U.S. Department of Transportation

Research and Special Programs Administration

Office of Pipeline Safety

Blue Ribbon Panel Meeting

J.W. Marriott Hotel
Washington, DC
May 20th 2004

Agenda

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9:00 AM	Opening Remarks - Goals & Objectives of the Meeting - 5-Year Plan - MOU	- Jeff Wiese
9:30 AM	R&D Program to Date - BAA Focus & Funding	-Jeff Wiese
10:00 AM	New R&D Program Structure - OMB PART - Strategic Planning - Performance Planning - Logic Model - Management Information System	-Jim Merritt
10:30 AM	R&D Program Performance Measures	-Robert Smith
11:00 AM	Break	
11:15 AM	Open Discussion and Feedback - Performance Measures - Technology transfer - brainstorming session	-Group
11:45 AM	Wrap-up	-Jeff Wiese
12:00 PM	Adjourn	

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Opening Remarks

First and foremost…

We value your attendance, opinion and feedback!

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Opening Remarks
Goals & Objectives

1. Continue our valuable collaboration and coordination through this panel
2. Update the panel on program activities since June 10, 2003
3. Illustrate a new program structure and evolution
4. Present a set of refined performance measures to evaluate R&D outcomes
5. Obtain feedback and basic consensus on validity of R&D performance measures

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Opening Remarks
Five Year R&D Program Plan

In 2003, a Five Year R&D Program Plan was jointly developed with DOT's Office of Pipeline Safety, DOE's National Energy Technology Laboratory (NETL), the DOC's National Institute of Standards and Technology (NIST) & DOI's Minerals Management Service (MMS).

Presently in Department Level and OMB Examiner Surnaming

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Opening Remarks
Memorandum of Understanding

Signed January 20th, 2004 between

DOT/RSPA/OPS, DOE/NETL and DOC/NIST

Available at
http://primis.rspa.dot.gov/rd/mou.pdf

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R&D Program to Date

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Activities Since Last Blue Ribbon Panel Meeting

- The GAO released final report # 03-746 on OPS R&D Program
- Held Joint Government/Industry Pipeline R&D Forum, December 2003
- Presented R&D activities at Pipeline Safety Advisory Committees, January 2004
- Attended training and consulted several Federal R&D programs on OMB PART
- Restructured R&D Program elements, goals and created performance measures
- Created an R&D Strategic & Performance Plan with a Logic Model
- Developing online Management Information System and database
- Participated at API Pipeline Conference with R&D project summary, April 2004
- Submitted R&D portion of OPS OMB PART submission with Q&A and supporting documents, April 2004

OPS R&D Fiscal Summary

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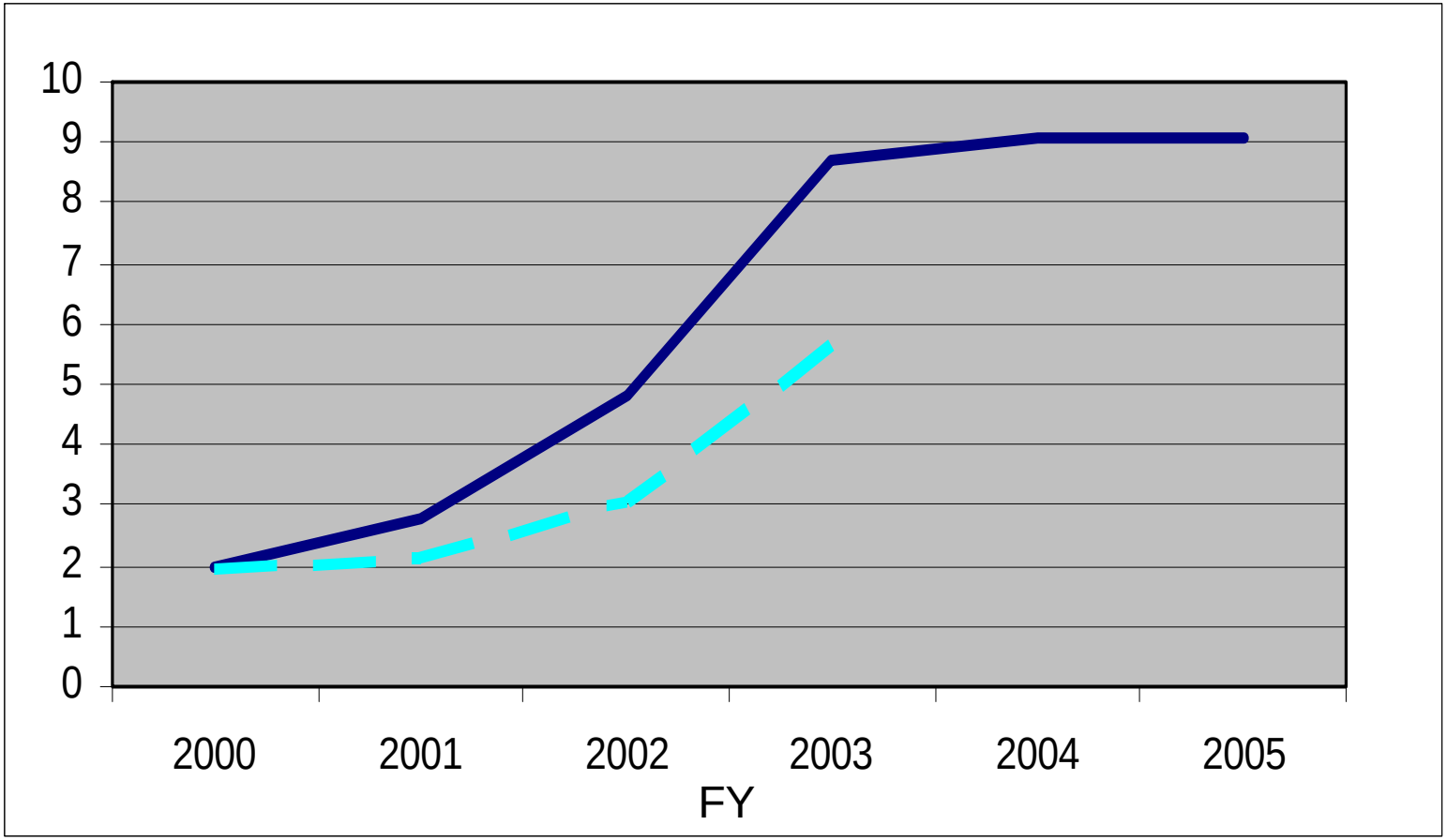
In millions of dollars



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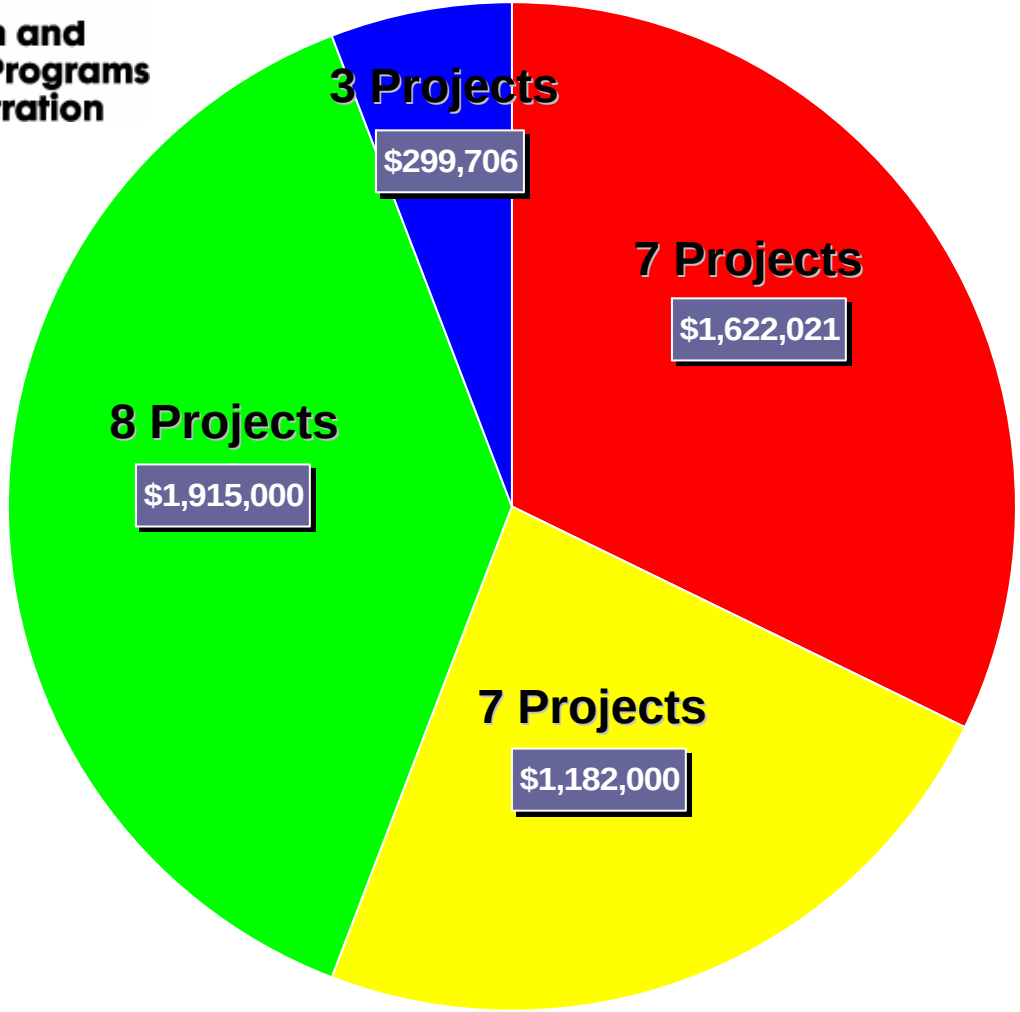
Broad Agency Announcements & Small Business Innovation Research



- BAA #1 (March 2002)
- BAA #2 (June 2002)
- BAA #3 (Dec 2002)
- SBIR (June 2003)

Total Projects Awarded Since March 2002

25

Total OPS Funding

$5,018,727

Total Industry Co-Funding

$5,568,475

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Broad Agency Announcement #4

148 White Papers Submitted

Damage Prevention (28 White Papers)

- Focus on the detection and prevention of excavation damage

Leak Detection (12 White Papers)

- Focus on the detection of small leaks

Enhanced Pipeline Operations, Controls, and Monitoring (19 White Papers)

- Human factors
- Airborne chemical mapping and pipeline encroachment monitoring
- Improved directional drilling

Improved Materials Performance (19 White Papers)

- Evaluation and development of promising new pipe materials
- Pipe coatings

Other Pipeline Safety Improvements (70 White Papers)

- Strengthening and validating direct assessment (DA) practices
- Mathematical pipeline modeling enhancements or computational pipeline modeling enhancements
- In Line Inspection for damage or defects
- Crack detection and Stress Corrosion Cracking (SCC)
- Design and Safety technology enhancements for LNG facilities

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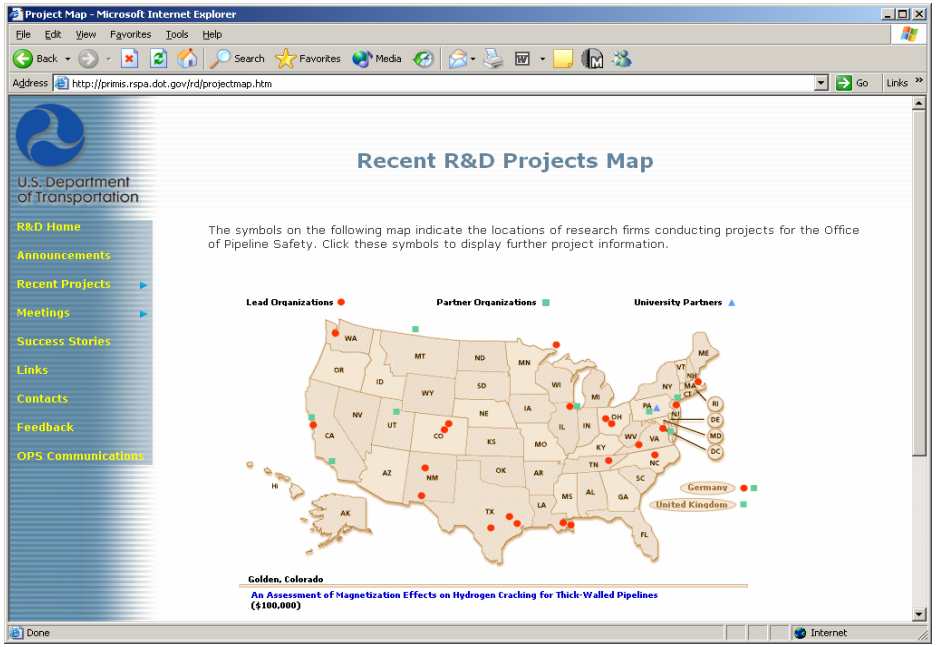
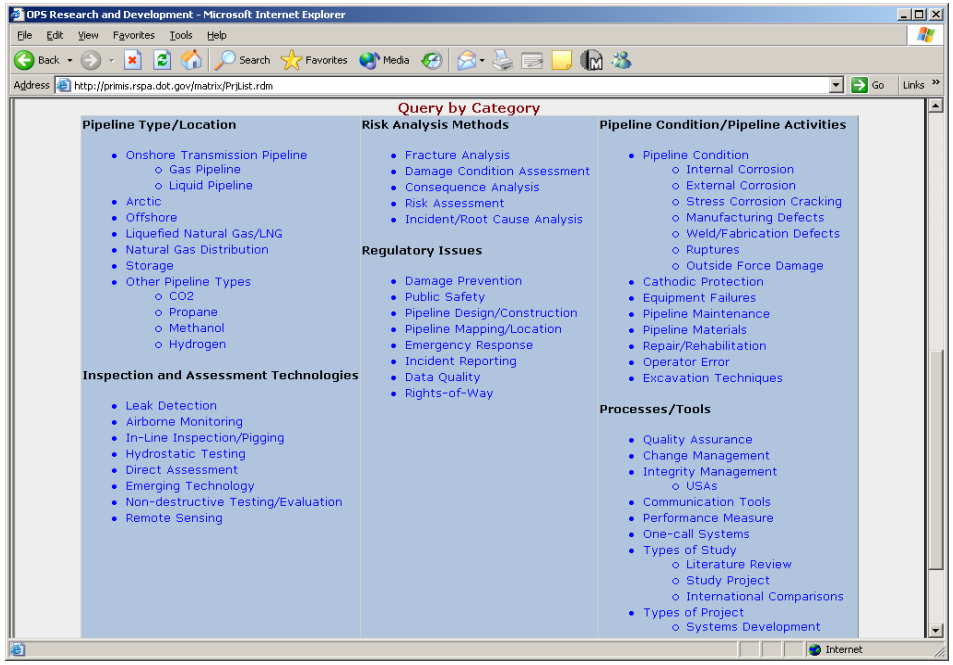
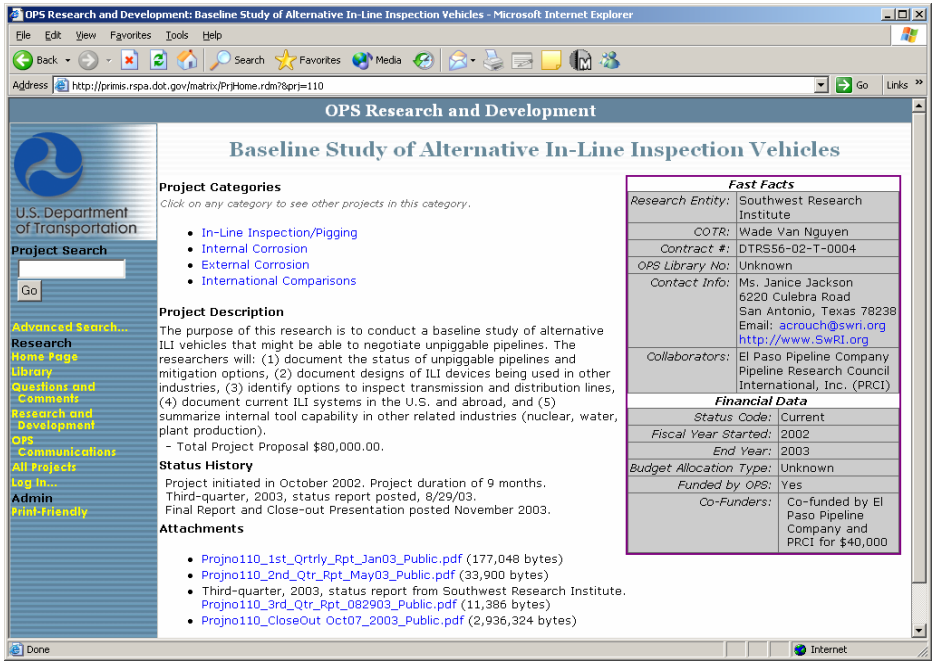
Current Jointly Supported Activities

Co-Funded by	Co-Funded Effort
	1. Strain-Based Design of Pipelines - 2nd Effort
	2. An Assessment of Magnetization Effects on Hydrogen Cracking for Thick Walled Pipelines
NIST National Institute of Standards and Technology	3. Int. Workshop on Advances Research & Development of Coatings for Corrosion Protection
	4. An Assessment of Safety, Risks and Costs Associated With Subsea Pipeline Removals
	5. Intelligent Systems for Pipeline Infrastructure Reliability (ISPIR)
	6. Remote Sensing (Leak Detection) Technology Demonstration
	7. Advanced Sensor (Pipe Inspection) Technology Demonstration
NIST National Institute of Standards and Technology	8. Laboratory Research to update Consensus Standards

OPS R&D Website http://primis.rspa.dot.gov/rd







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New Program Structure

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Influences on the R&D Program Structure
How did we evolve?

- Blue Ribbon Panel
- Pipeline Safety Advisory Committees
- Government/Industry Pipeline R&D Forum
- GAO Report on OPS R&D Program (June 2003)
- OMB Performance Assessment & Rating Tool (PART)

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R&D Program & OMB PART

Being more business like!

- Attended numerous training sessions
- Consulted with several Federal R&D Programs
- Learned about Strategic Plans, Performance Plans and Logic Models
- Participated in combined OPS PART Evaluation

PART Components

OMB PART for Applied R&D Programs

Program Purpose & Design	Strategic Planning	Program Management	Program Results/ Accountability
1.1 Purpose clear? 1.2 Address a specific problem, interest, or need? 1.3 Not duplicative of other Federal, state, local or private efforts? 1.4 Design free of major flaws? 1.5 Effectively targeted – resources reach intended beneficiaries and/or address purpose directly?	2.1 Meaningful long-term performance measures? 2.2 Targets & timeframes for long-term measures? 2.3 Annual performance measures? 2.4 Baselines and targets for annual measures? 2.5 Partners work toward long-term goals? 2.6 Independent evaluations? 2.7 Budget requests tied to annual and long-term goals? 2.8 Correcting strategic planning deficiencies? 2.RD1 Compare program benefits to similar efforts? 2.RD2 Prioritization process for budget and funding decisions?	3.1 Regular collection of performance information to manage program? 3.2 Managers and partners held accountable? 3.3 Funds obligated timely and spent for intended purpose? 3.4 Procedures to measure & achieve efficiencies & cost effectiveness? 3.5 Collaborate and coordinate with related programs? 3.6 Strong financial management practices? 3.7 Addressing management deficiencies? 3.RD1 Allocate funds and use management processes that maintain program quality?	4.1 Demonstrated progress towards long-term performance goals? 4.2 Achieve annual performance goals? 4.3 Improved efficiencies or cost effectiveness towards program goals? 4.4 Compare favorably to similar government or private efforts? 4.5 Independent evaluations indicate that program is effective and achieving results?

Our Mission

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Office of Pipeline Safety

To ensure the safe, reliable, and environmentally sound operation of the Nation's pipeline transportation system

Office of Pipeline Safety Research & Development Program

To sponsor research and development projects focused on providing near-term solutions that will increase the safety, cleanliness, and reliability of the Nation's pipeline transportation system

Concise & Consolidated

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Program Elements
Program Goals
Logic Models
Performance Measures
Peer Review
Efficiency Measures
Collaboration + Coordination + Co-Fund
Information/Results Dissemination
Commercialization + Technology Cross-Cutting

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R&D Program Elements for Pipeline Safety

1. Damage Prevention & Leak Detection
2. Pipeline Inspection & Direct Assessment
3. Defect Assessment, Characterization & Mitigation
4. Improved Design, Construction, & Materials
5. Mapping & Information Systems
6. Enhanced Operation Controls & Encroachment Monitoring
7. Risk Management & Communications
8. Other Safety Issues for Emerging Technologies

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R&D Program Goals for Pipeline Safety

	Program Elements	Program Goals
1.	Damage Prevention & Leak Detection	Reduce the number of hazardous incidents resulting from outside force, leaks, and corrosion
2.	Pipeline Inspection & Direct Assessment	Identify and locate critical pipeline defects using in-line inspection and direct assessment technologies
3.	Defect Assessment, Characterization & Mitigation	Improve the capability to detect, assess, and mitigate defects in pipeline systems before becoming critical hazards
4.	Improved Design, Construction, & Materials	Improve integrity of pipeline and facilities through enhanced technologies for construction, materials, & fabrication
5.	Mapping & Information Systems	Better response to pipeline incidents through improved technologies and information systems for pipeline mapping and collection of pipeline safety data
6.	Enhanced Operation Controls & Encroachment Monitoring	Enhance the safety of pipeline operations through enhanced controls and encroachment monitoring
7.	Risk Management & Communications	Reduce the probability and mitigate the consequences of hazards to pipelines
8.	Safety Issues for Emerging Technologies	Identify and assess emerging technologies for enhancing safety

Goals	Activities *Program Elements*	Outputs	Customers	Short -Term Impacts	Long -Term Impacts
Performance goals pursued	**Activities needed for results desired**	**Results expected from activities**	**Customers reached or effected**	**Outcomes expected in 1-5 years**	**Outcomes expected in 3-10 years**
Reduce number of incidents from outside force, leaks, & corrosion	1.Damage Prevention & Leak Detection	New methods for pipe locating, damage prevention, leak detection, and corrosion protection	Transmission & distribution companies, plastic pipe vendors, sensor; corrosion protection companies	Proof-of-Concept for new damage prevention , leak detection, and corrosion prevention technologies	Reduce number of incidents from third party contact with pipelines, leaks, and corrosion
Identify/locate critical defects using inline inspection & DA technologies	2.Pipeline Inspection & Assessment	Improved technology for detection of unsafe pipeline defects	Pipeline operators, pipeline inspection vendors, and pipeline standards organizations	Improved technology for field deployment; new detection and inspection products; more capable DA methodologies	Reduction in pipeline defects leading to pipeline ruptures and leaks
Improve capability to detect, assess, & mitigate defects before becoming critical hazards	3.Defect Characterization & Mitigation	Improved understanding of anomalies and defects in line pipe and threats to pipeline integrity	Pipeline operators, pipeline inspectors, pipeline service companies, pipeline standards organizations	Improved assessment and validation Tools; better understanding of conditions adversely affecting integrity	Fewer defects in pipeline systems adversely affecting public safety
Improved integrity through enhanced technologies for construction & fabrication	4.Improved Design, Construction & Materials	Improved technology for pipeline and facilities design, construction, materials, and fabrication	Operators, vendors, service, construction, & standards organizations	Better technology and methods for design, construction, materials, and fabrication	Widespread use of improved methods and technology for design, construction, materials, and fabrication

Goals	Activities *Program Elements*	Outputs	Customers	Short -Term Impacts	Long -Term Impacts
Performance goals pursued	**Activities needed for results desired**	**Results expected from activities**	**Customers reached or effected**	**Outcomes expected in 1-5 years**	**Outcomes expected in 3-10 years**
Better incidents response by improved info. & tech. systems for mapping & safety data collection	5.Mapping & Information Systems	Improved information systems for mapping and data analysis	Pipeline regulators, pipeline operators	Improved pipeline location and mapping technology; enhanced information systems for emergency response and data analysis	Reduction in the consequences of pipeline incidents through better anticipation and response to emergencies
Enhance safety of operations by enhanced controls and encroachment monitoring	6.Enhanced Operation Controls & Encroachment Monitoring	New pipeline operations controls; technology for detecting pipeline encroachment	Pipeline operators, pipeline service companies, pipeline vendors	Improved ability to identify & mitigate unsafe operator consequences; Ability to detect potentially hazardous contact with line pipe	Ability to control or shutdown pipelines before hazards can cause harm to people or property
Reduce the probability and mitigate the consequences of hazards	7.Risk Management & Communications	New understanding of potential risks of pipeline operations; Methods for communicating risks to local officials & public	Pipeline regulators, pipeline operators, pipeline service companies, local public safety officials	Better understanding of potential risks of pipeline operations; improved land use planning around pipelines	Fewer hazardous consequences during incidents; better land use planning & development near pipelines
Identify & aid emerging technologies for enhancing safety	8.Safety Issues for Emerging Technologies	Analysis of safety concerns and issues; assess potential of new technologies	Pipeline regulators, pipeline operators	Identification of promising new technologies that could enhance pipeline safety	Implementation of new technologies that can reduce the risks of pipelines

Goals	Activities	Outputs	Customers Reached	Short -Term Outcomes	Long -Term Impacts
We are pursuing these performance goals:	In order to accomplish our intended results, we will conduct the following activities: *Program Elements/* Planned or Funded Projects	We expect that once completed or underway these activities will produce the following results:	We expect that if completed or ongoing these activities will reach or affect the following customers:	We expect that if completed or ongoing these activities will lead to the following outcomes in 1-5years:	We expect that the outcomes will lead to the following changes or impacts in 3-10 years:
Reduce the number of hazardous incidents resulting from outside force, leaks, and corrosion	**1. Damage Prevention & Leak Detection**	**New methods for pipe locating, damage prevention, leak detection, and corrosion protection**	**Transmission & distribution companies, plastic pipe vendors, sensor companies; corrosion protection companies**	**Proof-of-Concept for new damage prevention , leak detection, and corrosion prevention technologies**	**Reduction in the number of incidents resulting from unauthorized contact with pipelines, leaks, and corrosion**
	Locatable Magnetic Plastic Pipe DTRS56-02-T-0006	Proof-of-concept of magnetically locatable plastic pipe	Pipeline operators; plastic pipe vendors; sensor companies	Locatable plastic pipe for new construction	Fewer instances of damage to plastic pipe from excavation
	Digital Mapping of Buried Pipelines, Dual Array System DTRS56-02-T-0005	System that combines radar and electromagnetic induction arrays for precise positioning of pipelines	Pipeline location services; pipeline operators	New capability to locate and map buried pipelines in nearly all soil types	Fewer instances of damage to pipelines from excavation
	Piezo Acoustic Leak Detection DTRS57-04-C-10016	Proof-of-concept of a piezoelectric system for acoustic detection of leaks in pipelines	Pipeline operators; pipeline sensor vendors	Capability for real-time detection of leaks in pipelines	Detection of pipeline leaks before they can present a hazard

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Collaborate/Coordinate/Co-Fund
Activities and Drivers

Pipeline Safety Improvement Act (PSIA) of 2002
- Interagency Five-Year Research Program Plan
- Memorandum of Understanding
- Quarterly interagency coordination meetings
- Future combined pipeline R&D solicitations
- Common Pipeline R&D Program Presentation

Joint Government/Industry R&D Forum
- Challenge/Gap identification
- Program and project information dissemination and feedback

Blue Ribbon Panel
- Stakeholder input on program direction and feedback

Pipeline Safety Advisory Committees
- Program dissemination and feedback on activities

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R&D Program Management Information System (MIS)

System Benefits

1. Completely paperless with secure online submission and review of White Papers and Proposals

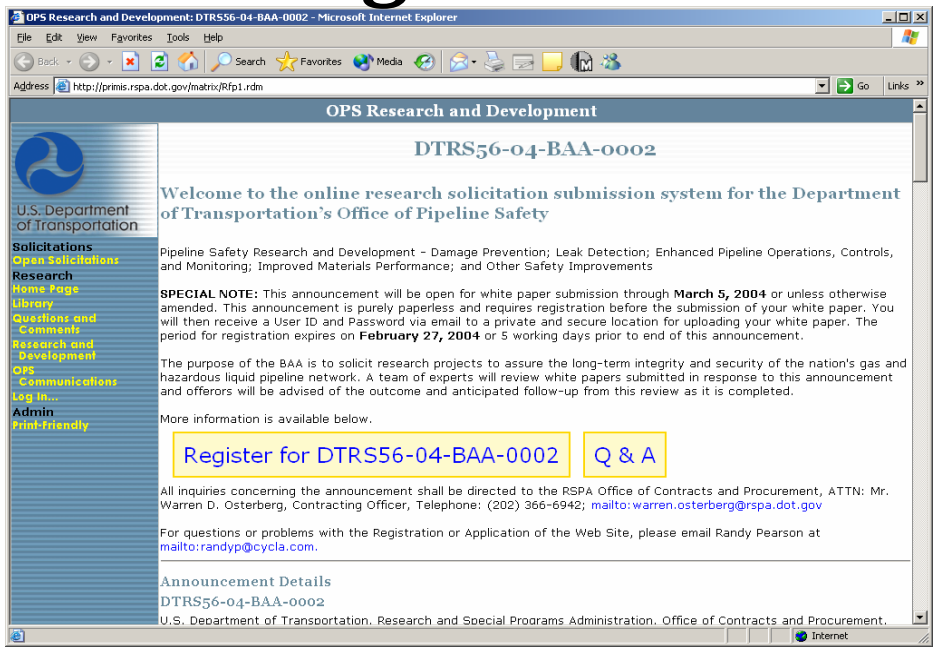
2. Provides tracking, inventory, accountability and oversight features through database management

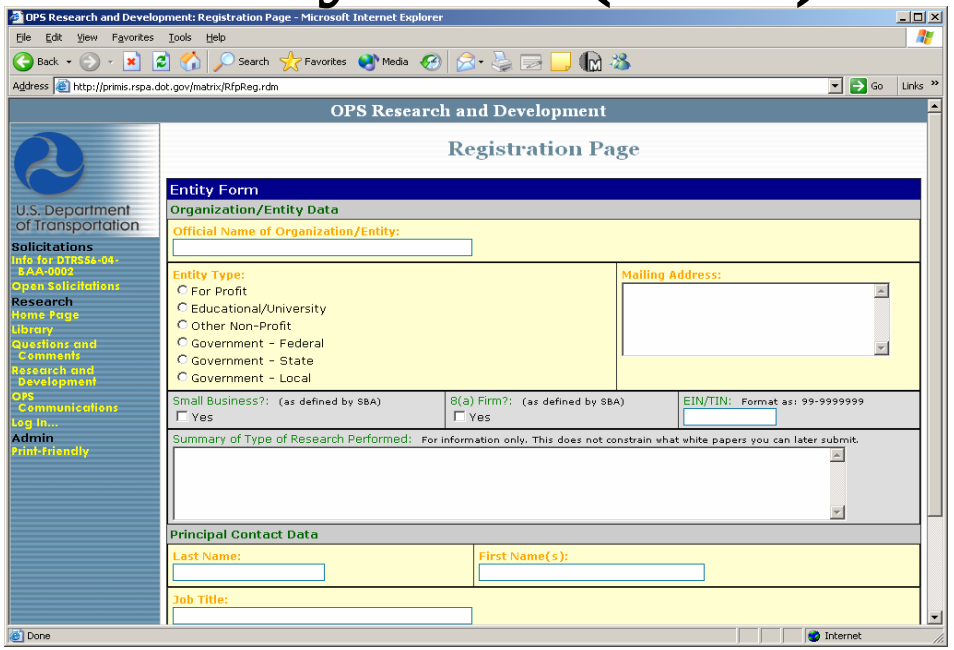
3. Links Program & Project activities with Procurement and Finance requirements streamlining fiduciary responsibilities with efficient management

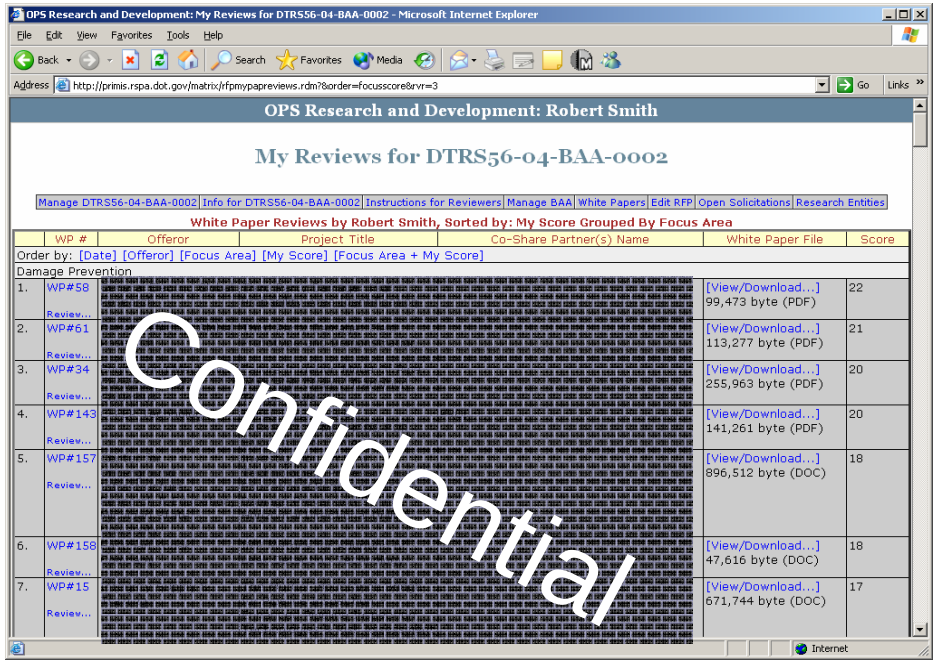
4. Resulting reduction of workload for submitters, reviewers, CO's, COTR's & management

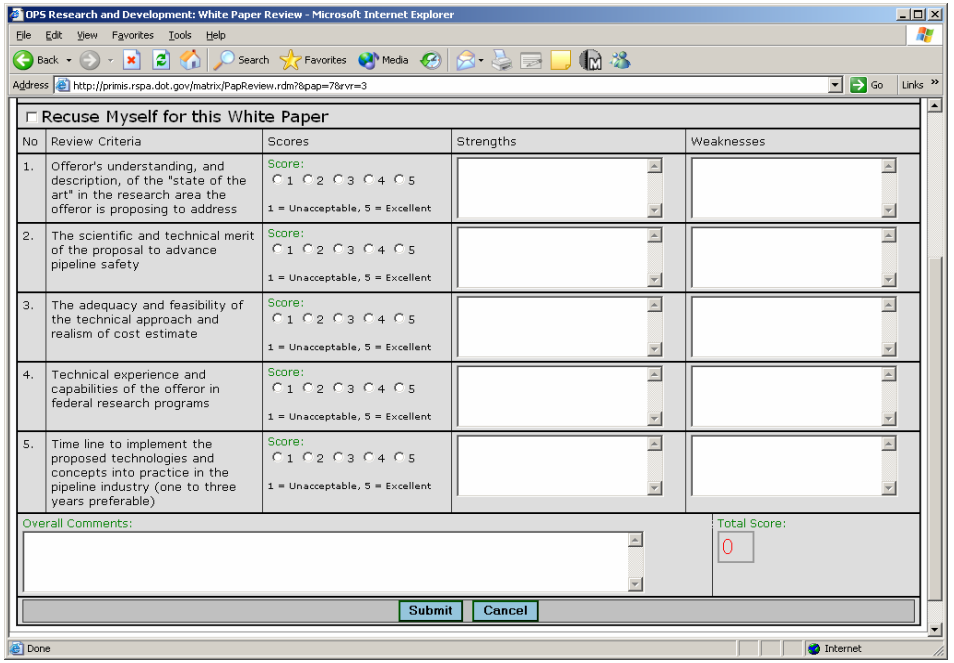
5. Provides rapid/accurate queries for a variety of program and project level information requests

Management Information System (MIS)









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OPS R&D Program
Next Steps

- Public release of Strategic & Performance Plans – Summer 2004
- Continue the development and implementation of the MIS – Summer 2004
- Award projects from BAA #4 – August 2004
- Begin to populate database with performance evaluation data – Fall 2004 and further
- Use R&D Logic Models with performance data to adjust Strategic efforts – TBA 2005
- Begin Roadmapping of issues and forecast required resources – Winter 2005
- Assess current efforts and direction at next Gov/Industry R&D Forum – Feb 2005

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R&D Program Performance Measures

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GAO Report 03-746 & OMB PART

GAO Recommendation for OPS R&D Program – June 2003

"…that OPS develop a systematic process for evaluating program outcomes, using recognized best practices…"

OMB PART Performance Fundamentals

1. Evaluate your program outputs based on Relevance, Quality, and Performance
2. Performance data can be both Quantitative and Qualitative
3. Create Management Efficiency Measures to improve/maintain performance

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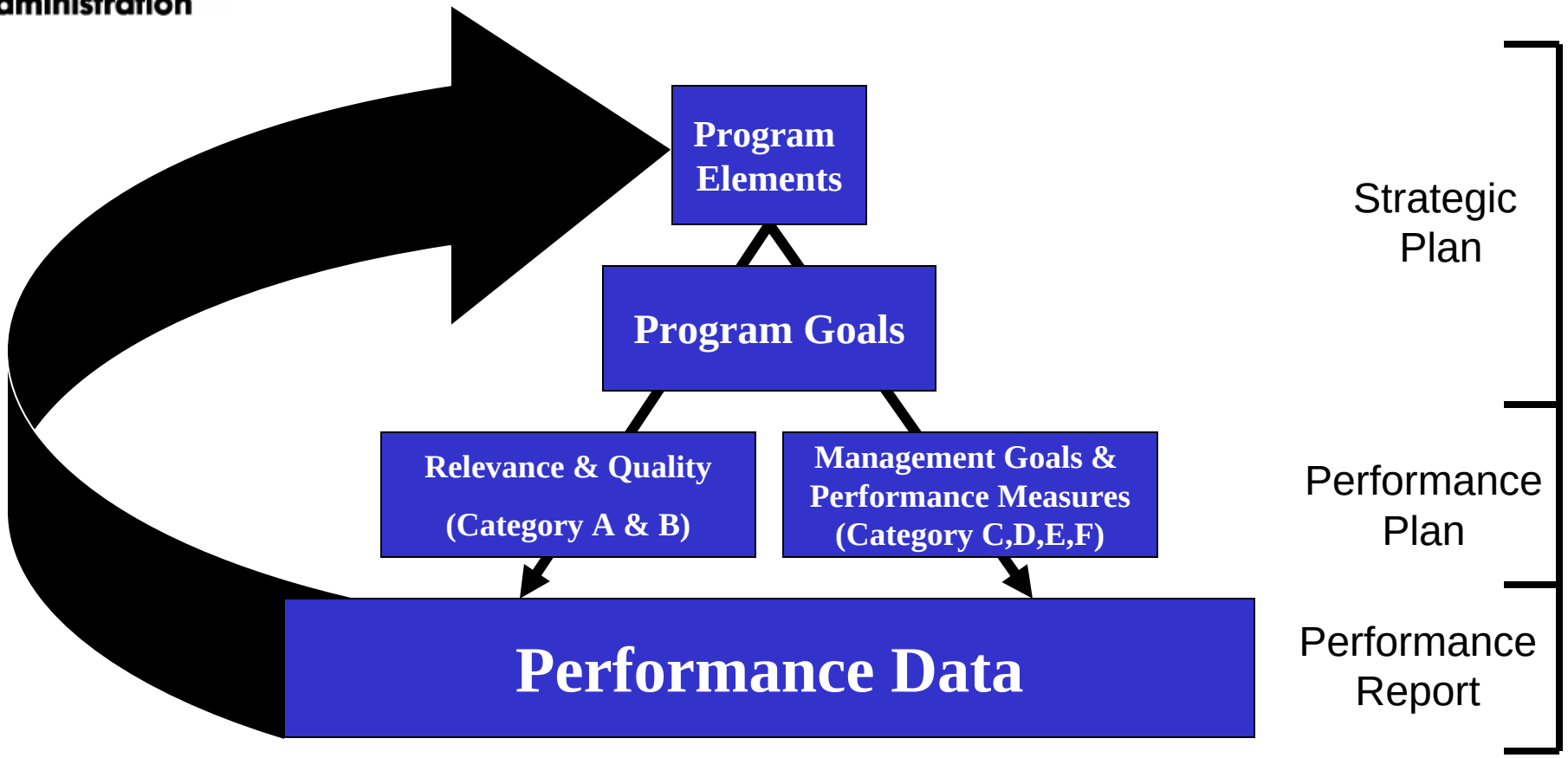
R&D Program Performance Measures



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Please Keep in Mind the Following

1. Try not to focus on a single measure for assessing the program
2. Think of the measures as a collective approach to assess our performance
3. Each measure will provide a piece of that data required for a full assessment
4. Some measures are quantitative and some qualitative
5. Some measures are collected annually and some are long-term
6. Peer review items and efficiency measures are spread throughout some performance categories (A,B,C,D,E,F)
7. Some measures have dual use and some are related

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R&D Program Performance Measures

Relevance & Quality

	Performance Categories	Performance Measures
A.	Relevance of the R&D Program to National Priorities and the Mission of the Office of Pipeline Safety	1. Guided by R&D Strategic Plan 2. Periodic review of program by safety advisory committees (TPSSC and THLPSSC) 3. Fraction of R&D funding linked to new rulemaking and/or statutory requirements 4. Fraction of R&D funding tied to NTSB issues 5. Fraction of R&D funds linked to strengthening national engineering standards
B.	Quality and Impact of R&D Program	1. Fraction of projects achieving performance objectives 2. Annual peer review evaluation of projects 3. Priority ranking of R&D needs and opportunities 4. Guided by R&D Logic Model

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R&D Program Performance Measures

Management Goals & Performance Measures

	Performance Categories	Performance Measures
C.	Program Management Activities	1. Guided by R&D Performance Plan 2. Percent of OPS R&D projects satisfying project performance milestones 3. Ratio of OPS R&D funding to number of OPS R&D staff participation ($/FTE) 4. Fraction of total R&D funding (including co-funding) to OPS R&D funding 5. Fraction of R&D projects competitively awarded
D.	Coordination and Collaboration with Other Agencies, Industry, and Other Stakeholders	1. Guided by Interagency Agreements 2. Periodic Interagency R&D coordination meetings 3. Number of discrete R&D program ideas received from program solicitations (white papers, prospectus, and proposals) (annual) 4. Periodic program reviews by external stakeholders (e.g. Blue Ribbon Panel) 5. Periodic priority ranking of R&D needs and opportunities with stakeholder participation

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R&D Program Performance Measures

Management Goals & Performance Measures

	Performance Categories	Performance Measures
E.	Communication of R&D Program Activities, Results, and Impacts	1. Ratio of the number of OPS technical reports, advisories, and regulations from R&D program to the number of current R&D projects (annual) 2. Person-days of stakeholder participation in OPS-sponsored, R&D-related workshops, technical conferences, and communication forums (annual) 3. Number of hits on OPS R&D website (annual) 4. Number of special communications to targeted stakeholders (forums and documents) (annual)
F.	Technology Transfer and Application of Results	1. New patent applications and invention disclosures (annual) 2. Number of commercial products incorporating results of R&D program (annual) 3. Number of papers published at technical conferences (annual) 4. Number of consensus standards incorporating R&D results (annual) 5. Number of new or revised regulations incorporating R&D results (annual)

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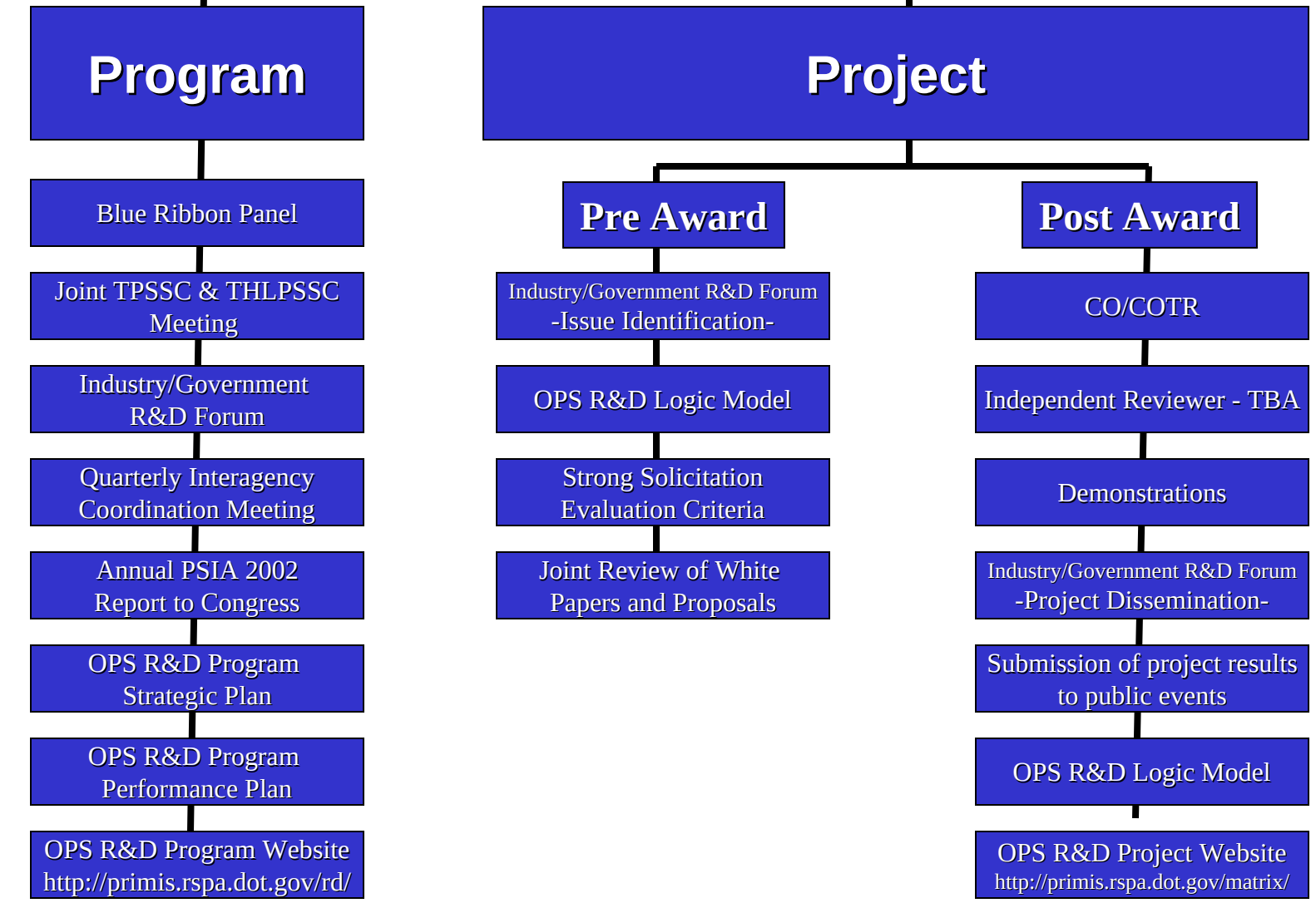
R&D Program Efficiency Measures

1. Percent of OPS R&D projects satisfying project performance objectives
2. Ratio of OPS R&D funding to number of OPS R&D staff participation (FTE)
3. Fraction of OPS funding to total funding of projects awarded
4. Percent of R&D projects competitively funded
5. Percent of OPS R&D funding that is one year or less in duration
6. Percent of OPS R&D funding that is one to two years in duration
7. Percent of OPS R&D funding that is greater than two years in duration

OPS Pipeline R&D Peer Review



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OPS R&D Performance Plan What's Next?

- Collect the feedback from the panel
- Make any appropriate changes and complete the Performance Plan
- Incorporate the data fields into the MIS as we implement
- Include new contractual requirements for projects to assist program performance
- Initiate using the collected performance data to make educated strategic decisions

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Let's Take a Break!

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Open Discussion & Feedback

1. **Performance Measures**
2. **Technology Transfer – Let's Brainstorm**

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-Wrap-up -

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