## **ORPC Investment Opportunity Summary**

February 2019





Improving people's lives, and their environment, through sustainable energy solutions

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## **Compelling Investment Opportunity**

### Huge, Opportunistic Market

- Insatiable demand for renewable energy coupled with shift from large utility grids to renewable powered microgrids
- Total addressable market of 433GW
- 46GW immediate market in islanded communities

### High Value Solution

- Proven, patented marine renewable energy (MRE) technology
- Predictable, affordable, no-carbon energy from local water currents
- No environmental, viewshed, navigation or land use impacts
- Key element of community sustainability solution
- First-to-market advantage with limited competition

### Very Attractive Investment

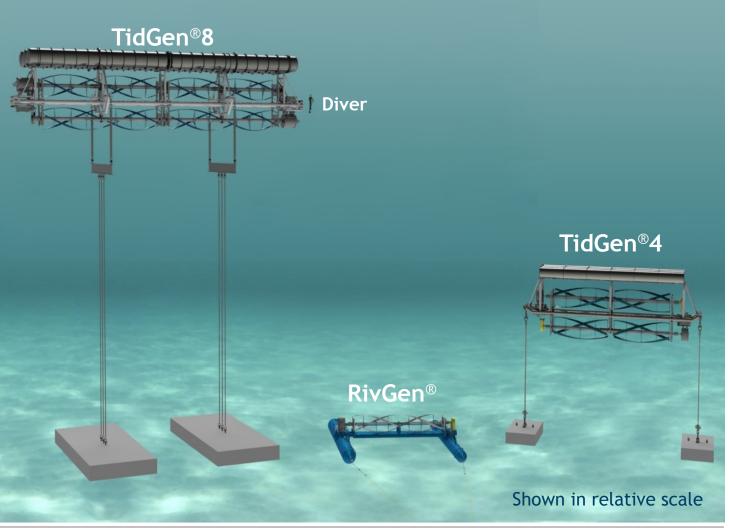
- Highly scalable business with steep revenue growth
- Motivated, seasoned management team
- Attractive valuation and exit opportunities within 5-7 years



## **ORPC Power Systems**

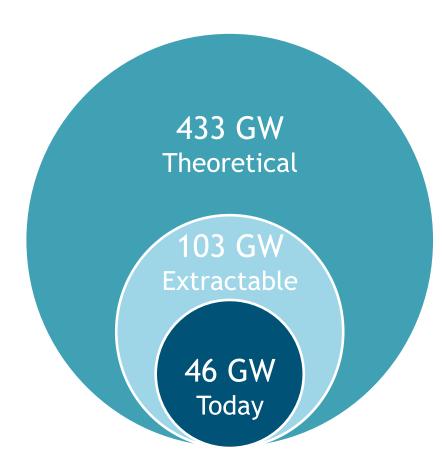
• Built around ORPC's proprietary and proven core technology, the turbine generator unit or "TGU"

 Highly adaptable, modular TGU adapted for river and tidal applications.





### **Total Addressable Market**



#### Theoretical 433 GW

- River 183 GW
- Tidal 238 GW
- Ocean Current 12 GW

#### Extractable 103 GW

(assumes 5% to 50% of theoretical can be extracted)

- River 41 GW
- Tidal 55 GW
- Ocean Current 6 GW

### Addressable Today 46 GW

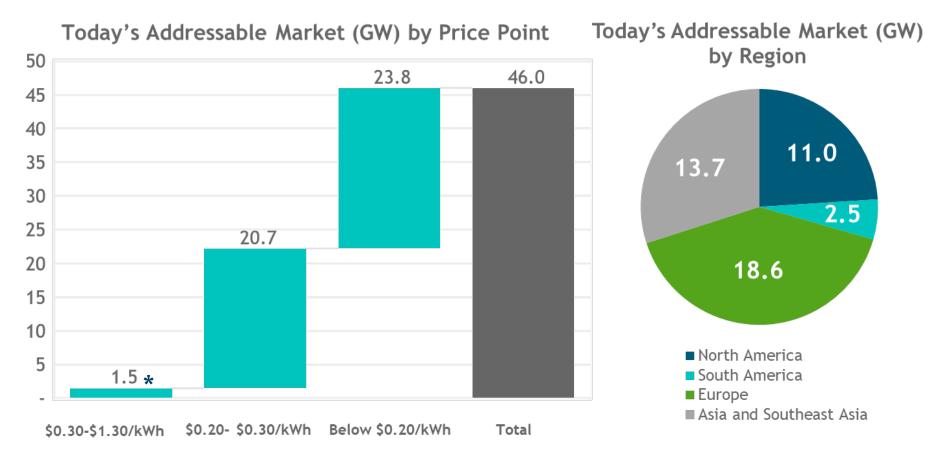
(considers existing demand)

- River 2 GW
- Tidal 37 GW
- Ocean Current 6 GW

46 GW (46,000 MW) represents \$478 billion of ORPC sales revenue



## 46 GW Addressable Market Today

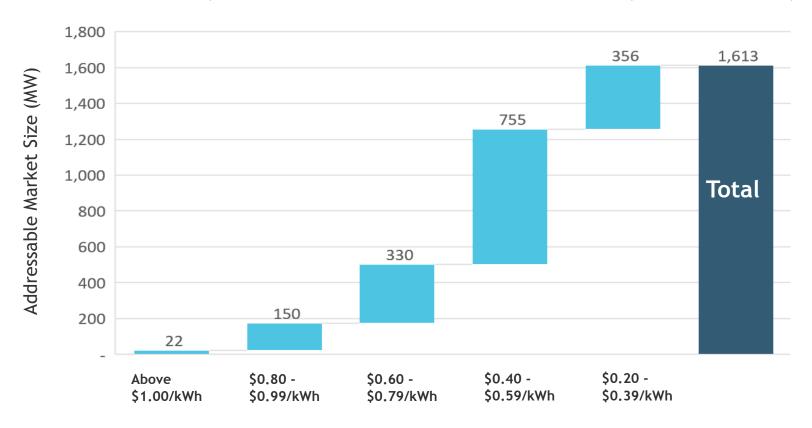


<sup>\* 1.5</sup> GW (1,500 MW) represents nearly \$16 billion of ORPC sales revenue.



### Immediate Market in Islanded Communities

Addressable Market Today (MW) in North American Islanded Communities, by Price of Electricity

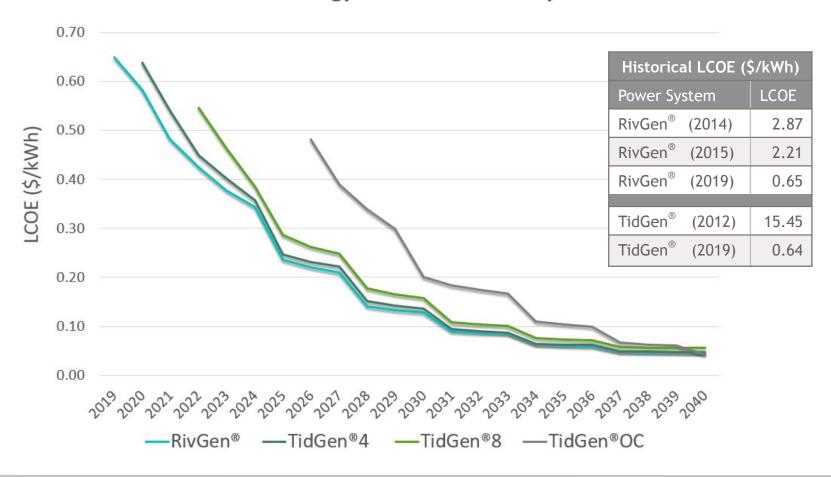


Market above \$0.80/kWh represents \$1.8 billion of ORPC sales revenue.



## Levelized Cost of Energy (LCOE)

#### Levelized Cost of Energy from ORPC Power Systems





## **ORPC Competitive Advantages**

### **Versus MRE Competitors**

- Advanced design cross flow turbines
  - Foils structurally supported along length, reducing stresses
  - Rotate in same direction in reversing tidal currents
  - Single gearless driveshaft, only one moving part
- Low vertical profile suitable for shallower sites: bigger market
- Completely submerged—no interference with views or vessel traffic
- Optimized for lower current speeds—significantly increases market
- Easier to deploy and retrieve with locally available equipment

#### Versus Wind and Solar

- Water currents are predictable with much higher energy density
- No visibility or land use issues
- Solar not viable in far northern/southern latitudes
- Wind not viable due to harsh, frigid, icy weather
- Being submerged in extreme weather is a major advantage!



## Formidable Leadership Position

### Significant protection for ORPC's leadership position:

- First-to-market advantage in North and South America
- Proven, patented technology developed over a 14-year period using proprietary, highly complex computer design tools
- Unique know-how and trade secrets from the design, build, installation and operation of 5 generations of technology in 11 projects with no observed negative effects to the environment
- Cited by federal and state agencies as the model for permitting and licensing of MRE projects
- Strong customer and partner relationships built from the ground up and based on common values and goals
- Business plan based on early customer cultivation, collaboration, inclusion, measured risk reduction and focus on commercialization



### **ORPC Business Model**

- Focus now on high cost markets in islanded communities
- Drive costs down through optimized design, streamlined supply chain, and volume manufacturing
- Penetrate larger lower cost markets as LCOE comes down
- Use U.S. success to expand into Canada (via Québec), South America (via Chile) and Europe (via Ireland)



- Reach production scale and global relevance by dominating the islanded community market.
- Achieve high profitability from power systems sales, technical services and technology licensing fees
- Invest in select projects through in-kind or direct investment (not included in ORPC financial projections)



## **Accomplished Management Team**



Chris Sauer Chairman, CEO & Co-founder

- 40 years in energy business
- Senior management at Wheelabrator and PG&E National Energy Group
- Led \$2 billion in energy deals



Abbey Manders
Vice President & CFO

- 10 years in energy business
- 15 years financial management experience



Cian Marnagh Vice President, Engineering & Program Management

 20+ years in systems engineering, operations & product development



John Ferland

President & COO

 30+ years technology commercialization, port operations, stakeholder engagement



Jarlath McEntee, P.E.
Senior Vice President & CTO

 25+ years in energy technology research amd development



Nathan Johnson *Vice President, Development* 

 20 years in renewable energy, construction management and environmental affairs



Alexandre Paris
President & CEO, EMARQ

- 20+ years as entrepreneur and executive for private and public sector companies across Canada, U.S., Europe & Asia.
- Former Sr. Manager, Growth & Innovation, Hydro-Québec





## **ORPC Advisory Board**

Highly experienced, well-respected leaders contributing technical, programmatic and strategic guidance to ORPC



## Millard S. Firebaugh, Sc.D. Retired Rear Admiral

- · Chair of Advisory Board
- 35-year U.S. Navy career
- Chief Engineer, Electric Boat (General Dynamics)
- COO, Satcon Technology Corp. Technology



## John "Dugan" Shipway Retired Rear Admiral

- 35-year U.S. Navy career
- Former President, Bath Iron Works (General Dynamics)
- Special Assistant, Electric Boat (General Dynamics)



# James L. Kirtley, Jr., Ph.D. Professor of Electrical Engineering, MIT

- Satcon Technology Corp.
- General Electric
- Swiss Federal Institute of Technology



## Denis Chartrand Retired Hydro-Québec (HQ)

- Former Chief Executive, HQ
   Distribution Network Strategies
- Now with DistSmartNet, QUATRIC and Cima+, Montréal
- HQ rep to Canadian Electrical Assoc. and Electric Power Research Institute



## RivGen® Power System

#### Power

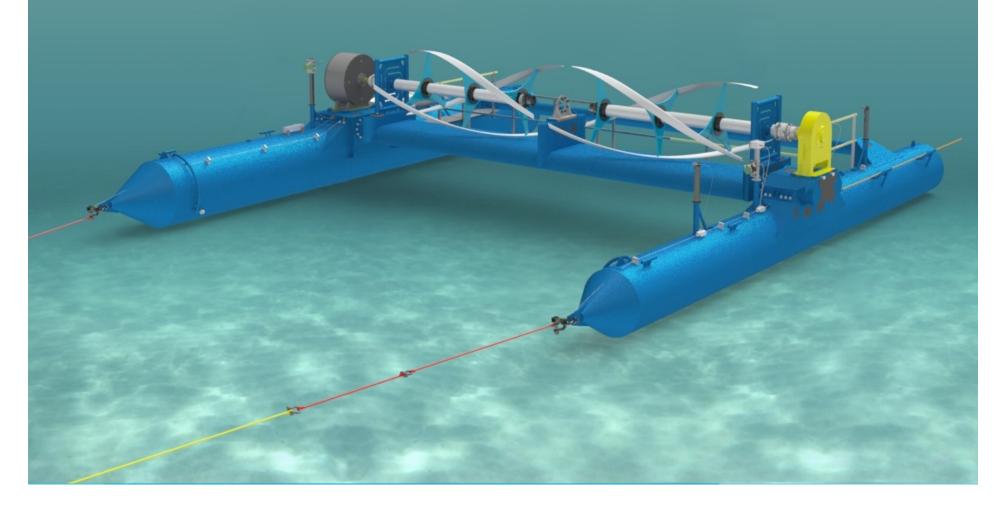
- 40 kW onboard power rated at 2.25 m/s
- 80 kW maximum at 3.5 m/s
- Operational up to 3.5 m/s

#### Logistics

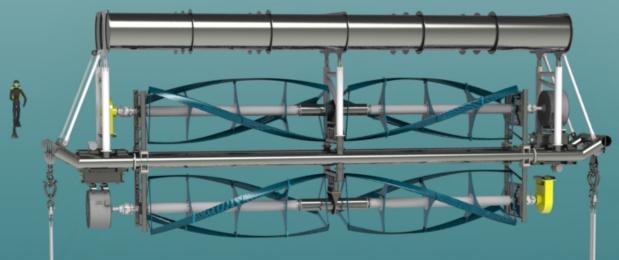
- Transportable in standard shipping containers
- Modular onsite assembly
- Towable, self-deploying system

#### **Physical**

- 5 m to 10 m water depths
- 15.8 m (l) x 3.5 m (h) x 14.4 m (w)
- 26,000 kg (dry weight)



## TidGen®4 Power System



#### Power

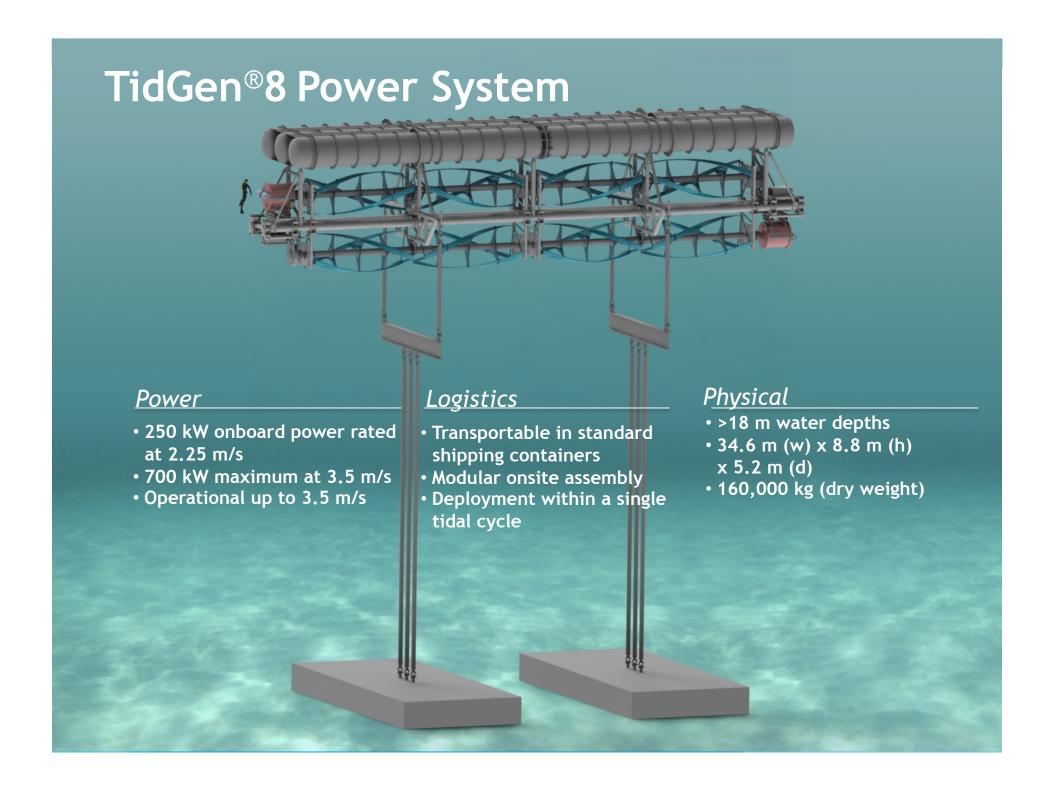
- 125 kW onboard power rated at 2.25 m/s
- 350 kW maximum at 3.5 m/s
- Operational up to 3.5 m/s

#### Logistics

- Transportable in standard shipping containers
- Modular onsite assembly
- Deployment within one tidal cycle

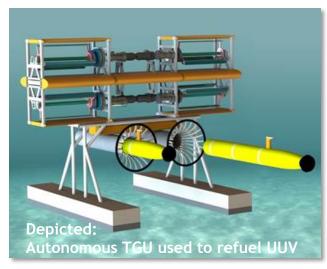
### Physical

- >15 m water depths
- 20 m (l) x 7.9 m (h) x 4.6 m (w)
- 57,000 kg (dry weight)



## Future Products in Development

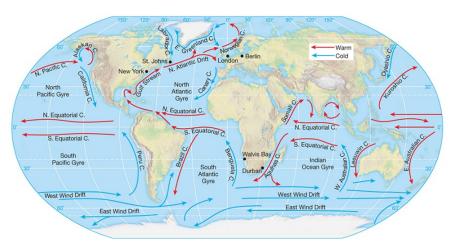
### Autonomous TGU (ATGU)



- Robotic TGU that can self-propel, selfdeploy, self-retrieve, generate and store electricity, and perform heavy lifts
- Markets include underwater vehicle refueling, powering subsea monitors, underwater research, subsea O&M, offshore construction and defense

### TidGen®OC Power System

- Adaptation of TidGen® technology for unidirectional, constantly flowing, offshore ocean currents
- Offshore ocean currents exist around the world, Florida Current is the world's most robust (fastest flowing)



Global Offshore Ocean Currents



### **ORPC Revenue Model**

### ORPC revenues will come from 3 primary sources:

- Sales of ORPC power systems
  - Systems will be sold at a margin over production cost
  - Margins will increase over time as production costs come down
- Sales of project development and ongoing technical services
  - · Project development can include site assessment and design, permitting, project management, training, etc.
  - · Technical services can include operations monitoring, predictive maintenance, maintenance management, etc.
- Technology licensing
  - Licensing of technology to third parties
  - Technology licensing within joint ventures

Investments in projects and revenues received through project investments are not included in projections.



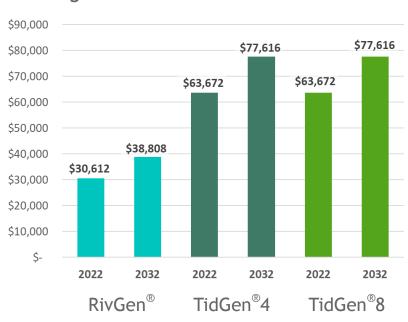


### Per Device Revenue

Production Cost, Margin and Sales Price Over Time



Average Annual Service Revenue Over Time



On average, each MW of power system sales generates immediate revenue of \$10.4MM with a margin of \$2.97MM and annual service revenue of \$0.6MM.



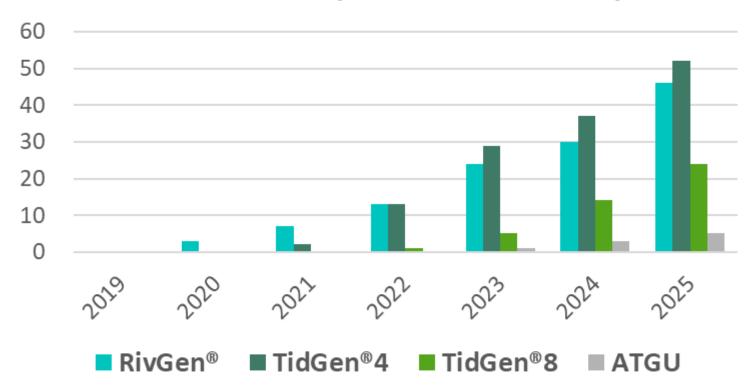
## Near Term Sales Pipeline

	Country	Region	Number of Sites/ Customers	Sales Value (\$MM USD)	Target Sale Year
RivGen®	Canada	Quebec	1	\$3.6	2020
	Canada	Northwest Territories	3	\$11.9	2021
	Canada	Manitoba	2	\$7.1	2022
	United States	Alaska	4	\$15.5	2021
	Chile	Aysen	1	\$3.6	2021
	Chile	Los Lagos	2	\$7.1	2021
	Chile	Magallanes	1	\$3.6	2020
	Europe	TBD	1	\$3.6	2022
Total			15	\$55.9	
TidGen®4	Canada	Nova Scotia	2	\$12.4	2020
	Canada	Quebec	3	\$17.3	2022
	Canada	British Columbia	2	\$4.9	2023
	Canada	Nunavut	2	\$17.3	2023
	United States	Alaska	3	\$44.5	2021
	Chile	Magallanes	1	\$9.9	2022
	Europe	TBD	1	\$2.5	2023
		Total	14	\$108.7	
TidGen <sup>®</sup> 8	United States	Maine	1	\$10.8	2022
	Chile	Magallanes	1	\$3.6	2023
	Chile	Aysen	1	\$3.6	2023
	Europe	TBD	1	\$3.6	2023
		Total	4	\$21.70	



## 7-Year Sales Projection

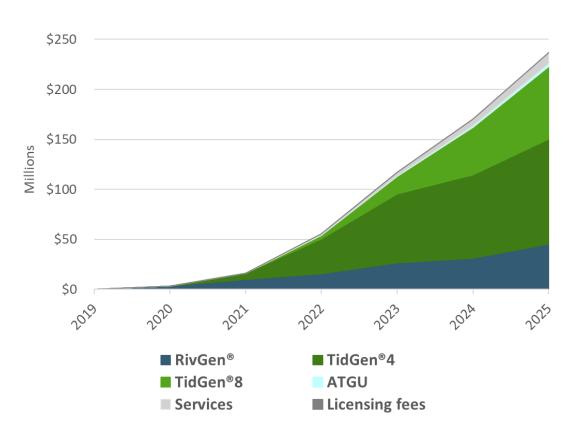
### **ORPC Power Systems Sold Annually**

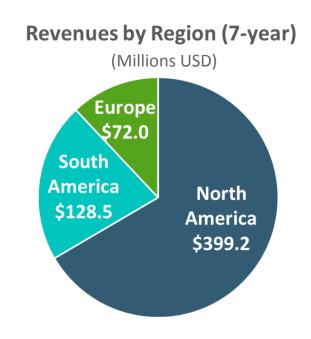


Projected sales in year 20 (2039) reach nearly 14,000 devices.



### Revenue Projections - First 7 Years

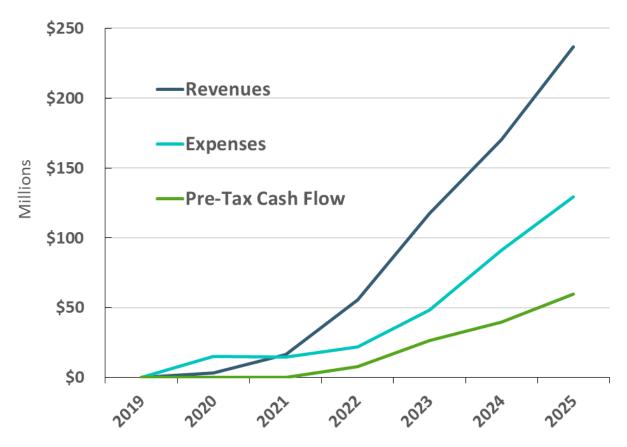




Projected revenue in year 20 (2039) exceeds \$2 billion.



## 7-Year Revenue, Expenses and P-T Cash Flow



Pre-tax cash flow reaches \$1 billion within 20 years.



## Meaningful Funding to Date

### \$90MM raised to date

- \$49MM from private investors
- \$41MM from various government agencies in U.S., Canada and EU (70 percent success rate with grant applications)

### Private investment, primarily family offices

- \$37.8MM from a single family office (initially invested in 2009)
- \$4.0MM from J. Sebastian Scripps
- \$7.2MM from other family offices & Patient Capital Collaborative

### Government funding

- \$30.5MM from U.S. federal agencies (\$30MM DOE, \$0.5MM USDA)
- \$6.2MM from Maine (Maine Technology Institute & Coastal Enterprises)
- \$2.5MM from Alaska (primarily Alaska Energy Authority)
- \$1.6MM from EU Horizon 2020 & Sustainable Energy Authority of Ireland
- \$0.2MM from Canadian agencies



## **Investment Opportunity**

### Total Investment \$25MM

- Near Term Round: \$10MM
  - Target closing 2Q19
  - Funds the company through 1Q20
  - Matched by \$4.7MM of government funding
  - Provides needed growth capital
- Final Round: \$15MM (Estimate)
  - Target closing end of 2Q20
  - Funds the company to positive cash flow in late 2021
  - Exact amount of final capital raise to be determined in 1Q20
  - Expect substantially higher valuation



### Results from \$10MM Round

### Initial \$10MM growth capital will allow ORPC to:

- Add needed ORPC personnel, most notably to build supply chain management and marketing/sales teams
- Build, install, operate, benchmark performance of 1st commercial product, RivGen® in Igiugig, Alaska
- Complete design, procure and assemble 2<sup>nd</sup> commercial product, TidGen®4 ready for installation in Cobscook Bay, ME
- Turn initial customer interest into sales commitments in Alaska, Canada and Chile
- Execute key strategic partnerships in Canada and Chile
- Position final \$10MM investment round for success and higher Company valuation



## **Valuation History**

- Total investment of \$90MM in ORPC to date, \$49MM equity invested by private investors
- Biggest risks and uncertainties have been retired through prior (higher risk) investment in successful demonstration projects.
- Significant recent transactions based on \$32.8MM valuation:
  - Conversion of all private debt to equity in 2017
  - \$1.8MM new investment in ORPC convertible preferred stock in 2017 (\$32.75/preferred share), new significant investor
  - \$3.7MM sale of common stock (\$20/share) since 1Q18, 2 new investors
- Significant progress since last rounds: JDA's with Hydro-Québec, CIMA+ and Homer Electric Coop., completion of RivGen® design, \$2.4MM new grant funding from DOE for Igiugig project
- Projected company value between \$1.4 to \$1.8 billion in 7 years (based on 8 to 10 times estimated 2025 EBITDA)



Can a Small Maine Town's Innovation Turn the Tides on Sustainable Energy?



The Search for Energy
Takes a Turn Underwater



### Thank you

For more information contact:
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SBIR Program 2013 Tibbetts Award

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