AWP Conference™

A Virtual Event for the European Construction Industry

Content Developed by Industry • Organized by Group ASI

Using AWP & Lean to Go Green

Speaker Introductions

Luigi Anselmi
Head of Construction,
Methodologies & Innovation

Tecnimont

Fernando Espana
President

CONSTRUCT-X

Josh Girvin
CEO

O3 SOLUTIONS

Luigi Anselmi

HOD Construction, Method. & Innovation

- Industry Experience
  - Over 30 years in Construction sector
  - Oil&Gas, Power, Petrochemical and Fertilizer management and execution
  - Driving the digital transition and AWP adoption
- CII Experience - Community for Business Advancement
  - AWP CBA
  - Modularization CBA
- AWP Community of Practice
- AWP European Centre of Excellence

AWP as enabler to go green

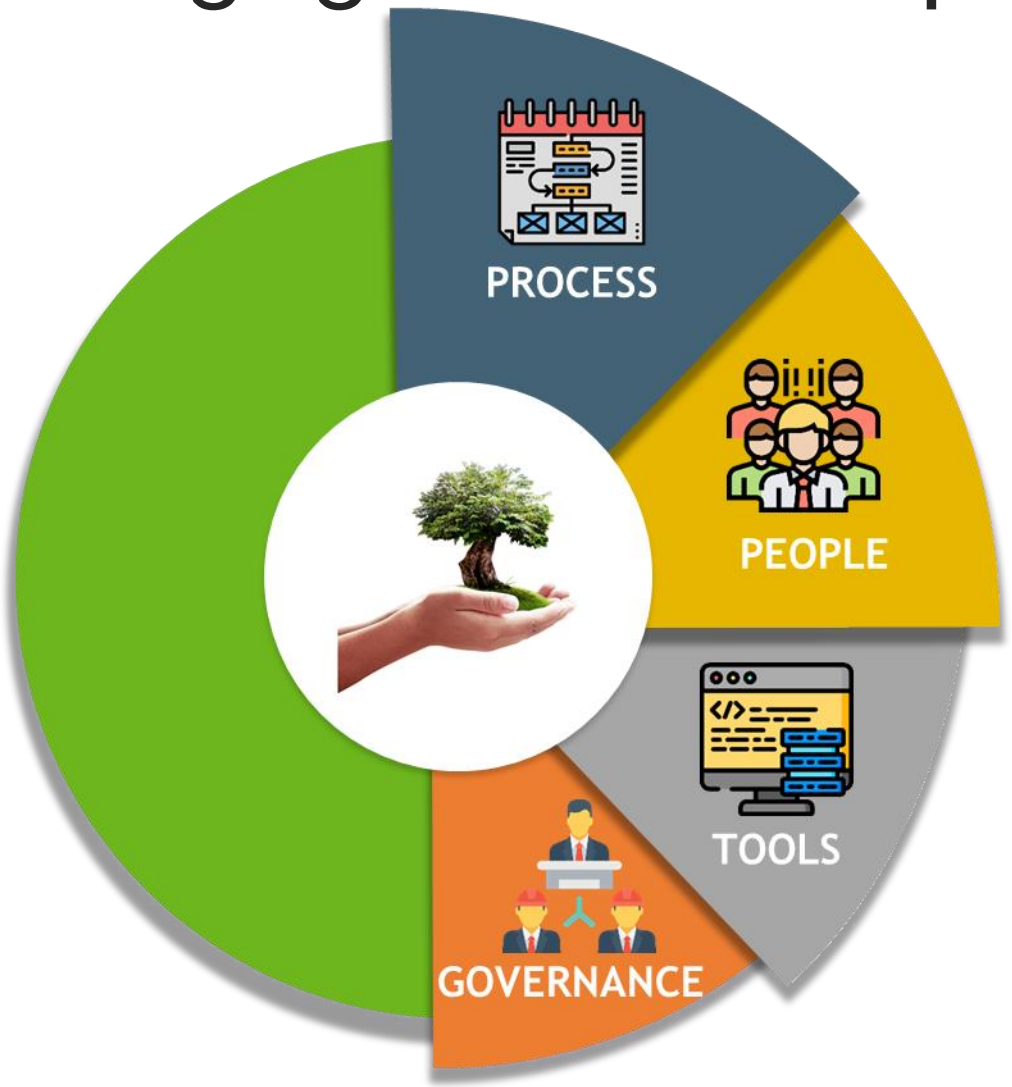
- ✓ Eliminating greenhouse gas emissions and reducing waste are no longer options also to stay competitive over the journey to net-zero targets

- ✓ While reshuffling the conventional approach to initiate a lasting decarbonization plan, AWP in fact contributes already being one of the in-hand solutions for construction industry

AWP as enabler to go green – The implementation

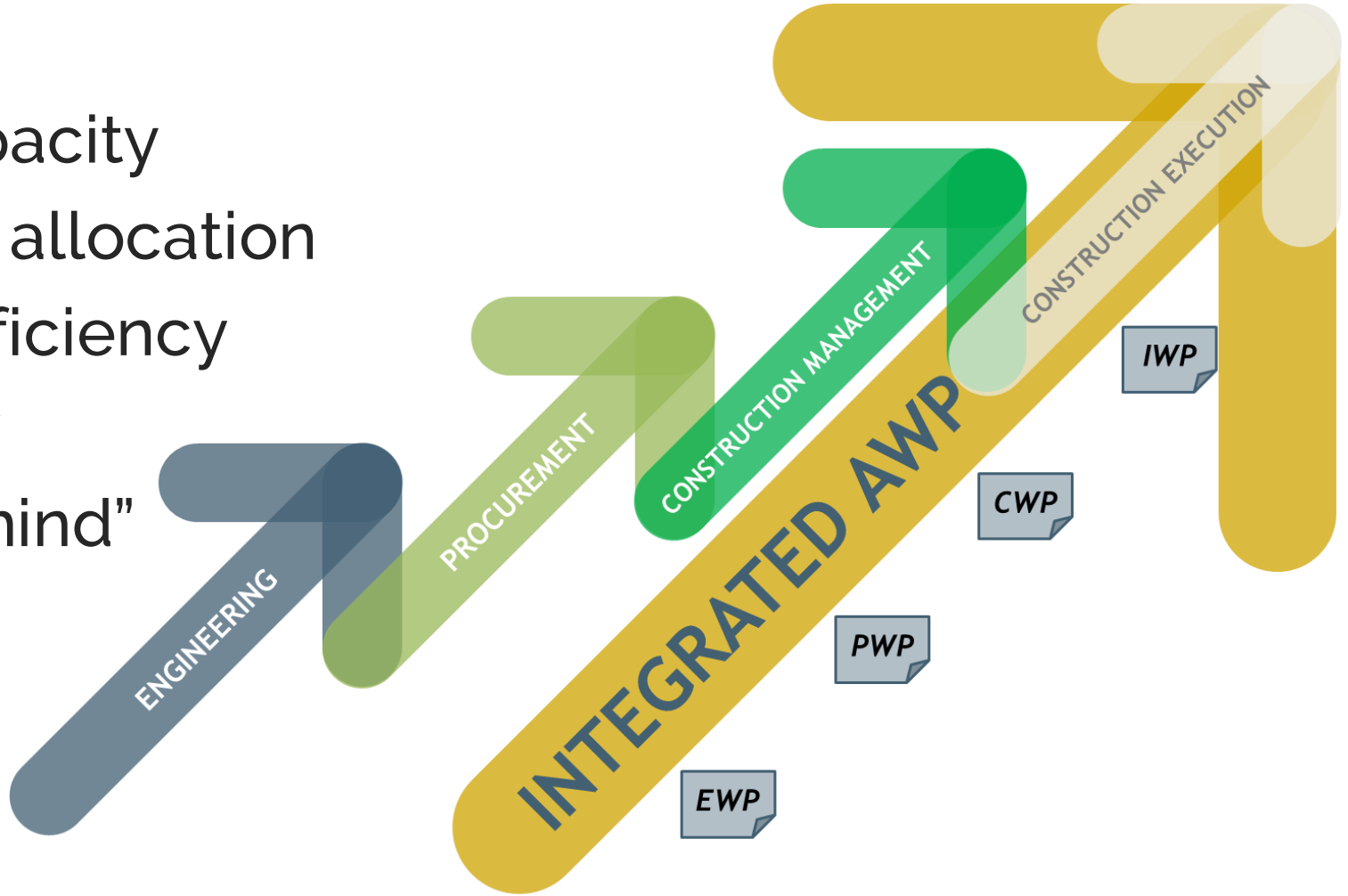
- ✓ Implementing AWP is a proved tool to gain in productivity, thus efficiency
- ✓ More efficiency does not only reflect into the schedule and less workhours but also in less waste, of any kind
- ✓ More efficiency comes from improved planning of the Project and sustainability of lean processes (E, P, C)

AWP as enabler to go green – The implementation



AWP as enabler to go green – The implementation

- ✓ Higher planning capacity
- ✓ Optimized resource allocation
- ✓ Augmented field efficiency
- ✓ Greater productivity
- ✓ “Begin with end in mind”
- ✓ Sustainable CSU



AWP as enabler to go green – Direct effects

- ✓ Implementing AWP creates a value that has direct connection with going greener for a Project
- ✓ Going efficient and lean can result in up to a saving 1 MM direct workhours for a project of medium size project (USD 800 MM)
- ✓ Reducing direct volume of efforts means less consumption at construction site

AWP as enabler to go green – Direct effects

- ✓ Reducing 1 MM direct workhours:
  - ✓ Less fuel (construction equipment, transport, logistic, etc.)
  - ✓ Reduced supporting site activities (lodging, commuting, etc.)
  - ✓ Less consumption of natural resources and consequently minor amount of waste production

AWP as enabler to go green – Indirect effects

- ✓ AWP empowers the digital transformation of Construction processes: from design to supply chain and execution up to final handover to Client
- ✓ Collaborative working gets boosted by more defined Project packages and their micro-work processes
- ✓ Enforces the communication facilitating the release of Project packages to next phase with less efforts

AWP as enabler to go green – Indirect effects

- ✓ Indirect efforts by adopting AWP:
  - ✓ Improved data exchange and communication
  - ✓ Accuracy of the data and efficacy on availability
  - ✓ Paperwork reduced to essential level
  - ✓ Project resources focusing on added value processes
  - ✓ Low value activities removed

Fernando Espana

President, Construct-X

- Industry Experience
  - Delivering AWP, Lean, and Production Management solution
  - Oil & Gas, Process, Mining, AEC, Government
  - Small project portfolios to large giga-projects
- CII Experience - AWP Community for Business Advancement Subcommittees
  - Vice-Chairman – AWP Business Accelerator
  - Vice-Chairman – AWP + Lean Joint Working Group
  - Contributor to Performance & Benchmarking, Scaffolding, and others
- AWP Community of Practice – BoD, BoA

CONSTRUCT-X

Green from an AWP + Lean practitioner

- ✓ Common objectives
- ✓ Implications to reducing our carbon footprint
- ✓ Opportunity to make a difference

Objectives Aligned

The "***common thread***" between AWP & Production Management Solutions and Sustainable **Green** Building Objectives is the ***"commitment to better manage the consumption of resources"***

- Examine the environmental benefits of using AWP & Lean Production Management Solutions
- Assess the benefits of encouraging the use of these solutions leveraging corresponding Leadership in Energy and Environmental Design (LEED) initiatives experienced in AEC

Waste & Environment

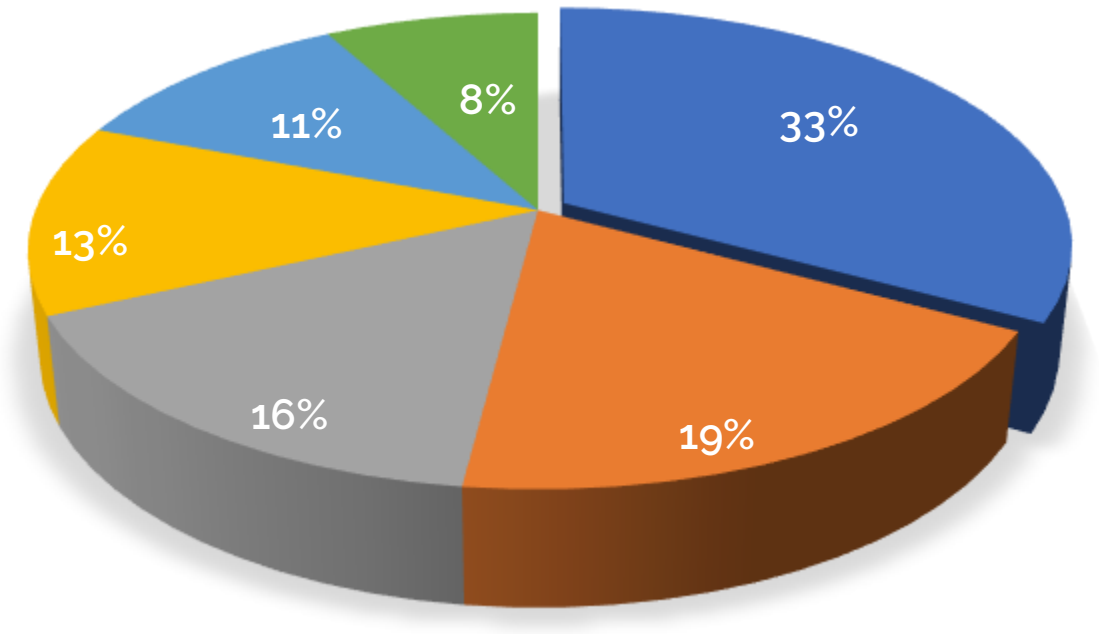
Improving production along the entire design, engineering, construction and supply chain process through Identifying & removing waste

Waste takes different forms:

- excess inventories
- over production
- transportation
- manufacturing
- defective units
- wait times
- searching and unnecessary human movements

Waste & Environment

Construction Waste based on projects by category



- High rise buildings
- Hotels and industrial project
- Commercial projects
- Low rise buildings
- Governmental projects
- Tunnels and infrastructure

Waste & Environment

Sources of construction waste can be classified under six main categories :

- **Design Source**
- **Procurement Source**
- **Handling of Material Source**
- Operation Source
- Residual Source
- Other Sources

The 3 sources having the highest impact are highlighted.

There planning and transparent controls define how much - or how little - waste there will be on your projects.

Sustainable Green Building Objectives

To encourage and accelerate global adoption of sustainable green building and development practices

Carbon Footprint - How big?

The cost of an average industrial megaproject exceeds the GDP of 23% of countries globally

A $1B Project produces over 1M pieces of paper if stacked would stand taller than a 40 story building and require 3,000,000 gallons of water to produce enough drinking water for 6,000,000 people in a single day

Go Virtual

Carbon Footprint - How big?

The average yearly waste of Construction &Demolition materials take up over 4,300 acres at a depth of 50 feet in the US alone, resulting in over 3 billion square yards of landfill each year.

That isn't just bad for the environment. All that waste is incredibly difficult for companies to manage efficiently and in the most affordable way

Reduce, good for the economy

https://www.rubicon.com/blog/construction-demolition-waste-facts/

Carbon Footprint - How big?

The Environmental Protection Agency estimates that 230 million to 530 million tons of C&D are produced nationwide each year in the United States. Globally by 2025 this is projected to be 2.2 billion tons.

In some years, its more than twice the amount of generated municipal solid waste in the U.S.

Reuse & Recycle

https://www.rubicon.com/blog/construction-demolition-waste-facts/

The “Common Link”

Managing the consumption of resources

- Reduce material consumption
  - LEED - credit for diverting unneeded recyclable debris (components) from landfills
  - PM - avoid unnecessary fabrication altogether
  - PM - avoid excess inventory / over production altogether

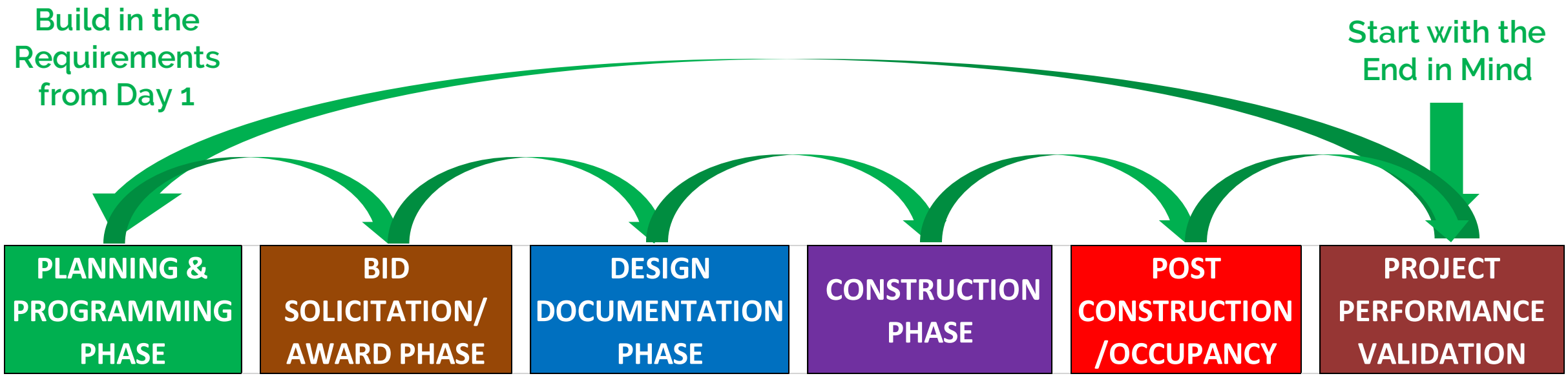
- Reduce energy consumption (carbon emissions)
  - LEED - credit for reducing emissions produced through transportation
  - PM - avoid unnecessary assembly & onsite fabrication
  - PM - minimize onsite storage and staging / excess inventory / over production
  - PM - reduce project duration by leveraging project optimization and workflow methodologies
  - PM - reduce use of equipment
  - PM - reduce total manpower and commuting requirements

- Synchronizing work / workflow optimization / scaffolding efficiency / inventory movement

When to Apply?

Example of mission statement to achieve goals for a major military program:

To provide a socially equitable, environmentally sound and economically feasible environment - Integration by Phase:



Sustainable Objectives Areas

- London Olympics Program Addressed
  - Carbon
  - Water
  - Waste
  - Materials
  - Biodiversity and ecology
  - Land, water, noise, and air
  - Supporting communities
  - Transport and mobility
  - Access
  - Employment & business
  - Health and well-being
  - Inclusion
  - A sustainable legacy
  - Managing sustainability
  - Sustainability design management

Be Proactive!

Environmental impacts and carbon footprints have led organizations within various industries to:

- Look over their operations and to work towards making them more sustainable
- Work internally to reduce climate impacts
- Respond to authoritative and market demands to meet certain criteria within sustainability

Josh Girvin

CEO, O3 Solutions

- Industry Experience
  - Supporting AWP with Owners, EPCs, and Contractors
  - Megaprojects, Operating Facilities, Maintenance & Turnaround Projects
  - Providing AWP Program Management, Work Packaging with and without 3D Model, Constraint Management

- CII Experience - AWP Community for Business Advancement Subcommittees
  - Performance & Benchmarking, Co-Chair
  - Scaffolding & Access Management, Co-Chair

O3 SOLUTIONS

Purpose

This session will share how Owners are expanding the use of AWP to drive efficiency in the growing sector of green projects

Objectives

- ✓ Dispel the myth that AWP is only for large greenfield Oil & Gas projects
- ✓ Communicate that AWP can be used for the rapidly growing green project sector of industrial construction
- ✓ Share how AWP-mature owners are rolling out AWP for new energies projects

AWP Growth

Historical Thinking

- Oil & Gas
- Large Greenfield Projects
- North America

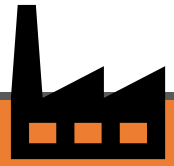
Current Approach

- Industry Expansion
  - Chemical, Mining, Power, New Energies, Infrastructure, Data Centers…
- Global (6 Continents)
- Small Cap Portfolio Management

AWP for Green Projects

Changing Priorities for Owners

Lower Price of Gas



Industrial Construction Costs Increasing

Focus on Climate Change

Owner Commitments to Going Green

- Owners have committed to moving away from heavy reliance on fossil fuels over the next 20 years
- The creation of “New Energies” business lines reflects this commitment to diversifying their revenue streams
- These projects may be less “complex” or smaller than mega O&G projects but are still a great fit for AWP

Owners Driving the Process

- True AWP requires Owners to Own the Process
- True AWP requires all stakeholders

Overview of Projects

- A Tale of Two Projects
- Revamp of Existing Asset
- Green Hydrogen
- Offshore Windfarms
- Owner-Driven AWP

Project Overview

- 2 Large Projects
- Located in Europe
- AWP-Mature Major Owner Operator
- AWP-Mature Module Fabricator
- AWP-Mature EPC

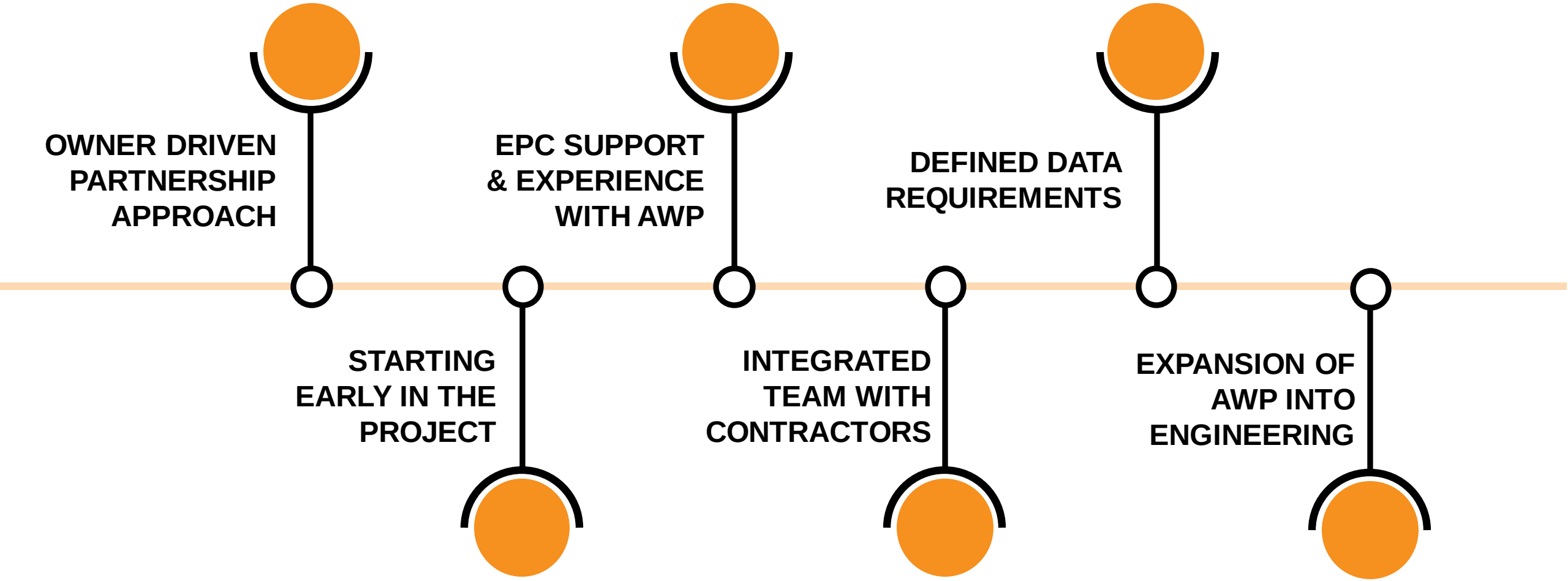
Why is AWP Important?

Setting a standard for AWP excellence within the Owner's organization

Getting early Owner AWP engagement with IPD approach

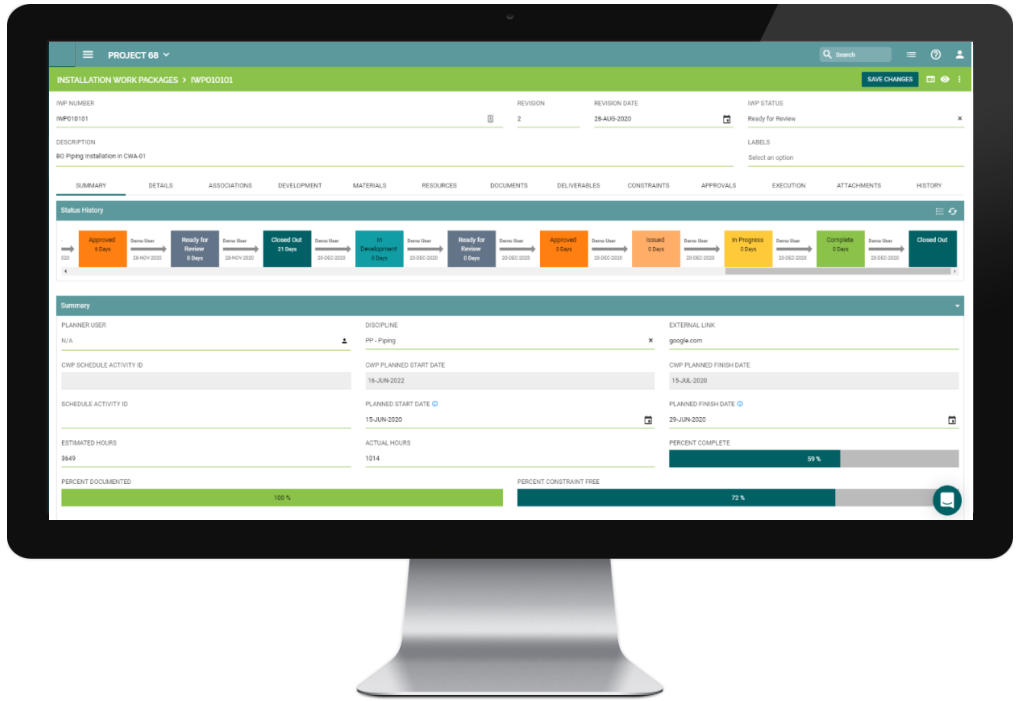
Proving that AWP drives value on large scale new energies Projects

AWP Approach



Technology

- Collaboration platform with multiple Contractors, EPCs and Owner using a single SaaS tool
- AWP Master Index for managing packages beyond EWPs, CWPs, and IWPs
- Graphical & Non-Graphical WFP
- Constraint Management across all package types
- AWP in engineering with Vendor Work Packages and Design Work Packages



Key Takeaways

- ✓ Owner priorities are changing
- ✓ AWP applies to green projects
- ✓ Owners need to drive the process for AWP
- ✓ True AWP requires all stakeholders to be onboard
- ✓ True AWP requires a collaborative tech stack for all stakeholders

Thank You!

Question and Answer