forest, water, and wind resources.” (Courtesy of Penobscot Nation Grant DE-FG36-05GO15175)*

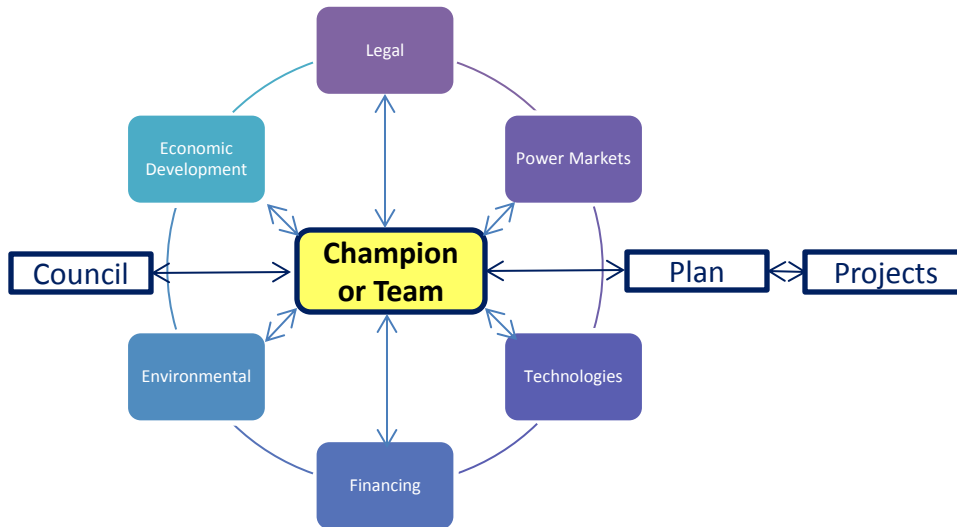
*“The Organized Village of Kasaan’s energy vision is of a healthy, efficient, sustainable community, having our own renewable energy system which supplies Kasaan as well as other communities with reasonably priced power, improving the overall well-being of our area.” (Courtesy of Organized Village of Kasaan DE-EE0005050)*



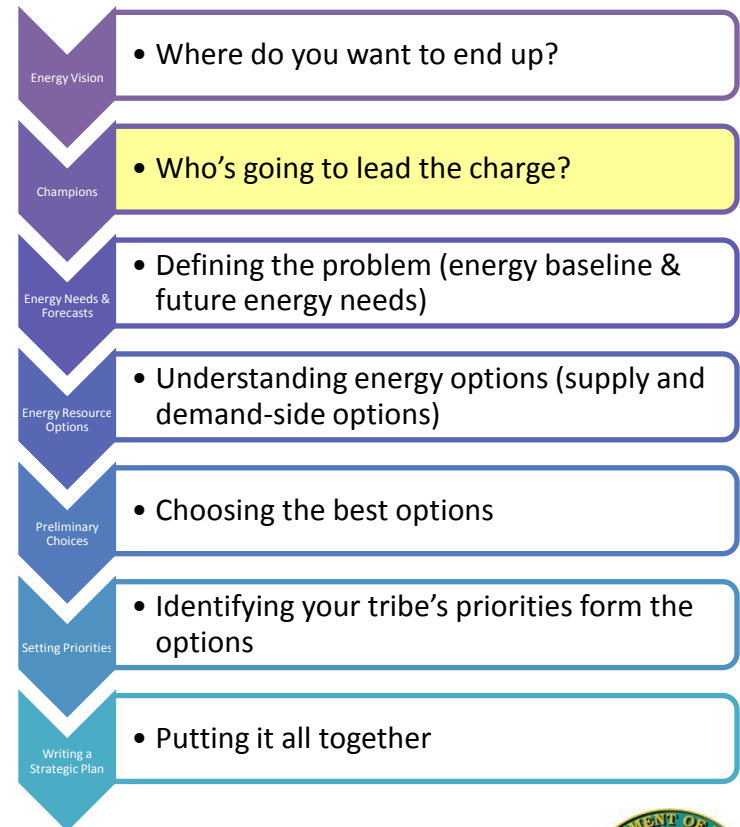
# Strategic Energy Planning

## Strategic Energy Planning

- 1) Defining where you are,
- 2) Where you want to end up,
- 3) What are your energy options, and
- 4) Developing a plan to get there.



Intended to result in a long-term sustainable plan for energy sufficiency or energy development on tribal lands.



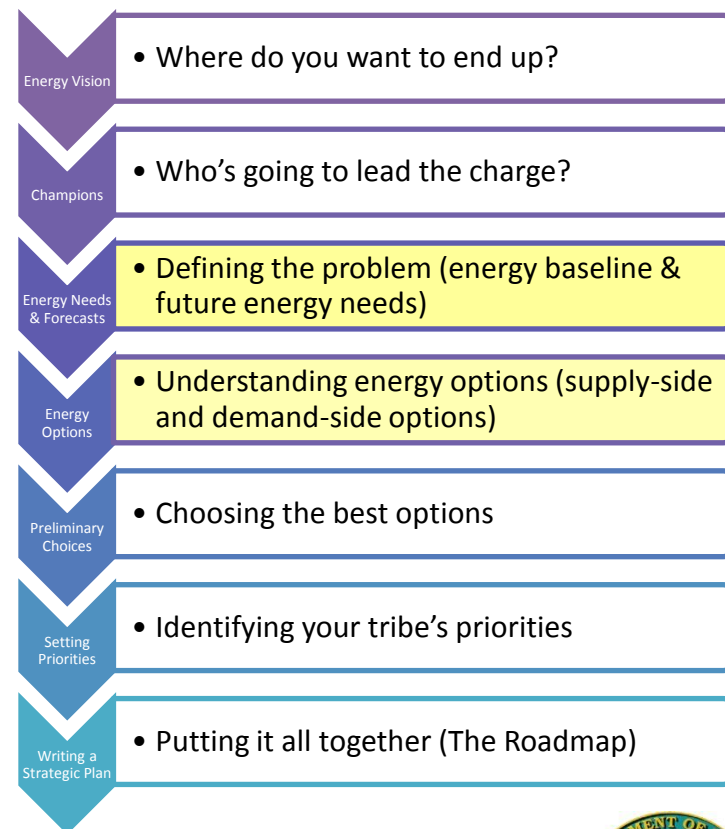
# Strategic Energy Planning

## Identify and evaluate resource options

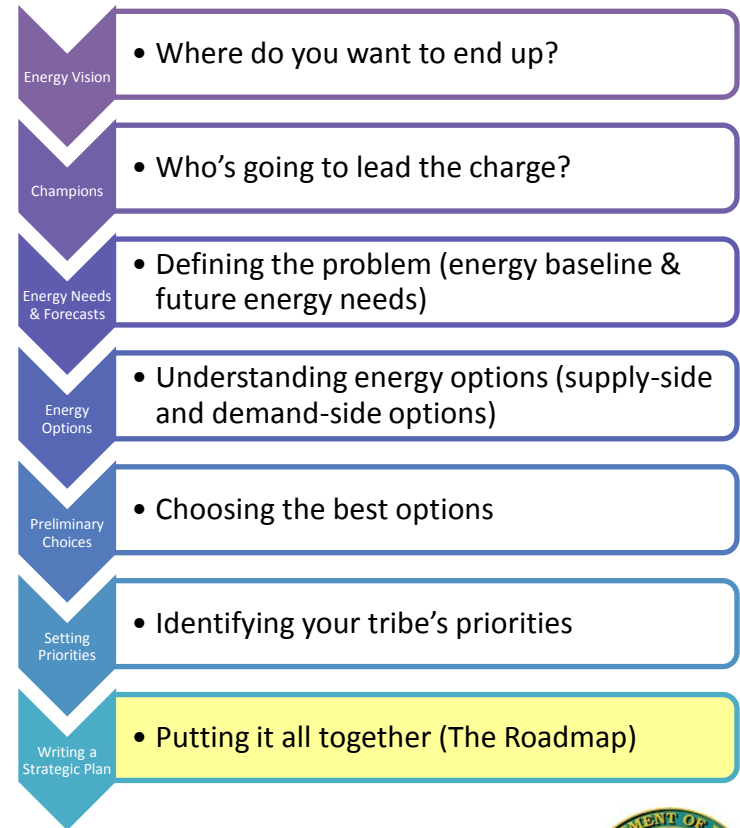
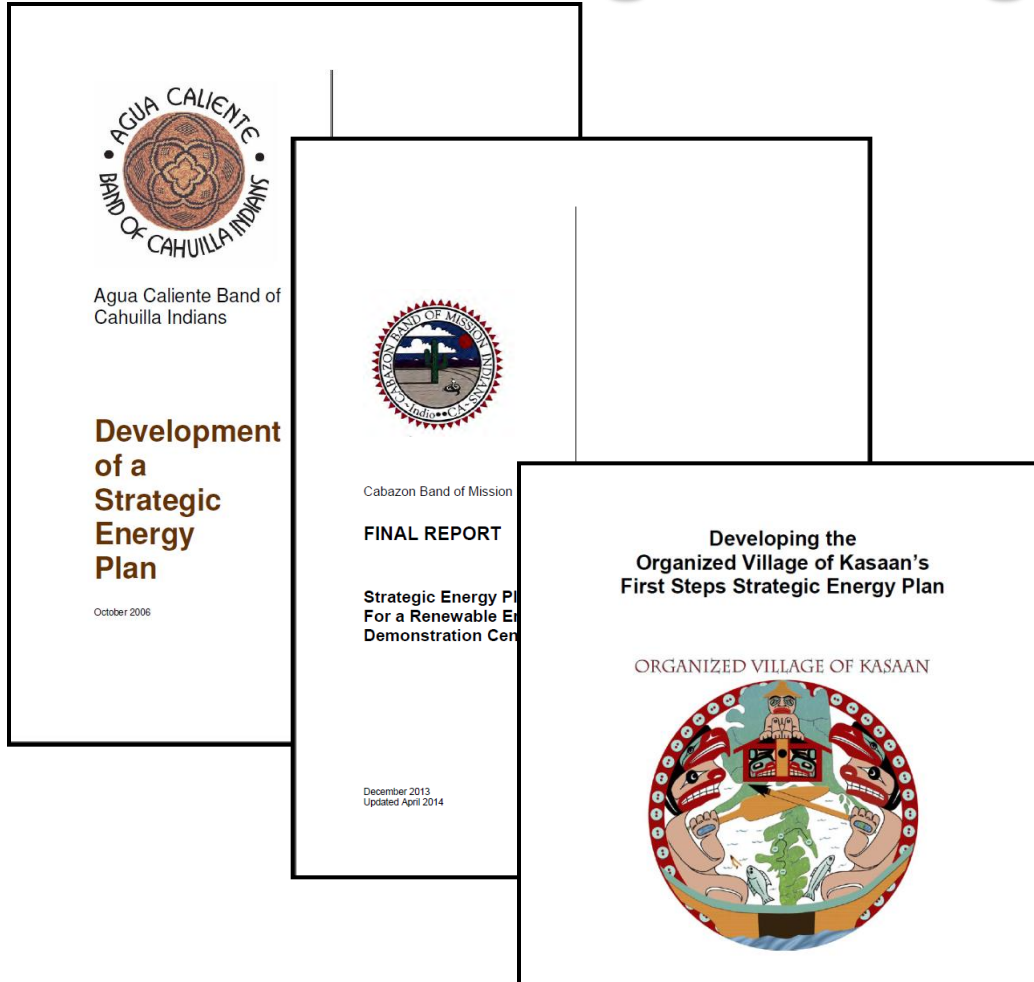
**Demand-Side Options**  
Reduce Consumption

**Supply-Side Options**  
Generation

- **Consumer Energy Efficiency** — home weatherization, energy-efficient appliances, lighting, heating and air conditioning, water heating, duct repair, motors, refrigeration, energy-efficient construction, appliance timers and controls, thermal storage, and geothermal heat pumps
- **Utility Energy Conservation** — load management, high efficiency motors, and reduced transmission and distribution losses
- **Rates** — time-of-use, interruptible, and revenue decoupling
- **Renewables** — solar heating and cooling, photovoltaics, passive solar design, EPA-approved wood heating stoves, and daylighting
- **Conventional Power Plants** — fossil-fuel, nuclear, extending the life of existing plants, hydro/pumped storage, repowering, and utility battery storage
- **Non-Utility-Owned Generation** — cogeneration, independent power producers, and distributed generation
- **Purchases** — requirement transactions, coordination transactions, and competitive bidding
- **Renewables** — biomass, geothermal, solar thermal, photovoltaics, hydropower, and wind



# Strategic Energy Planning



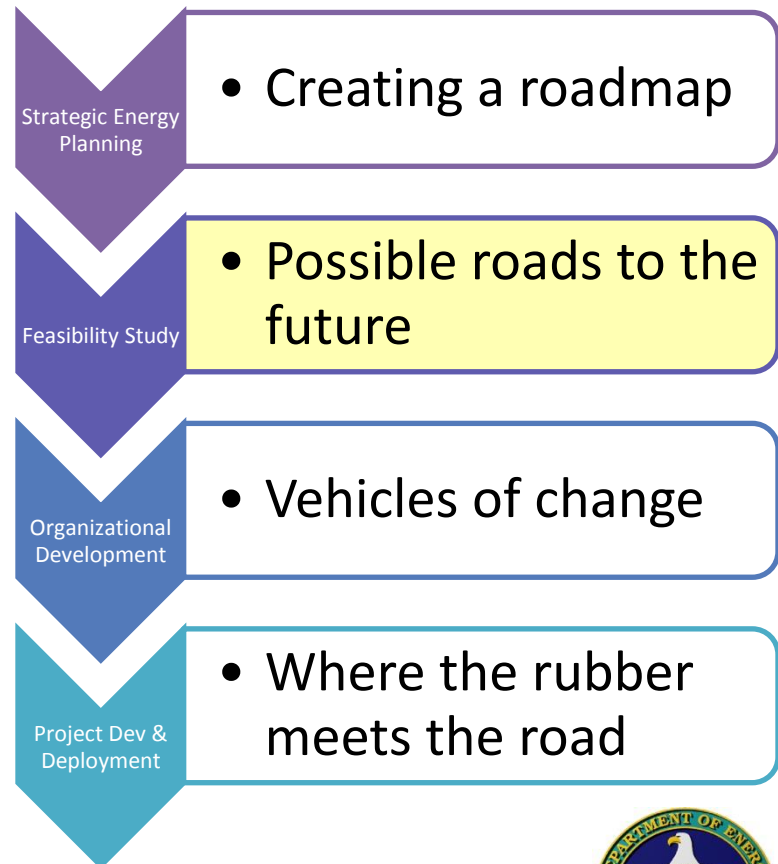
# Possible Roads to the Future

Now that you have a Energy Plan  
(or Roadmap), what next?

**Energy Efficiency  
The Low Hanging Fruit**  
  
**(Demand-side)**

## Elements of an energy efficiency feasibility study :

- Conducting energy audits;
- Documenting current energy consumption;
- Assessing the economics;
- Conducting preliminary engineering for the development of material lists for energy efficiency improvements;
- Projecting energy savings or fossil fuel reduction; and
- Assessing potential financing options for implementation.



# Possible Roads to the Future

Now that you have a Energy Plan  
(or Roadmap), what next?

Renewable Energy Options  
(Supply-side)

## Elements of a renewable energy feasibility study :

- Site-specific renewable resource assessment(s);
- Tribal energy load assessment(s), if for local consumption;
- Export markets, transmission and inter-connections
- Technology analysis;
- Economic analysis;
- Environmental assessment (i.e., benefits and impacts);
- Benefit assessment (e.g., employment, cultural and social);
- Preliminary system design(s);
- Training and other tribal professional development planning;
- Long-term operating and maintenance planning; and
- Business planning for implementing a sustainable renewable energy development project.

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Project Dev &  
Deployment

- Where the rubber meets the road





# Possible Roads to the Future

TUESDAY, MAY 5<sup>th</sup> (8:30 a.m. – 5:30 p.m.)

<u>TIME</u>	<u>DESCRIPTION</u>	<u>PRESENTERS</u>
8:30 a.m.	Welcome & Introductions	Lizana Pierce
8:40 a.m.	Renewable Energy Development in Indian Country: Handbook for Tribes	Doug MacCourt (Guest Speaker)
9:20 a.m.	Campo Band of Mission Indians – Wind Development (CA)	Mike Connolly (Guest Speaker)
<b>10:00 a.m.</b>	<b>Break</b>	
<b>Assessing Resource Options</b> Moderator: Jennifer Luna (CNJV, Golden Field Office)		
10:20 a.m.	Project Introductions	Lizana Pierce
10:30 a.m.	Tlingit Haida Regional Housing Authority (THRHA) – Energy Cents Program - Household Energy Use Assessments, Monitoring and Household Energy Education (AK)	Craig Moore
11:00 a.m.	White Earth Reservation Tribal Council – Biogas/Biomass Feasibility Study & Shooting Star Casino Biomass Boiler Project (MN)	Michael Triplett
11:30 a.m.	Navajo Hopi Land Commission – Feasibility Study for 4,000MW Solar Power at Paragon-Bisti Ranch (AZ)	Christina Lewis

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# Organizing and Skills for Success

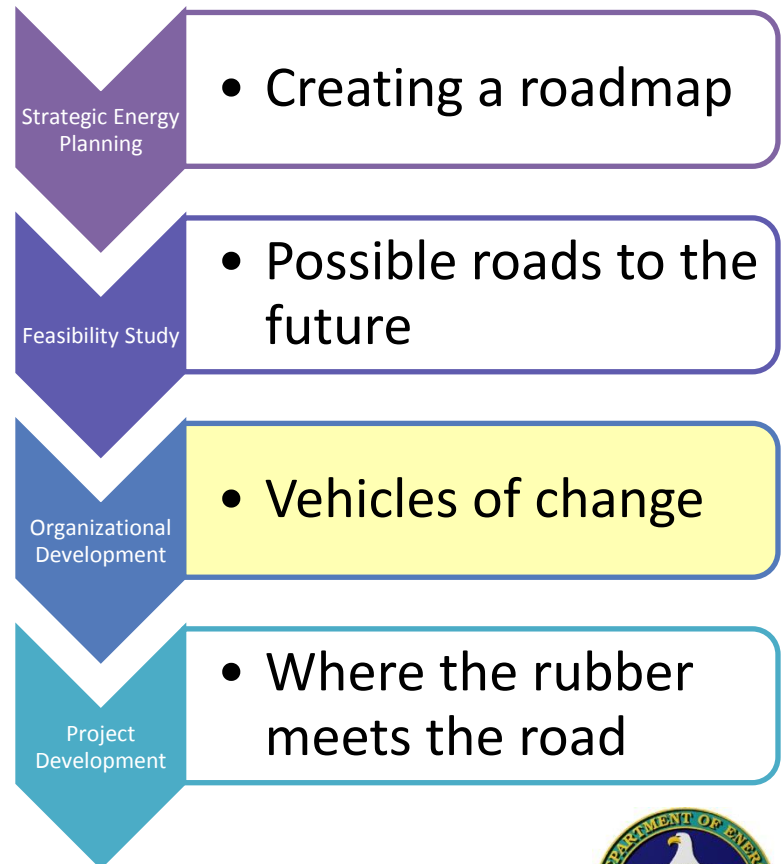
## Vehicles of Change

Organizations & People

Common organizational options are:

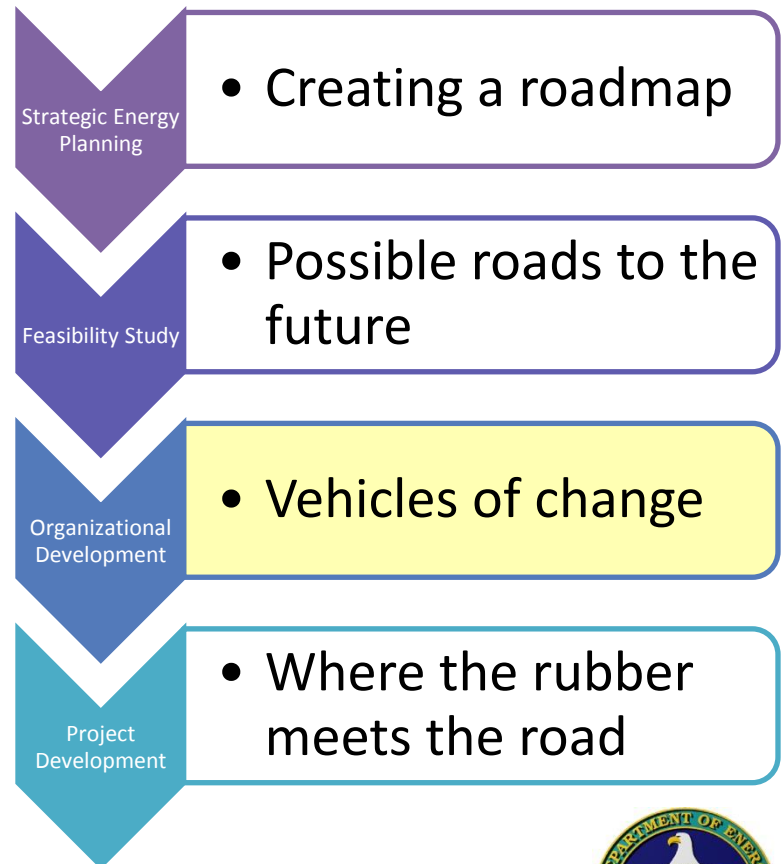
- Tribal utility authority
- Cooperatives
- Energy service companies
- Joint ventures
- Small businesses

Knowledge and skills are essential to developing, implementing and sustaining clean energy projects



# Organizing and Skills for Success

U.S. DEPARTMENT OF ENERGY   Energy Efficiency & Renewable Energy		
Tribal Energy Program		
MONDAY, May 4 <sup>th</sup> (1:00 p.m. – 6:00 p.m.) – Continued		
TIME	DESCRIPTION	PRESENTERS
<b>Planning for Energy Development</b> Moderator: Lizana Pierce (DOE, Golden Field Office)		
4:20 p.m.	Agenda Overview and Project Introductions	Lizana Pierce
4:30 p.m.	Standing Rock Sioux Tribe: (1) Establishment of Renewable Energy and Energy Development Office (REEDO) to Serve the Standing Rock Sioux Tribe Indian Reservation and (2) Wind Development (ND)	Fawn Wasin Zi
5:00 p.m.	Confederated Tribes of the Colville Reservation: Colville Tribal Utility Feasibility Study (WA)	Brian Nissen
	Intergovernmental Program Office	Christine Platt-Patrick
	Acting Director, DOE Office of Indian Energy Policy and Programs	David Conrad
<b>DOE Indian Energy Programs</b> Moderator: Lizana Pierce (DOE, Golden Field Office)		
1:40 p.m.	EERE Tribal Energy Program Overview	Lizana Pierce
2:20 p.m.	Tribal Energy Student Internship Program	Sandra Begay-Campbell
2:30 p.m.	Internship Program - An Interns Perspective	Thomas Jones Len Necefer
2:50 p.m.	Tribal Sustainability: Green Projects in Indian Country	Gepetta Billie
3:10 p.m.	Introductions	All Attendees
<b>3:30 p.m.</b>	<b>Break</b>	
3:50 p.m.	Confederated Salish and Kootenai Tribes – Acquisition and Operation of the Kerr Dam (MT)	Brian Lipscomb (Guest Speaker)



# Project Development & Deployment

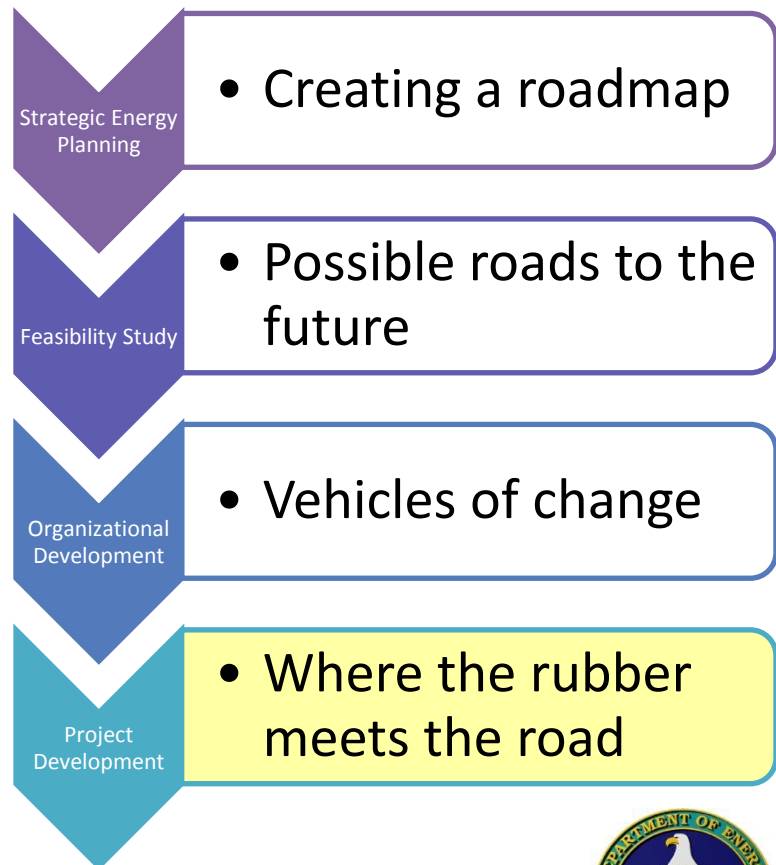
## Where the rubber meets the road

**Energy Efficiency  
The Low Hanging Fruit**

**(Demand-side)**

### Energy Efficiency Improvements

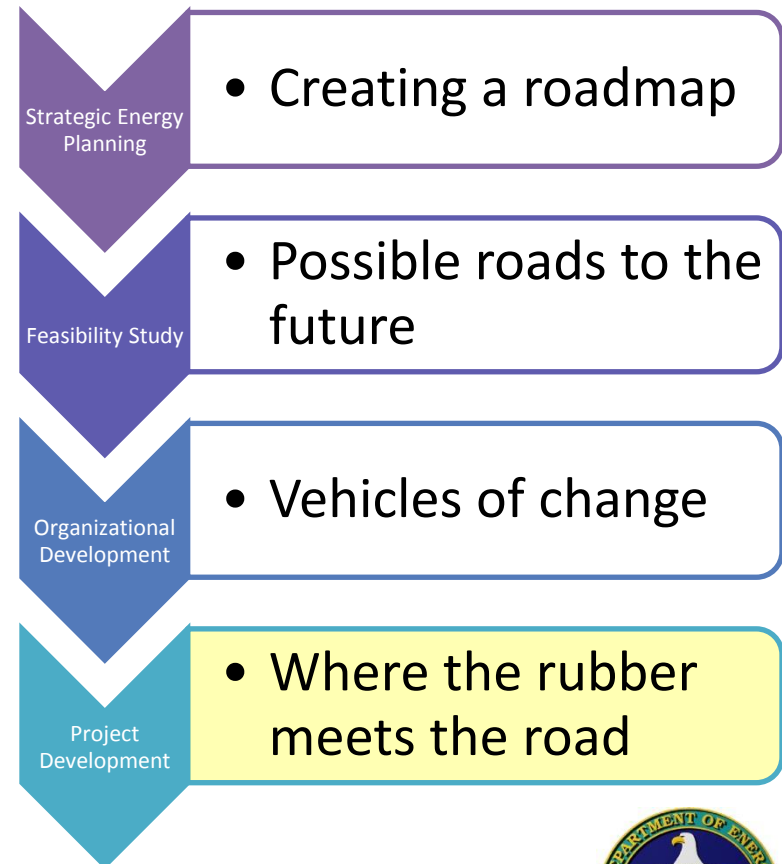
May include, but are not limited to, building envelope improvements (walls, roofs, foundation slab, ceiling, windows, doors, insulation), the installation of energy efficient equipment, high-efficiency lighting, efficient appliances, air sealing, moisture management, controlled ventilation, high R-value (high thermal resistance) insulation, high efficiency windows, efficient heating systems (furnaces, boilers, passive solar), efficient cooling systems (air conditioners, evaporative coolers), ground source heat pumps, high efficiency office equipment, energy saving building electrical equipment, and efficient mechanical systems and heat recovery ventilation units.



# Project Development & Deployment

## Energy Efficiency – The Low Hanging Fruit

U.S. DEPARTMENT OF ENERGY   Energy Efficiency & Renewable Energy		
Tribal Energy Program		
WEDNESDAY, MAY 6 <sup>th</sup> (8:30 a.m. – 5:30 p.m.) - Continued		
TIME	DESCRIPTION	PRESENTERS
<b>Deploying Clean Energy in Indian Country (Continued)</b> Moderator: Jennifer Luna (CNJV, Golden Field Office)		
2:40 p.m.	Oneida Tribe of Indians of Wisconsin – Oneida Solar Electric Deployment Project (WI)	Mike Troge
<b>3:10 p.m.</b>	<b>Break</b>	
3:30 p.m.	Bishop Paiute Tribe – Bishop Paiute Tribe Residential Solar Program (CA)	Linda Akyuz
4:00 p.m.	Pala Band of Mission Indians – Pala Fire Station Solar Project (CA)	Antonio Lovato
4:30 p.m.	Santo Domingo Tribe – PV Solar Power for the Santo Domingo Tribe's Community Water Pump and Treatment Facility (NM)	Sheri Bozic
5:00 p.m.	Central Council Tlingit & Haida Indian Tribes of Alaska (CCTHITA) – (1) Tribal Energy Retrofit Project & Office Lighting Retrofits and (2) Sensors for Energy Use and Cost Reduction Tribal Energy Retrofit Project (AK)	Elias Duran
5:30 p.m.	Adjourn	
12:00 p.m. Lunch (Provided)		
<b>Deploying Clean Energy in Indian Country (Continued)</b> Moderator: Jennifer Luna (CNJV, Golden Field Office)		
1:00 p.m.	Project Introductions	Lizana Pierce
1:10 p.m.	Coeur d'Alene Tribe – Benewah Market Energy Efficiency Project (ID)	Tiffany Allgood
1:40 p.m.	Gwitchyaa Zhee G'wich'in Tribal Government (GZGTG) – G'wich'in Solar and Energy Efficiency in the Arctic (AK)	Tony Peter David Pelunis-Messier



# Project Development & Deployment

## Where the rubber meets the road

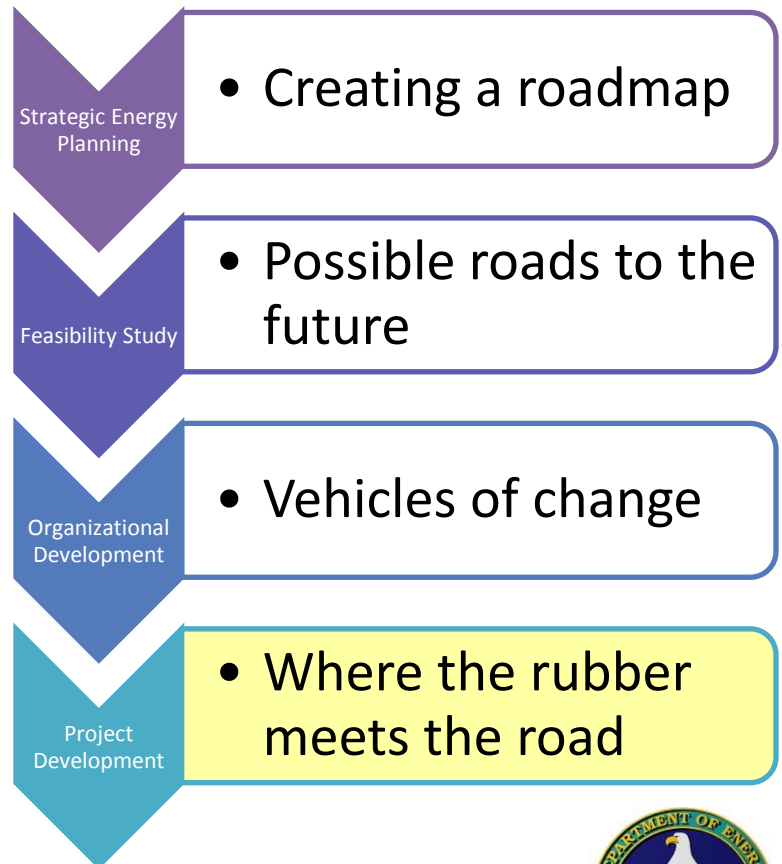
Renewable Energy Options

(Supply-side)

### “Renewables for Buildings” (Facility and Community-scale)

Power (electricity) include, but are not limited to, photovoltaic (solar electric), biomass (including waste to energy), wind power, run-of-the-river hydropower, incremental hydropower, or other renewable energy hybrid systems for electricity power generation.

Heating or cooling applications include, but are not limited to, the use of biomass for high efficiency combustion systems (i.e., stoves and boilers), active solar thermal systems for space or water heating, wind energy for heating, direct-use hydrothermal (geothermal) resources for water and space heating, or other renewable energy hybrid systems for heating and/or cooling.



# Project Development & Deployment

## Where the rubber meets the road

### Renewable Energy Options

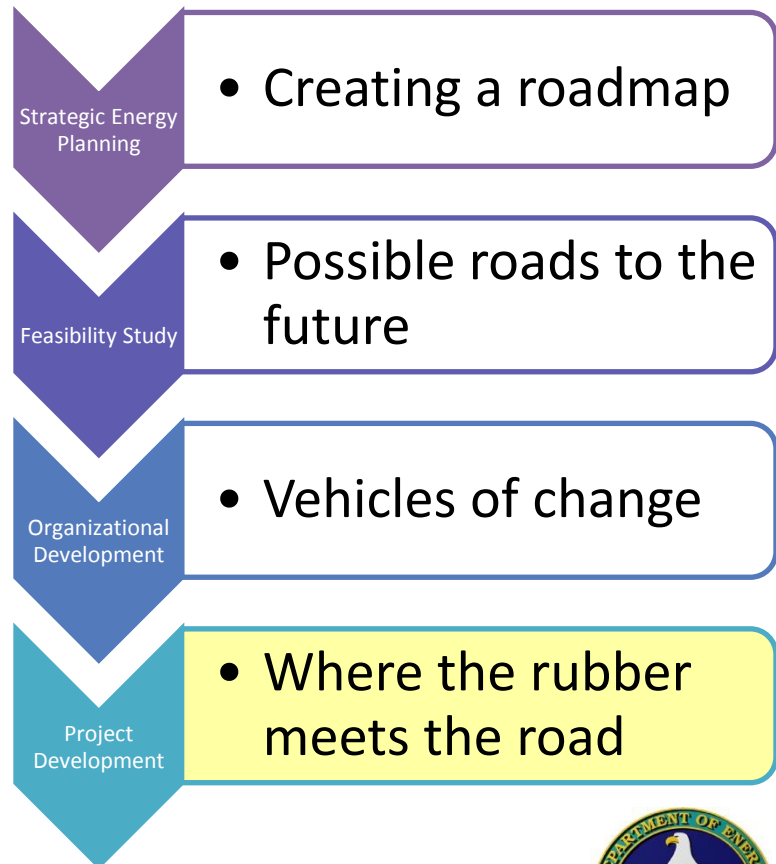
(Supply-side)

#### Development (Pre-construction) Activities:

Environmental assessments; detailed design or engineering drawings; interconnection assessments for grid-connected projects; negotiations for utility grid interconnect agreements and power purchase agreements; permitting; finalizing business agreements; conducting due diligence on selected technologies; and negotiating and obtaining financial commitments.

#### Deployment (Construction):

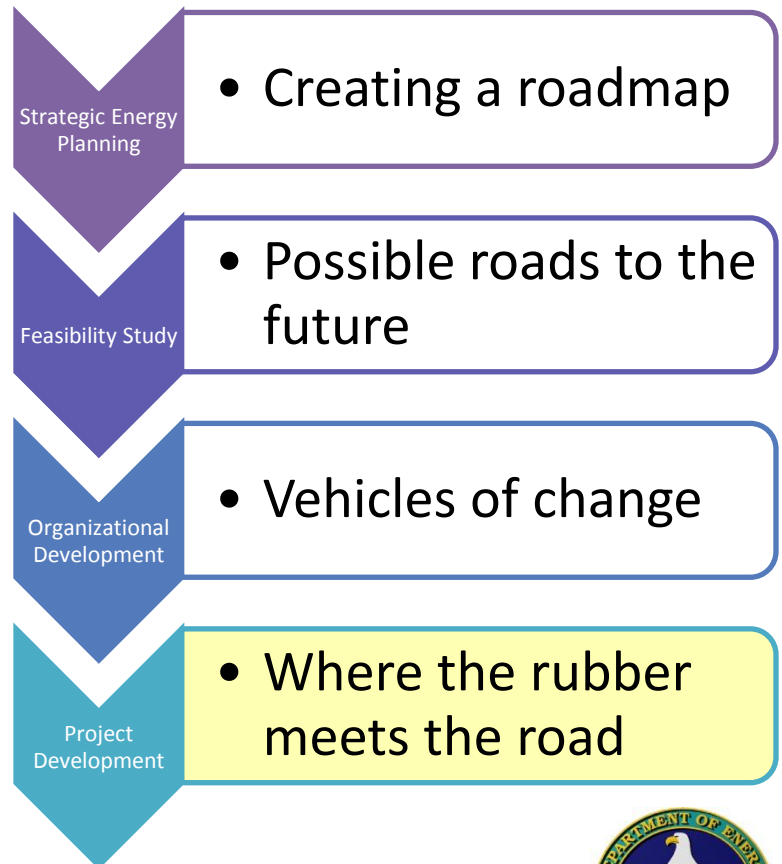
Installation of renewable systems for facility or community use, or for export of power.



# Project Development

## Supply-side Renewable Energy Options

<p><b>Developing Clean Energy in Indian Country</b> Moderator: Jami Alley Howell (CNJV, Golden Field Office)</p>		
1:00 p.m.	Project Introductions	Lizana Pierce
1:10 p.m.	Port Graham Village Council – Community Building Biomass Heating Design Project (AK)	Charles Sink
<p>Registration starts at 12:00 p.m. on Monday and at 8:00 a.m. each morning Tuesday through Thursday.</p>		
<p>U.S. DEPARTMENT OF <b>ENERGY</b>   Energy Efficiency &amp; Renewable Energy <b>Tribal Energy Program</b></p>		
<p>TUESDAY, MAY 5<sup>th</sup> (8:30 a.m. – 5:30 p.m.) – Continued</p>		
TIME	DESCRIPTION	PRESENTERS
<p><b>Developing Clean Energy in Indian Country (Continued)</b> Moderator: Jami Alley Howell (CNJV, Golden Field Office)</p>		
1:40 p.m.	To'Hajilee Economic Development, Inc. (TEDI) - Shandiin Solar Farm Development To'Hajilee (NM)	Delores Apache
2:10 p.m.	Kootznoowoo Incorporated – 1 MW Thayer Creek Hydro-electric Development Project (AK)	Sharon Love
2:40 p.m.	Rosebud Sioux Tribes – RST Wind Energy Development (SD)	Paul Valandra
3:10 p.m.	Break	

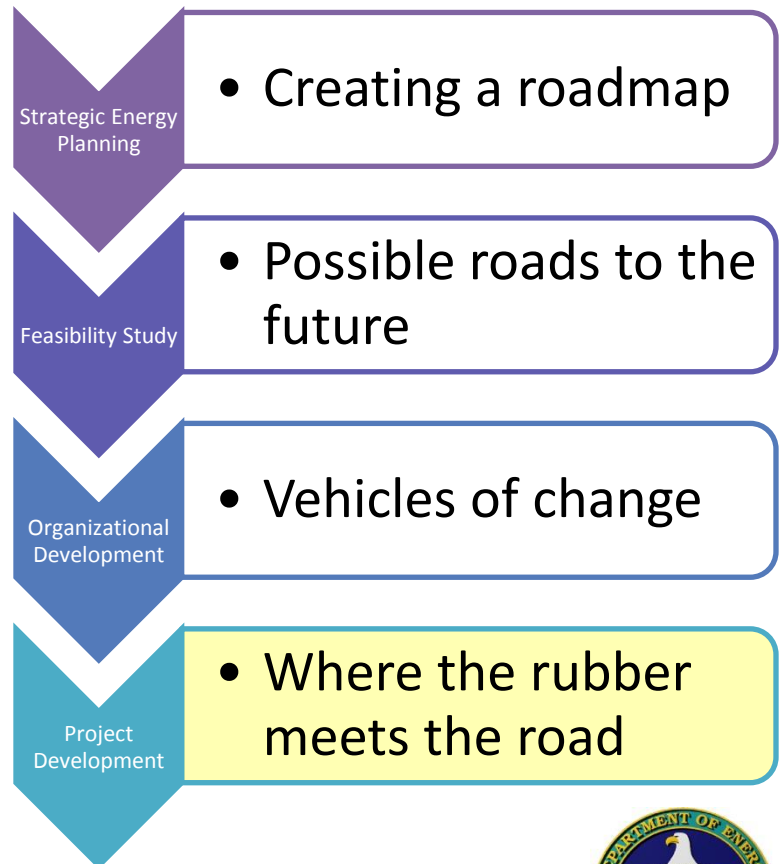




# Project Deployment

## Supply-side Renewable Energy Options

U.S. DEPARTMENT OF ENERGY   Energy Efficiency & Renewable Energy		Tribal Energy Program	
<b>WEDNESDAY, MAY 6<sup>th</sup> (8:30 a.m. - 4:30 p.m.)</b>			
<b>TIME</b>	<b>DESCRIPTION</b>		
8:30 a.m.	Welcome & Introduction		
8:40 a.m.	Status of Clean Energy		
<b>Deploying Clean Energy in Indian Country</b> Moderator: Jami Alley Howell (CNJV, Golden Field Office)			
9:30 a.m.	Project Introduction		
9:40 a.m.	Agua Caliente Band Parking Lots Improv (2) Wind/Solar Feas		
<b>10:10 a.m.</b>	<b>Break</b>		
10:30 a.m.	Tonto Apache Tribe Facilities Project & T		
11:00 a.m.	Soboba Band of Luis Energy Project (CA)		
11:30 a.m.	Washoe Tribe of Nev Energy Project (NV)		
<b>12:00 p.m.</b>	<b>Lunch (Provided)</b>		
1:00 p.m.	Business & Financi		
<b>Deploying Clean Energy in Indian Country</b> Moderator: Jennifer Luna (CNJV, Golden Field Office)			
2:00 p.m.	Project Introduction		
2:10 p.m.	Standing Rock Sioux Installation (ND)		
<b>THURSDAY, MAY 7<sup>th</sup> (8:30 a.m. - 4:30 p.m.)</b>			
<b>TIME</b>	<b>DESCRIPTION</b>	<b>PRESENTERS</b>	
8:30 a.m.	Welcome & Introductions	Lizana Pierce	
8:40 a.m.	Models & Tools for Evaluating Project Options	Lars Lisell, NREL (Guest Speaker)	
<b>Deploying Clean Energy in Indian Country (Continued)</b> Moderator: Jami Alley Howell (CNJV, Golden Field Office)			
9:30 a.m.	Project Introductions	Lizana Pierce	
9:40 a.m.	Menominee Tribal Enterprises (MTE) – District Biomass Combined Heat & Power (CHP) Project (WI)	Norman Shawanokasic	
<b>10:10 a.m.</b>	<b>Break</b>		
10:30 a.m.	Winnebago Tribe of Nebraska – Winnebago Tribe Solar Project (NE)	Autumn Nieman	
11:00 a.m.	Southern Ute Indian Tribe – Community-Scale Solar Project (CO)	James Jensen	
11:30 a.m.	Forest County Potawatomi Community (FCPC) – Installation of Solar Photovoltaic Systems (WI)	Tansey Smith	
<b>12:00 p.m.</b>	<b>Lunch (Provided)</b>		
<b>Deploying Clean Energy in Indian Country (Continued)</b> Moderator: Jennifer Luna (CNJV, Golden Field Office)			
1:00 p.m.	Project Introductions	Lizana Pierce	
1:10 p.m.	Coeur d'Alene Tribe – Benewah Market Energy Efficiency Project (ID)	Tiffany Allgood	
1:40 p.m.	Gwitchyaa Zhee G'wich'in Tribal Government (GZGTG) – G'wich'in Solar and Energy Efficiency in the Arctic (AK)	Tony Peter David Pelunis-Messler	



# Questions?

