

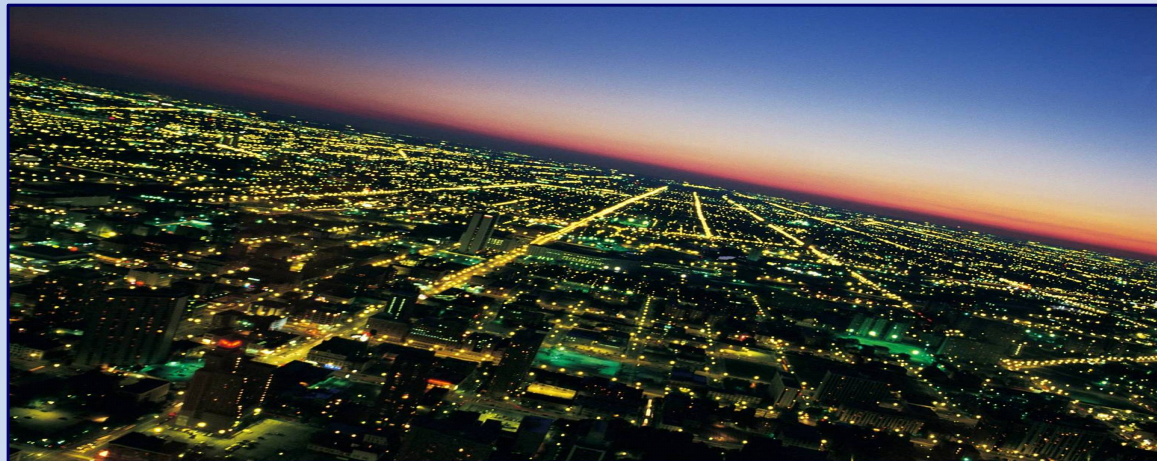


***Bellefonte Nuclear Plant
Organizational Development and Workforce
Planning
“Developing Nuclear Power”***

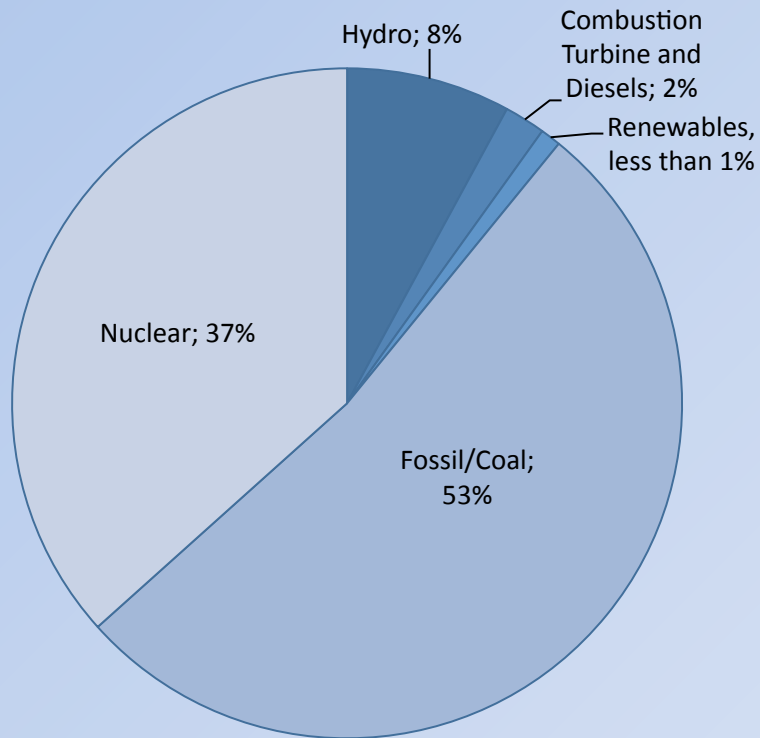
**Tennessee Valley Authority
Nuclear Generation Development and Construction**
Presentation by Ed Boyles
August 25, 2011

TVA Serves.....

- 155 local distributors
- 56 directly served customers
- 9 million people in an 80,000 sq mile service area
- Public users of land and recreational facilities
- Communities with economic development assistance



TVA's Diversified Generation Portfolio



Generation(Capacity)

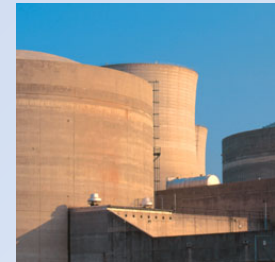
Fossil Plants



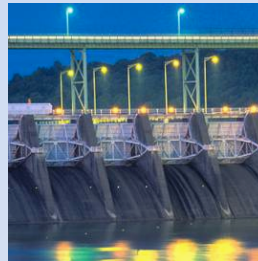
Combustion Turbines



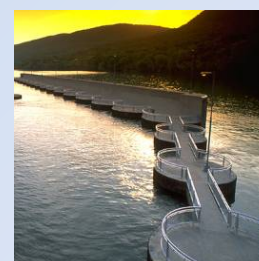
Nuclear Plants



Hydroelectric Dams



Pumped-Storage



Green Power



TVA Generating Facilities

- **11 fossil sites (53 units)**
- **3 nuclear sites (6 units)**
- **29 hydro sites (109 units)**
- **11 combustion turbine sites (96 units)**
- **1 pumped storage station**
- **1 wind energy site**
- **17,000 miles of transmission line**

TVA's Current Nuclear Portfolio



Sequoyah Nuclear Plant



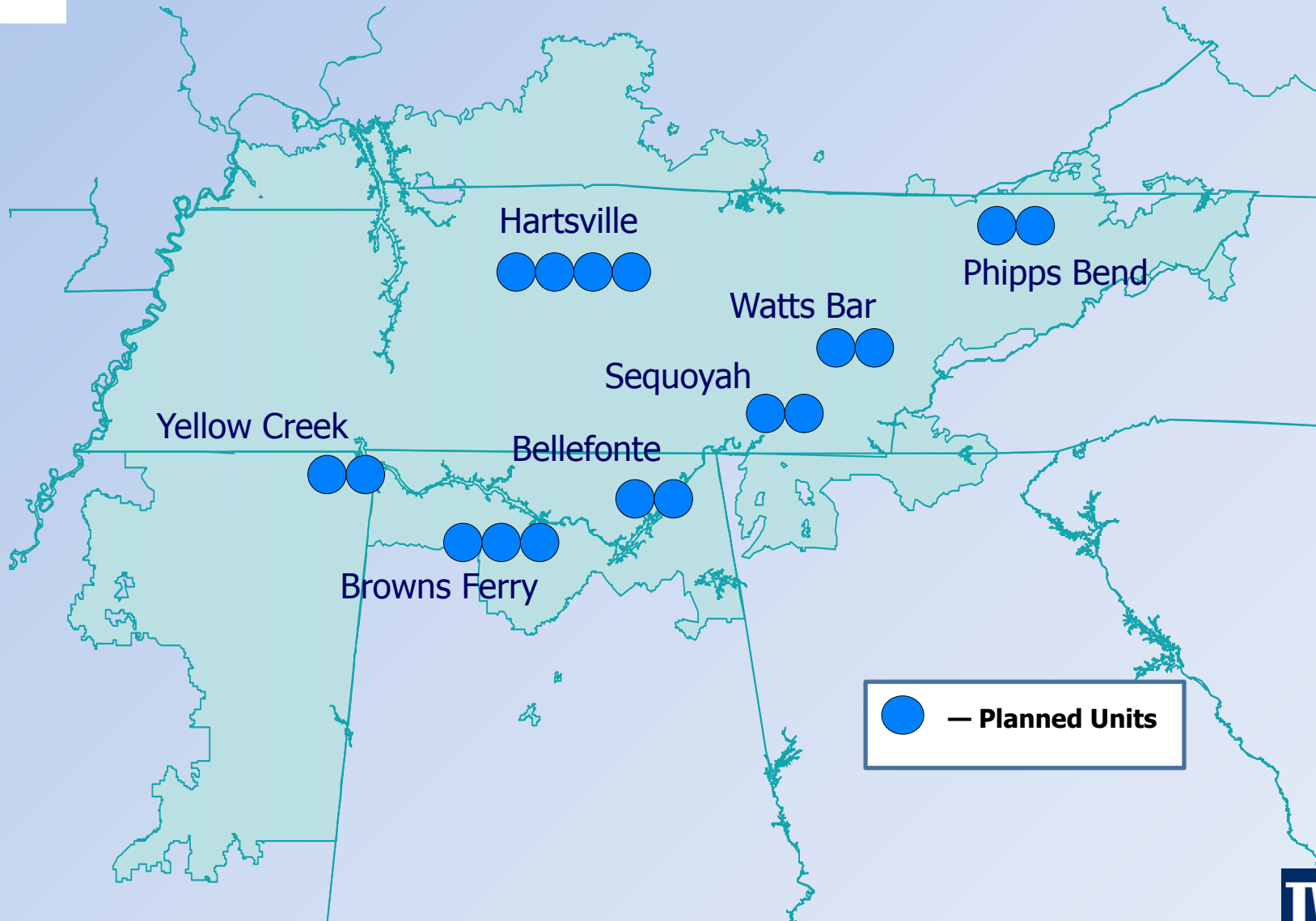
Watts Bar Nuclear Plant



Browns Ferry Nuclear Plant



TVA's Original Nuclear Vision

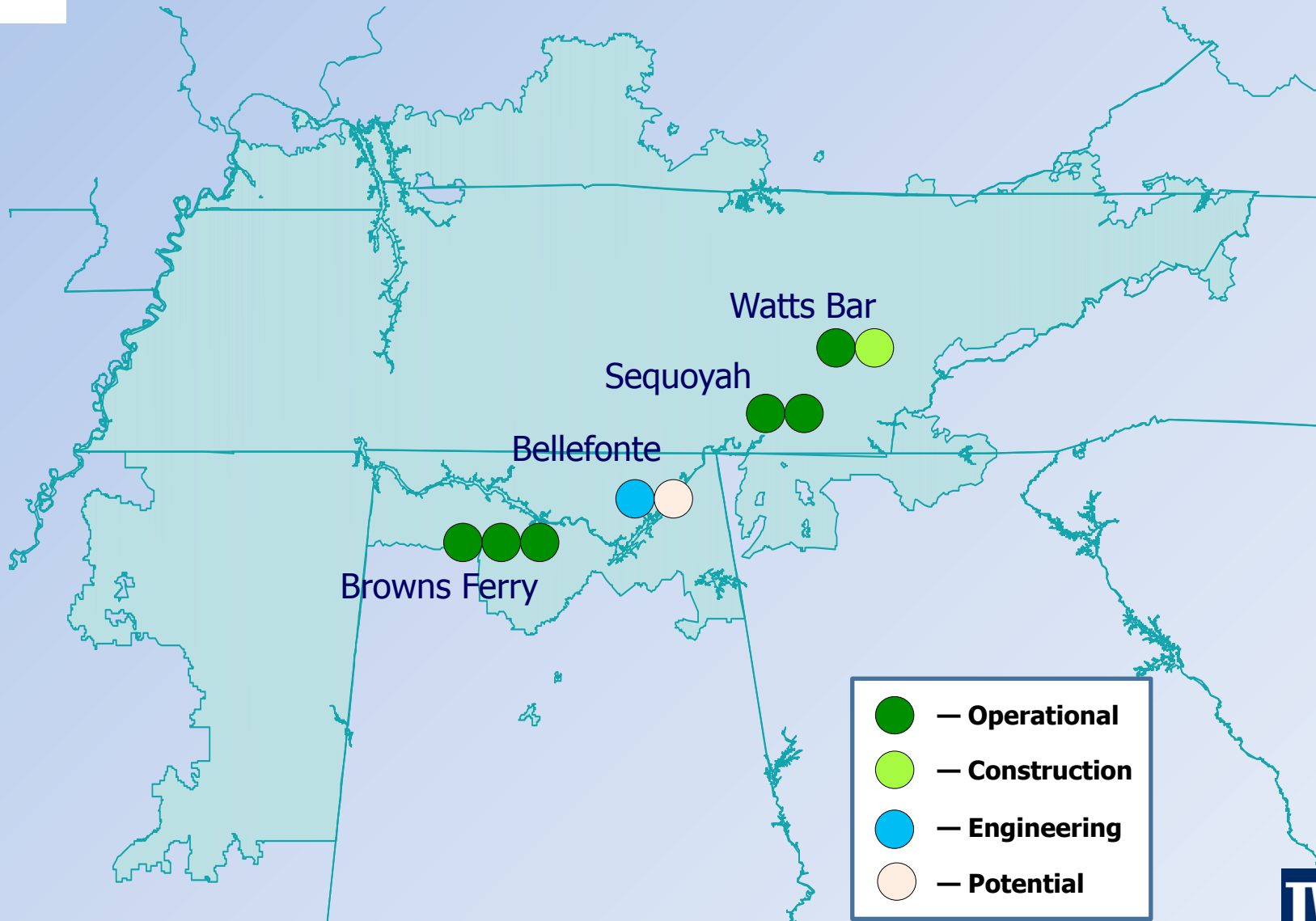


Nuclear Generation Development and Construction





Our Nuclear Fleet Today



Nuclear Generation Development and Construction





Our Approach Today

Under Construction



Watts Bar 2

Engineering



Bellefonte 1

Studies



Future Nuclear

Expected in-service

2013

2018-2020

>2020

Megawatts

1,180

1,260

TBD

Watts Bar

Completing Unit 2 Will Provide an Additional 1,180 MW of Generating Capacity to the TVA System



High Pressure Turbine for Unit 2
being delivered



Watts Bar Nuclear Plant



Moisture Separator Reheaters
being lifted in the Turbine Building

- Five year project
- Current staffing – 3,600

Developing Two Nuclear Options For Future Generation

BLN 1 and 2



Babcock & Wilcox (AREVA)

- Construction permits reinstated in deferred status
- Preserving existing asset

BLN 3 and 4



Westinghouse

- Pursuing combined operating licenses
- Standardization of plant design and licensing

***August 18 TVA Board approved completion of Bellefonte
Unit 1***

Bellefonte Units 1 and 2 Design

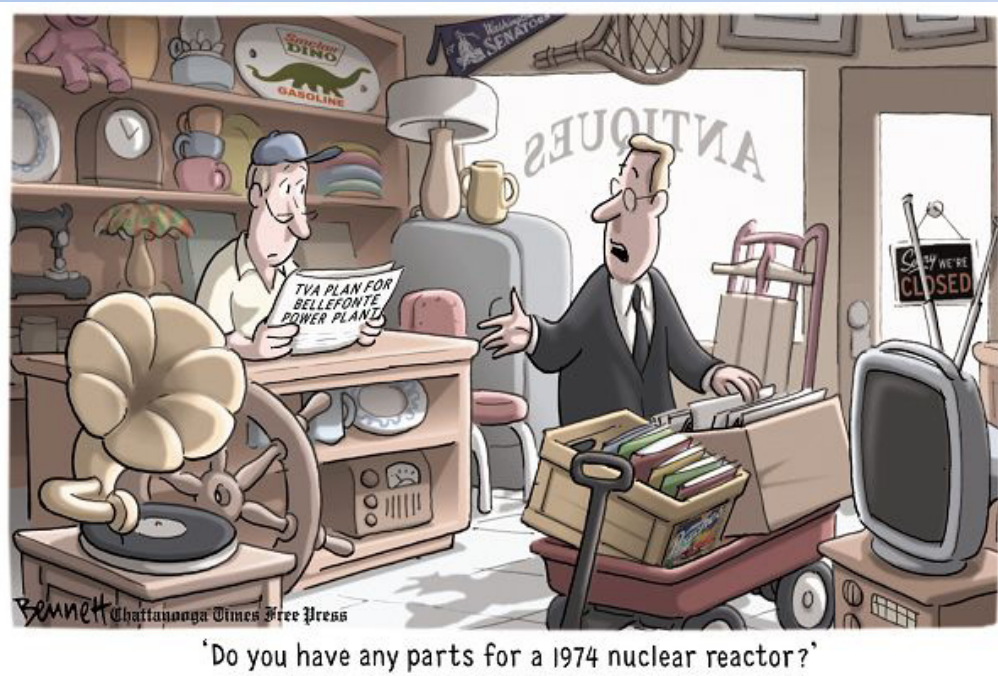
- Babcock and Wilcox Model 205
 - 205 fuel assemblies
 - 264 fuel rods; each rod contains 143” of UO₂ low enriched fuel pellets

- Two Pressurized Water Reactors (PWRs)
 - 1260 MWe/3600MWt (with steam path upgrade)

- Design Addresses New Regulatory Requirements
 - TMI Lessons-Learned
 - Fire Protection
 - Dual Containment Configuration
 - Seismic

Bellefonte Existing Units

Perception



Reality

- Full digital upgrade of instrumentation and control (I&C) system
- Evaluation and application of current NRC regulations
- Evaluation and refurbishment and/or replacement of active plant components
- Systems, structures and components (SSCs) will be verified to meet all applicable design basis requirements

If completed, Bellefonte will be the most modern U.S. operating nuclear facility.

Cartoon by Clay Bennett, Published by Chattanooga Times Free Press on 5/26/2010



Value of Existing Asset



- Electrical
- Piping
- Valves
- Rebar/Steel
- Concrete
- Site Infrastructure/
Cooling Towers

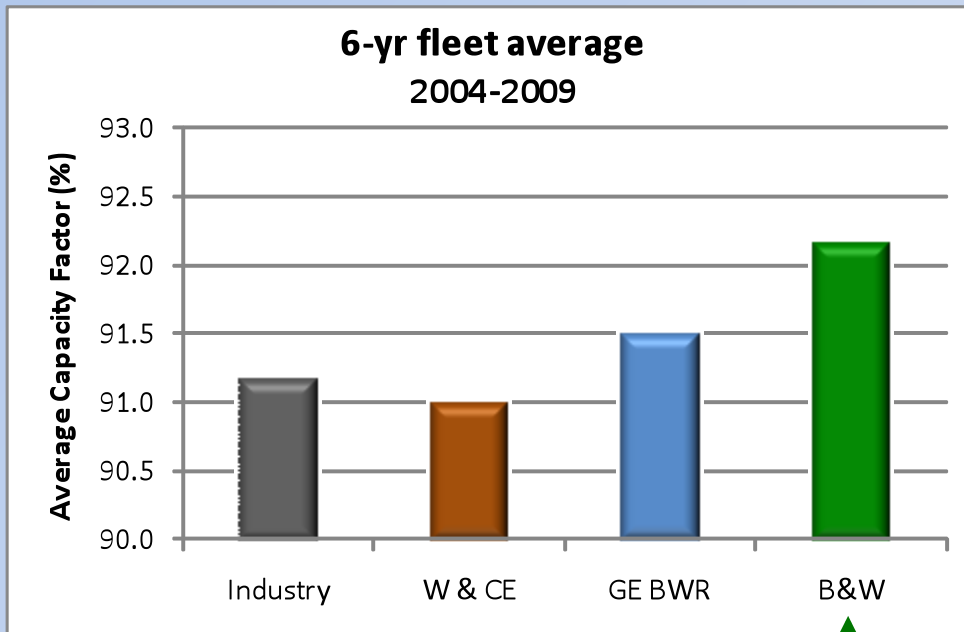
**Embedded value versus
new construction - \$1.9 billion**





B&W 205 Improves a Reliable Design

Evolutionary B&W 205 Design Improvements



Seven B&W
Designed Units
Operating in U.S.

- Hardened used fuel pools
- Redundant equipment separation
- Lower core power density
- Raised reactor coolant loop design
- Improved steam generator design
- B&W Owner Group improvements
- Larger steam dump capacity
- State-of-art control and protective systems
- Secondary reactor shield building





Bellefonte Modernization

- Improvements in safety margins over original design, meeting industry requirements for new reactor designs
- New steam generators
- Redesigned main turbine
- Digital instrumentation and controls
- Modernized main control room
- Components refurbished or replaced
- New main condenser tubing
- Newest PWR fuel design

Original Main Control Room



Planned



Public and Community Perceptions

- Support for nuclear at all-time high
- Public support is critical
- Community activities essential
 - Specific tours
 - Targeted community audiences
 - Economic and workforce development



Pictures are of tours with student and community groups at Bellefonte Nuclear Plant.

November 2009

NGDC

Nuclear Generation Development & Construction

Safety Corner

Whether you are traveling or staying home this holiday season, safety needs to be on your mind. Here are some tips to keep you safe this Thanksgiving.

- Plan your trip so you have plenty of time to get to your destination.
- Pack a roadside emergency kit.
- Before cooking, make sure your oven and stove are clean and outer free.
- Never leave candles burning unattended.
- Always thaw your turkey in the refrigerator not at room temperature.

NGDC News and Notes

- Towns Dec. 2 and 4 at BLN.
- 25th Thanksgiving Day CTC coverage in BLN week; please give if you haven't already so we will make our \$1.2 million stretch goal.

Inside this Issue

1. BLN Completes Inspections
2. SQN License Renewal
3. Government and Oversight Policy

Bellefonte Completes Inspections

The Nuclear Regulatory Commission (NRC) performed an inspection of Bellefonte during the week of October 18. The inspection was to confirm that the site was ready for the transition of the BLN startup permit (SP) to deferred plant status.

In another assessment, the Bellefonte team received validation of the process ongoing to determine the cost, schedule and risks associated with potentially completing one of the existing, partially completed units.

An assessment assessment team was on-site during the week of 11/9 to review the Bellefonte Outage Stopping, Extending and Restarting (OSER) project. The team reviews the scope of OSER assessments and the processing of the information. The OSER assessments will form the basis for a final recommendation on whether or not to pursue completion of one of the existing units, pursue construction of a new unit or de-

struction of a new unit or de-construct. The Bellefonte team will complete OSER activities to support a final recommendation in late Spring 2010.

The independent assessment team included five external industry experts, two representatives from TVA Nuclear Power Group and one from NGDC. All representatives have direct experience with TVA and most spent part of their career working on the Bellefonte project.

The team concluded that the scope of the OSER is appropriate and the processes employed are sound. That said, the team also confirmed that there is a lot of work to be done and provided some constructive feedback for areas of focus over the remaining months.

SQN SG Replacement
(cont. on page 2)

The Sequoyah Unit 2 Steam Generator Replacement project continues on schedule. The first generator is labeled and the first generator was moved out of the open room for the remaining work. The manufacturing and testing of all four replacement generators is being piece in South Korea.

The SGT team has completed meetings in the Unit 2 Cycle 18 Relieving Outage (C18R).

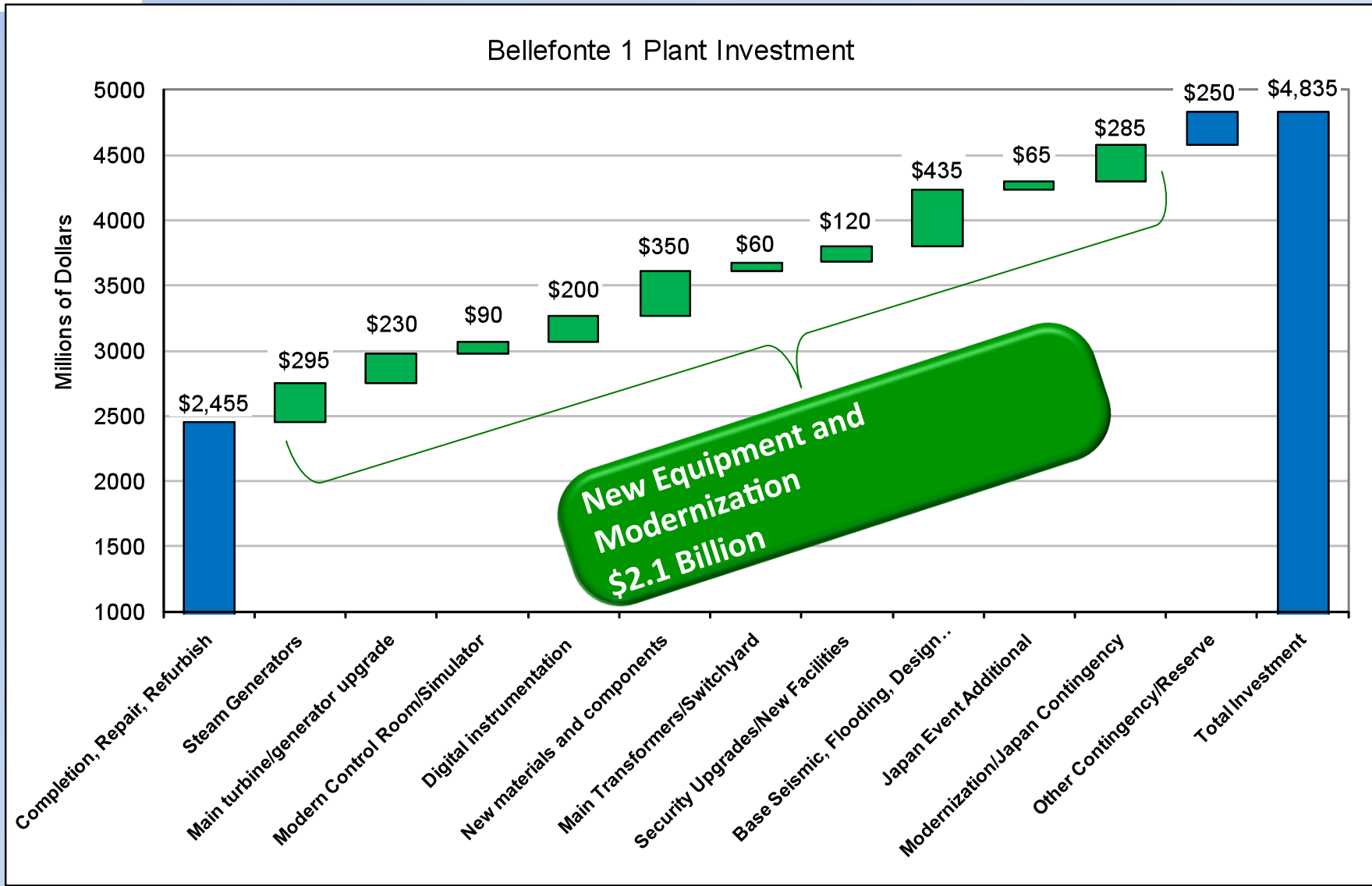
This process involves the setup of sensor instruments and placement of up to 3,000 tags to determine exact location to determine exact location to be done for replacement of the steam generator. The

Proceed above the BLN management team





New Equipment and Modernization





Design for Disasters

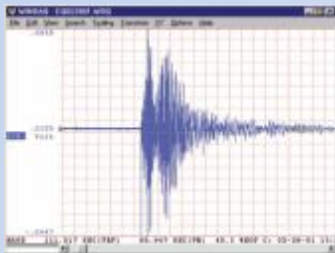
Natural Disaster



Flood



Tornado



Earthquake

Worst Recorded

**Elevation
602.2**

**F5—Rainsville,
Alabama
(261-318 MPH)**

**8.0—New Madrid,
Missouri**

Bellefonte Design

Elevation 627

**F5
(360 MPH)**

8.9—New Madrid

Nuclear Generation Development and Construction





Bellefonte Project Status

Construction completion approved August 18

- \$4.9 billion
- Construction work to follow Watts Bar 2

Project staffing

- ~650 on site
- ~350 across nation

Established contracts for steam generators

Site facilities renovated and expanded



Bellefonte Virtual Tour





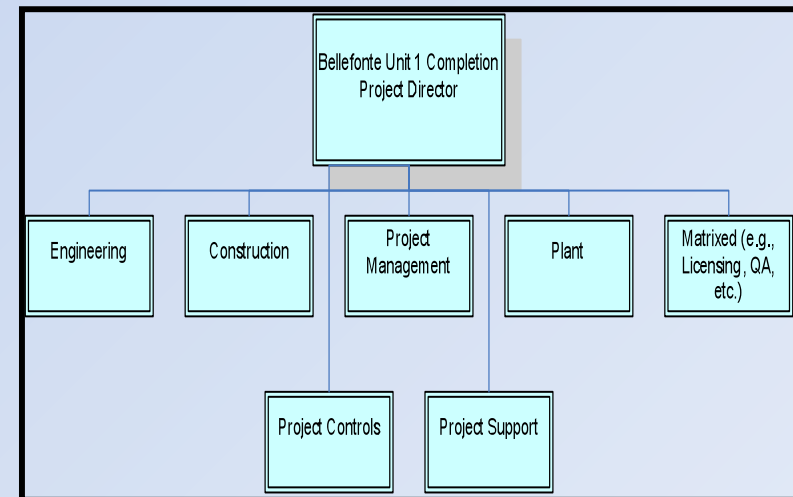
Bellefonte 1 Conclusions

- **Least cost base load supply** alternative, and would be a key part of a balanced generation portfolio that delivers cleaner energy.
- Needed to meet **capacity shortfall** between 2018-2020.
- Contrary to some perceptions Bellefonte will:
 - Be **one of youngest reactor designs** in country
 - Be **among the safest** of any of the existing reactors in the country
 - **Meet latest NRC requirements** including Fukushima recommendations
 - Be **one of the most modern** nuclear plants in country
- Potential **impacts from Japan** event have been conservatively **assessed and included** in project cost and risk estimates.
- **Project thoroughly evaluated for over two years.**

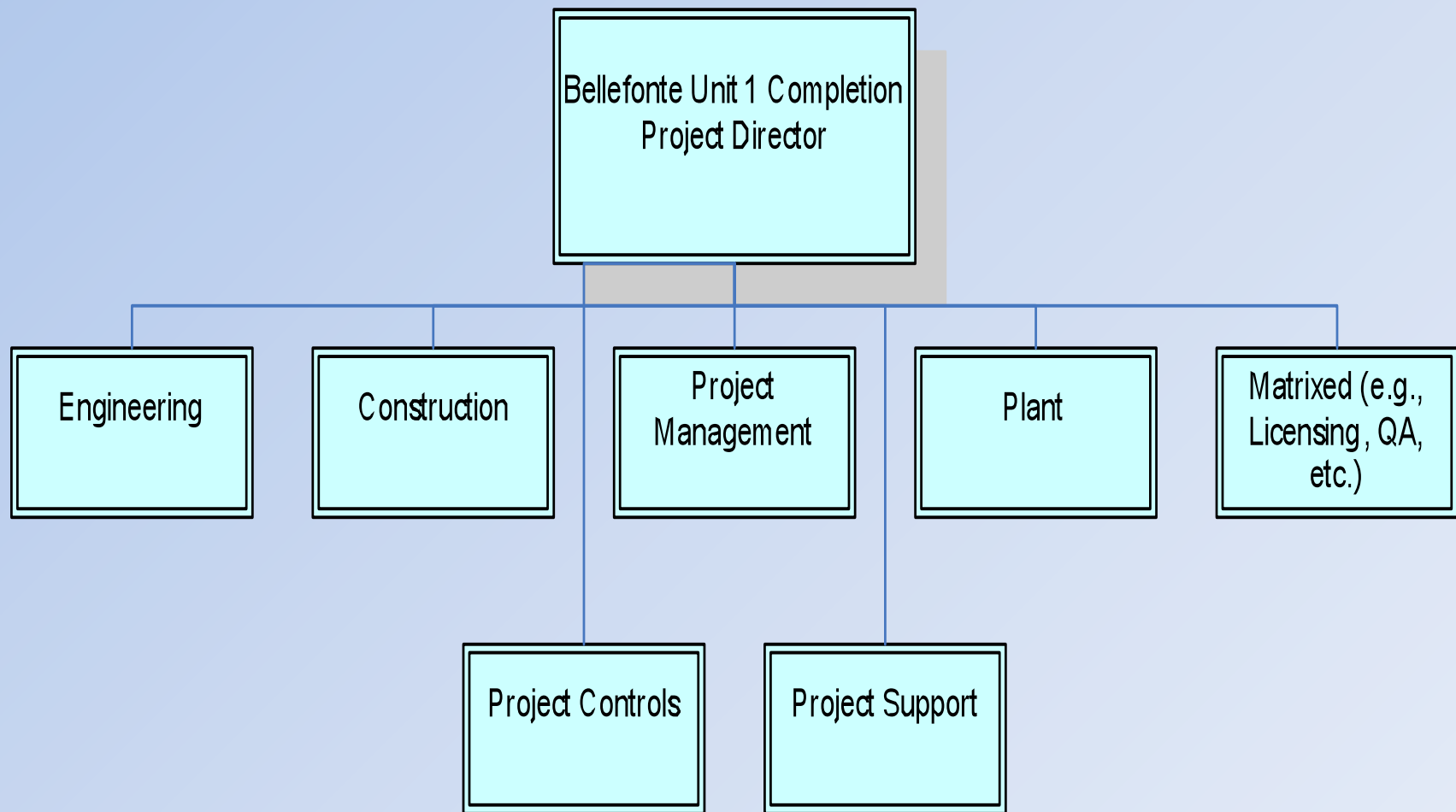


Bellefonte Organizational Development

*One Team
One Goal*

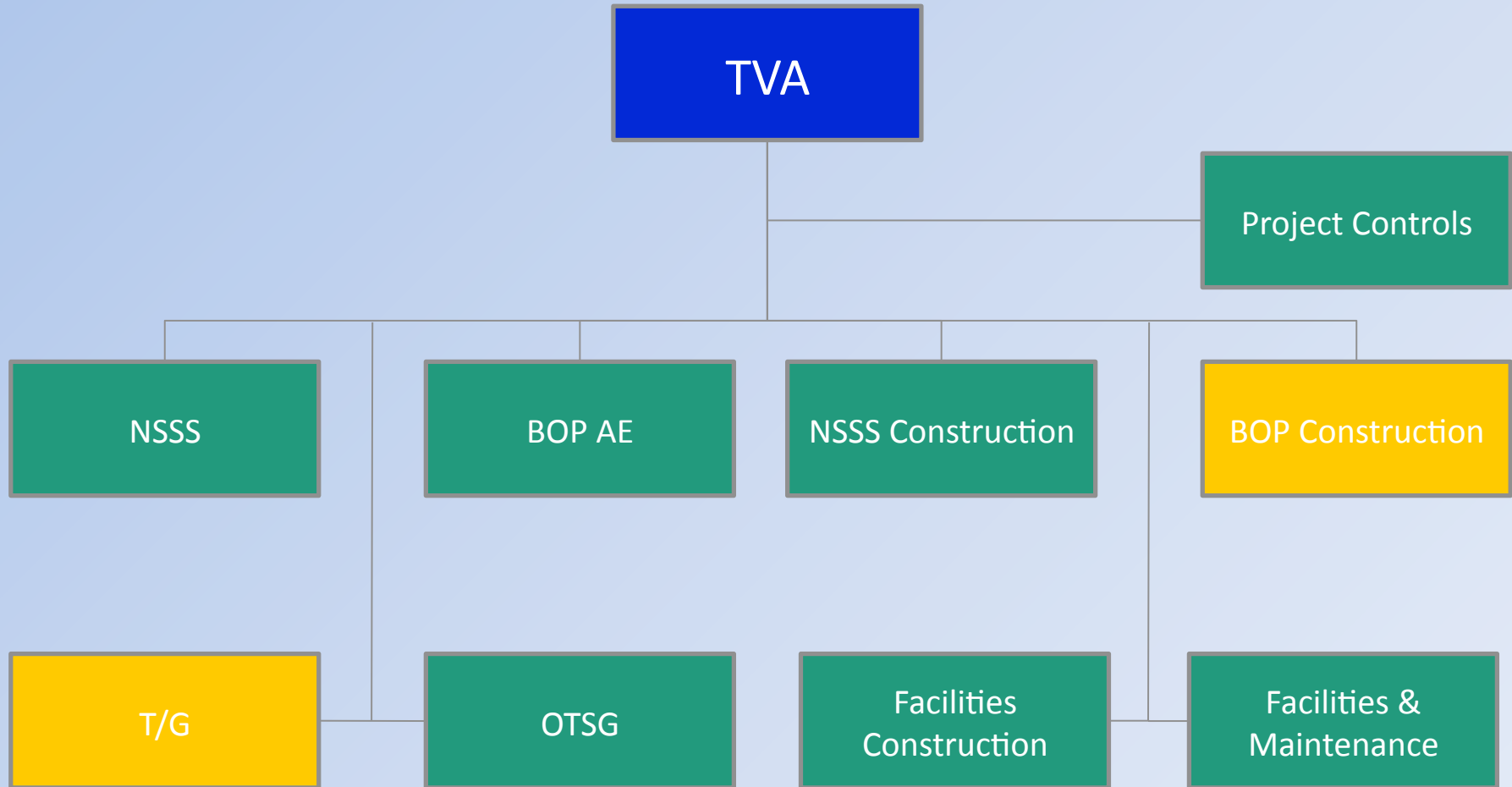


TVA Bellefonte Unit 1 Project Organization



Contract Model

One Team – One Goal



Project Governance





A New Workforce Planning Process



**...ENSURING THE RIGHT EMPLOYEES,
WITH THE RIGHT COMPETENCIES,
IN THE RIGHT JOB,
AT THE RIGHT TIME.
Shonna R. Moore, MBA/HR, SWP
Tennessee Valley Authority**

Nuclear Generation Development and Construction

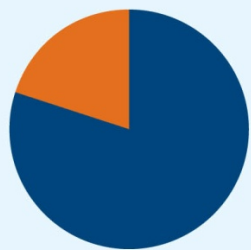




Who we are and where we work

TVA HAS
12,624
EMPLOYEES*

*Statistics as of May 11



80%
OF TVA EMPLOYEES
ARE MEN

20%
OF TVA EMPLOYEES
ARE WOMEN

45.4

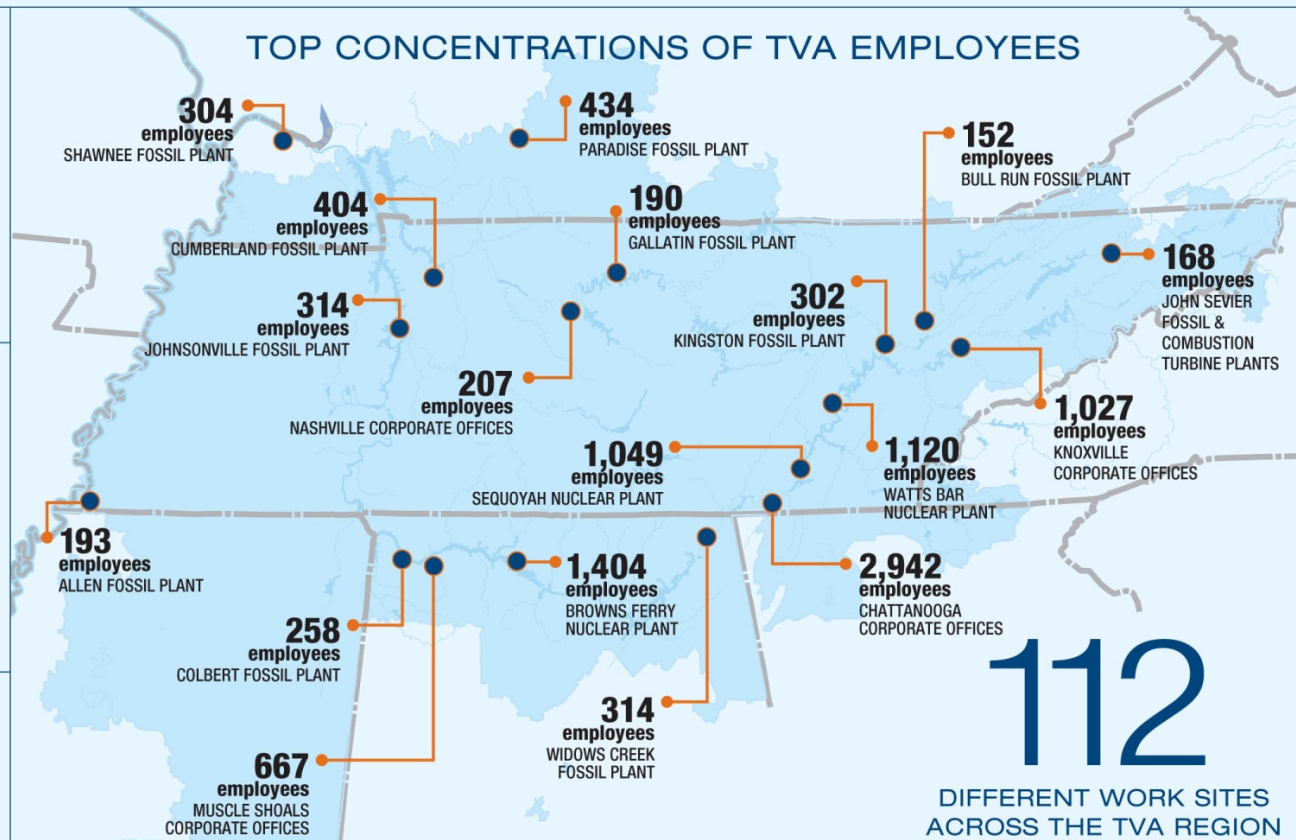
AVERAGE AGE OF
TVA EMPLOYEES

12.4

AVERAGE YEARS
OF TVA SERVICE

NEARLY
21,000
TVA RETIREES

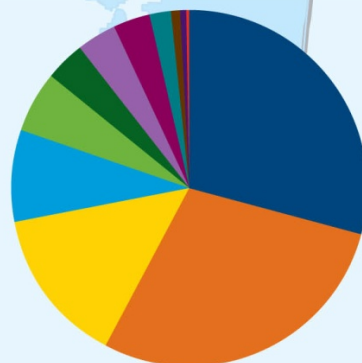
TOP CONCENTRATIONS OF TVA EMPLOYEES



112

DIFFERENT WORK SITES
ACROSS THE TVA REGION

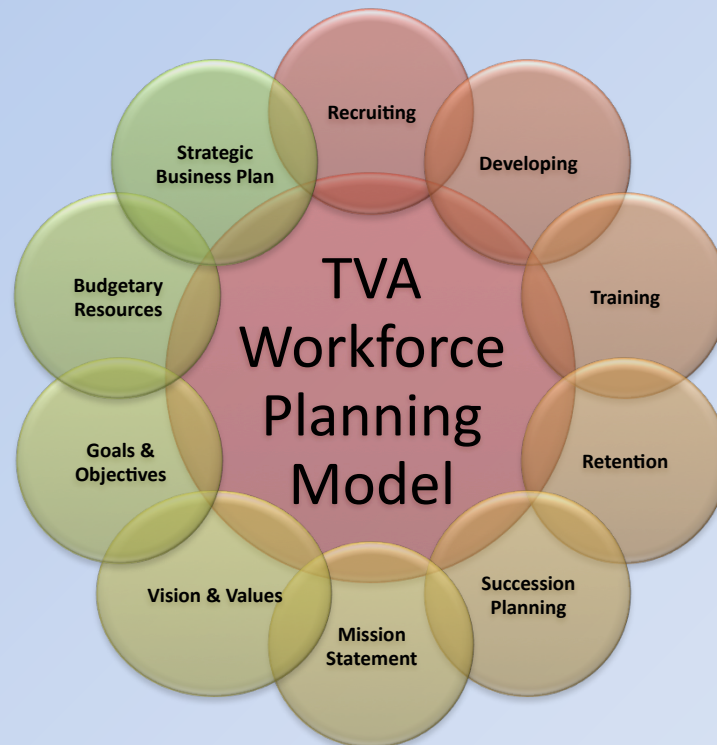
PERCENT OF TVA'S WORKFORCE



- | | | |
|--|---|---|
| Nuclear 3,704 employees – 29.3% | Chief Financial Officer 716 employees – 5.7% | Operating Support & Fleet Governance 268 employees – 2.1% |
| Fossil 3,600 employees – 28.5% | Information Technology 448 employees – 3.6% | Office of the Inspector General 105 employees – 0.8% |
| Power System Operations 1,808 employees – 14.3% | River Operations 436 employees – 3.5% | Office of the General Counsel 63 employees – 0.5% |
| Strategy & External Relations 1,026 employees – 8.1% | People & Performance 420 employees – 3.3% | Other 30 employees – 0.2% |

TENNESSEE VALLEY AUTHORITY

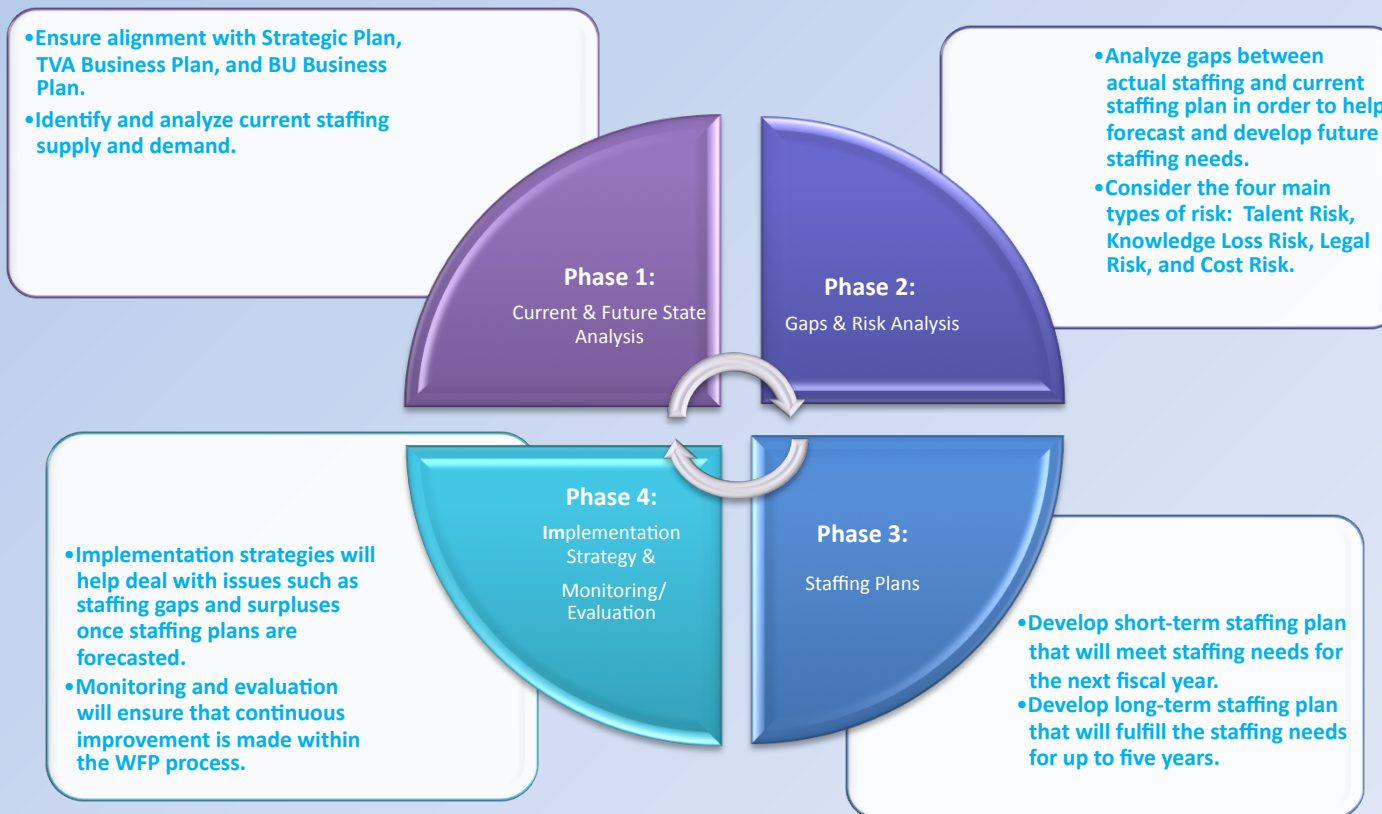
WORKFORCE PLANNING PROCESS



The new WFP process will be **integrated** with TVA's vision, values, goals and key processes

TVA STRATEGIC WORKFORCE PLAN: FOUR PHASE PROCESS

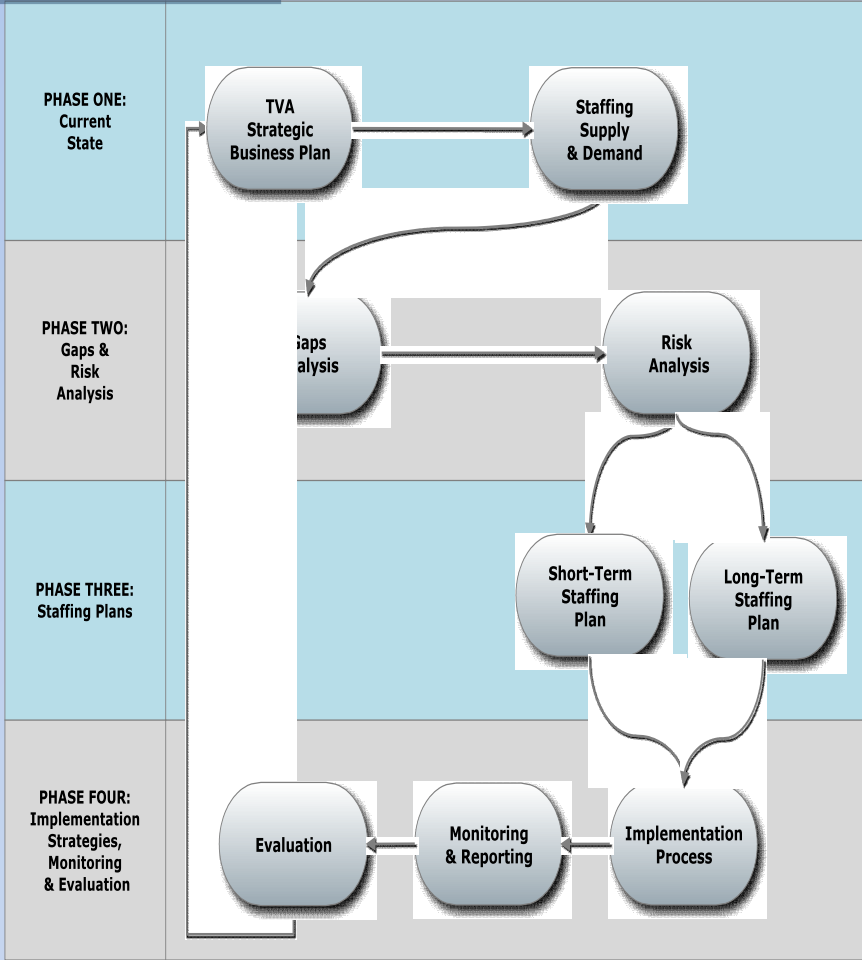
Workforce Planning at TVA serves as the foundation for managing our organization's human capital. It enables us to plan strategically, to meet current and future workforce needs, and prevents unnecessary surprises in maintaining a steady-state workforce. The Workforce Planning Process has been designed to represent four (4) phases. These phases are as follows:



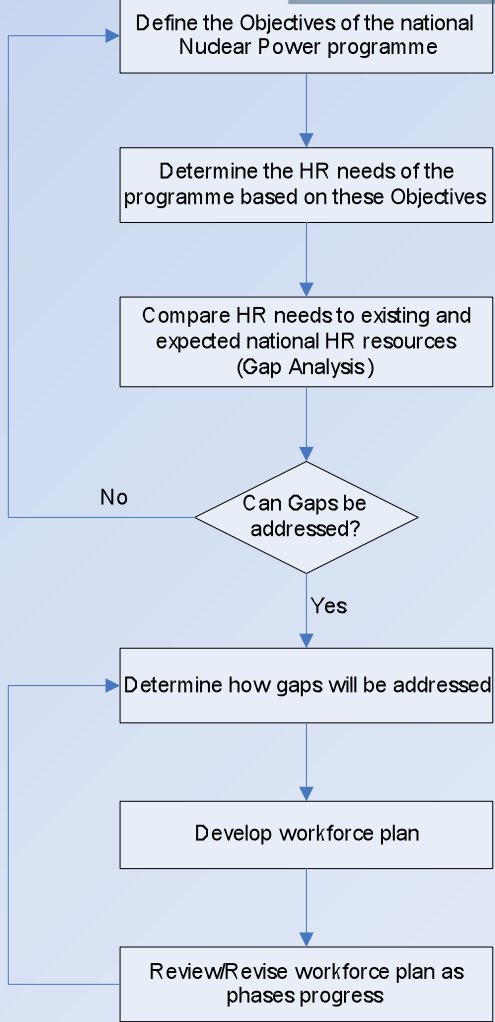
TENNESSEE VALLEY AUTHORITY

WORKFORCE PLANNING PROCESS

High-Level View of Process Flows TVA



High-Level View of Process Flows IAEA



TENNESSEE VALLEY AUTHORITY

WORKFORCE PLANNING PROCESS

Phase One: Current State Analysis

1. Alignment with Strategic Plan and Business Plan
2. Staffing Supply and Demand Snapshot

STAFFING SUPPLY/DEMAND:
CORE HEADCOUNT

| Department | ACTUAL EMPLOYEE HEADCOUNT | | | | | | | STAFF AUG | | MNG'D TASK | | TOTAL HEADCOUNT | | | |
|------------|------------------------------------|------------------|------------------|----------------|------------------|-------|-------------------------------|--------------------------|--------------------|--------------------------|--------------------|-----------------|-----------------|---------------|-----------------|
| | # Empl at Beginning of Fiscal Year | # of New Hires & | # of Retirements | # of Voluntary | # of Involuntary | OTHER | EMPL TOTAL END OF FISCAL YEAR | Beginning of Fiscal Year | END OF FISCAL YEAR | Beginning of Fiscal Year | END OF FISCAL YEAR | TOTAL EMPLOYEES | TOTAL STAFF AUG | TOTAL MANAG'D | TOTAL HEADCOUNT |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

S/D Worksheet

Supply/Demand:
TVA Employees & Contractors

- Staff Augmentation
- Managed Task



TENNESSEE VALLEY AUTHORITY WORKFORCE PLANNING PROCESS

Phase Two: Gap and Risks Analysis

1. Gap Analysis: Identify staffing gaps and surpluses
2. Risk Analysis: Talent, Knowledge, legal and Cost

Report includes:
 TVA employees
 Staff Aug.
 Contractors
 Managed Task
 Contractors

| Gaps Report | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|--------------------|-------------------|--------------------|--------------------|----------------|--------------------|--------------------|-------------------|--------------------|--------------------|------------------|--------------------|--------------------|-------------------|------------------------|--------------------|----------------|-------------|-----------------------|----------------------|--------------------|-------------|-----------------------|----------------------|--------------------|--|--|--|--|
| DEPARTMENT | EMPLOYEES | | Employee GAP | | STAFF AUG. | | Staff Aug GAP | | MANAGED TASK | | Managed Task GAP | | 2010 Targets | | Actual VS 2010 Targets | | | | | | | | | | | | | | |
| | Budgeted Headcount | Actual Fmnl Count | Approved VS Actual | Budgeted VS Actual | Benchmark Data | Approved Headcount | Budgeted Headcount | Actual Fmnl Count | Approved VS Actual | Budgeted VS Actual | Benchmark Data | Approved Headcount | Budgeted Headcount | Actual Fmnl Count | Approved VS Actual | Budgeted VS Actual | Benchmark Data | Retirements | New Hires & Transfers | Involuntary Turnover | Voluntary Turnover | Retirements | New Hires & Transfers | Involuntary Turnover | Voluntary Turnover | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Approved
 Headcount vs.
 Budget vs. Actual

Risk Analysis
 includes:
 Succession
 Planning
 Knowledge Gaps

TENNESSEE VALLEY AUTHORITY

WORKFORCE PLANNING PROCESS

Phase Three: Short and Long Term Staffing Plans

- 1. Short Term: 12 month staffing plan
- 2. Long Term: Beyond 12 month to 5 years

Short Term Detail includes: Time to fill, skills and competencies and time to proficiency

Long Term Address positions with extended training requirements or those that are difficult to fill.

| LONG-TERM STAFFING PLAN | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|----------------------|------|------|------|------|-----------|------|------|------|------|---------------------|---------------------------|-----------------------|------|------|------|------|-----------------------|------|------|------|------|------|
| Core Positions | | | | | | | | | | | | | | | | | | | | | | | |
| Scenario : _____ | | | | | | | | | | | | | | | | | | | | | | | |
| Position | EMPLOYEE PROJECTIONS | | | | | | | | | | | | CONTRACTORS | | | | | | | | | | |
| | PROJECTED EMPLOYEES | | | | | NEW HIRES | | | | | SUCCESSION PLANNING | | PROJECTED RETIREMENTS | | | | | PROJECTED CONTRACTORS | | | | | |
| | 2011 | 2012 | 2013 | 2014 | 2015 | 2011 | 2012 | 2013 | 2014 | 2015 | Current # Ready Now | Current # Ready Long-Term | Current # Deep Dives | 2011 | 2012 | 2013 | 2014 | 2015 | 2011 | 2012 | 2013 | 2014 | 2015 |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |

Long-Term Staffing Plan



TENNESSEE VALLEY AUTHORITY WORKFORCE PLANNING PROCESS

Phase Four: Implement, monitor, evaluate

1. Implementation strategy and KM plan
2. Monitor and Evaluate

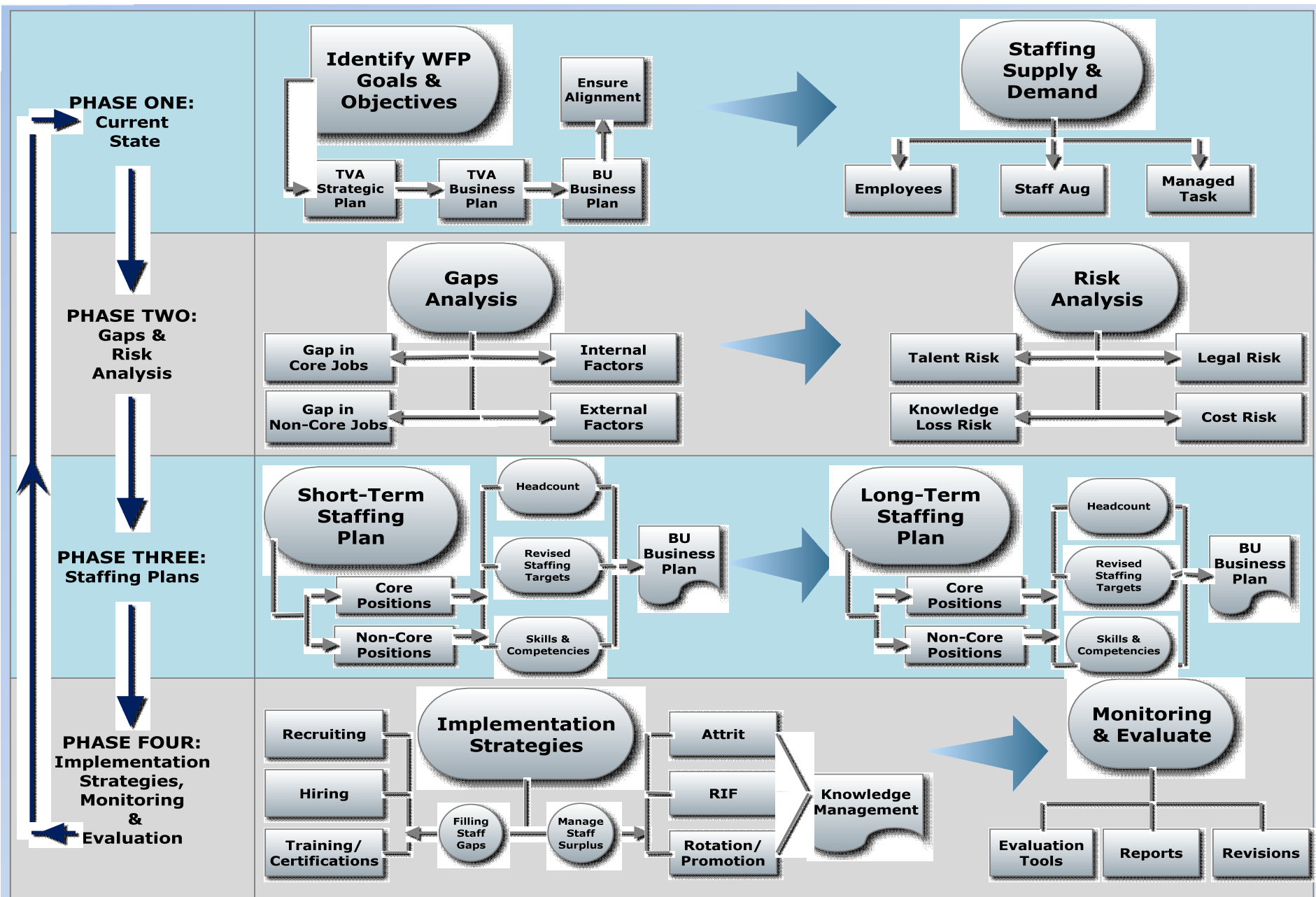
WFP ATTACHMENT 2

PHASE 1

| | | IMPLEMENTATION PLAN | | | | | | |
|---------|--------|---------------------|------------|----------|-------|--------|------|--|
| | | ACTIVITY | START DATE | END DATE | OWNER | STATUS | TOOL | |
| PHASE 1 | Item 1 | | | | | | | |
| | Item 2 | | | | | | | |
| | Item 3 | | | | | | | |
| | Item 4 | | | | | | | |
| | Item 5 | | | | | | | |
| | Item 6 | | | | | | | |

Implementation Plan

Implementation Plan
Address - actions,
due dates, required
tools, owner, and
action status



Questions

