



U.S. Department of Transportation
Federal Highway Administration

OFFICE OF PERFORMANCE
AND INNOVATIVE FINANCE



Webinar Presentation

October 2024

Use of Public-Private Partnerships for Delivery of Electric Vehicle Charging Infrastructure

Disclaimer

Except for the statutes and regulations cited, the contents of this presentation do not have the force and effect of law and are not meant to bind the States or the public in any way. This presentation is intended **only to provide information** regarding existing requirements under the law or agency policies.



Presentation Overview

1. Why use a P3 approach to deliver EV charging infrastructure?
2. Structuring P3s for EV charging infrastructure.
3. Resources, tools and training available from FHWA.



Section 1: Why Use a P3 for EV Charging Infrastructure?

What are P3s?

- Public-Private Partnerships (P3s) are long-term contractual agreements between a public agency and a private entity to Design, Build, **Finance**, Operate and/or Maintain (DBFOM) an infrastructure project.
- Can be used to deliver:
 - Major highway and transit projects
 - Publicly-accessible electric vehicle charging infrastructure (EVCI)
 - Corridor
 - Multifamily



Types of P3 Transactions

1. Availability-Based Payment Structures

- Private developer receives **periodic payments from the government** during operations phase.
- Payments sized to cover operating and maintenance costs and investment costs (net of revenues) .

2. Revenue Risk Concession Projects

- Private developer compensated mainly by **user payments**; there may be an upfront public financial contribution.
- Often used for toll roads, student housing and parking.



Types of P3 Transactions (contd.)

3. Lease Payment Agreements/ Asset Monetization

- Publicly owned land provided for commercial development.
- Lease payment.
- Private partner provides new public facilities (e.g., EV charging infrastructure) and is compensated through user fees.

4. Hybrid Projects

- For EV infrastructure, typically availability payment + revenue risk.



P3 Options for Community Programs

DBFOM or DBFM or DBF or

- **D**esign
- **B**uild
- **F**inance
- **O**perate
- **M**aintain

- **D**esign
- **B**uild
- **F**inance
- ~~O~~perate
- **M**aintain

- **D**esign
- **B**uild
- **F**inance
- ~~O~~perate
- ~~M~~aintain

MAKE THE CONTRACT TYPE FIT YOUR NEEDS



Key Advantages of P3s

- Incentives for early delivery.
- Incentives to perform to required standards.
 - Payment deductions based on an availability factor or \$/hour/port of unavailability.
- Conserves limited public funding resources.
- Private sector innovation and management expertise.
- Transfer of risk.



Questions?



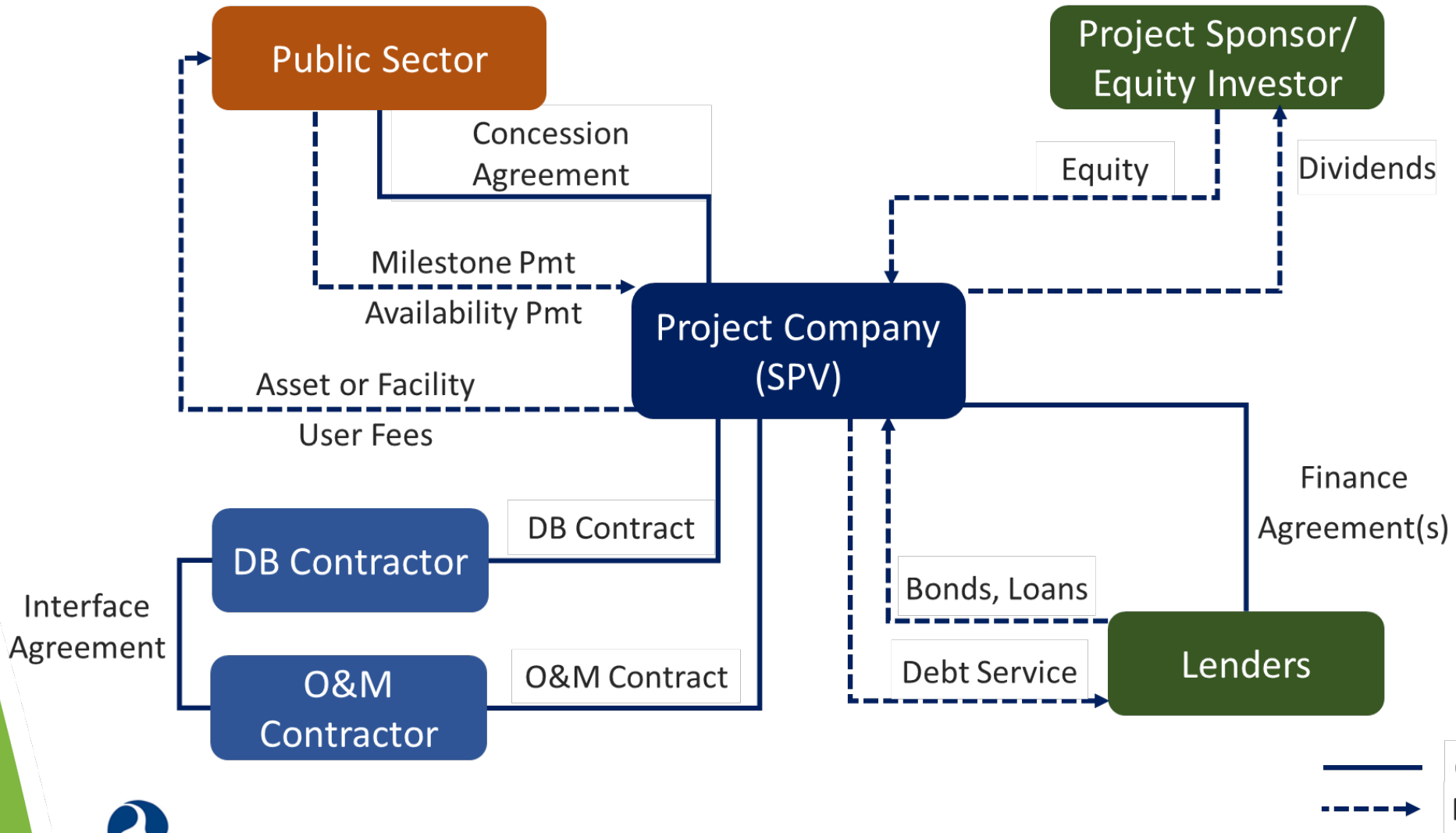
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Section 2: Structuring a P3 for EV Charging Infrastructure

Typical P3 Structure



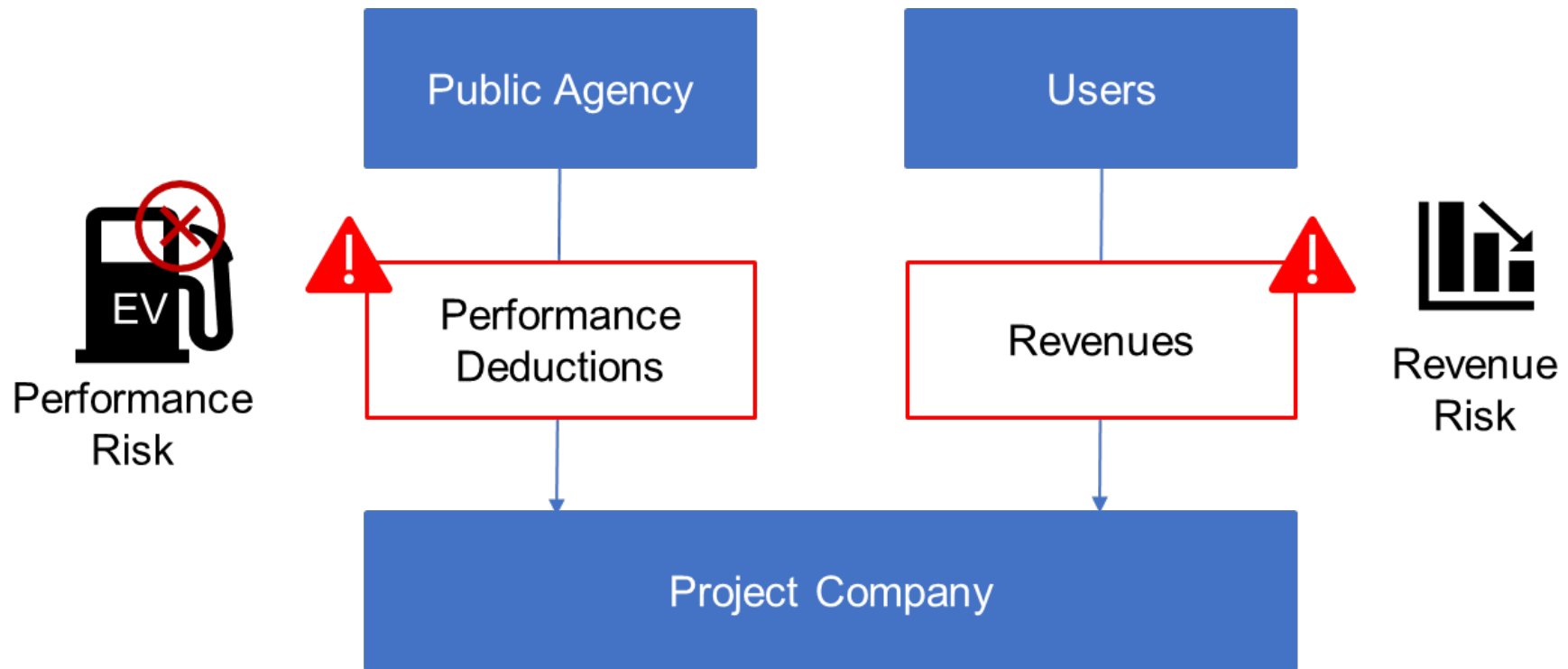
Differences between Highway P3s and P3s for EV Charging Infrastructure

- Shorter contract durations (~30 years vs. 5 years).
- Highly uncertain revenue generation.
- Lower capital costs (>\$100 million vs. \$1 to \$15 million).
- Management and allocation of technology risk.
- Public sector reluctance for long-term asset ownership.



Commercial Feasibility Challenges

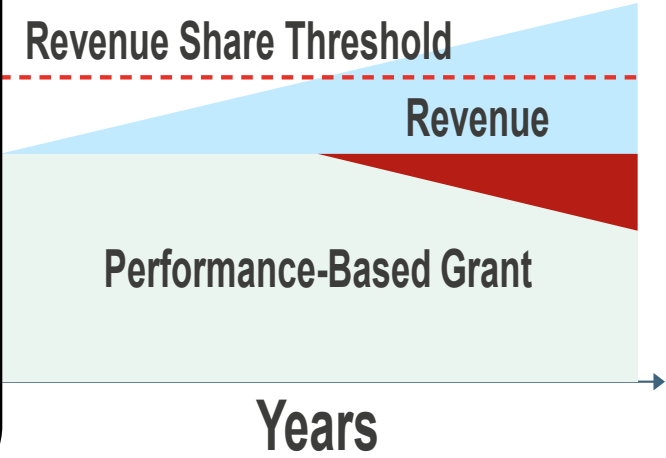
High uncertainty of cash flows from both the public agency (performance risk) and users (revenue risk).



Addressing Revenue Risk

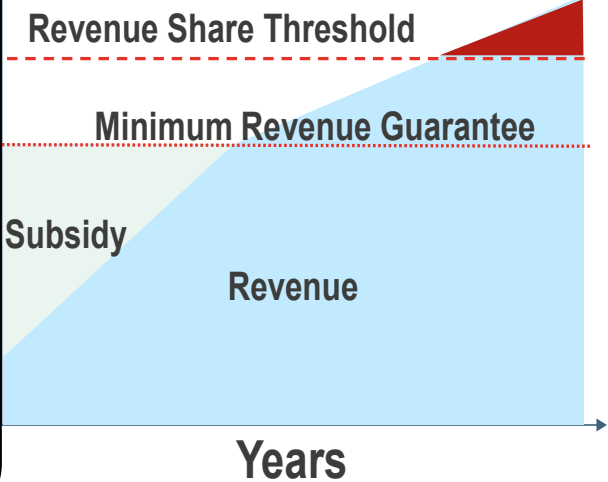
Availability Payment

User Revenues
+
Availability Payment Grants
+
Revenue Sharing



Minimum Revenue Guarantee

User Revenues
+
Minimum Revenue Guarantee
+
Revenue Sharing



Questions?



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**Section 3:
Resources available
on FHWA's P3 Toolkit
Website**

FHWA Reports on Use of P3 for EV Charging Infrastructure

1. **State of the Practice** of Public-Private Partnerships for Electric Vehicle Charging Infrastructure.
2. **Market Engagement and Partner Selection** for Public-Private Partnerships for Electric Vehicle Charging Infrastructure.
3. **Structuring Options** for Performance-Based Contracts for Electric Vehicle Charging Infrastructure: A Discussion Paper.



FHWA's Analytical Tools for EV Charging Infrastructure (EVCI)

1. **EVCI-SCREEN** to assess the suitability of P3 for a particular project.
2. **EVCI-STAT** to align project with public agency's strategic objectives.
3. **EVCI-FAST** to determine the financial viability and affordability of a P3 for public sponsor.



1. EVCI-SCREEN Tool (Part 1)

Is Advancing Electric Vehicle Charging Infrastructure Appropriate for your Community Right Now?

- Public support
- Funding
- Environment/ Permitting
- Oversight
- Organizational Capacity



1. EVCI-SCREEN Tool (Part 2)

Is a Performance-Based or Grant-Based P3 Right for Your Community?

- Legal authority
- Trust in private partners
- Market conditions
- Financial viability
- Project size
- Leadership support



2. EVCI-STAT Tool

EVCI- Strategic Goals and Tactical Advance Tool (EVCI-STAT)

- Thirty strategic goals
- Each goal includes tactics and implementation techniques



EVCI-STAT Example Goal

Strategic Goals

- Minimize the impact of EVCI projects on the public agency's budget.
 - Address constraints due to insufficient funding and limits on public sector borrowing limit.



STAT Example (cont'd.)

Tactical Approaches

- Ensure P3 partners in the private sector understand your agency's budgetary constraints.
- Use market forces to establish a ***competitive bidding environment*** in which developers propose their most attractive schedule of project costs over the EV charging project lifecycle.



STAT Example (cont'd.)

Implementation Techniques

- Take advantage of deferred payment mechanisms to enhance the financial position of the public agency in the P3 deal.
- Ensure the proposed schedule of payments to the P3 developer meets the agency's caps on payments during the O&M phase.



3. EVCI-FAST Tool

EVCI Financial Analysis Spreadsheet Tool (EVCI-FAST)

To estimate --

- Public subsidies that may be required
- Potential payments from the private partner for revenue-positive projects
- Rate of return on private partner's investment

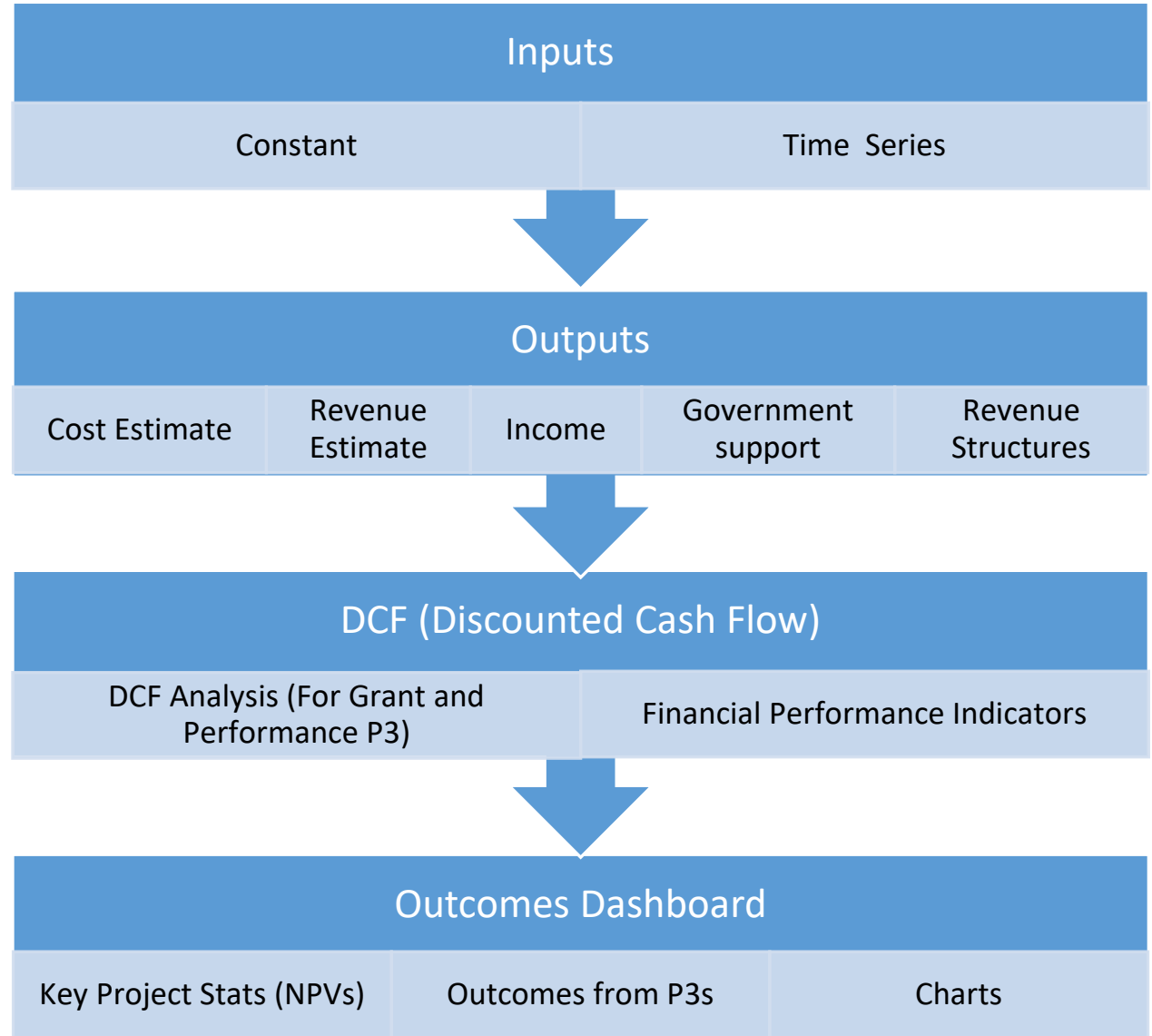


Alternative P3 Structures Evaluated

1. Grant-based: Private partner provides **a share of** upfront capital costs and operating costs net of revenue; government funds the remainder.
2. Performance-based: Private partner finances **all** upfront capital cost and is repaid for its investment through an availability payment and user fees.
3. Minimum revenue guarantee (MRG): Private partner finances **all** upfront capital costs; revenue risk for the private partner is reduced by an MRG from the government.



EVCI-FAST Modeling Process



Grant-Based P3 Structure

- ***Model input*** includes:
 - Grant amount as a % of eligible cost in each year.
 - Reasonable rate of return – used as discount rate
- ***Model output:*** Expected rate of return on private investment



Grant-Based P3: Example Output

Financial Performance Indicators	Values
NPV (Net Present Value)	\$3,076,796
IRR (Internal Rate of Return)	35.41%
Discounted Payback period (years)	4.21
NPV of Grants (Milestone/Progress Payments)	\$8,591,736

Financial Performance Indicators - Post Subsidy Adjustment	Values
Optimal Subsidy Adjustment (Overpayment (-) or Underpayment (+))	-\$3,076,796
NPV of Grants (Milestone/Progress Payments) Post Adjustment	\$5,514,939
IRR (Post Subsidy Adjustment)	10.00%



Performance-Based P3 Structure

- ***Model input*** includes:
 - Reasonable rate of return on investment.
- ***Model output*** includes:
 - Calculated rate of return
 - Annual availability payment from public agency.



Performance-Based P3: Example Output

Financial Performance Indicators	Values
NPV (Net Present Value)	\$0
IRR (Internal Rate of Return)	10.00%
Discounted Payback period (years)	7.00
NPV of Availability Payments	\$5,514,939

<u>Performance Based P3</u>	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Availability Payments	-	-	-	\$1,468,077	\$1,614,885	\$1,776,373	\$1,954,010	\$2,149,411



Minimum Revenue Guarantee (MRG) Structure

- ***Model input*** includes:
 - Reasonable rate of return on investment
 - Minimum revenue guaranteed as a % of base revenue forecast.
- ***Model output*** includes:
 - Expected rate of return on private investment



Minimum Revenue Guarantee: Example Output

Financial Performance Indicators	Values
NPV (Net Present Value)	\$1,730
IRR (Internal Rate of Return)	10.00%
Discounted Payback period (years)	7.00
NPV of MRG	\$5,516,670

Financial Performance Indicators - Post Subsidy Adjustment	Values
Optimal Subsidy Adjustment (Overpayment (-) or Underpayment (+))	-\$1,730
NPV of MRG Post Adjustment (In the Present)	\$5,514,939
IRR (Post Subsidy Adjustment in the Present)	10.00%



Summary

- P3s can help ensure performance requirements are met.
- P3 structuring options allow public agency to address reasonable rate of return on private investment
- FHWA's P3 Toolkit resources can assist public agencies in financial feasibility evaluation and P3 procurement.
 - FHWA's *P3 Toolkit* website provides reports and decision-making tools: <https://www.fhwa.dot.gov/ipd/p3/toolkit/>



Training and Technical Assistance

- P3 training available through FHWA's National Highway Institute (NHI)
 - Go to: <https://www.nhi.fhwa.dot.gov/>
 - Government and non-profit organizations can host the training *free of charge*
- Technical assistance available through Build America Center: <https://bac.umd.edu/contact-us/>
- FHWA contact:
 - Patrick DeCorla-Souza, Patrick.decorla-souza@dot.gov



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Additional Resources

Joint Office of Energy and Transportation
(Joint Office) at:

<https://driveelectric.gov/>



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