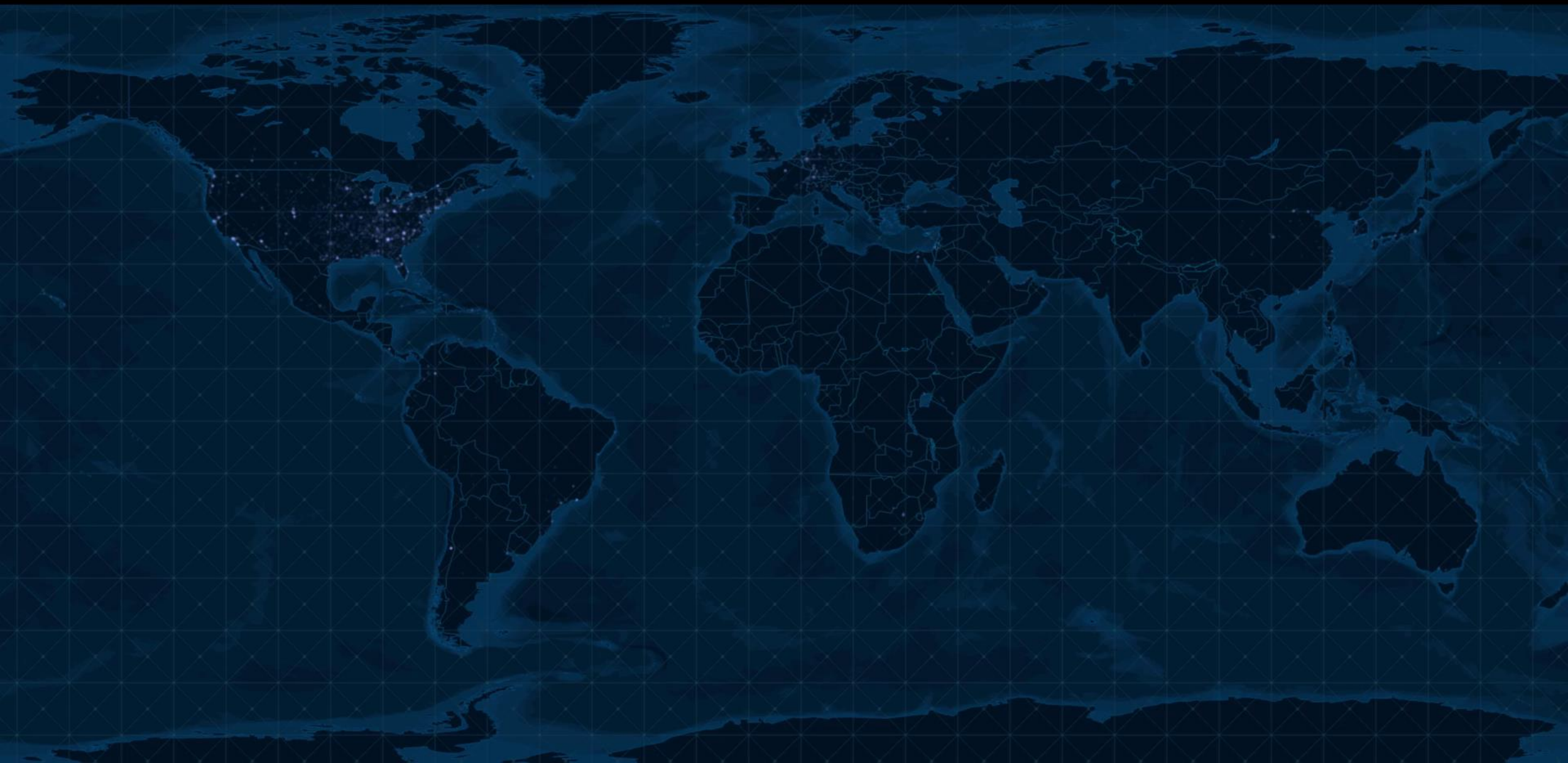
2023

Konference GIS Esri v ČR

Utility transformation supported by modern GIS

Jeff Rashid
Global Director of Infrastructure, Esri Inc

esri

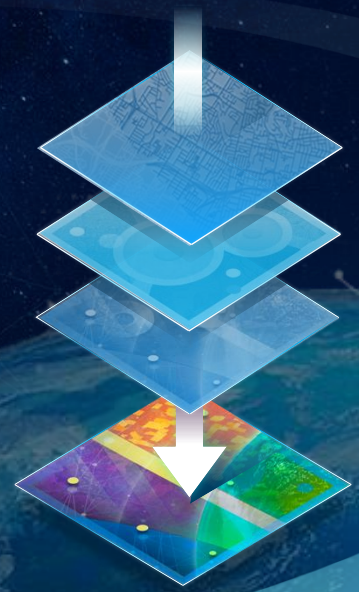


CAUTION
CAUTION
IAP Work Manager
Upstream
Electric Distribution Line
ArcFM Electric Traces
Options...
541
541
State
Tie-Devices
Service Points 1332
Total kVA 24371
Phase A 8153.5
Phase B 7942.5
Phase C 8275
Total Length 732226.4 Meters
NW 36th Ave
NW 37th Pl

The Geographic Approach

A Way of Thinking and Problem Solving
That Integrates Geographic Science & Information

An Inclusive and
Multidisciplinary Process



Science Based

Holistic

Integrated

Collaborative

Understandable

Providing a Framework for
Understanding and Applying
Our Knowledge

Impacting Every
Sector of Our Society

GIS Enables The Geographic Approach

Data Collection

Visualization & Mapping

Analysis & Modeling

Planning & Geodesign

Decision Making

Action

A Process for Creating Understanding & Facilitating Collaboration

Mapping Common Ground

esri

International IMGIS

April 8th – 10th 2024

Frankfurt, Germany

16 Technical Sessions

2.5HR Plenary

39 Countries

5 Industry Keynotes

5 Special Interest Group Meetings

~730 Attendees

260 Organizations

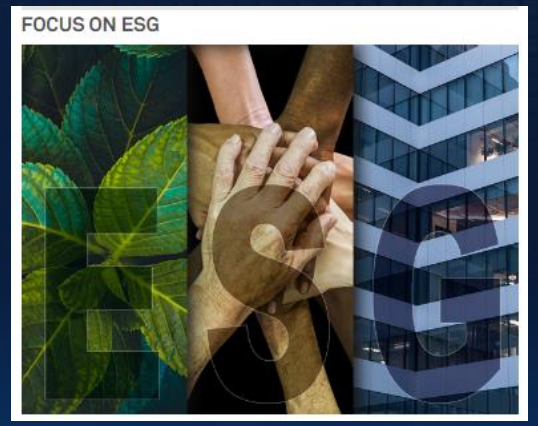
2 Networking Socials

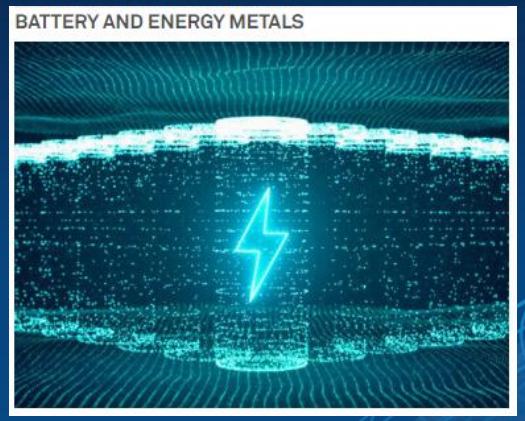
68 Customer Presentations

18 Sponsorships & Exhibitors

Industry Business Drivers

Energy Transition





“(what’s needed is)… a Resilient, Equitable, Sustainable Modern Energy Utility” - Gartner

Published Investment Plans – Roughly $281Billion (2018)

Grid Modernization

AN INITIATIVE OF THE U.S. CLIMATE ALLIANCE

In December 2018, the Rocky Mountain Institute released the Non-Wires Solutions Implementation Playbook, which was developed in part by working with stakeholders in U.S. Climate Alliance states to develop actionable recommendations that utilities, regulators, and developers can use to increase NWS implementation.

| Backgrou

Between nov
electricity tra
the power ge
480 gigawatt
threaten to "
projects - inc
in recent yea
solar, energy
become mor
be deployed
many traditio

Southeast Asia to invest $9.8 billion in smart grid infrastructure

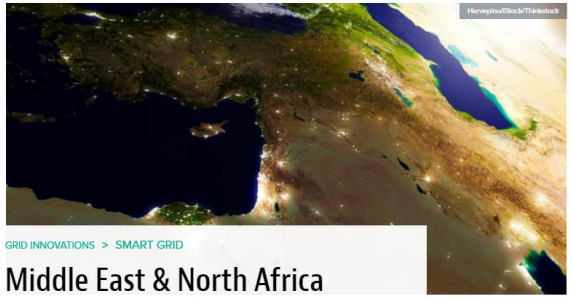
09/06/2018

South America forecast to invest $20.1 billion in smart grid infrastructure

South America forecast to in

Investment over next decade

February 27, 2018, Washingt
economic challenges the pas
investment. Efforts to moderr
infrastructure investment–hav
emerged from the worst rece
quarters of negative economi
progress. However, 2018 is sl



GRID INNOVATIONS > SMART GRID

Middle East & North Africa Region Forecast to Invest $17.6 Billion in Smart Grid Infrastructure

Investment over next decade to be led by Saudi Arabia, Egypt, and the UAE

GRID INNOVATIONS > SMART GRID

Western Europe to Invest $133.7 Billion in Smart Grid Infrastructure by 2027

Published Investment Plans – Roughly $1Trillion (2022)

Department of Energy

Biden Administration Lau
Billion Fund to Modernize
Capacity of America's P

MAY 10, 2022

Energy.gov » Biden Administration Launches $2.5 Billion Fund to Modernize and Expand Capac

DOE Seeks Feedback on President Biden's Bipartisan Infrastructure La

ICT AND BIG DATA

Southeast Asian Countries to Invest $13.6 Billi
Infrastructure by 2024

MIKE HOWER
PUBLISHED 7 YEARS AGO. ABOUT A 2 MINUTE READ.

Southeast Asian countries will invest $13.6 billion in smart grid infrastructure between 2014 and 2024, according to a new study by market intelligence firm Northeast Group.

This investment will include smart metering and the modernization of electricity transmission and distribution networks with sensors, communications and software. By 2024, the largest markets will be Thailand, Indonesia, Malaysia, Singapore, the Philippines and Vietnam. Smart grids permit power generators and users to monitor usage, which helps utilities to adjust supply to demand and reduce costs by saving energy in transmission.

Ministry of Finance of the Czech Republic

Ministers agree on the distribution of EUR 20 billion from the RePowerEU package, the Czech Republic will get about CZK 16.7 billion

04.10.2022 16:50

Today in Luxembourg, at a meeting of the ECOFIN Council chaired by President Zbyněk Stanjura, finance ministers reached an agreement on the RePowerEU proposal, including the allocation of EUR 20 billion among EU Member States. The Council agreement will allow the Czech Presidency to commence negotiations with the European Parliament.

The Czech Republic should receive a 3.4% share of the instrument, i.e. EUR 681.6 million (roughly CZK 16.7 billion). The European Commission's package proposes the creation of a new chapter under the Recovery and Resilience Facility (RRF) to finance investments in the diversification of the energy mix of EU Member States. The aim of RePowerEU is to free the European Union from dependence on unstable supplies of Russian fossil fuels following the aggression of the Russian Federation in Ukraine.

The study, carried out by Monitor Deloitte on the basis of detailed data from 10 European countries, finds that European distribution grids will need investments of €375-425 billion until 2030

BATTERIES

h American Investment
art Grid Infrastructure
ach $38.1 Billion By 2025

Hill Published August 11, 2015

Tell Us What You're Thinking!

ecome a key smart grid investment location
$38.1 billion by 2025.

#1 most loved electric vehicle, solar energy, and battery news & analysis site in the world.

SMART GRID

t & North Africa Region Forecast to Invest
in Smart Grid Infrastructure

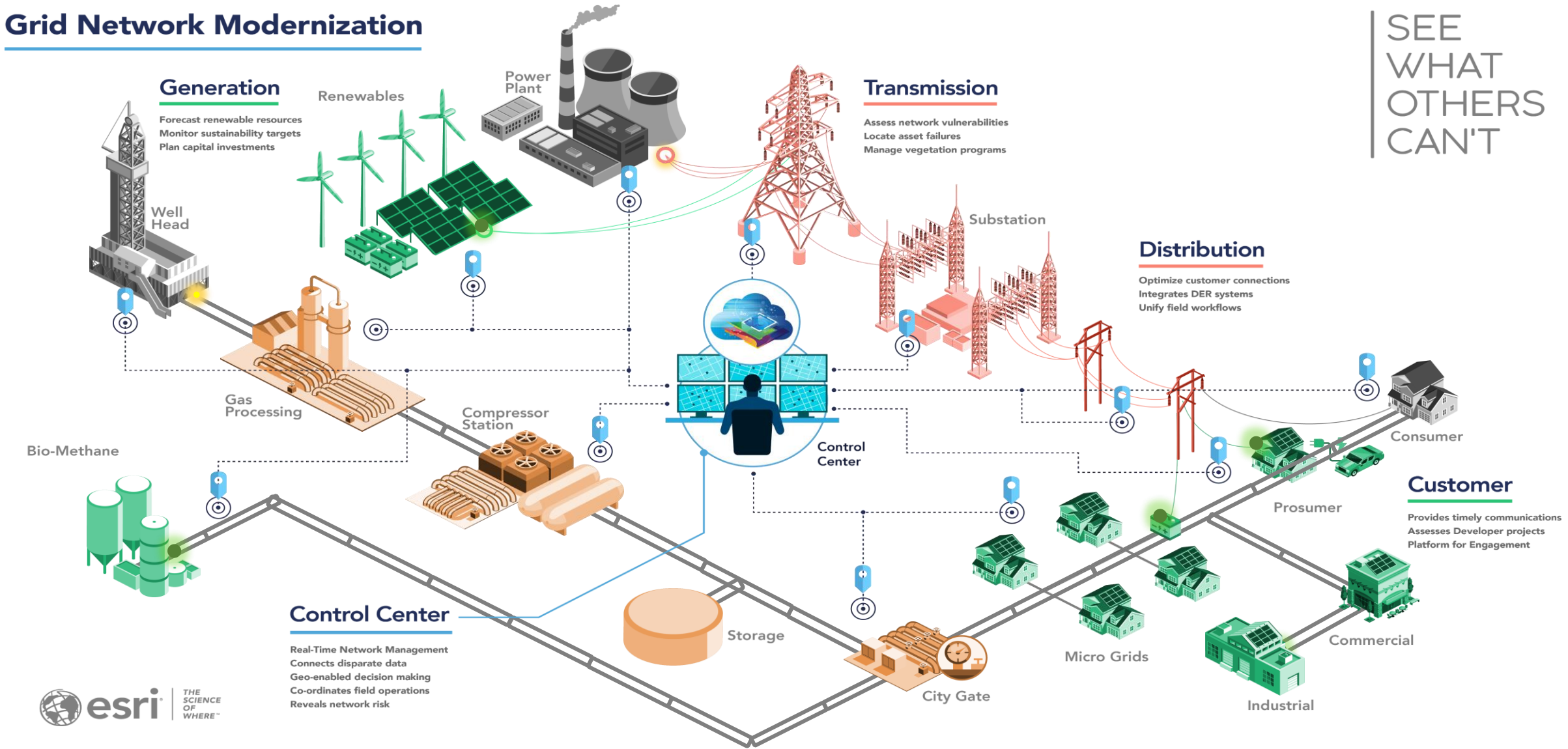
xt decade to be led by Saudi Arabia, Egypt, and the UAE

Communities of Your Peers

UNC workshop Vilnius 2023

ArcGIS | Empowering Energy Transition in Utilities

Modern Grid



ArcGIS

A Comprehensive Geospatial System

Mapping
& Visualization

Spatial Analysis
& Data Science

Data Management

Geospatial
Infrastructure

Open

Software, SaaS and PaaS

Geospatial Network Management System . . .

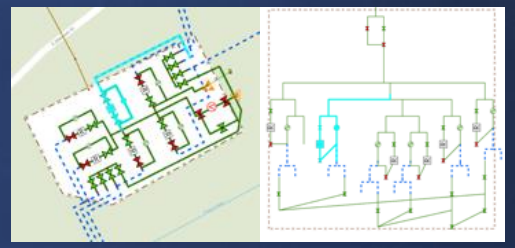
Network Management in ArcGIS

Creating a Digital Twin of Your Network

Manage the Level of Detail
Your Business Requires

ArcGIS | Network Management System

Modeling Utility Networks



Map & Schematic Views

Advanced Network Modeling

Visualization & Embedded Analytics

Pervasive Access

. . . A Foundation For Energy Transition

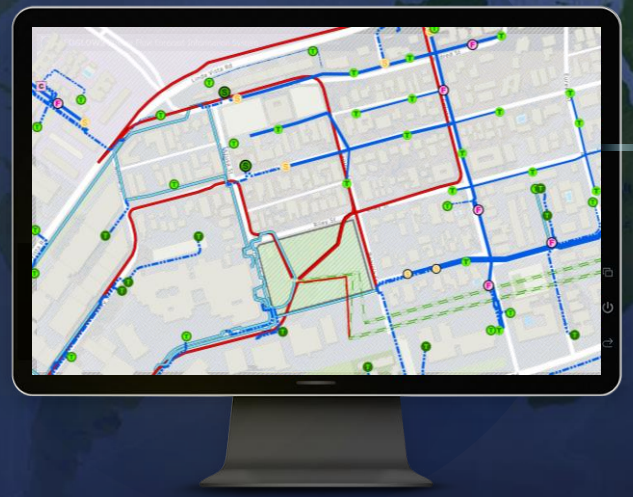
ArcGIS | Advanced Network Modeling

Modeling the Complete Network

Generation

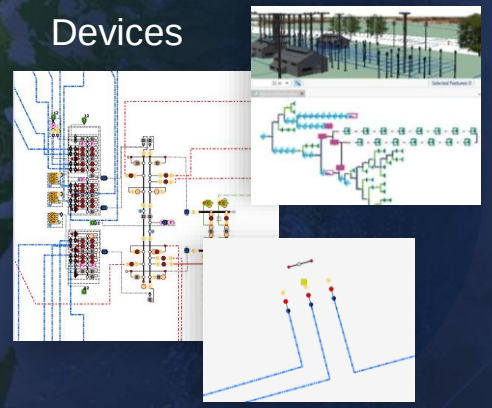
Transmission

Distribution

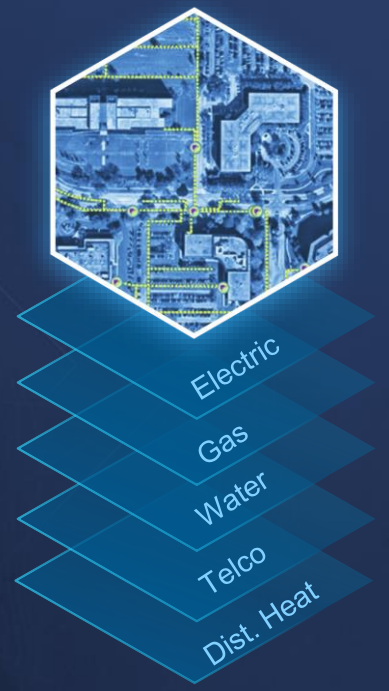


Connectivity

Devices



Containment

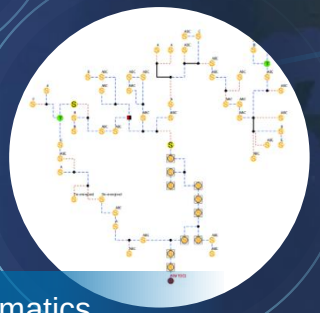


Data Models, Cartography and Capabilities . . .

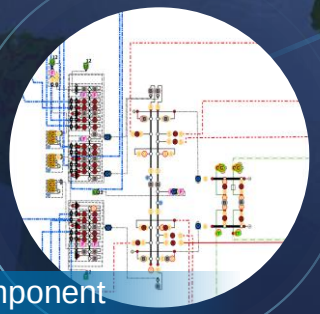
ArcGIS | Network Visualization & Embedded Analytics

Enabling Business Workflows

Maps



Schematics



Component Views

Advanced Analytics

Historical & Planned Views

3D

Supporting Everyone in the Organization . . .

ArcGIS | Network Pervasive Access

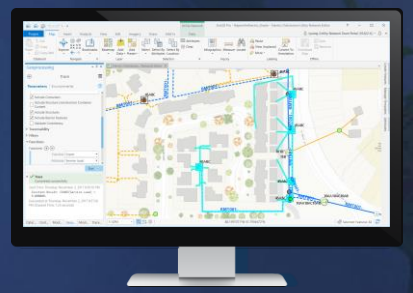
Enabling Real-Time Sharing and Collaboration . . .

. . . Across the Organization

Web

Desktop

Mobile



Developer

. . . Comprehensive Network Management System . . .

Coordinated Operations

Supporting business processes and people across the enterprise

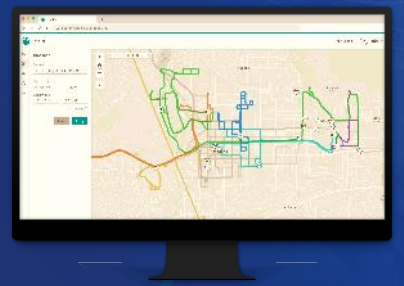
- Increase Safety
- Feed Accurate Data to ADMS
- Increase Information Security
- Improve Data Quality
- Facilitate Business Agility

Integration w/
Other Systems

CIS ERP

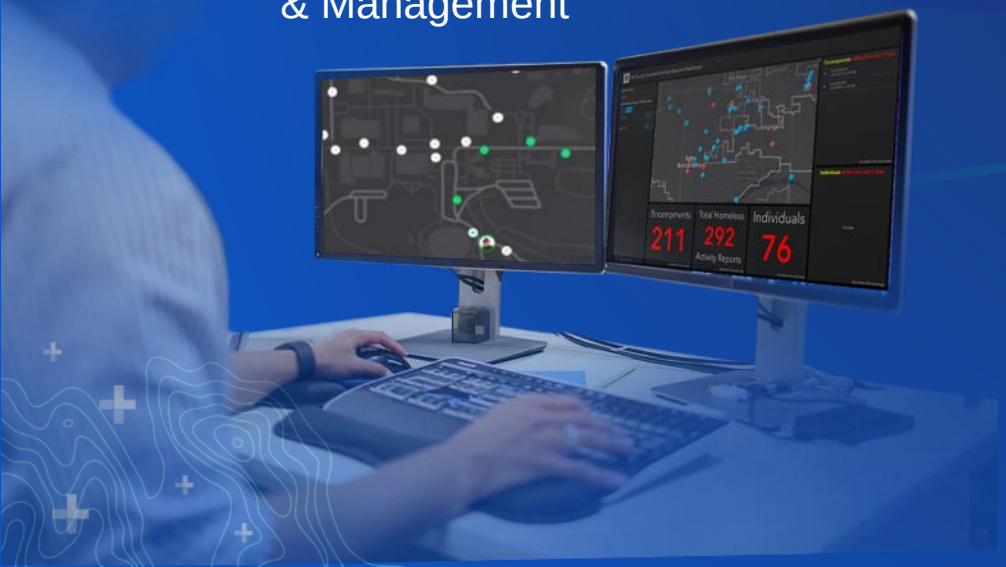
ADMS PM

Office Work



Field Work

Network Planning
& Management



Single Source of Truth

Analytics &
Data Science

Network and Business Rules as Services

Where Security and Business Rules Reside

Affect complexity, information security, data consistency, and TCO

Client-Server

Rules and Logic In Each Apps

Challenging to replicate security & business rules across all all apps

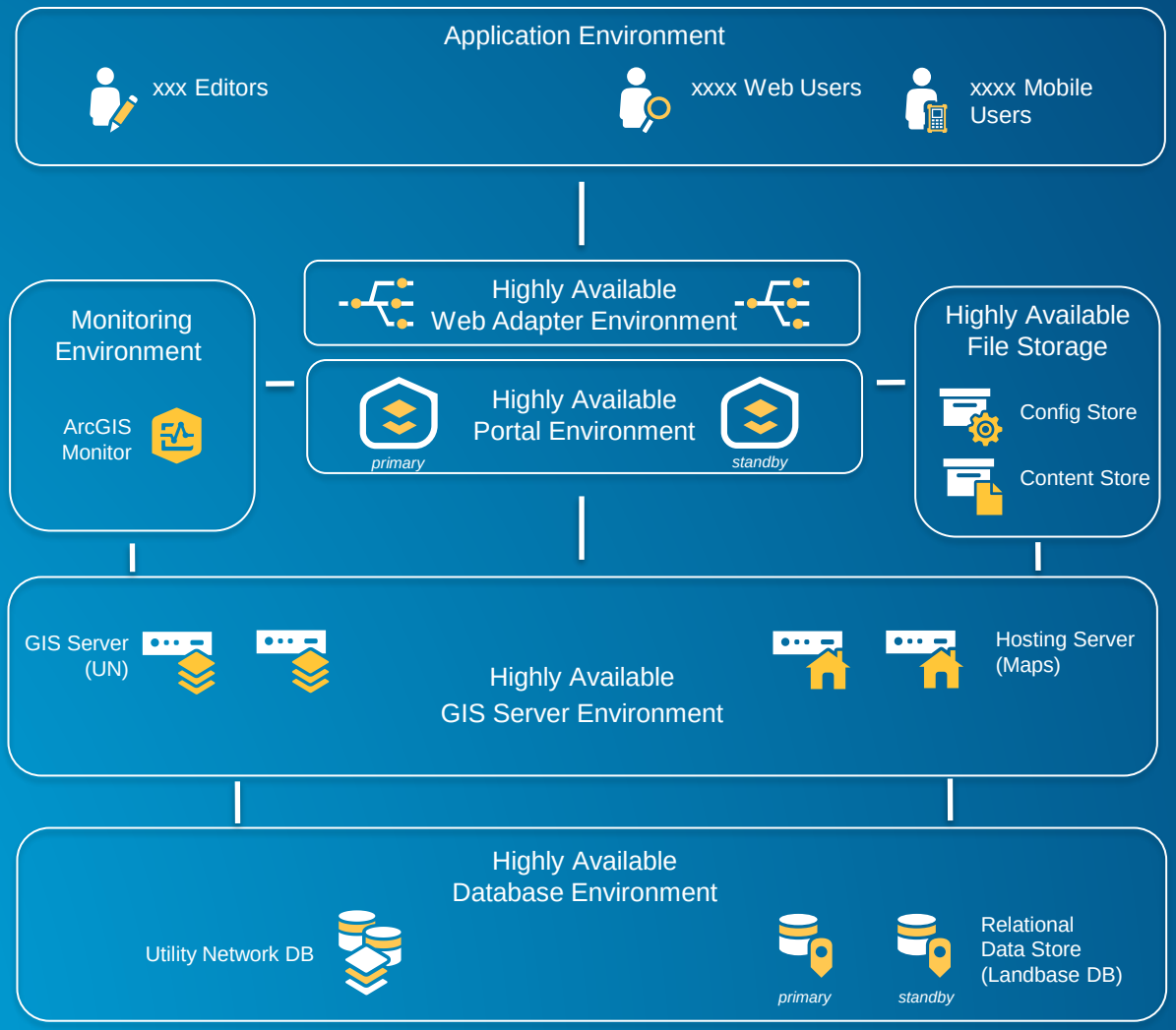
Services-Oriented

Common Security Model and Business Rules Apply to All Apps / Interfaces

…the service-oriented architecture delivers numerous technical and business benefits

Network Management System

Example: Design Architecture

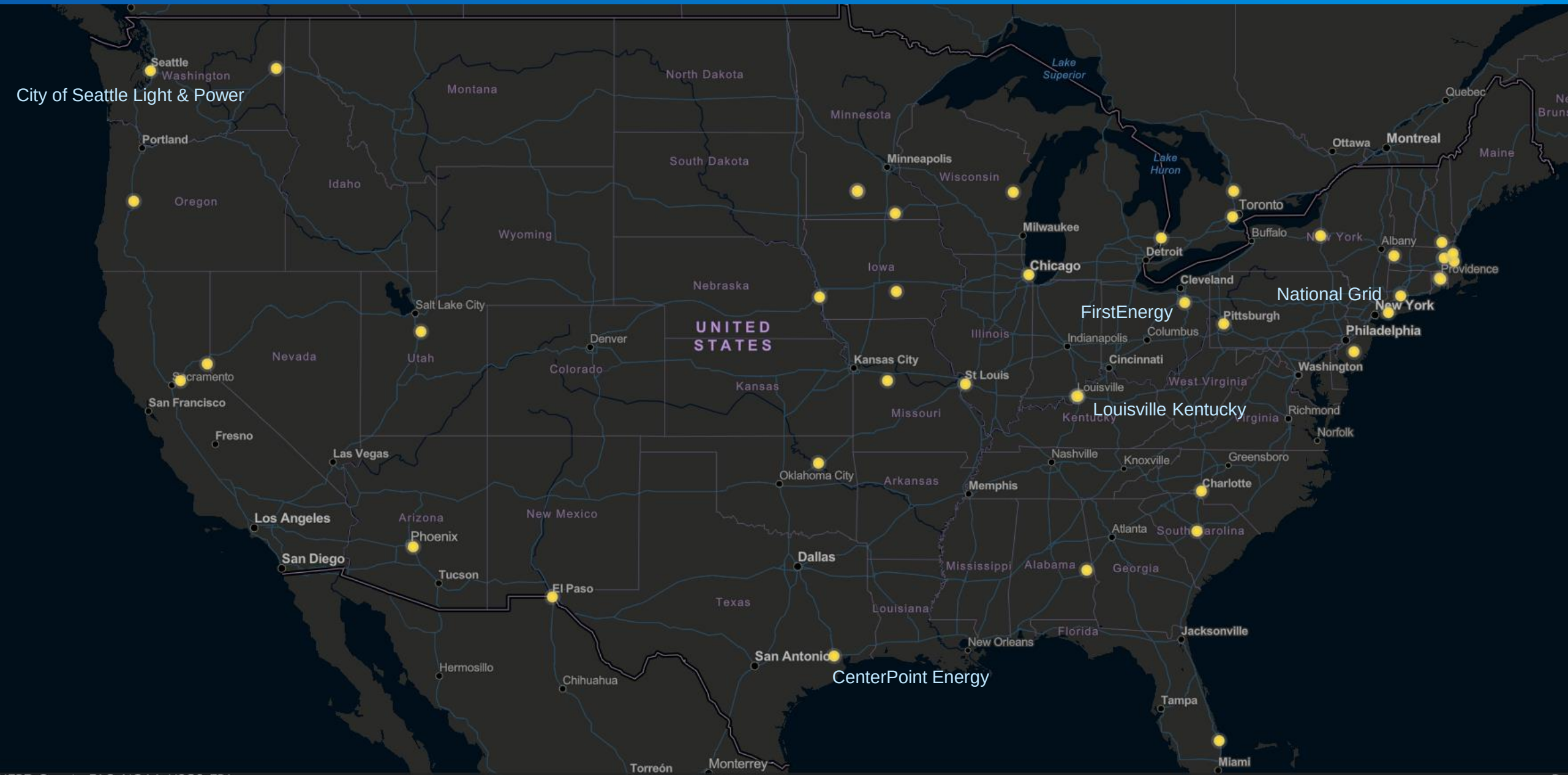


. . . Deployable on-prem, cloud, hybrid

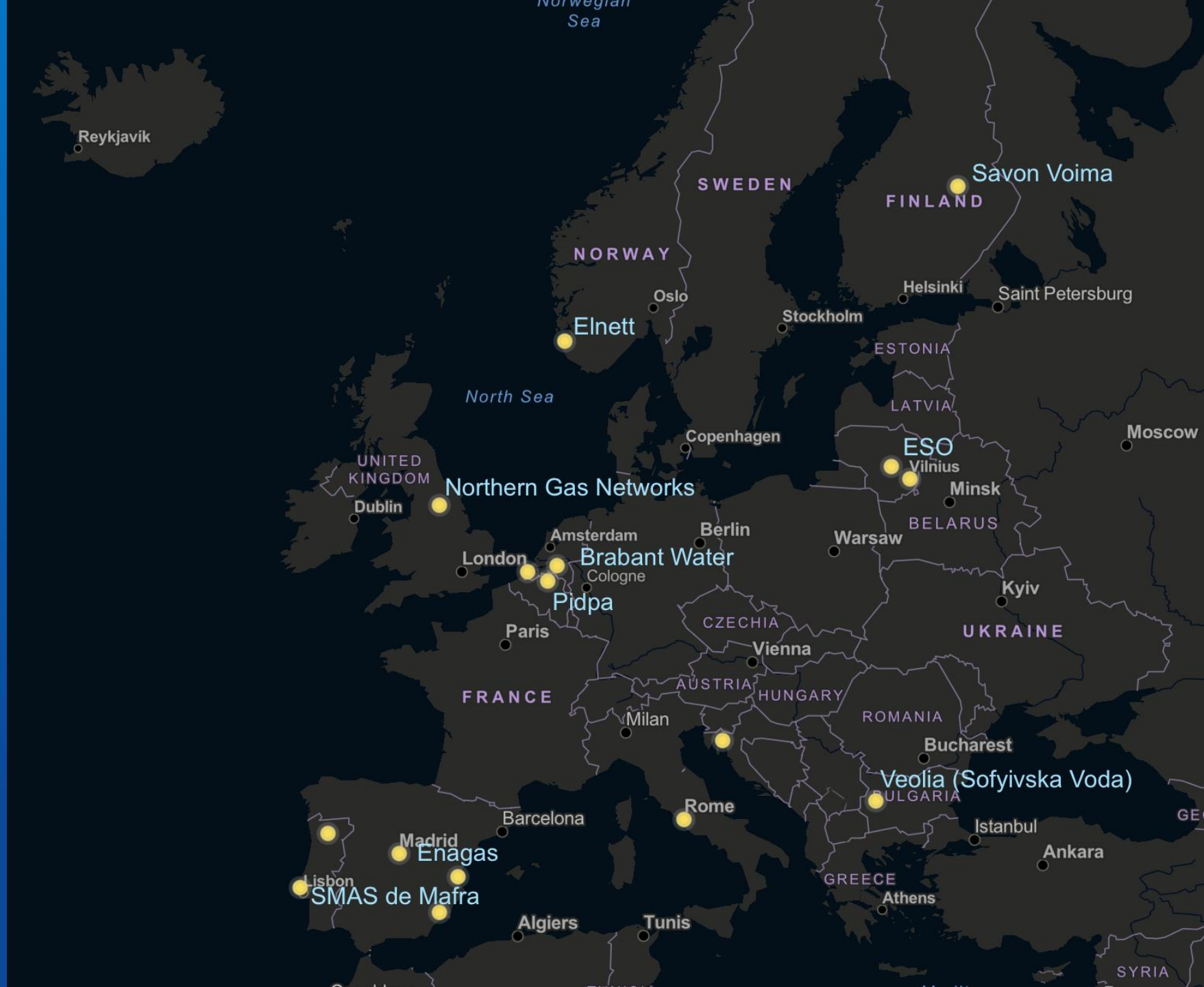
Enabling Energy Transition

Through Integrating Enterprise Systems & Processes

Customer Success – In Production



Customer Success – In Production



Network Management in ArcGIS

Creating a Digital Twin of Your Network

Manage the Level of Detail
Your Business Requires

ArcGIS Vision

A Comprehensive Geospatial System

Mapping & Location Services

Analytics

GIS

Imagery

Developer

ArcGIS

Mapping & Visualization

Spatial Analysis & Data Science

Data Management

Geospatial Infrastructure

Open

Software, SaaS and PaaS

Geospatial Network Management System . . .

GIS Enabling Living Digital Twins

Integrating
All Types of Content

Real-Time

Transactionally
Maintained

3D / 4D

Supporting Many
Applications

Accessible
Anywhere

A Foundation for Smart Cities

What's Next for ArcGIS

Continuous Improvements

Incremental Releases

ArcGIS 2024
Enterprise
Online
Pro

ArcGIS 2023
Enterprise 11.x
Pro 3.x
Online

ArcGIS 2022
Enterprise 11.0
Pro 3.0
Online

Predictive Analysis
Web ModelBuilder
GeoAI
Text Analytics
Smart Mapping
Spatiotemporal
Indoors
Enterprise Integration
Accessibility
Customer Experience
Spatial Analysis
Market Planning, Site Selection and Optimization
UX/UI
Kubernetes
Online Analysis
Multilingual Apps
Briefing Books
Advanced Automation
Imagery
Time
Knowledge Graphs
Developer Experience
BIM
Cloud Native
Unstructured Data
IoT
Mobile
Voice-Assisted Capture
Terrain Editing
Security
Augmented Reality
SaaS
Drones
Reality Mapping
Situational Awareness
Browser-Based Processing
Collaboration
Digital Twin
3D
Game Engines
Metadata & Search
Simulation Modeling
AI Assistance
Web Editing
Big Data
IT Readiness

. . . Continued Focus on Quality and Performance