Energy Smart Industrial

BPA ENERGY EFFICIENCY

Presentation Outline

- Introduction from BPA
- Energy Smart Industrial
  - Design priorities
  - Program components
  - Incentives
- Utility participation

Introduction to BPA Industrial DSM

- BPA Industrial Team
  - Management: Jennifer Eskil & Jennifer Wood
  - Engineering:
    - Chris Milan – West Engineer
    - Erin Hope – East Engineer
    - Steve Brooks – Technical Services (TSP) Manager
    - Todd Amundson – Energy Management Engineer
- Challenges for industrial DSM
  - Limited BPA engineering staff
  - Insufficient “boots on the ground”
  - Not meeting goals
- Direction from BPA EE Management

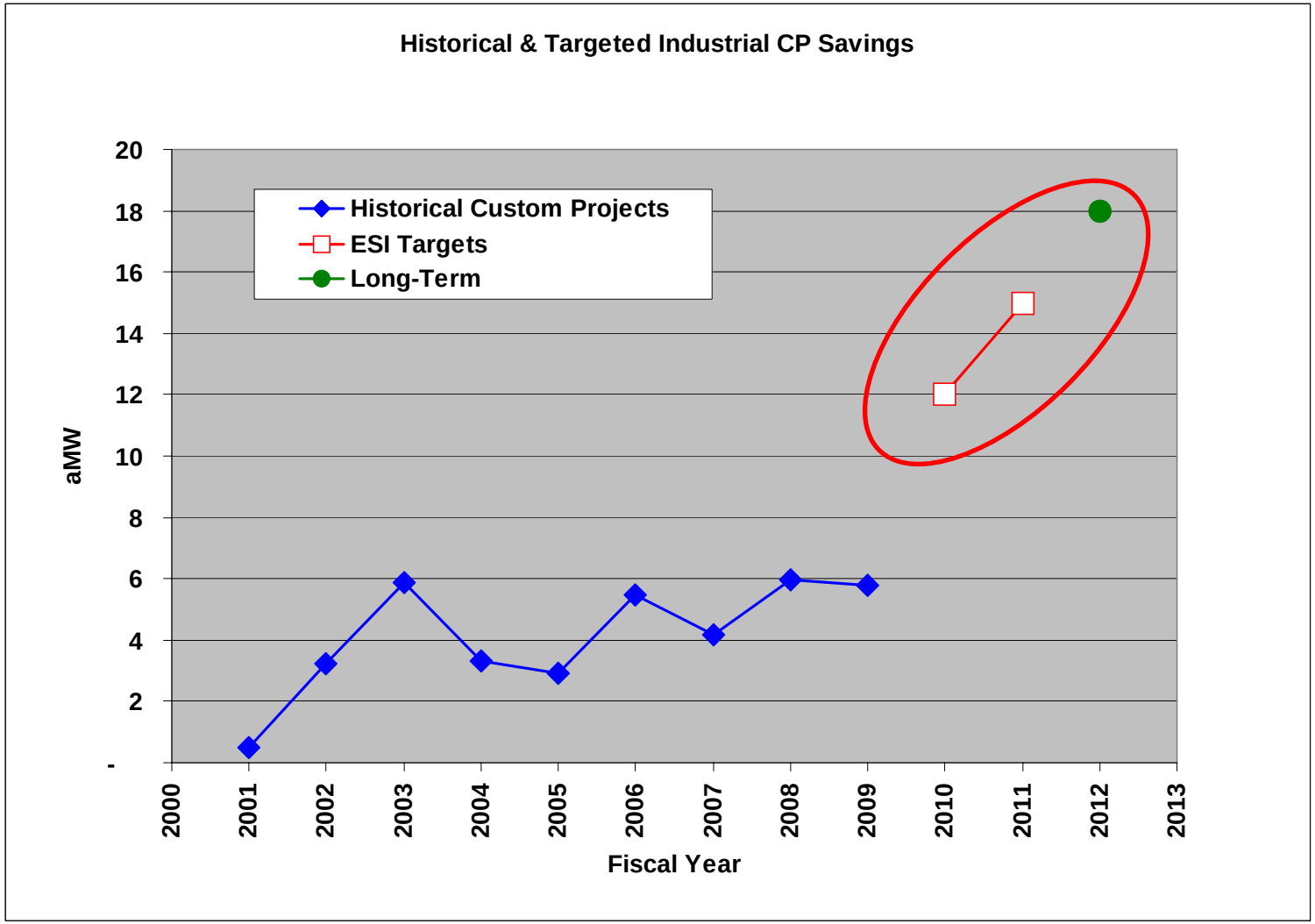
Energy Smart Industrial RFO

- 2009 Request for Offer (RFO) for Energy Smart Industrial
  - Contracting 3rd party to design and manage program
    - 4 month design process
    - 2 year program implementation (starting 10/01/09)
    - Option for continuation
  - Awarded to Cascade Team
    - Cascade Energy Engineering
    - Evergreen Consulting
    - Strategic Energy Group

Program Design Considerations

- Importance for utilities to maintain end user relationships and tailor to needs
- Industrial energy management is new
  - Energy management is 1/3 of potential savings in the draft 6th Power Plan
- Savings goals are double or triple historic delivery
  - 12 for FY2010 and 15 aMW for FY2011
- Average industrial DSM penetration for top 20 utilities is approximately 0.2% per year. <u>Our goals are triple this rate!!</u>

ESI Goals in Perspective



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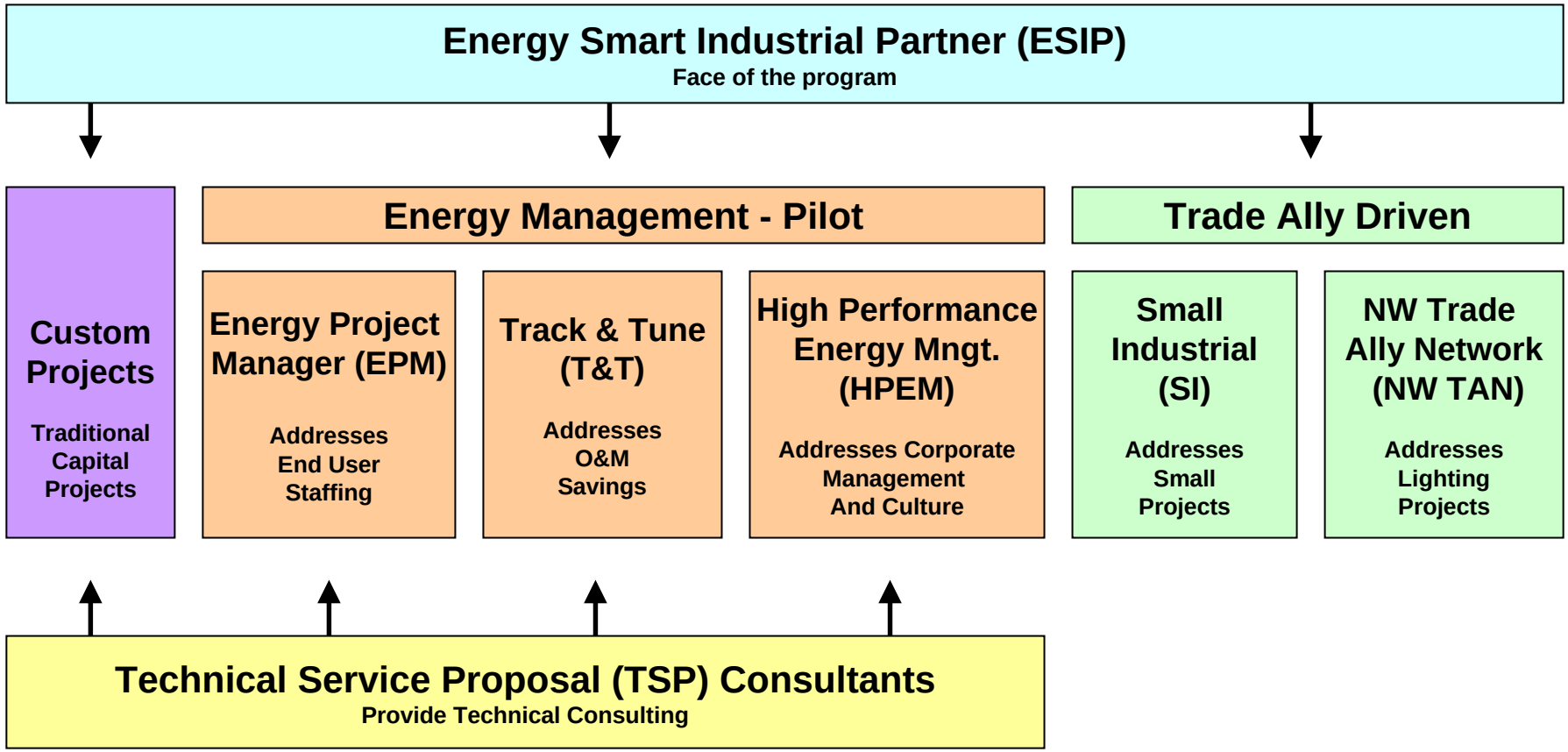
The Program Partner – Cascade Team

- Cascade Energy Engineering
  - Industrial capital projects
  - Energy management
- Evergreen Consulting
  - Lighting trade ally network (TAN)
- Strategic Energy Group
  - Continuous energy improvement
  - 6th Power Plan industrial supply curve

ESI Program Design Highlights

- Major focus on utility and end user relationships
- Allows utility to select components and level of engagement (goals)
- Roles and processes clearly defined
- Applies “boots on the ground” concepts
- Has something to offer for everyone:
  - Large and small utilities
  - Large and small industrial systems
- Directly addresses energy management opportunities
- Focused on high-quality offerings and high-performing dedicated staff

ESI Program Components



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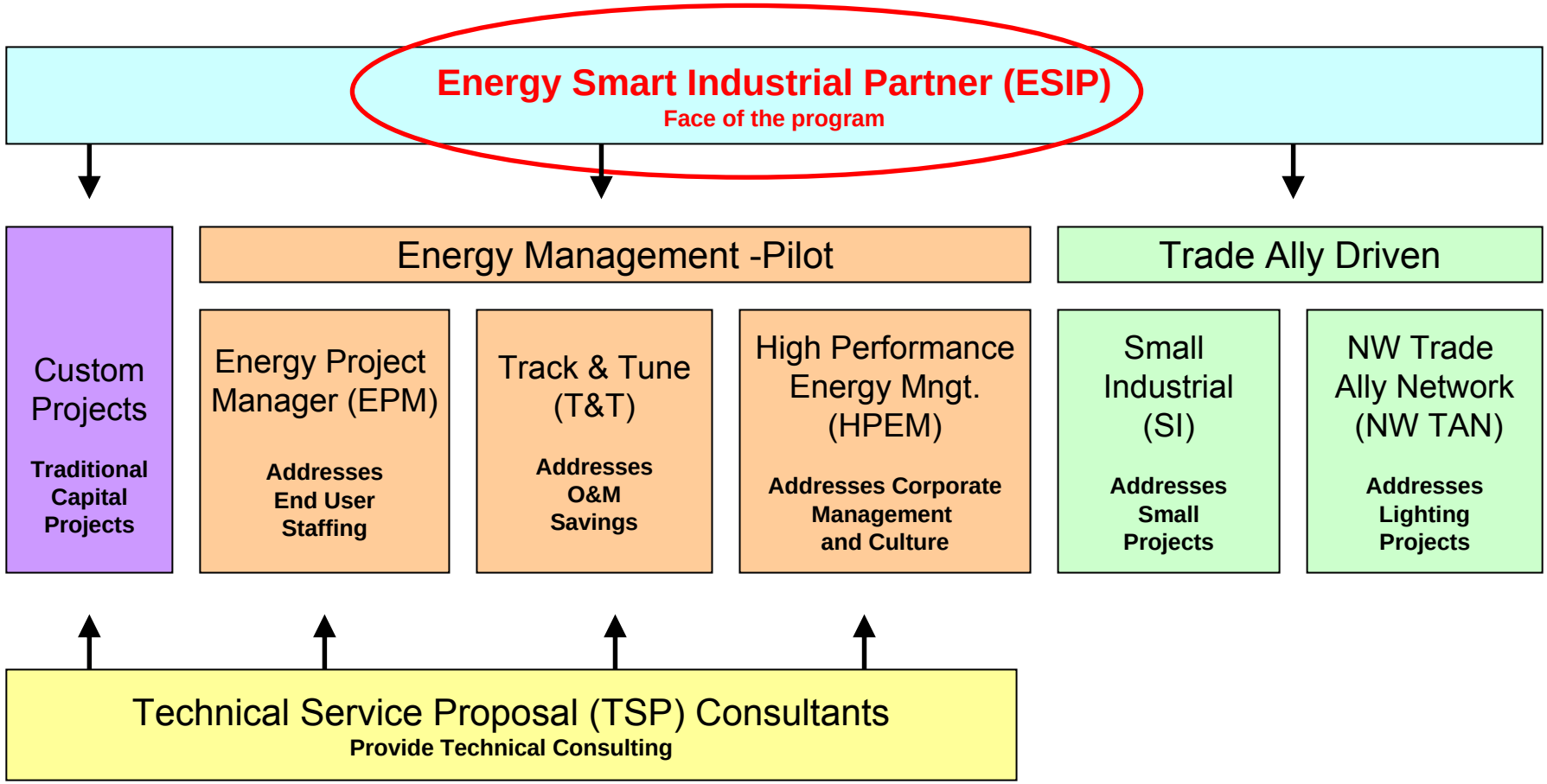
ESI Program Components



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Introduction to the Energy Smart Industrial Partner (ESIP)

- **Utility Level:** Provides ESI program representation and support to assist the utility's energy efficiency program. Face of the program to the utility
- **End User Level:** Promotes program participation to end users, identifying potential projects, and providing technical support
- **Project Level:** Provides oversight of technical resources, and reviews work products. Also assists in steps to secure BPA incentives (custom project proposal generation, PTR system entries, etc). The ESIP is on point for program delivery of standard custom projects and energy management projects

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What are benefits of an ESIP?

1. **Point of Contact** - Provide utilities with a single point of contact for representation of ESI program and its resources
2. **Enhanced Delivery** - Enhance utility's industrial conservation program delivery and performance
3. **Increased Participation** - Generate participation by industrial end users in the ESI program and drive implementation of projects
4. **Technical Resource** - Serve as an industrial technical resource to utilities
5. **PTR System** - Manage and review technical work products, including entries and updates to the PTR system
6. **TrakSmart System** - Manage project information into the TrakSmart software system

Utility Account Planning

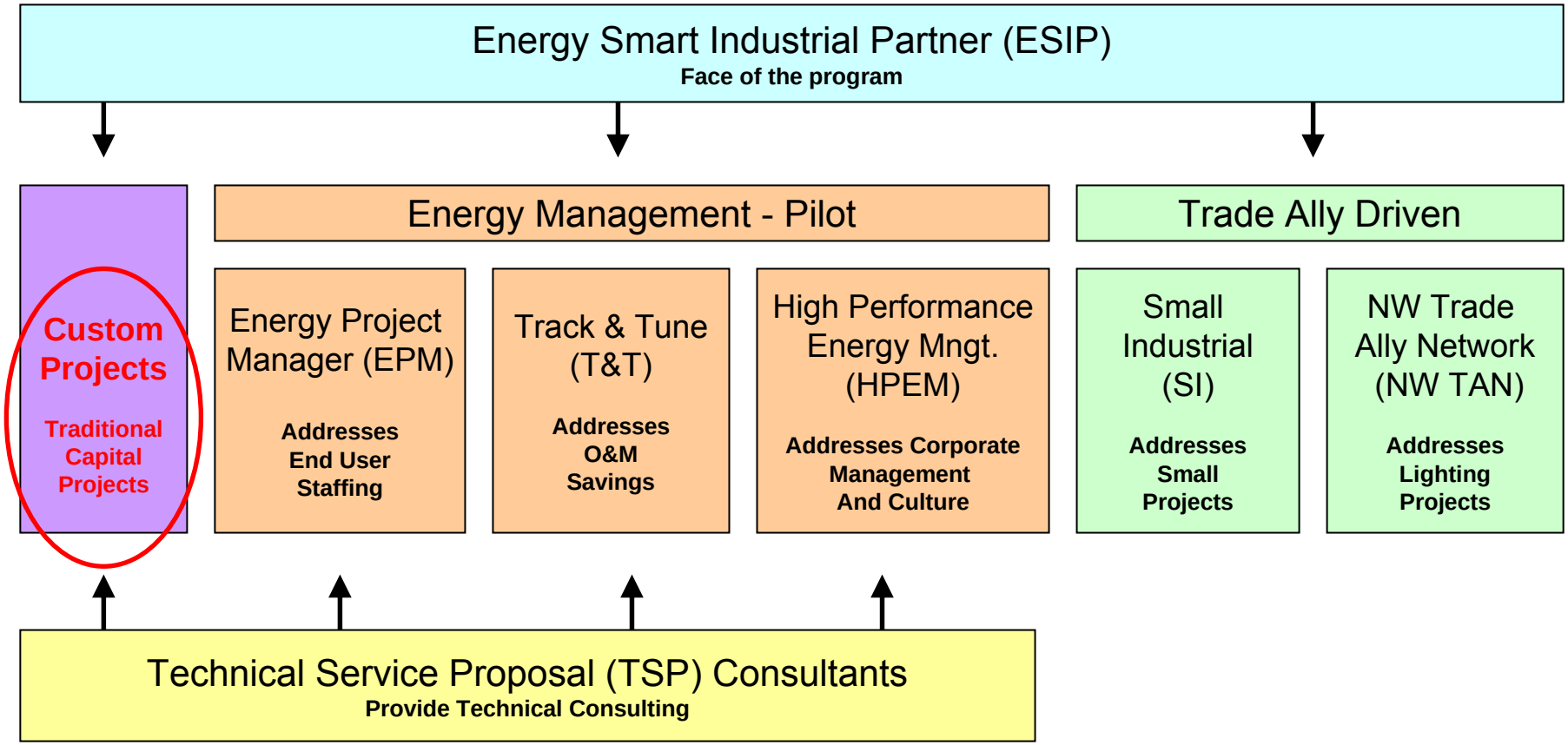
<u>The following is established during initial meeting(s) with the utility:</u>

- Communications guidelines
- Select ESI components to offer
- Determine level of engagement by ESI component
- Capabilities and roles of utility & ESI staff
- Preference for processes (e.g., Quality Control, PTR system entry, TrakSmart, reporting, etc.)

Utility Account Planning, continued

- Utility Targets
  - Industrial budget from CRC and ECA
  - Energy savings aMW target
  - Impacts of 5th Power Plan and draft 6th Power Plan
  - Impact of I-937, where applicable
- Marketing plan for end users
  - Both broad and targeted
- Quantification of industrial base load and number of end users

ESI Program Components



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Custom Projects

Conservation Rate Credit (CRC) / Energy Conservation Agreement (ECA) funded incentives for traditional capital projects

- Pumps
- Fans
- Compressed Air
- Refrigeration
- Lighting
- Motors
- Variable Frequency Drives
- Control Upgrades
- Process Upgrades

Compressed Air Projects

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Pumping Projects

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Refrigeration Projects

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Variable Frequency Drives

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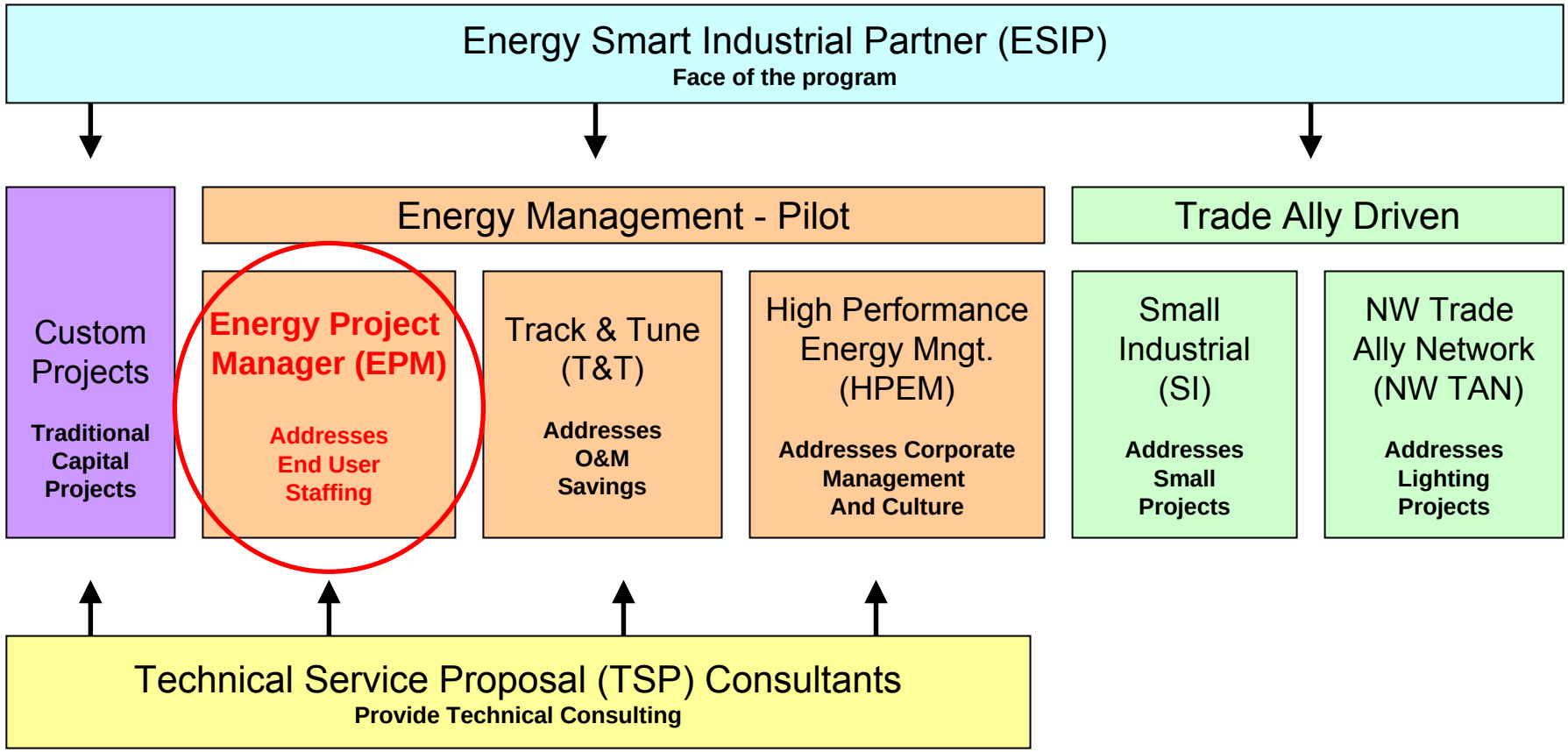
ESI Program Components



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What is an Energy Project Manager?

- Some industrial customers have insufficient internal staffing to identify or manage efficiency projects
- The Energy Project Manager (EPM) is a co-funded staff position at a large industrial end use facility to drive or manage efficiency projects on behalf of the end user
- The EPM will create and then target a savings goal.
- Continued funding is contingent upon achieving that goal

Details of the EPM

- EPM will serve as ESI program point-of-contact at industrial end use facility
- ESI program funds some or all of EPM salary
- End user determines:
  - The individual to fill the EPM position
  - The EPM compensation level
  - The annual EPM energy savings goal
- One EPM may be shared between multiple sites
- An EPM follows the spirit of the traditional Resource Conservation Manager (RCM)

EPM Goals & Funding Mechanism

- ESIP works with end user to set annual savings goal for EPM
  - This process is repeated annually
- EPM funding directly tied to magnitude of goal
  - Minimum goal: 1,000,000 kWh verified savings target each year
  - Annual EPM funding = 2.5¢/kWh of target
  - Minimum annual funding per participating site = $25,000
  - Maximum annual funding per participating site = $250,000
  - Year 2 and beyond, funding is only offered to end users that have achieved their previous year's goal

EPM Co-funding Example

Year 1

Annual Inputs	
Energy Savings Goal	5,000,000 kWh/yr
Actual Energy Savings Achieved	5,100,000 kWh/yr
EPM Co-Funding from Savings Goal	$125,000 /yr
EPM Co-Funding from Savings Achieved	$127,500 /yr

Annual EPM Insallment	Timeline	EPM Payment Amount	Annual EPM Co-Funding To-Date	EPM Payment Methodology
1a	EPM Assigned	$25,000	$25,000	$0.025 per kWh at the 1,000,000 kWh per year minimum savings goal requirement
1b	Comprehensive Plan Approved	$16,667	$41,667	1/3 of the ***energy savings goal*** at $0.025 per kWh less Payment 1a
2	6 Months After EPM Assigned	$41,667	$83,333	2/3 of the ***energy savings goal*** at $0.025 per kWh less Payments 1a and 1b
3	12 Months After EPM Assigned	$44,167	**$127,500**	100% of the the ***energy savings achieved*** at $0.025 per kWh less Payments 1a, 1b & 2

Year 2

Annual Inputs	
Energy Savings Goal	4,000,000 kWh/yr
Actual Energy Savings Achieved	3,700,000 kWh/yr
EPM Co-Funding from Savings Goal	$100,000 /yr
EPM Co-Fundung from Savings Achieved	$92,500 /yr

Annual EPM Insallment	Timeline	EPM Payment Amount	Annual EPM Co-Funding To-Date	EPM Payment Methodology
1	Comprehensive Plan Approved	$33,333	$33,333	1/3 of the ***energy savings goal*** at $0.025 per kWh
2	6 Months After EPM Assigned	$33,333	$66,667	2/3 of the ***energy savings goal*** at $0.025 per kWh less Payment 1
3	12 Months After EPM Assigned	$25,833	**$92,500**	100% of the the ***energy savings achieved*** at $0.025 per kWh less Payments 1 & 2

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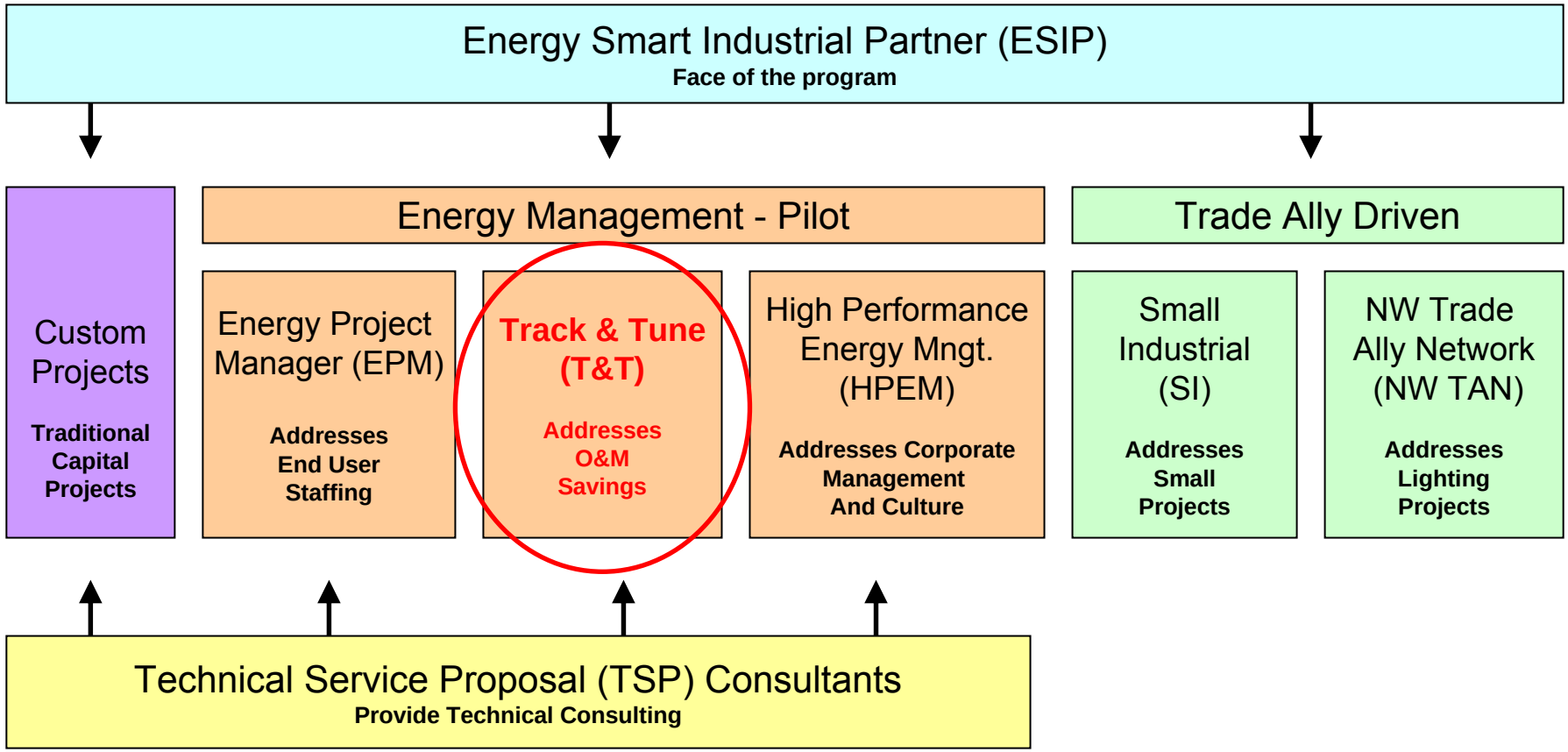
ESI Program Components



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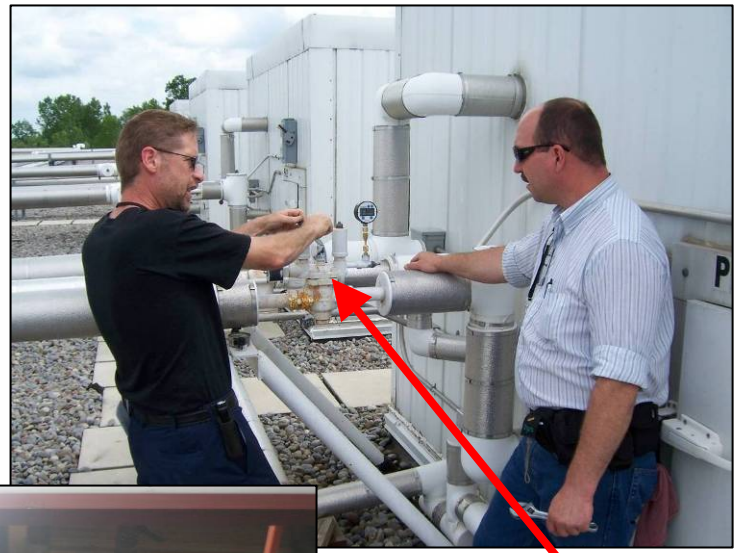
What is Track & Tune?

- Targeting energy savings through low and no cost operations and maintenance (O&M) improvements
- Can be applied to entire facility or targeted sub-systems
- Technical expert utilized to identify O&M opportunities
  - Action items are co-funded
- Baseline and savings documented and tracked via comprehensive tracking system
- Incremental savings documented annually for 5-year period
  - Includes sustained savings incentive payments

What Exactly is an O&M Opportunity…?

Example Evaporator O&M



Dirty Evaporators

Tuning Regulators

Incorrect Coil Liquid Feed

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Example Compressor O&M

Economizer Valved Off

Compressor Current in Error

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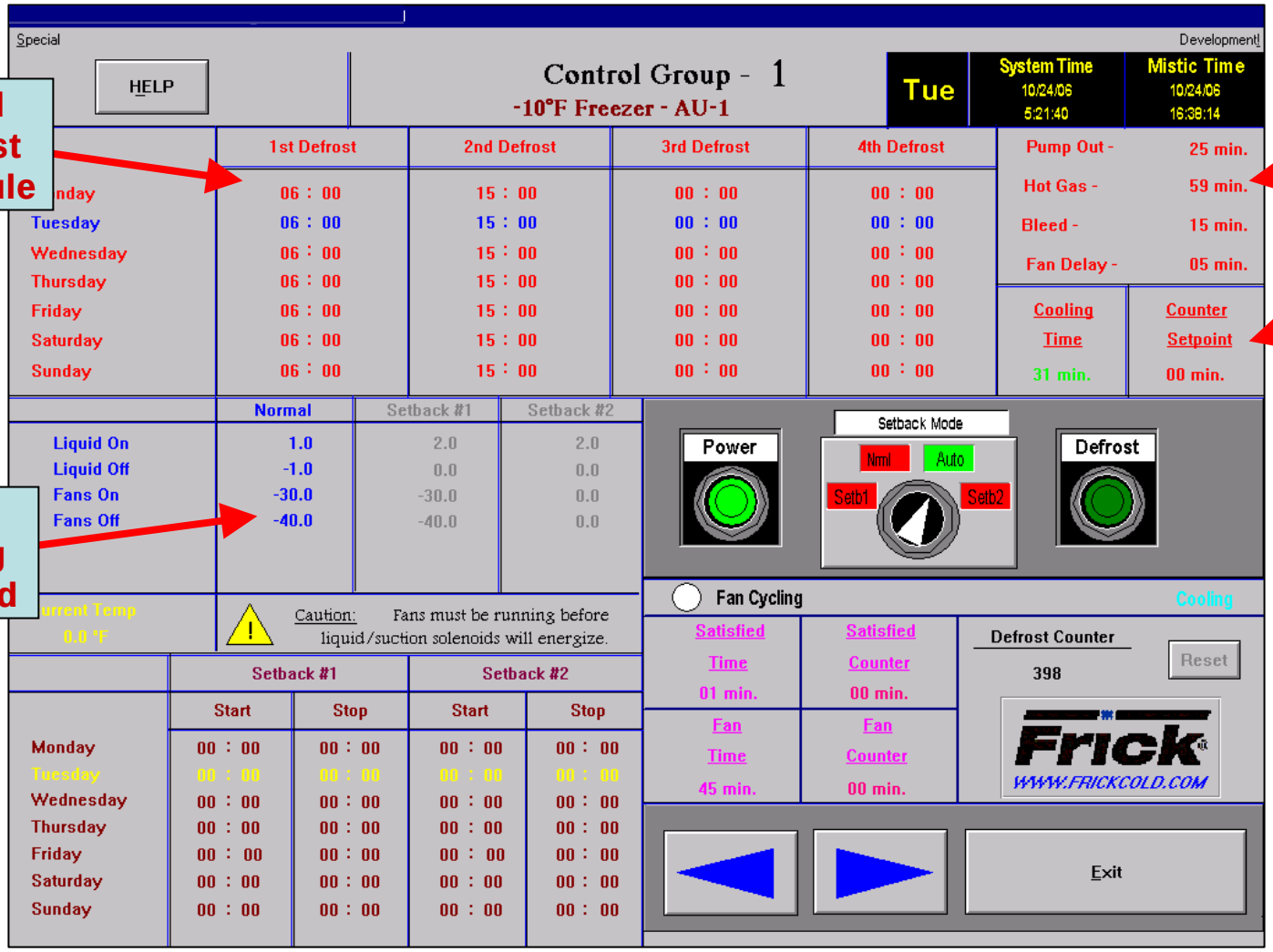
Example Computer Control Tuning



Fixed Defrost Schedule

Excessive Hot Gas

Runtime Defrost Available

Fan Cycling Disabled

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Guidelines for Track & Tune

- Use technical expertise (TSP consultants, industry or technology experts, or in-house experts) for:
  - Facility tune-up and action plan development
  - Action plan implementation support
- Minimum baseline energy use requirements
  - Sub-System > 1,000,000 kWh/yr
  - Plant-Wide > 4,000,000 kWh/yr
- Funding
  - Scoping
  - Tune-up
  - Action item implementation
  - Tracking system
  - Implementation support
  - Sustained savings incentives

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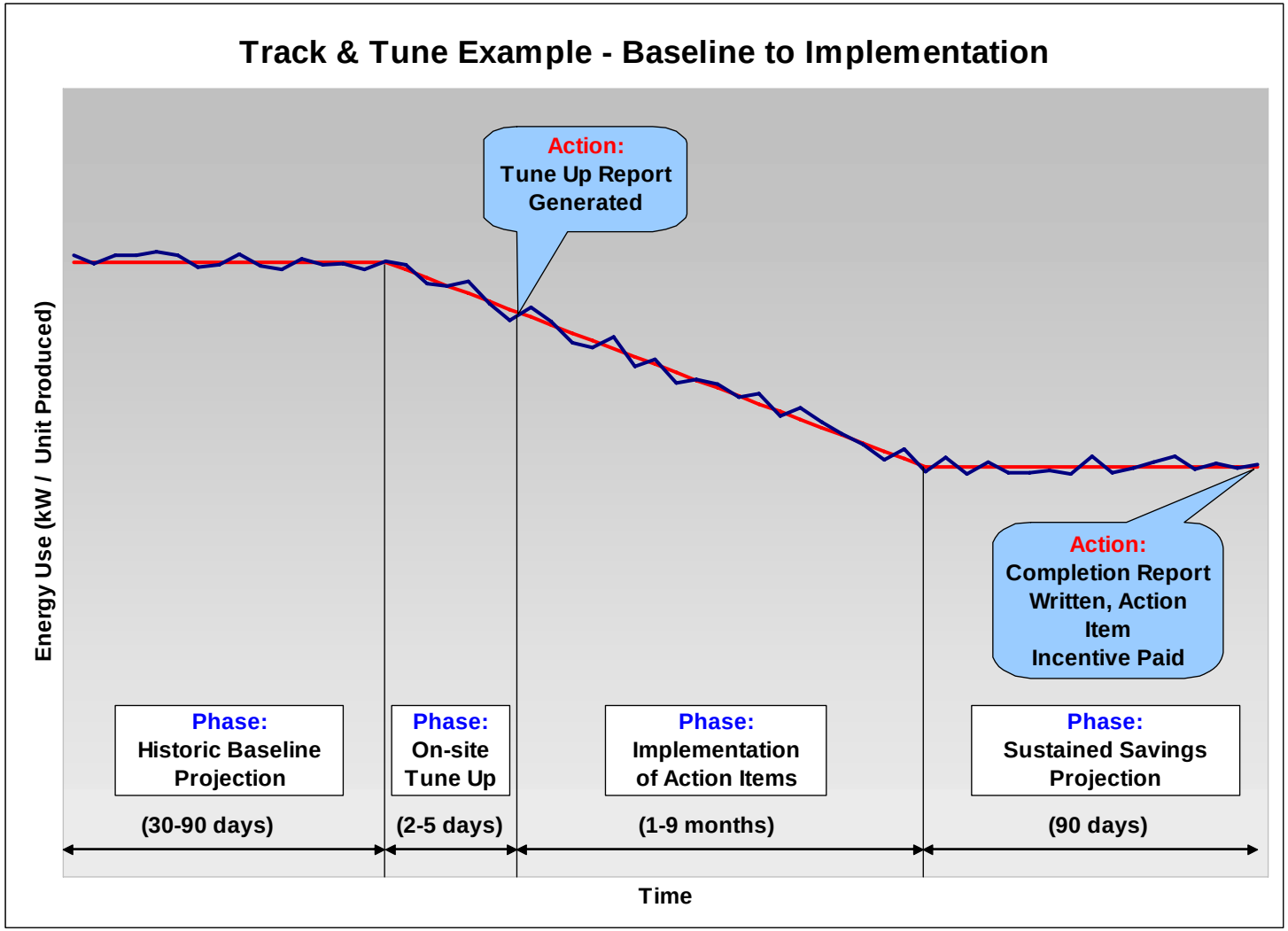
Track & Tune – Major Steps

1. Identify a Plant, Process, or Subsystem to target
2. Perform scoping by a TSP consultant or other expert
3. Sign Track & Tune agreement
4. Install tracking system
5. Document baseline energy use
6. Perform tune-up with TSP consultant or other expert
7. Implement action items
8. Prepare completion report
9. Measure savings after 90 days
   - First booking of savings
10. Document incremental savings every 12 months for 5 years
    - Book incremental changes

Track & Tune Project Flow



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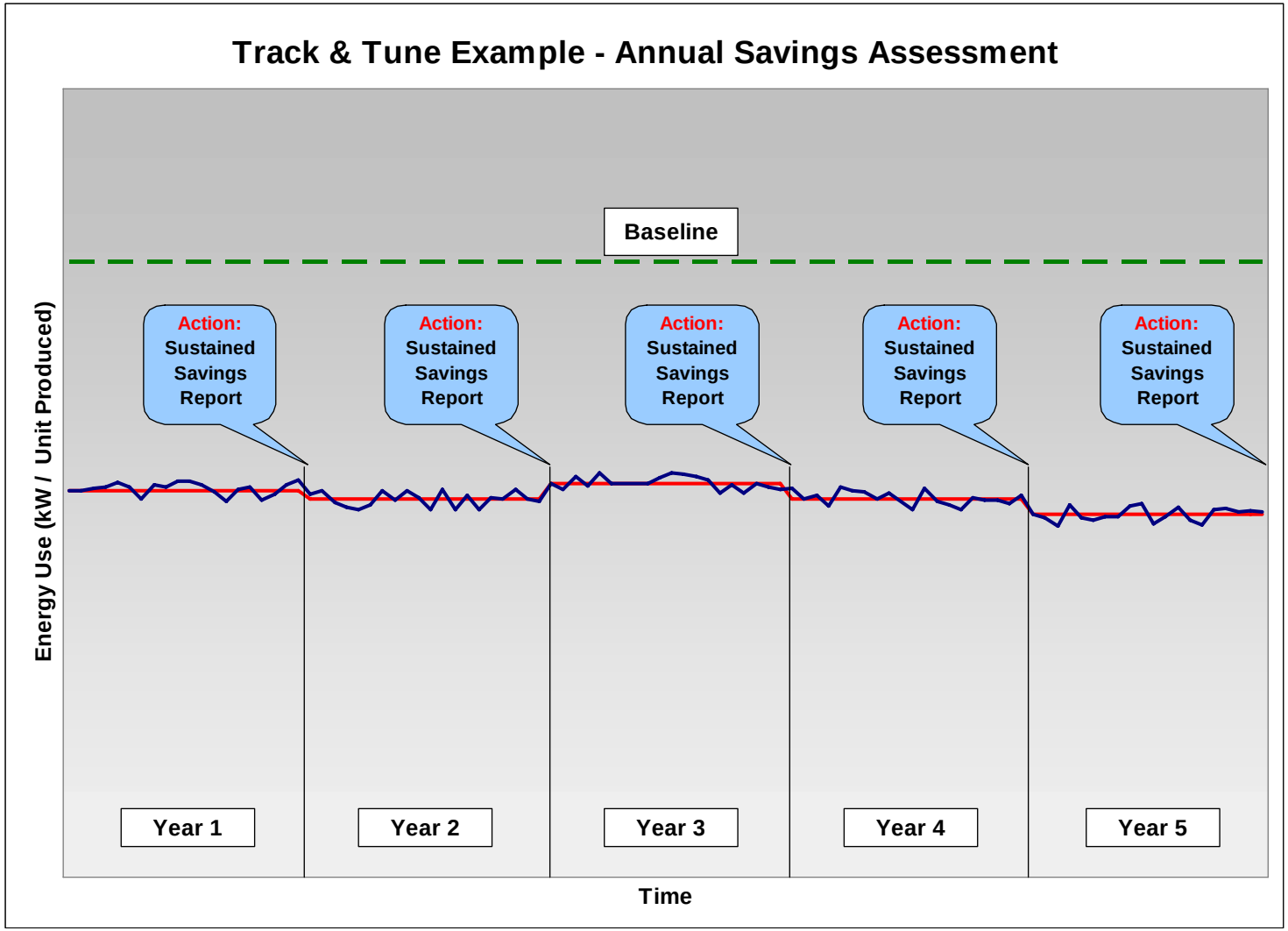
Track & Tune Project Flow



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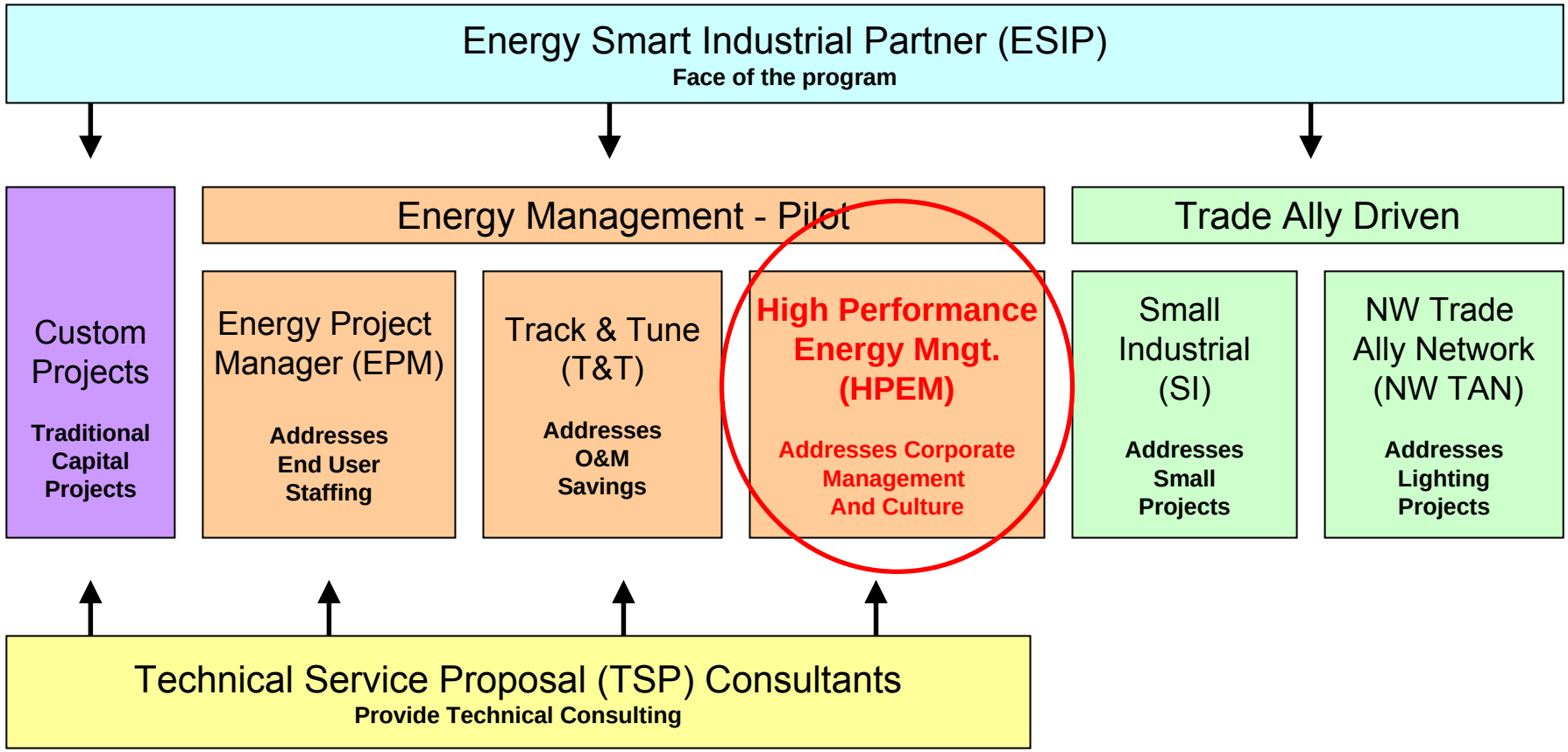

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What is High Performance Energy Management?

- High performance energy management (HPEM) builds on NEEA's Continuous Energy Improvement pilot program
- Coaching through a continuous improvement process (similar to ISO, Lean, etc…)
- Includes organizational and technical aspects
- Builds on EPM and Track &Tune

Delivery of HPEM

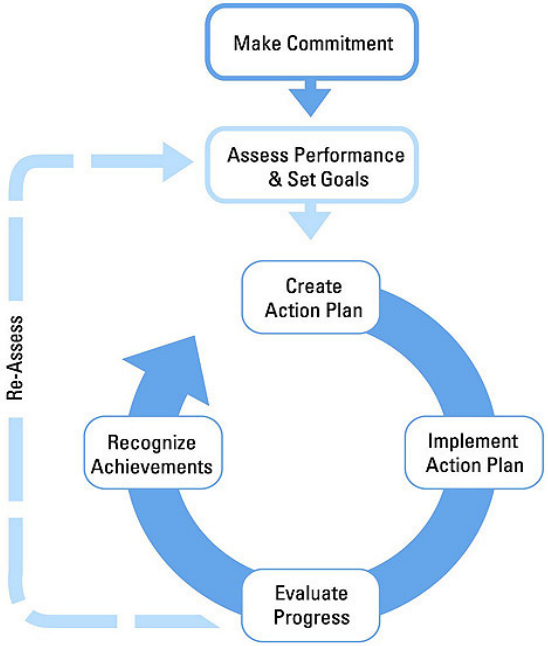
- One-on-One Coaching
- Structured Network Group
  - 10 to 12 industry focus, or non-competitive customers
  - Monthly facilitated meetings (or webinars)
  - Peer group learning, sharing and support
  - Individual support as well:
    - Management assessment
    - Attend energy team meetings
    - Connection to technical services
    - Monitoring, targeting and reporting (MT&R)

Benefits of HPEM

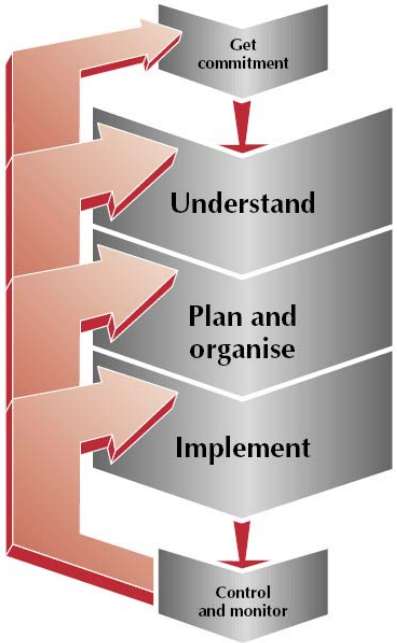
1. Increased custom projects and Track & Tune project delivery to program
2. Additional O&M and behavioral changes that are measured through MT&R analysis:
   - 2.5¢/kWh annual sustained savings incentives
   - Quantified through rigorous MT&R
     - Based upon International Performance Measurement and Verification Protocol (IPMVP)

HPEM is Similar in Concept to:

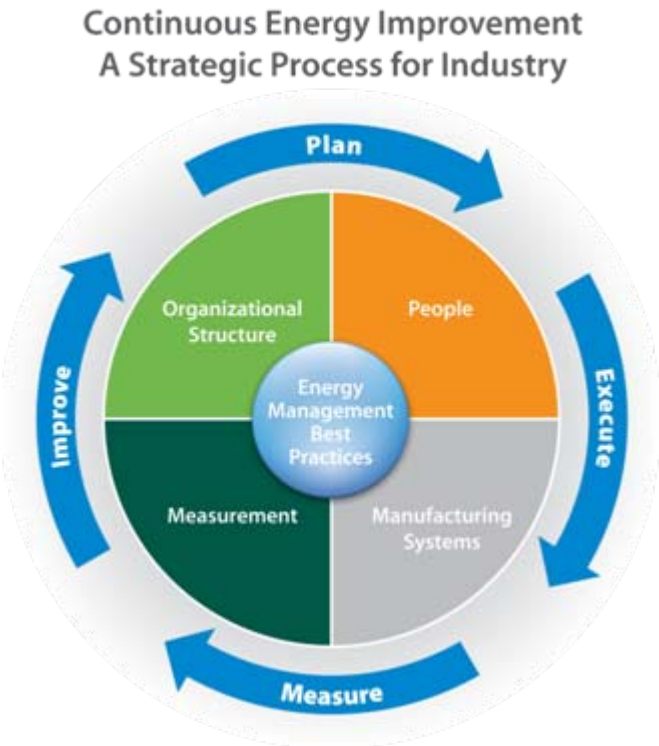
EPA Energy Star



BC Hydro



NEEA



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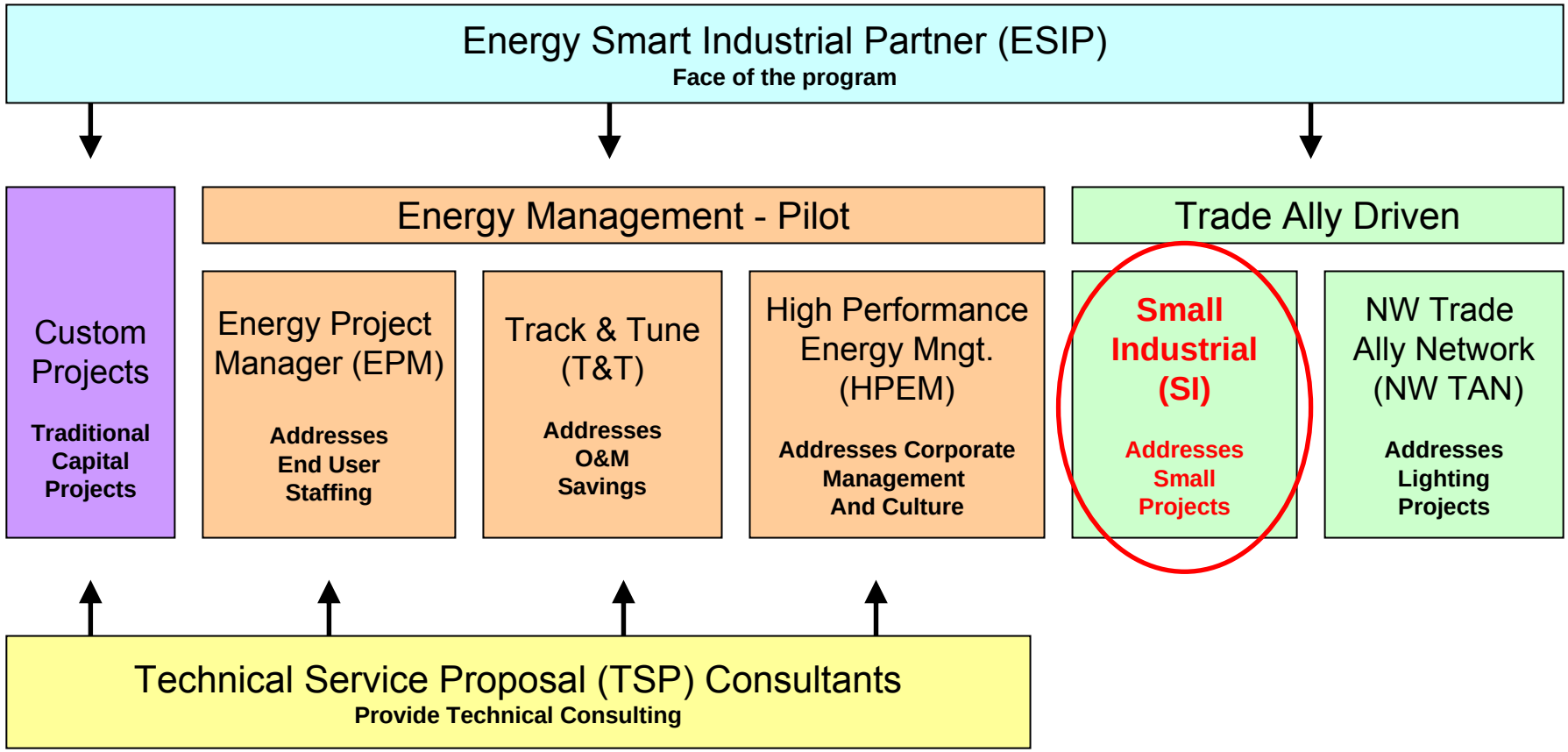
ESI Program Components



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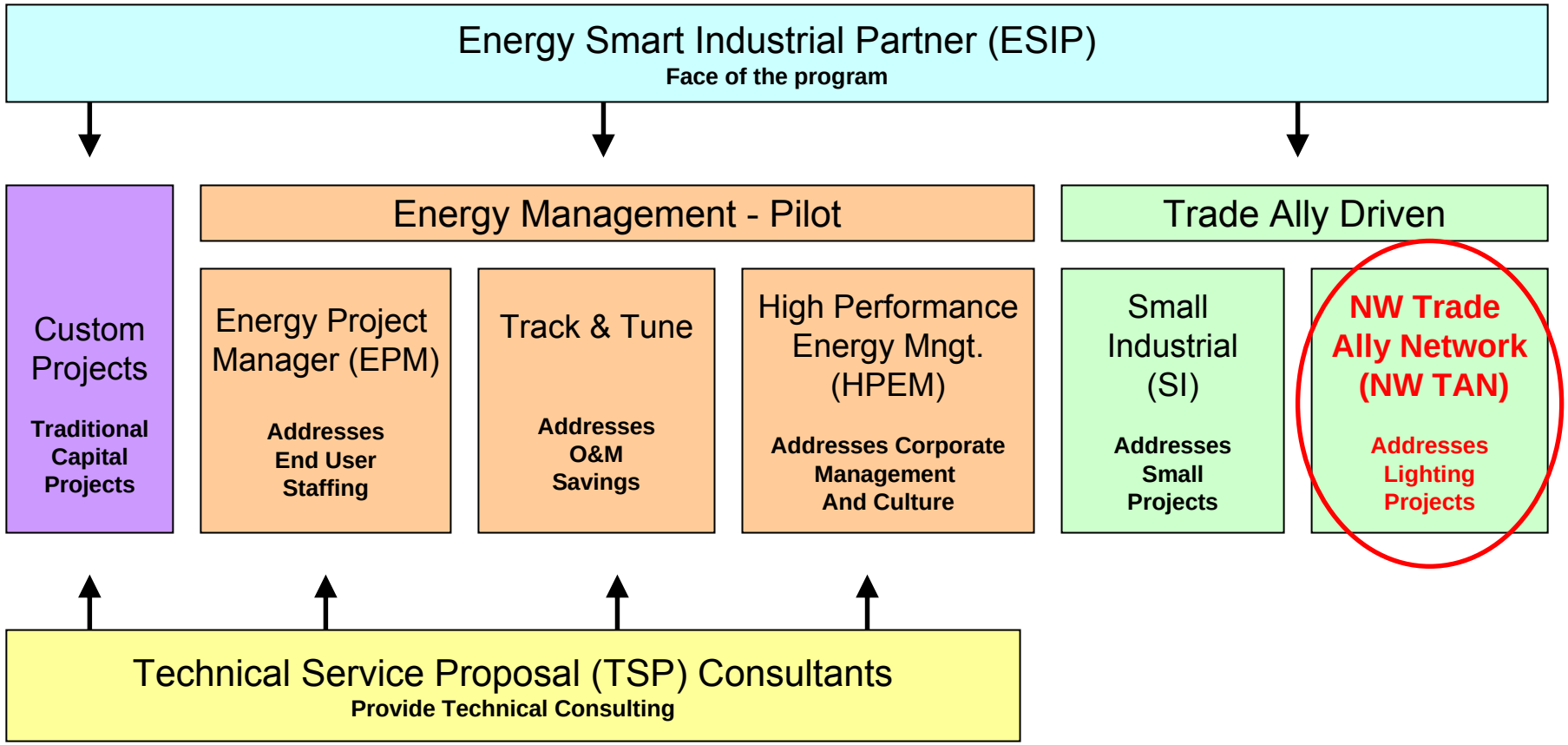
What is Small Industrial?

- Addresses small industrial projects
  - Independent of facility or sub-system size
- Utilizes simplified analysis tools
  - Compressed Air ≤ 75 hp
  - Additional tools in development (refrigeration, VFDs)
- Rapid review and approval process
- Leverages trade allies
- Treated as custom projects for incentives
- No measurement and verification (M&V) is required
  - There will be spot checks to fine-tune process

ESI Program Components



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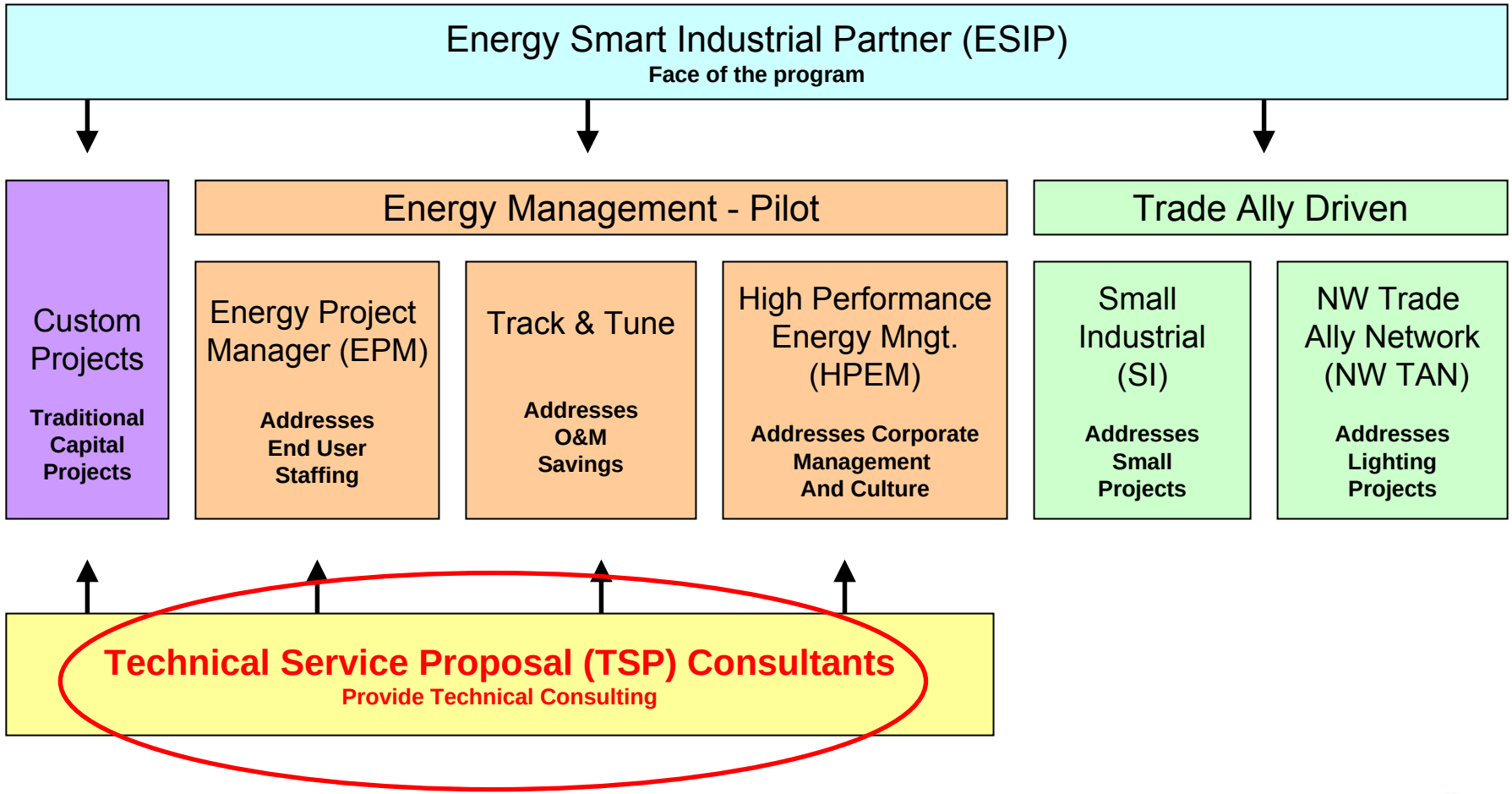
What is the Northwest Trade Ally Network?

- Existing C&I Trade Ally Network (TAN) program currently provides high level support to utilities and trade allies
- ESI is adding two Key Account Managers (KAMs) to assist vendors, end users, and utilities to drive more industrial lighting projects
- The goal of the KAMs is to increase the number and magnitude of industrial lighting projects for BPA utility customers
- Project specific support on industrial lighting projects

ESI Program Components



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ESI Technical Service Proposal Services

- A pool of BPA pre-approved technical consultants
- Available for:
  - Scoping assessments
  - Measurement & verification
  - Track & Tune projects
  - Project assessments
  - Completion report development
  - Custom consulting
- Three levels of service:
  - **Level 1:** TSP time and materials (T&M) budget not-to-exceed (NTE) $2,500
  - **Level 2:** TSP T&M budget NTE $5,000
  - **Level 3:** Custom TSP budget based on BPA's approval of a fixed-fee proposal submitted by the TSP

ESI Participation Details

How Does a Utility Participate in ESI?

- Program started on 10/01/09
  - Concurrent with release of new BPA Implementation Manual
- Utility Options
  - 1. Energy Smart Industrial Program

    or
  - 2. Self-Funded Industrial Program
- Utility enrolls by emailing their COTR
  - By 10/31/09 is preferred (ensures priority)
  - Open enrollment until 03/31/10

Does the Utility Retain Local Control?

- Absolutely!
- Remember, the program partner will meet with utility to develop the Account Plan
- Utility determines how ESI is applied in their service territory

How Will Projects Be Tracked?

- New project pipeline tool
  - TrakSmart
  - Tracks project status from inception to completion
  - Accessible to utility staff to track projects
    - Read-only “dashboard” access
- Will <u>not</u> replace PTR system
  - Parallel systems for different needs
  - Custom Project Proposals and Completion Reports still submitted to PTR by utility
  - PTR is still mechanism for project approval, project reporting, and final payment

Utility FAQs

- Is this program a direct acquisition?
  - No
- Is this funded from expense or capital?
  - Expense if CRC, Capital if ECA
- Will our traditional BPA field engineer be available to help?
  - Not for industrial, but available for all other programs
  - ESI now has dedicated BPA engineers working alongside program partner

Utility FAQs

- How is our Energy Efficiency Representative (EER) involved?
  - Your EER will continue to be the single-point of contact for BPA efficiency programs
- Would a utility qualify for a Performance Payment (formerly, administrative allowance) that has ESI allowable charges?
  - Possibly; it would depend upon the utility's level of ESI engagement in relation to the requirements as outlined in Section 3.3 of the October 2009 BPA Implementation Manual

Incentive Levels

- Custom Projects[1]
  - *Retrofit:* 25¢/kWh or 70% incremental project cost (whichever is less)
  - *New construction*[2]: 27¢/kWh or 70% incremental project cost (whichever is less)
- Energy Management
  - *EPM:* 2.5¢/kWh, delivered savings
  - *High Performance Energy Management:* 2.5¢/kWh of annual sustained savings (for 5 years)
  - *Tracking Systems*
  - *Track & Tune:* TSP or expert scoping and tune-up funding; 7.5¢/kWh or 70% incremental project cost (whichever is less - one time payment); 2.5¢/kWh of annual sustained savings (for 5 years)

[1]Includes Small Industrial measures and Lighting projects >100,000 kWh
[2]Incentive decreases to 25¢/kWh on April 1, 2010

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Incentive Levels

- Incentive Payment Requirement
  - Utility passes through 100% incentive to end user
- Progress Payments
  - Available within criteria as outlined in the October 2009 BPA Implementation Manual, *see Section 6, page 48*

Questions?

- Contact Jennifer Eskil of BPA
  - Phone: (509) 527-6232
  - Email: jleskil@bpa.gov