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Description of document: Listing of Bonneville Power Administration (BPA) Technology Innovation Project (TIP) numbers (TIP report numbers) and titles, 2019

Requested date: 07-June-2019

Release date: 17-June-2019

Posted date: 01-July-2019

Source of document: FOIA Request
FOIA/Privacy Act Officer
Mail Stop DK CGI-7
Bonneville Power Administration
PO Box 3621
Portland, OR 97208
FOIA.gov

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Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

FREEDOM OF INFORMATION ACT PROGRAM

June 17, 2019

In reply refer to: FOIA #BPA-2019-00996-F

Thank you for your interest in the Bonneville Power Administration (BPA). Your request for records made under the Freedom of Information Act, 5 U.S.C. § 552, (FOIA) was received on June 7, 2019, and has been assigned Department of Energy (DOE) control number BPA-2019-00996-F. Please use that number in any correspondence with the agency regarding your request.

Request

“A copy of the listing of Technology Innovation Project numbers and titles (all years available). These are sometimes referred to as TIP report numbers.”

Acknowledgement

BPA has reviewed your request and has determined that it fulfills all of the criteria of a proper request under the FOIA and DOE FOIA regulations at Title 10, Code of Federal Regulations, Part 1004.

Response

BPA's Technology Innovation Office provided the accompanying list of Technology Innovation Project (TIP) numbers, dated from the start of the program in 2005 to the present. Please note, there are gaps in the TIP numbering. Early in the program, all proposals were assigned numbers and for those proposals not selected, the corresponding TIP number was not reused. For example, TIP numbers 3 and 4 are absent from the list because, although proposals were submitted, the projects were not selected for funding. BPA is herein releasing 9 pages of responsive information, with no redactions applied.

More information about BPA's Technology Innovation Office partnerships with utilities, universities, nonprofits, and research organizations is publicly available at the following internet link: <https://www.bpa.gov/Doing%20Business/TechnologyInnovation/Pages/default.aspx>

Fees

There are no fees associated with the agency's response to your request.

Certification

Pursuant to 10 C.F.R. § 1004.7(b)(2), I am the individual responsible for the information and records release described above. Your FOIA request BPA-2019-00996-F is now closed with all available agency records and information provided.

Appeal

The adequacy of the search may be appealed within 90 calendar days from your receipt of this letter pursuant to 10 C.F.R. § 1004.8. Appeals should be addressed to:

Director, Office of Hearings and Appeals
HG-1, L'Enfant Plaza
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585-1615

The written appeal, including the envelope, must clearly indicate that a FOIA appeal is being made. You may also submit your appeal by e-mail to OHA.filings@hq.doe.gov, including the phrase "Freedom of Information Appeal" in the subject line. (The Office of Hearings and Appeals prefers to receive appeals by email.) The appeal must contain all the elements required by 10 C.F.R. § 1004.8, including a copy of the determination letter. Thereafter, judicial review will be available to you in the Federal District Court either (1) in the district where you reside, (2) where you have your principal place of business, (3) where DOE's records are situated, or (4) in the District of Columbia.

You may contact BPA's FOIA Public Liaison, Jason Taylor, at 503.230.3537, jetaylor@bpa.gov, or the address on this letter header for any further assistance and to discuss any aspect of your request. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows:

Office of Government Information Services
National Archives and Records Administration
8601 Adelphi Road-OGIS
College Park, Maryland 20740-6001
E-mail: ogis@nara.gov
Phone: 202-741-5770
Toll-free: 1-877-684-6448
Fax: 202-741-5769

Thank you again for your interest in the Bonneville Power Administration.

Sincerely,

A handwritten signature in black ink, appearing to read "Candice D. Palen". The signature is fluid and cursive, with the first name being the most prominent.

Candice D. Palen
Freedom of Information/Privacy Act Officer

Responsive agency records accompany this communication.

TIP	TITLE
1	Advanced Surge Suppression Resistor Development
2	Automated Diagnostic for Packaged HVAC
5	CEATI -- Life Cycle Management of Substation Equipment
6	CEATI Working Group: Overhead Line Design, Wind and Ice Mitigation Interest Group
10	CEATI Working Group: Transmission Line Asset Management Interest Group
11	CIGRE Transmission Tower Working Group
12	CIGRE B2.12/26, Electrical Aspects of Conductors Working Group
13	Climate Change Streamflows for the Columbia Basin
15	Design and Build Process for Seismically Isolating Substation Equipment Using Friction-Type Energy Dissipation Devices
19	EPRI Program 170 -- Dynamic Energy Management
20	EPRI TC Project -- Electrical Condition Assessment of Polymer Insulators
21	EPRI Membership -- Program 38: Increased Utilization of Transmission Corridors
22	EPRI TC Project -- Development of Inspection Tool to Identify NCIs at High Risk of Mechanical Failure during In-Service Conditions
23	EPRI Membership -- Program 35: Overhead Transmission
24	EPRI TC Project -- Seismic Studies
25	EPRI Membership -- Program 37: Substations
27	STATCOM Development of a Scalable Energy Storage System
28	EPRI TC Project -- Evaluation of Aged Insulators (porcelain, glass or NCI) on the BPA System or being considered for purchase
31	EPRI TC Project -- Hotstick Leakage Monitor -Prototype Development
32	Human Factors in Dispatcher Training and Operations
34	Improved Wind Farm Modeling in Tx System Studies
35	Interactability Demonstration Project
36	Line Tension Monitors Internal Data Reduction and Review (Continuation)
37	Load Modeling in Power System Studies
38	Low Temperature Heat Pump
41	Mini-Split Heat Pump Demonstration and Monitoring
42	National Seismic Research Center Collaborative
43	Power Tech Labs: Assessment of variable characteristics of the PNW region's wave and tidal current power resources
44	EPRI TC Project -- Non-Ceramic Insulator Electrical Assessment Tool for Energized Work
45	Operational Multi-Gigabit Ethernet Transport (OMET)
46	Operations Real-time Study Improvement
47	Operations Study Process Improvement: Next Hour
50	Power System Controls - Inter-area Oscillation Damping

51 Power System Controls - Response-Based Voltage
Stability Controls

52 Generator Performance Measures and Model Validation

53 Power Systems Engineering Research Center continuing
membership

54 Real-Time Oscillation Monitoring Expert

57 Extreme Event Risk and Vulnerability Assessment
(SERA)

59 Short Term Wind Forecast

62 R&D state estimator to real time transient stability phase
1

70 PNNL - Wind Regulation & Load Following Study

74 PNNL: Wide Area Energy Storage & Management

79 EPRI: Development and Demonstration of Advanced
Lighting Technologies for Energy Efficiency and Demand
Response Applications

89 Pacific Int'l Eng: Integrated Decision Support System for
Location, Assessment, and Optimization of In-Stream
Tidal Energy Developments

88 Development of a Monitoring and Communications
System
For Distributed Energy Resources

90 PNNL: Grid-Responsive Demand-Side Control using Grid
Friendly™ Appliance Technologies

93 Normal and Emergency Operation Visualization

94 Renewables Integration Model (RIM) Validation and
Calibration

95 PNNL: Wide Area Power System Security Region

97 Snohomish PUD: Tidal In-Stream Energy Conversion
(TISEC) Project in Puget Sound, WA - Phase IIA

106 Forecasting for Wind Energy Grid Integration

108 Improving Wind Power Forecasting for the PNW

114 Wind Integration Research, Demonstration and
Exploration

117 Development of High-Efficiency Low-Lift Vapor
Compression System

119 Low Probability Tail Event Analysis and Mitigation in BPA
Control Area

123 Self-Correcting Building HVAC Controls Technology
Development

124 Real-Time Dynamic Stability Analysis Modeling in
PowerWorld Simulator

129 Real-Time Oscillation Monitoring Expert for the BPA
System

132 Dynamic Thermal Line Rating

136 Combine EPRI TC Non-Ceramic Insulator Projects:

139 Sub-grade Corrosion Mgt of Transmission Line
Structures (EPRI TC# 14208, PID# 68814)

140 EE Emerging Technology Assessment and
Demonstration Project

141 Compression Fitting Shunt Research

145 Grid Segmentation

148 Systems Operations R&D Deployment

- 151 Investigate the Feasibility of Mitigating Dreissenid Mussel Fouling in Raw Water Systems
- 152 Prioritizing Zebra and Quagga Mussel Monitoring in Columbia River Basin
- 153 Survival and Growth Rate of Dreissenid Mussels in Columbia Basin
- 156 Seismic Projects
- 159 Powerflow Control Applications in BPA Grid
- 160 Wind Farm Voltage Control - Contracts in Prj 51
- 163 BPA Collaboration with Calif ISO RFP on Wind Generation Forecasting Service
- 164 Wind Energy "Rapid Ramp" Event Tracking System
- 169 Aging Assessment Tools to Evaluate BPA Transmission Line Grounding
- 171 Electricity Industry Center Membership
- 172 CIGRE Corporate Membership, Terry Oliver
- 173 CIGRE Individual membership for Larry Bekkedahl
- 174 CEATI: Power System Planning & Operations Working Group
- 175 Electric Energy Industrial Consortium
- 176 CEATI: Grounding and Lightning Task Force
- 182 Field Evaluation of High Performance ($U \leq 0.22$) Windows in Manufactured Housing
- 192 Simultaneous Distribution of AC and DC Power in Buildings
- 204 Model Validation
- 216 Lab & Field Testing, and Modeling of Advanced Variable Refrigerant Flow (VRF) Systems
- 220 Smart End-Use Energy Storage and Integration of Renewable Energy
- 232 An Investigation of the Interaction Between Calcim and Temperature as Limiting Factors for Quagga ussel Growth in the Columbia, Snake, and Willamette Rivers.

- 233 Field Evaluation of the Service Life of Foul-Release Coatings in Columbia River
- 237 Bidirectional Multipath Dynamic Transfer Analysis
- 238 EPRI special Project: Coordinated Early Deployment
- 239 Power Transformer Winding Resistance Demagnetizer
- 240 Short-Term FCRPS Modeling Development
- 241 Evaluation of Power Flow Controls, Demand Response and Energy Storage
- 242 Impact of Power Electronic Loads on the Grid Stability
- 243 Resilience Assessment of Bulk Power Systems
- 244 Advanced Life Extending Control of Multiple Energy Storage
- 245 Control of Power Flow Control Devices for Optimal Use Tx Capacity
- 246 BattleGuard
- 247 Image Processing Occupancy Sensor
- 248 Residential Predictive Occupancy Zoned HVAC Demonstration MountainLogic
- 249 System for Imp Monitoring and Assess of Power System Operations & Equip

250 Control Room and Advanced PMU Visualizations using PowerWorld
251 PowerWorld State Estimator
252 Integrated Daylighting and Energy Analysis Toolkit
253 Compressed Air and Thermal Energy Storage Columbia River Basalt
254 Multi-Unit Optimization of a Hydropower Powerhouse
255 EPRI PS193: Cyber Security
256 EPRI EPRI 40.019: Strategic and Flexible Transmission Planning, PID# 070598
257 Energy and Cost Optimized Technology Options to Meet Energy Needs of Northwest Food Processors
258 Development of a state-of-the-art computational framework and platform for the optimal control of multi-reservoir systems under uncertainty
259 Short-Term Hydropower Production and Marketing Optimization (HyProM)
260 A Modular and Dispatchable Battery Storage System
261 Determining and Improving the Energy Intensity of Microwave Sterilization & Pasteurization Technologies
262 Demonstration of 2nd Generation Prototype Ducted GE "Brillion" Hybrid Water Heater in the PNNL Lab Homes

263 EPRI Development of Next-Generation Heat Pump Water Heater Technology
264 Modeling Geomagnetically Induced Current for Evaluation and Mitigation
265 Computationally Efficient, Flexible, Short-Term Hydropower Optimization and Uncertainty Analysis (SHOA) for the BPA System
266 EWEB / Metropolitan Wastewater Management Commission (MWMC)
267 Heat Pump Water Heater Demand Response Application

268 Verification and Validation of Transient Stability Models and Results
269 Voltage Management: VIP Approach
270 Demand Response Demonstration Market
271 A Revolutionary Cold-Climate Heat Pump Water Heater

272 EPRI Program 170: End-Use Energy Efficiency and Demand Response
274 Development and Demonstration of Applications for BPA and FCRPS Compliance with Modeling Standards and Performance Monitoring
275 New remedial action scheme (RAS) research work to avoid cascading caused by intermittent output of renewable energy resources
276 Enhanced monitoring and investigation of the spread and potential impact of aquatic invasive mussels in the Columbia River Basin, with special reference to mitigation and placement of boat cleaning stations
277 Data Centers as Demand Response Resources
278 Transformer Bushing Performance

279 Implementation of a Full-Topology, Robust, and
Generalized State Estimator

281 Impacts Due to Dynamic Transfers

282 Transmission Power Flow Controls for Bulk Grid
Optimization

283 Impact of Power Electronic Loads on the Grid Stability
(This project is coordinated with the larger nation-wide
DOE CERTS project at Lawrence Berkeley National
Laboratory (LBNL).)

284 EPRI Flexible Operation of Hydropower Assets

285 Energy Storage Multifaceted Tool for Demand
Management

286 Energy Storage as a Demand Response Asset at
Industrial Facilities and at Critical Points on the
Transmission Network to Increase and Decrease Load
on Demand

287 Reducing Technology Evaluation Costs Through a
Technology Portal

288 Disruptive Methodology for Robust Semi-Virtual Pilot
Projects

289 Wide Area Damping Control Proof-of-Concept
Demonstration

290 Modeling High Impact Low Frequency Geomagnetic
Disturbances Using Magnetic Field Data From Solar-
Orbiting Spacecraft

291 Substation Seismic Performance

292 Advanced Heat Pump Water Heater Research

293 EPRI P102: Global Climate Policy Costs and Benefits

294 EPRI Program 182: Understanding Electric Utility
Customers

295 EPRI Supplemental: End Use Loads Phase I PID#
072202

296 EPRI Supplemental: End Use Loads Phase 2 PID#
072092

297 EPRI Supplemental: Energy Efficiency Demo II PID#
072091

298 EPRI Sustainability Interest Group

299 Synchrophasor Linear State Estimator and PMU Data
Validation and Calibration

300 BPA RAS 2020

301 Data Center Demand Response

302 Demand Response Potential of Heat Pump Water
Heaters

303 Dimensionality Reduction and Early Oscillation Detection
Using Online Synchrophasor Data

304 Predicting the Hydrologic Response of the Columbia
River System to Climate Change

305 Data Integrity and Situational Awareness Tools (DISAT)

306 A Robust and Intelligent Bad-Data Detection Technique
for PMU based Oscillation Monitoring & Control

307 Demand Response for Retail Supermarkets

- 308 Demonstration of Demand Response Solutions for RTU and Lighting Retrofits
- 309 Comprehensive Assessment of Climate Change Impact on the Hydrology of the Columbia River Basin: Characterizing and Reducing the Uncertainties from Various Sources on Streamflow Projection
- 310 New remedial action scheme (RAS) prototyping work to avoid cascading caused by intermittent output of renewable energy resources
- 311 Power Flow Control Reactor Demonstration on a BPA 115kV Line – ARPA-E/ORNL/ SPX
- 313 Power-Frequency Control
- 314 Load Research: End-Use Model Development
- 315 Develop Self-Monitoring Substation Protection and Control System
- 316 Combined Horizontal and Vertical Seismic Isolation System for Transformers
- 317 Anchorage Strength for Seismic Hardening of Transformers
- 318 Enhanced Residential Efficiency Analysis Tools for the Pacific Northwest
- 319 Multidimensional Learning on PMU Data for Event Detection, Characterization and Prediction
- 320 Modeling Mussels: Development of CE-QUAL-W2 Dreissena spp. mussel subcomponent
- 321 Real-Time Estimation of Generator Dynamic States and Damping Torque Using PMU Data
- 322 Development of a Predictive Reliability Test Method for Solid-State Luminaires, Light Engines, and Integral Lamps
- 323 Affordable Hybrid Heat Pump Clothes Dryer for the U.S. Residential Market
- 324 Faster Than Real Time State Estimation with Forecast for Multiple Contingency Analysis
- 325 Real-Time System Operating Limits (SOL) Computation and Visualization for BPA
- 326 Combined Space and WaterCO2 Heat Pump System Performance Research
- 327 NILM Accuracy Test Standard Development and Measurement Improvement
- 328 Real-Time Load Composition Estimation
- 329 DEMONSTRATION OF OUTDOOR LIGHTING FOR MAXIMIZING PERCEPTIONS OF SAFETY AND SECURITY
- 330 CO-OPTIMIZATION AND ANTICIPATIVE PLANNING METHODS FOR BULK TRANSMISSION AND RESOURCE PLANNING UNDER LONG-RUN UNCERTAINTIES
- 331 Using Distribution-Level Energy Assets to Help Optimize Regional Transmission Systems
- 332 Open Source Platform for Accelerating Synchrophasor Analysis
- 333 Strategic Energy Management of Industrial Subsystems Using Emerging Hardware and Software Platforms

335 Collaborative Defense of Transmission Cyber Attacks
336 Scaled Deployment and Demonstration of Demand
Response using Water Heaters with CEA 2045
Technology
337 Home Battery System for Cybersecure Predictive EE and
DR
338 Application of Combined Space and Water Heat Pump
Systems to Existing Homes for Efficiency and Demand
Response
339 Luminaire Level Lighting Control (LLLC) Demonstrations

340 Smart Ventilation Controls
341 Waste Water Heat Pump Design and Pilot Study
342 Framework for Quantification of Risk and Valuation of
Flexibility in the FCRPS
343 Enhancing hydropower reliability through cavitation
monitoring and noise condition assessment
344 Use of UV Radiation Technology to Prevent Settlement of
Quagga Mussel Larvae
345 Advanced Visualization for Improving State Awareness
for the BPA Power System
346 Cold Spray Deposition for Improved Service Life of New
and Repaired Hydroelectric Turbines
347 Advanced Characterization of Wind Generation Forecast
Error and Computation of Dynamic Balancing Reserves

348 Measurement-Based Voltage Stability Assessment
349 Demonstration of Applications for Baseline Power
Oscillations
350 Power Plant Dynamic Performance Monitoring Center
351 Network Model Management
352 Development and Demonstration of a Phasor-Driven Tool
for Adaptive Stability Model Calibration using GE PSLF

353 Improving Operator Situation Awareness by Phasor
Measurement Unit (PMU) Data Visualization
354 Substation Seismic Performance with Supplemental
Damping Devices
355 Evaluation of Technical Approaches to Increase Dynamic
Transfers
356 Improving Tools for Real Time study Engineers using
Node-Breaker Models
357 Techniques and Tools for System Level Validation of
Transient Stability Models using PMU Data
358 A Wearable Sensory System for Hazardous Source
Locating and Exposure Level Warning
359 Improved System Modeling for GMD and EMP
Assessments
360 EPRI: P162 High Voltage Direct Current
361 Open External Control Analytics Platform Phasor Data
362 EPRI/BPA Power Flow Control Assessment
370 Coordinated Voltage Control to Enable Dynamic
Transfers
371 Load Composition Analysis and Monitoring

372 Accelerating Real Time Studies
374 Phase 2: Integrate Self-Monitoring Features of Substation
Protection and Control System equipment by enhancing
GOOSE I/O Monitoring and Using the sampled values
protocol IEC 61850 standard
375 New Remedial Action Scheme to Avoid Cascading
Caused by Intermittent Output of RE Resources
376 Time Series Learning on PMU Data for Event Detection

377 Improving Electrical Power Cyber Defense - Rapid
Detection of Malicious Data Injections
378 Developing the Dynamic Contingency Analysis Tool
(DCAT) for Cascading Outage Analysis for Western
Interconnect using GE PSLF
379 An Efficient Approach to Developing Common WECC-
wide Node/Breaker Model
380 Active Load Monitoring and Protection for Resilience
Operation During Contingencies
381 WAMs Enhanced HVDC Control for Flexible and Stable
Grid Operations
382 Unified Remedial Action Scheme Modeling and
Simulation Tool for Grid Resiliency
383 Unmanned Aircraft System Power Equipment Inspection

384 In situ residual stress measurement for accurate fatigue
lifetime assessment
385 Enhancing hydropower reliability through cavitation
monitoring and noise condition assessment
386 Powin Energy
387 Heat Pump High Density Thermal Storage
389 Realizing high-accuracy low-cost measurement and
verification for deep cost savings
390 Eval Alt Defrost for Res Heat Pump
391 Demonstration of Occupancy-Controlled Outdoor Area
Lighting
392 Testing the Performance and Dynamic Control of Energy
Efficient Cellular Shades
393 Performance Testing of Phase Change Material in a US
Army Reserve Bldg
394 Small Scale Multi-Family CO2 Heat Pump Water Heating

395 Advanced Synchrophasor Protocol (ASP)
396 SEL Tempus Project - DOE CEDS Initiative
397 Cyber Attack Resilient HVDC System
398 Natural Resources Canada GIC
399 EPRI P34: Tx Asset Management Analytics
400 Fiber Optic Current Sensors for use on the BPA
Transmission System
403 EPRI P40 GIC
404 EPRI P162 Persistent Wi-Fi
405 Kaplan Turbine Oil Leak Elimination
406 Ambassador
407 EPRI: Flexible Operation of Hydropower Assets
408 Power Plant Validation Modelling Center

- 409 Coordinated Voltage Control to Enable Dynamic Transfers
- 410 Attack Tree
- 411 Modeling and Model Validation Tools User Group 2019-2021
- 412 Life360 - Lone Worker Locator Project