# U Swing Energy

Securing global energy needs in an economically and environmentally sustainable way.

Gas Tech Innovator and Service Company

Innovating solutions that put natural gas producers ahead of the demand curve while meeting higher sustainability standards.

### It's that simple.

CONTACT US TO LEARN MORE ABOUT OUR END2END SERVICE FOR YOUR SPECIFIC GAS WELLS



Foundation Backed By Decades Of Work By Advanced Turbomachinery Engineers



Innovations First-of-its-kind Gas Tech **Ensuring Existing Resources Can** Continue To Produce



Service Unique, Comprehensive Business Model That Puts The Needs Of The Customer First



Impact Access To Reliable Energy In A Safe, Clean and Economical Manner

## **Our Foundation**

Compressor exit

through tubing

Gas

intake to

compressor

Significant R&D investment and decades of work by advanced turbomachinery engineers have resulted in Upwing's proprietary Subsurface Compressor System™ (SCS). The SCS is derived from proprietary technologies of former parent company Calnetix Technologies, which have been proven in high-speed motorsports, long-term total heart replacements, CO2 removal from the International Space Station and the electrification of defense systems.

Upwing engineering experts keep the company at the forefront of natural gas extraction, securing numerous system level and application related patents for downhole rotating devices.

# Upwing's Subsurface Compressor System<sup>™</sup> (SCS)

Upwing's SCS is a high-speed downhole compressor system driven by a magnetically levitated permanent magnet (PM) motor.

to the well perforations.

The system also **mitigates the issue of liquid loading** by increasing gas velocity at the compressor intake and temperature at the compressor discharge.

Hybrid Axial Compressor - Decreases pressure at intake and increases pressure at discharge to improve gas production. Upwing's compressors are designed to have wide operating ranges and be autonomously

controlled.

**Magnetic Coupling** - Enables a protector-less configuraton with no mechanical shaft or rotary seals for increased operating life and effective torgue transfer.

High-Speed Permanenet Magnet Motor - Offers lower heat dissipation, high energy density and speed capabilities while isolating electrical components from the harsh external environment.

Sensorless Long Step-Out Variable Speed Drive (VSD) - Operates and controls Upwing's PM motors up to 60,000 rpm from the surface of the well while the tool is deployed over 2 miles downhole.



The SCS increases gas production by decreasing bottomhole pressure and increases recoverable reserves by causing higher reservoir drawdown close



SCS's compressor rotor assembly

SCS's motor module

# Optimizing Well Performance

# Upwing Energy's End2End Natural Gas Production Service

#### 1 Analysis and Predictions - With

a minimum amount of information from you, regarding the performance, test history and known characteristics of your well, Upwing is able to conduct a full analysis on the production performance and incremental recoverability using our Subsurface Compressor System<sup>™</sup> (SCS).

Our Enhanced Production Simulator™ (EPS) uses a series of analytical models to evaluate the well's reservoir, completion, response to subsurface compression, and topside constraints to predict production dynamics and reservoir response.

The results are shared with you to determine next steps.



2 Planning and Completions - Upwing application engineers will plan the completion and wellsite configuration, provide deployment and startup procedures and have the ability to intervene using the latest API standards when necessary.

The Subsurface Compressor is capable of utilizing all industry standard equipment to increase efficiency of the downhole completion.



4 Monitoring and Operations - Upwing's temperature regulated Surface Control Container houses the control, communication and safety equipment of the system, enabling remote operation of the SCS.

The system as a whole creates access to a significant amount of well and reservoir data.

Upwing monitors SCS health and operating conditions using real-time data and makes changes to the system to optimize production within pre-approved parameters.

The SCS is offered through Upwing's End2End Service Subscription, which provides hassle-free management of production equipment, operations and data, with no capital or human resources required from well operators.

From initial analysis to real-time monitoring, Upwing works with you at every step of the process to make your well sites as sustainable and efficient as possible, managing daily operation and maintenance of the SCS long after it has been installed. The comprehensive responsibly sourced natural gas production service enabled by subsurface compression.



3 Deployment and Startup - Following pre-agreed upon procedures, Upwing operations personnel will oversee the deployment of the SCS. The downhole tool is comparable to other subsurface tools in deployment process.

The SCS has been proven to startup in even the harshest environmental conditions.

Utilization of surface controllers to monitor downhole data and make necessary adjustments depending on well conditions ensures safe and optimized starting conditions.



# Making a Meaningful Impact

Upwing's SCS is the only downhole turbomachinery that can maximize gas and condensate production, recoverable reserves, gas-in-place recovery efficiency and liquid unloading all at the same time.

### Its truly uplifting.



We create value for gas well operators by increasing production, increasing recoverable reserves and delaying abandonment.

We enhance the natural gas extraction process by producing previously inaccessibe gas reliably and sustainably to meet global demand.



#### **Our Purpose**

#### The reason we exist

To secure global energy needs in an economically end environmentally sustainable way.

#### **Our Vision**

#### The goal of our purpose

To enable all people to have access to affordable heat, fuel, electricity and produced goods while maintaining a healthy environment for ourselves and future generations.





#### **Our Mission**

#### The path to our purpose and the behaviors we follow

To help our clients increase the production and recovery of natural gas from their existing wells with minimal human and capital resources and minimal environmental impact

pressure has depleted.

The system enables a higher level of well performance and ensures natural gas resources can continue to produce at high levels for years to come.

- Beduces the need to drill and frack new unconventional wells. Saving 8,386 tons of CO2e and \$8.5 million per U.S. well.
- Eliminates methane leaks associated with surface wellhead compressors. Saving 280 tons of CO2e per compressor per month.
- Maximizes asset value by increasing gas production from 20 to 200+% and recoverable reserves from 20 to 70+%.
- · Generates incremental income ranging from \$200K to \$2.6M per month for our clients.

Conventional Well Enhanced Flow with the SCS (upon installation) (A) SCS (B) Higher well head pressure (C) Lower bottom hole pressure



#### **Energy Security**



#### Environmental

We produce natural gas in an environmentally responsible way and prioritize sustainability in our technology and company practices.

#### Upwing's Subsurface Compressor System<sup>™</sup> is deployed into existing natural gas wells once their natural





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