

THE IRP TRANSFORMATION

Rich Maggiani
Solari Communication



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"You can't always tell the landscape by reading."

-me











Landsvirkjun

National Power Company of Iceland

In Iceland, we generate all our electricity
from renewable sources - falling water,
the heat of the earth and the force of the wind.

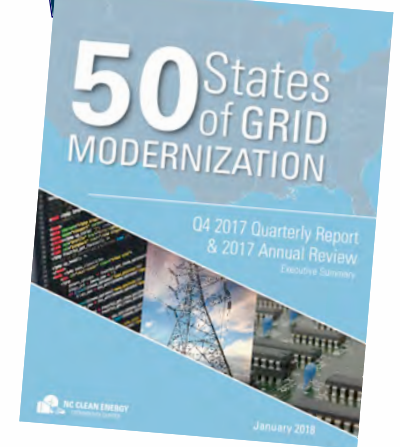
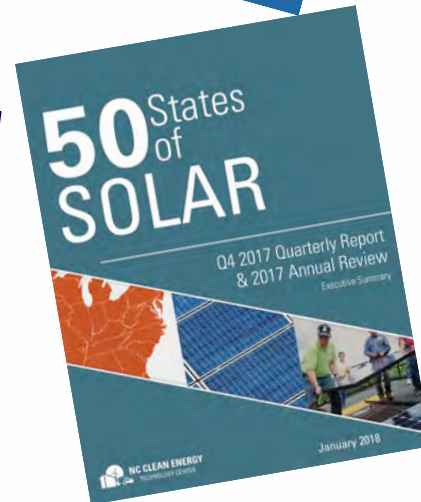
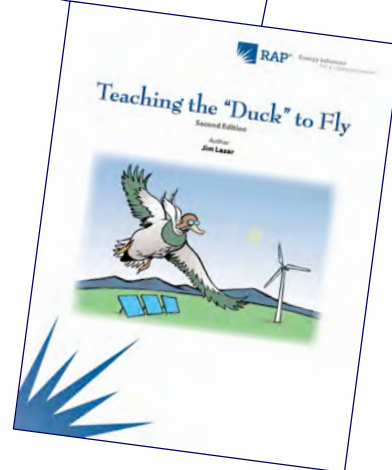
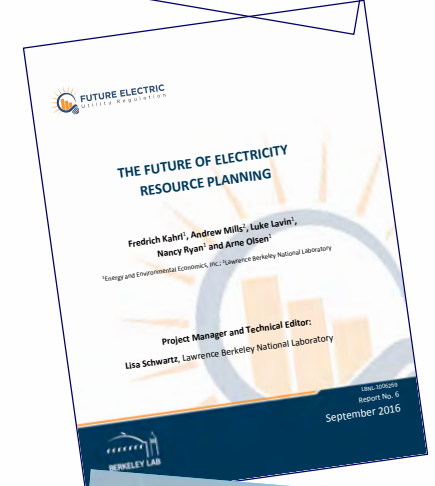
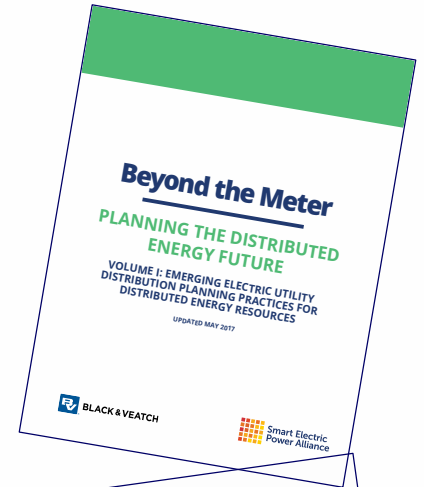
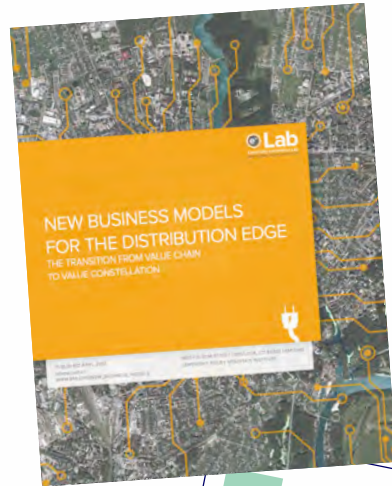
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**Welcome to the land
of renewable energy**



ELDEY
Airport Hotel

So I read a lot of reports...





"You can't always tell the landscape by reading."

-me



THE INTEGRATED RESOURCE PLANNING TRANSFORMATION

A primary research study about
the multiple factors affecting
the wholesale transformation of
integrated resource planning

April 2018



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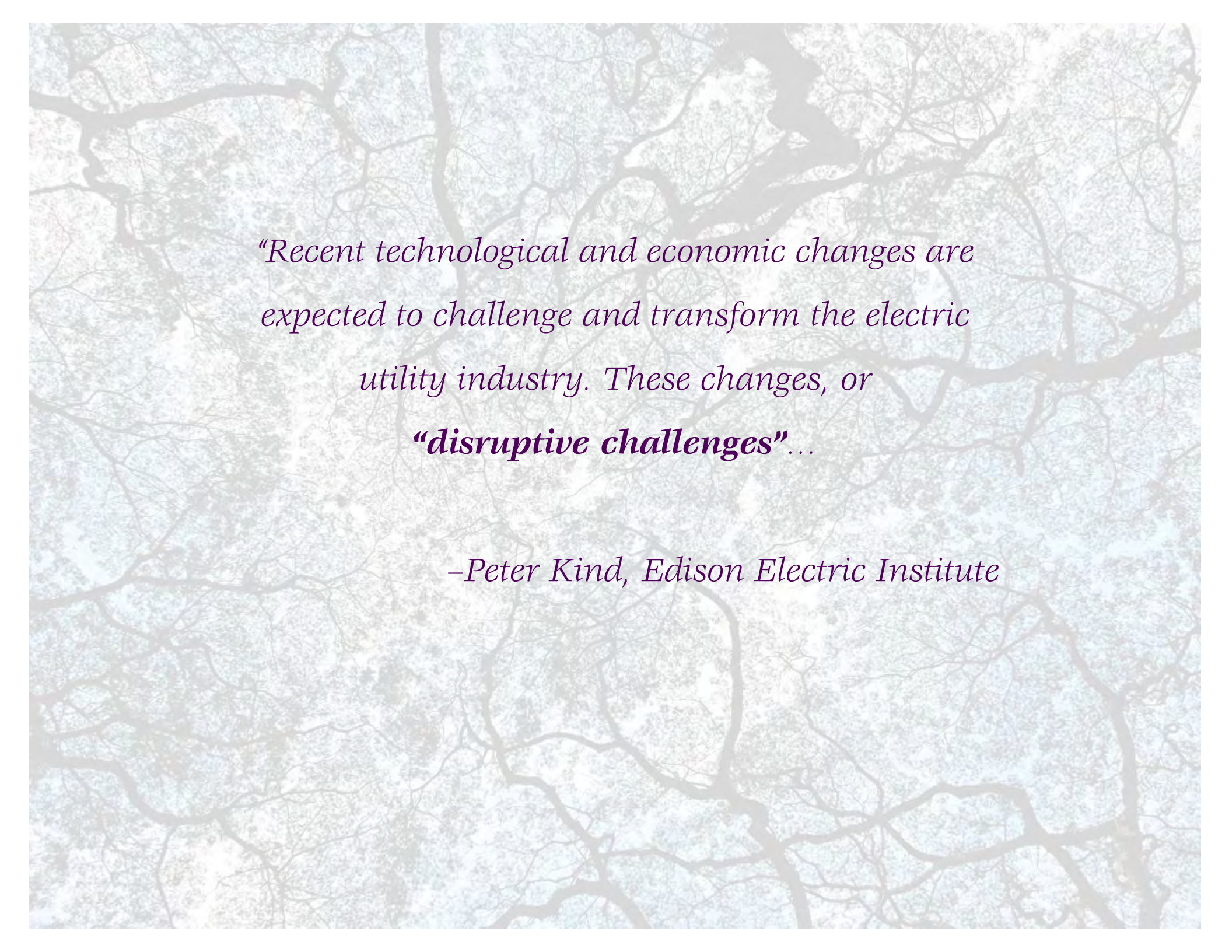
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It all started to crystallize five years ago...





*“Recent technological and economic changes are expected to challenge and transform the electric utility industry. These changes, or **“disruptive challenges”**...*

–Peter Kind, Edison Electric Institute

The Trail Ahead

A person wearing a hat and a backpack stands on a rocky desert trail, looking out over a vast landscape of red rock formations and sparse vegetation under a cloudy sky.

Profound Changes to IRP

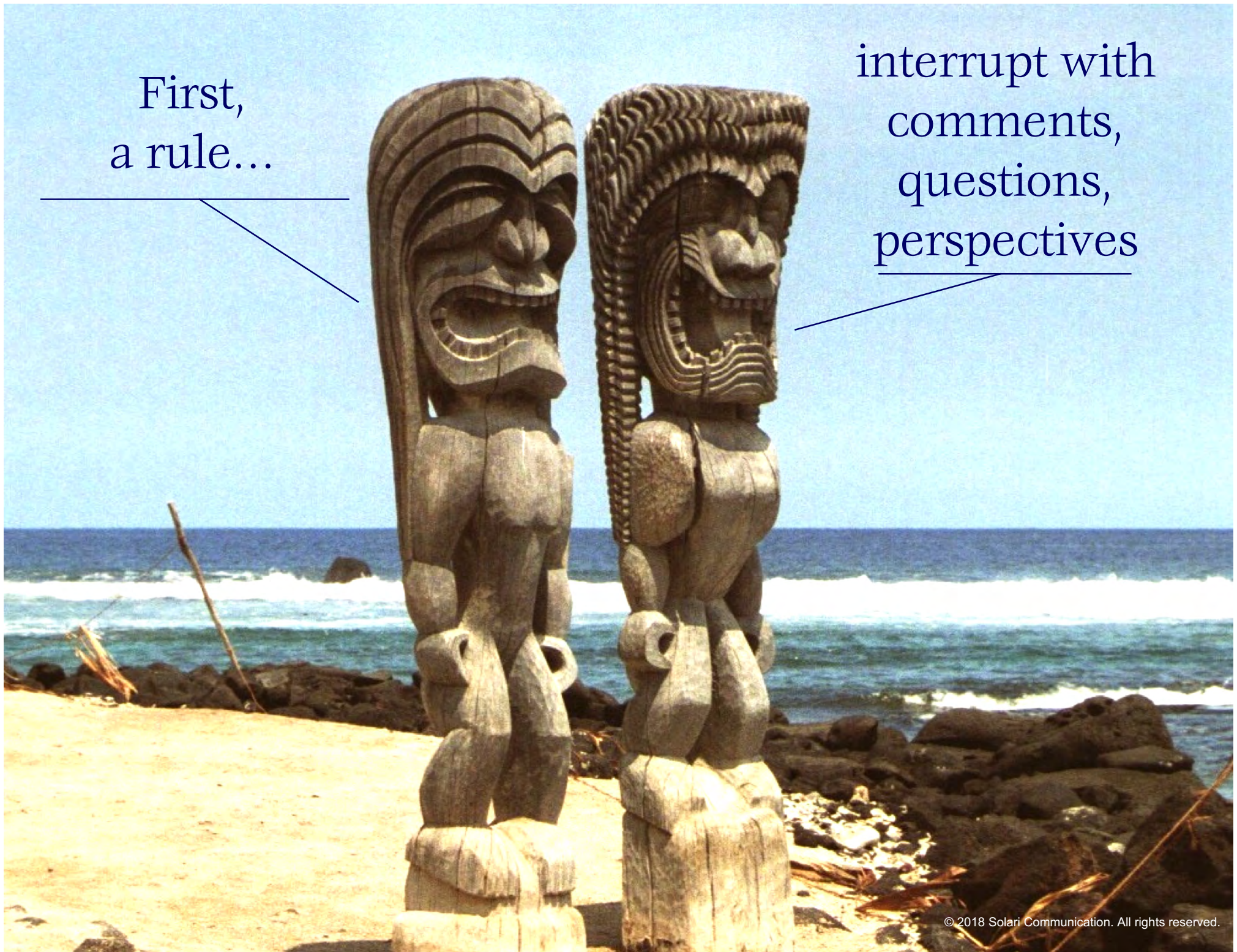
Factors Affecting the IRP Transformation

Traditional IRP: Becoming Obsolete?

Utility Business Model

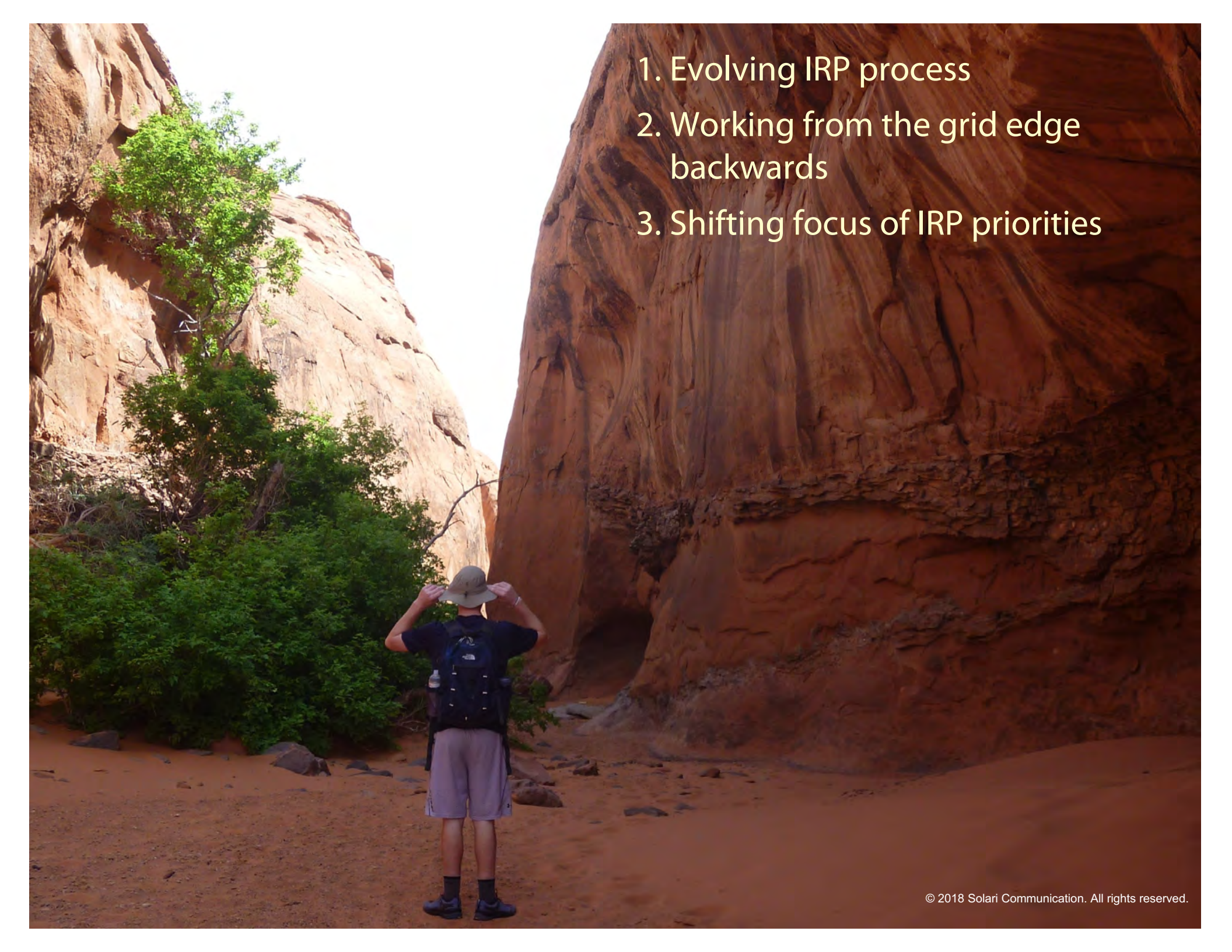
First,
a rule...

interrupt with
comments,
questions,
perspectives

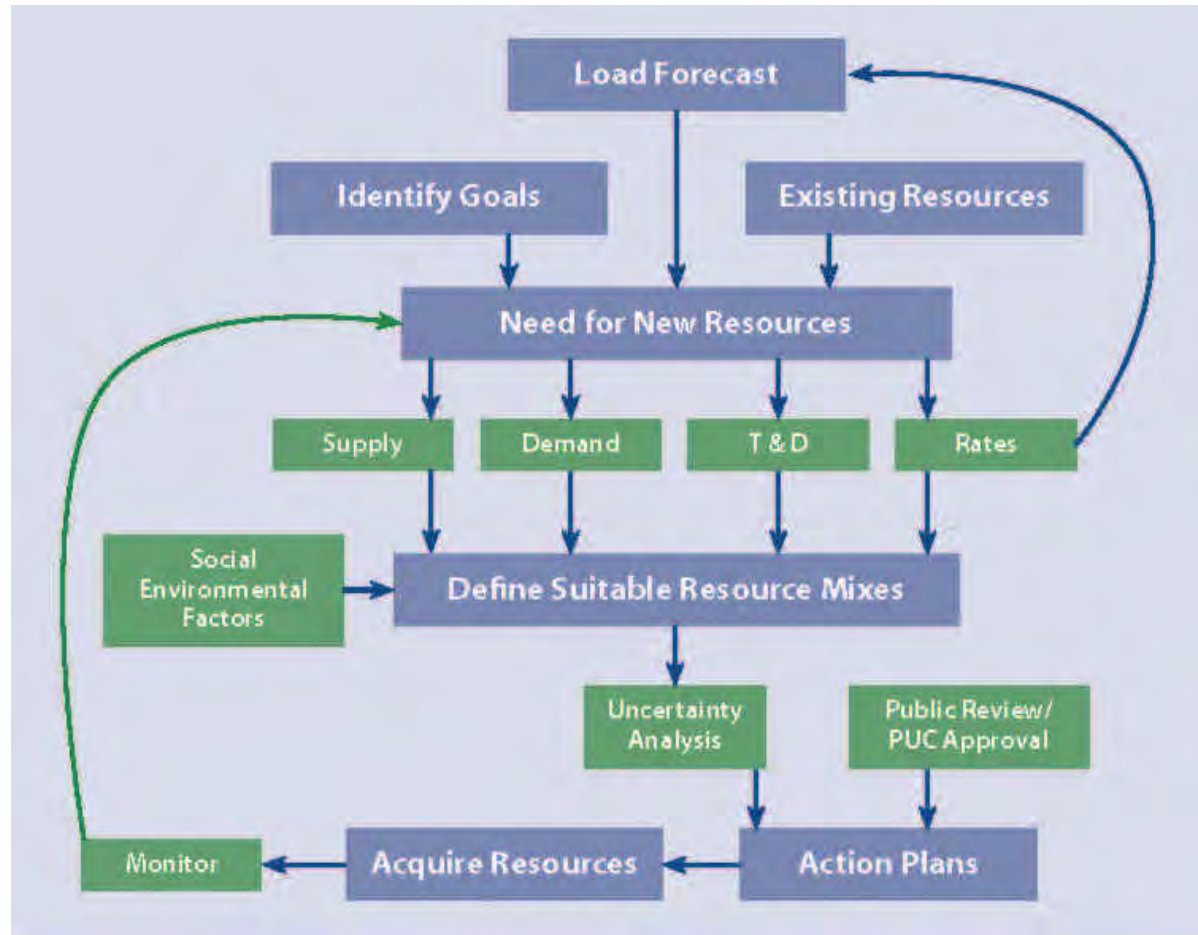


On The Trail...

Profound Changes to IRP

- 
- A person wearing a hat, a dark t-shirt, shorts, and a backpack stands with their back to the camera, looking into a narrow canyon. The canyon walls are made of reddish-brown sandstone with visible horizontal layering. There are some green bushes on the left side. The sky is bright and clear. Overlaid on the right side of the image is a list of three points in white text.
1. Evolving IRP process
 2. Working from the grid edge backwards
 3. Shifting focus of IRP priorities

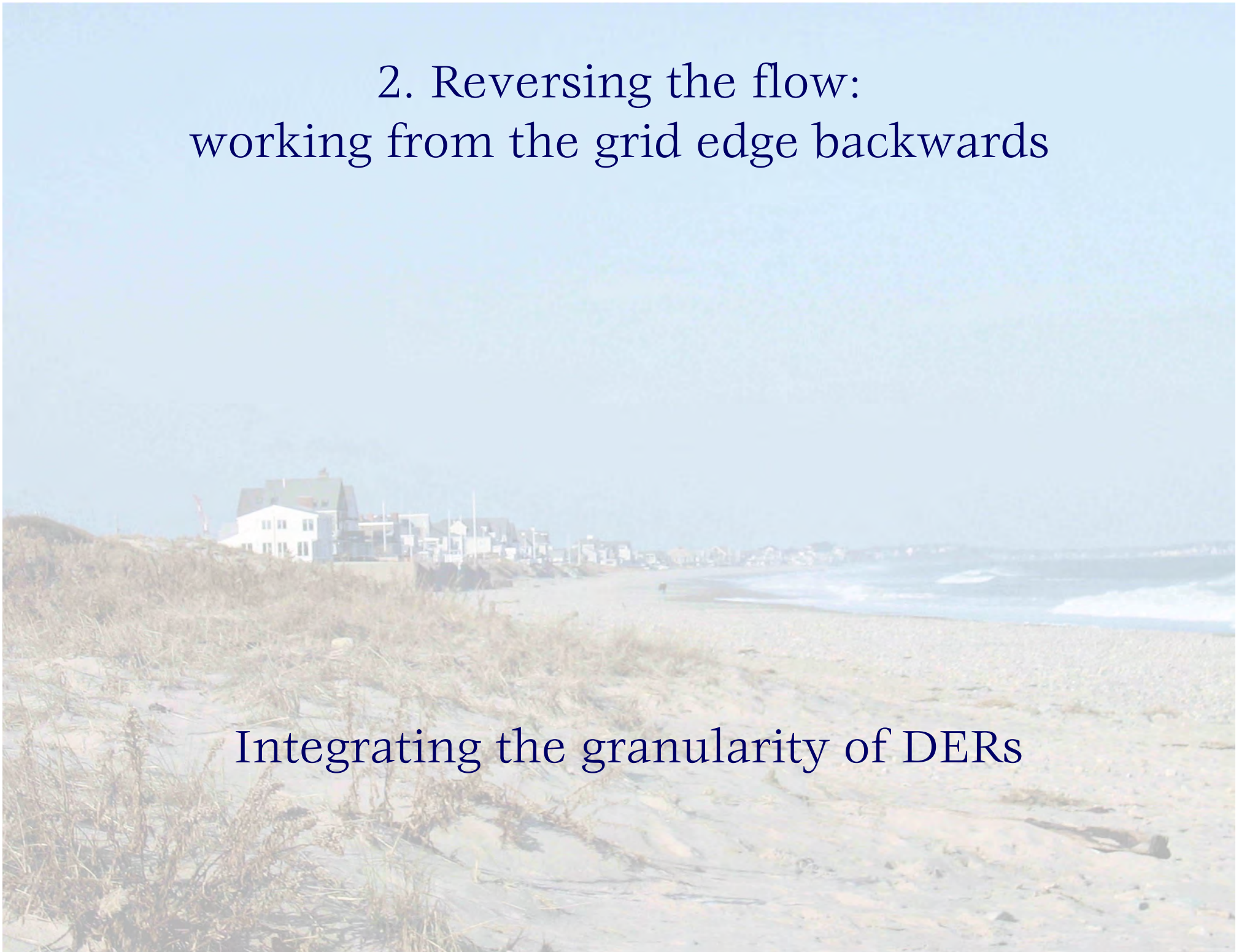
1. The overall flow hasn't changed.



It just became much more complex.

2. Reversing the flow:
working from the grid edge backwards

Integrating the granularity of DERs



3. Shifting focus of IRP priorities

Policy = Generation = Cost = Reliability

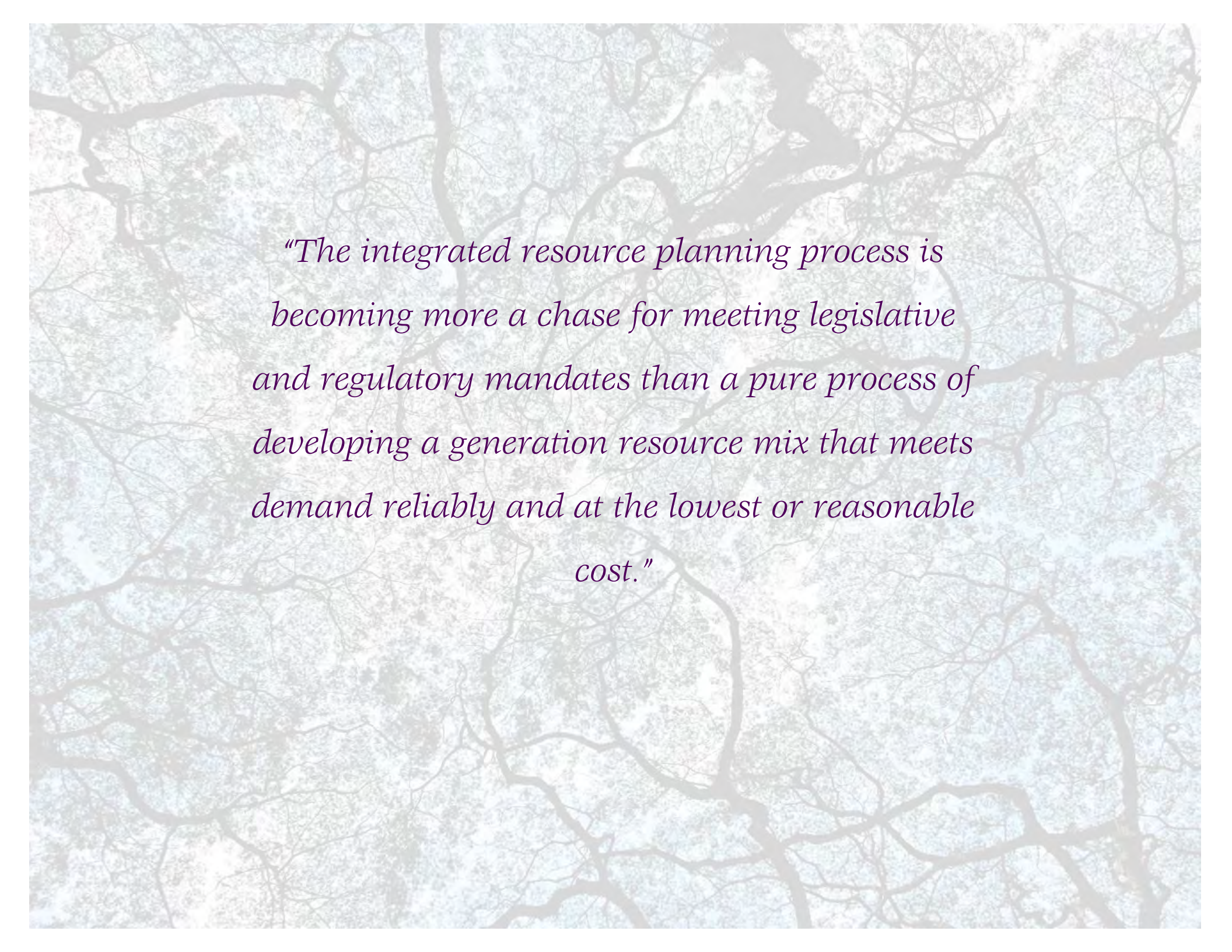
Policy

Generation

Cost

Reliability

Although that's not how utilities plan...



“The integrated resource planning process is becoming more a chase for meeting legislative and regulatory mandates than a pure process of developing a generation resource mix that meets demand reliably and at the lowest or reasonable cost.”

On The Trail...

Profound Changes to IRP
Factors Affecting the IRP Transformation

- 
- A hiker wearing a green bucket hat, a dark blue t-shirt, and patterned shorts is walking on a dirt trail in a desert landscape. The hiker has a black backpack with a water bottle visible. The background features red rock formations and green trees under a blue sky with light clouds. On the left side of the image, there is a list of seven topics in white text.
1. DERs and variable renewables
 2. Policy mandates
 3. Intervenor involvement
 4. A more complex process
 5. Rate design
 6. Energy storage
 7. Transparency & communication

1. DERs and variable renewables

- NEM directly affects DER growth
- Mandated transition to renewables
- Geographic aspects of DERs
- Transmission and distribution challenges
- Planning for DER penetration: models, maps, and management



“DER proliferation, more than anything else, is the primary cause for the transformation in integrated resource planning.”

2. Policy mandates

- Renewable portfolio standards
- Regulations created in a vacuum
- Collaborating with regulators

3. Intervenor involvement

- Broader range pursuing wider influence
- Increased role in resource planning
- Actively engaging intervenors



“The number of intervenors is increasing, and so is their influence on policy.”

4. A more complex process

- Increasingly sensitive assumptions
- Long-term forecasting difficulties
- Generation versus capacity planning
- Prescriptive versus stochastic analysis
- Shrinking planning horizons
- Expanding reserve margins

5. Rate design

- Volumetric can be a death spiral
- Variable pricing: time-of-use, locational, and grid conditions

6. Energy storage

- No clear modeling method
- Storage for peaking and grid services

7. Transparency and communication

- Too many sound bites
- Inherent misunderstanding
- Needed: a more diverse audience



“It would be great if a truly representative mix of our customer base attended stakeholder meetings.”

On The Trail...

Profound Changes to IRP

Factors Affecting the IRP Transformation

Traditional IRP: Becoming Obsolete?

1. DER integration planning complexity
2. Grid modernization and integrated distribution planning



1. DER integration planning complexity

- Too many assumptions are too variable
- DER penetration to the point of planning obsolescence



“As DER penetration rises to very high penetration levels, the traditional IRP process increasingly becomes a fool's errand.”

2. Grid modernization and IDP

- Coincident with resource planning
- New York REV: Distributed System Implementation Plan (DSIP)
- SMUD: Integrated DER study (iDER)

On The Trail...

Profound Changes to IRP

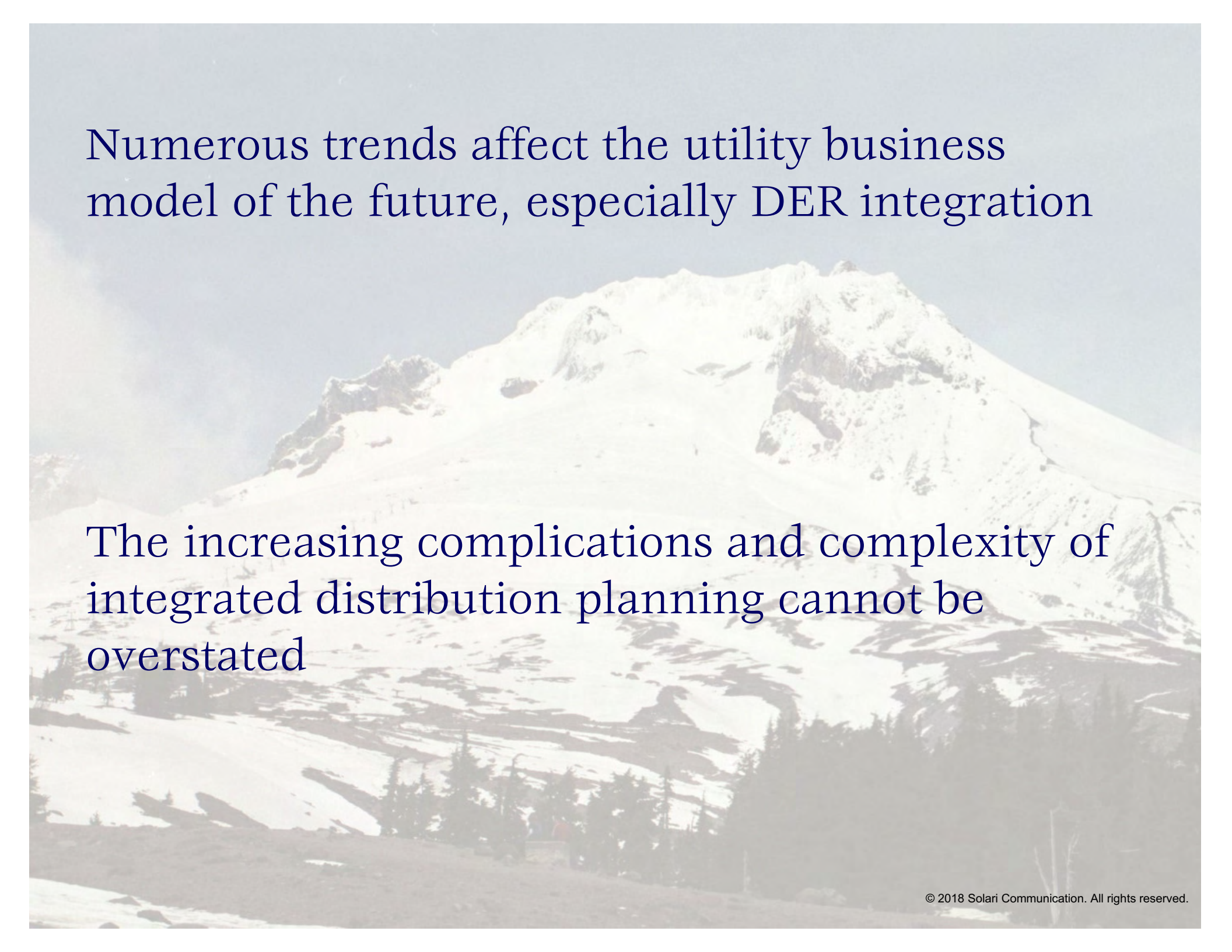
Factors Affecting the IRP Transformation

Traditional IRP: Becoming Obsolete?

Utility Business Model

- Numerous trends
- Continued IRP complexity





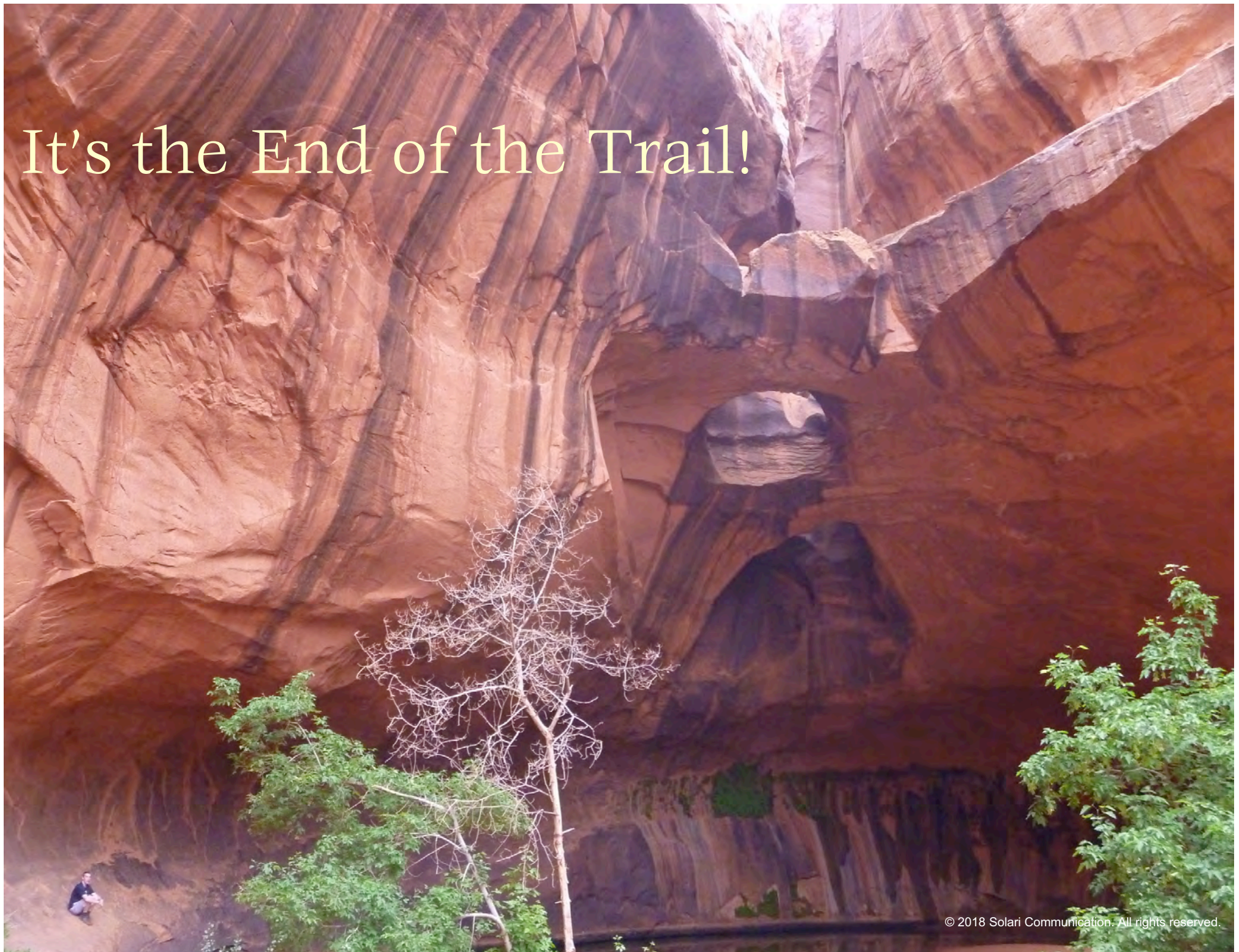
Numerous trends affect the utility business model of the future, especially DER integration

The increasing complications and complexity of integrated distribution planning cannot be overstated



*“IRPs are directly related to the utility business
model of the future.”*

It's the End of the Trail!



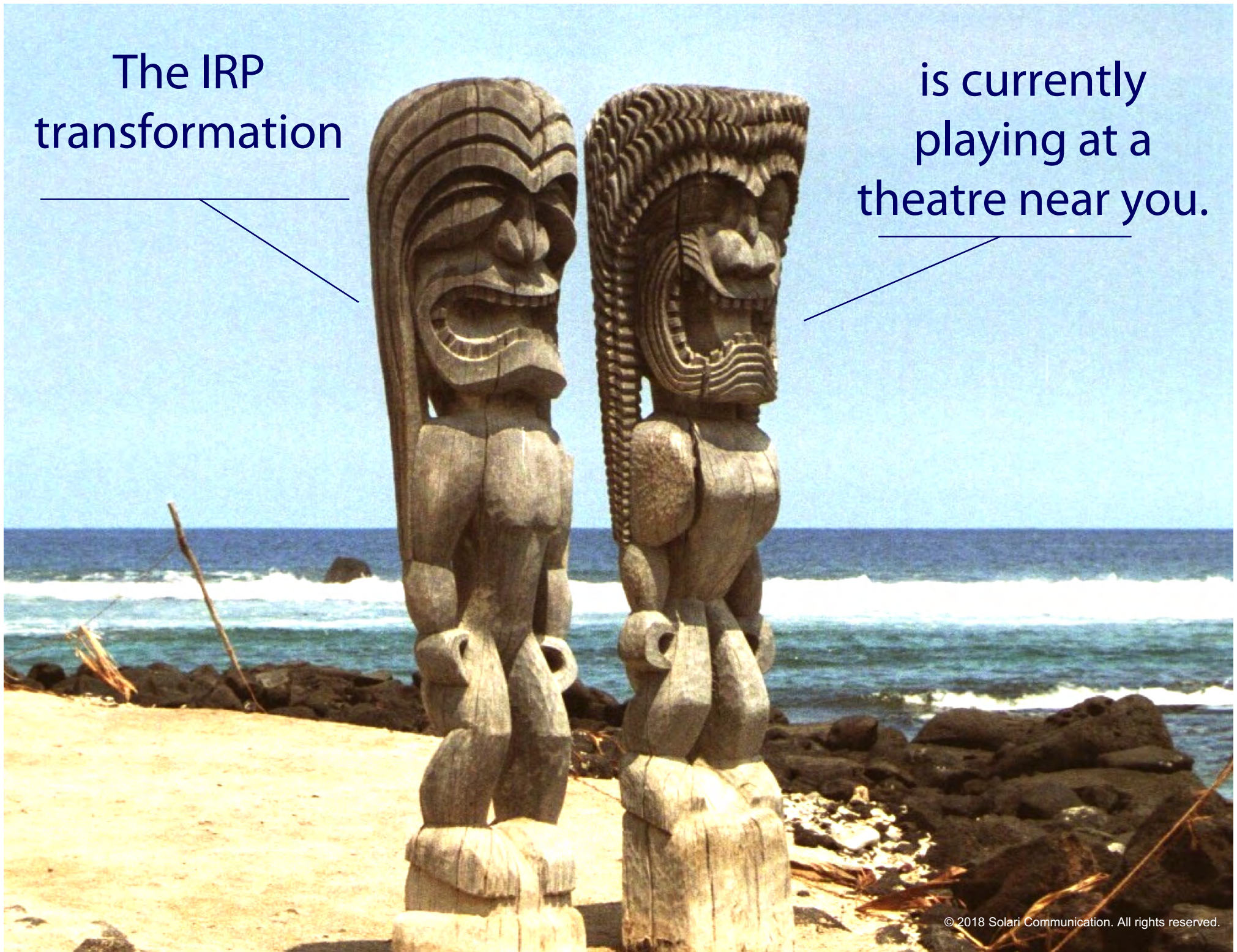
If you forget
everything else,

remember
this...



The IRP
transformation

is currently
playing at a
theatre near you.



Get it here:

www.SolariCommunication.com

> Resources tab

And here! On our table
in the back.



Thank you.



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A Final Point:



Integrated resource planning and the utility business model are transforming before our very eyes

